

**411 Biomedical Engineering.** (3) F; Dorson  
Review of diagnostic and prosthetic methods using engineering methodology. Introduction to transport, metabolic and autoregulatory processes in the human body. Prerequisite: approval of instructor

**413 Physiological Instrumentation.** (3) S, Guibeau  
Problems, concepts and techniques of biomedical instrumentation in static and dynamic environments  
Prerequisite: ZOL 360 or BAS 460 or equivalent Lecture and laboratory

**432 Principles of Process Design.** (3) F; Belamy  
Design philosophy theory and methods for the design of process units and plants including optimization and economic analysis Prerequisite: CHE 332.

**442 Chemical Reactor Design.** (3) F, S, Kuester  
Application of kinetics to chemical reactor design. Prerequisites: CHE 342 ECE 371.

**451 Chemical Engineering Laboratory.** (2) F  
Operation, control and design of experimental and industrial process equipment; independent research projects. Corequisite: CHE 332. Six hours laboratory

**461 Process Control.** (3) F; Sater  
Process dynamics, instrumentation and feedback applied to automatic process control. Prerequisites: ECE 335, 371 Two lectures, 3 hours laboratory

**462 Process Design.** (3) S, Belamy  
Application of economic principles to optimize equipment selection and design; development and design of process systems. Prerequisites: CHE 432, 442

**492 Chemical Engineering Projects.** (2) S; Staff  
Individual projects in chemical engineering operations and design Six hours laboratory

**496 Professional Seminar.** (0) F; S  
Professional and ethical aspects with a discussion of employment opportunities and responsibilities Lectures and field trips

**511 Digital Data Processing.** (1) NR; Dorson  
Adjunct laboratory to CHE 413 for Chemical Engineering students with sufficient background in FORTRAN BAS C, A/D conversion, and medical data processing. Corequisite: CHE 413

**513 Rheology of Fluids.** (3) NR; Dorson  
Physical and mathematical foundation of the constitutive fluid equations and their application, including biological fluids uses and limitations of experimental viscometry, development of multidimensional flow equation for a general fluid Prerequisite: ECE 371.

**515 Physiological Transport Processes.** (3) NR; Dorson  
Analysis of heat mass, momentum and electrical energy transfer in mammals, derivation of both microscopic and macroscopic models based on current research

**517 Prosthetic and Diagnostic Engineering.** (3) NR; Dorson  
Criteria for mechanical replacement or assistance of organ functions; diagnostic methods, equipment and usage; existing methodology and future requirements, including detailed designs.

**521 Chemical Processing of Nuclear Materials.** (3) S; Reiser  
The nuclear fuel cycle including production of nuclear fuels and processing of spent fuels for recycle and recovery of fissionable materials, and waste disposal  
Prerequisite: approval of instructor

**527 Polymer Science and Engineering.** (3) NR; Kuester  
Synthesis, characterization and processing of commercial high polymers.

**533 Transport Processes.** (3) F; Dorson  
Unified treatment of momentum heat and mass transfer from molecular theory and continuum points of view Continuum equations of microscopic and macroscopic systems multicomponent and multiphase systems.

**536 Convective Mass Transfer.** (3) NR; Berman  
Turbulent flow for multicomponent systems including chemical reactions with applications in separations and air pollution. Prerequisite: CHE 533 or MEE 571.

**543 Thermodynamics of Chemical Systems.** (3) F; Pierini  
Classical and statistical thermodynamics of nonideal physicochemical systems and processes; prediction of optimum operating conditions

**544 Chemical Reactor Engineering.** (3) S; Kuester  
Reaction rates, thermodynamics and transport principles applied to the design and operation of chemical reactors. Prerequisite: CHE 543.

**553 Energy-Pollution Strategies.** (3) NR; Berman  
Interaction of energy conservation, residuals management and economic policy in the chemical process industry

**556 Membrane Separation Processes.** (3) NR; Dorson  
Physicochemical phenomena governing transport in homogeneous and anisotropic membranes, convective interactions with gas and liquid streams design and application analyses Prerequisite: ECE 371.

**562 Chemical Systems Engineering.** (3) NR; Sater  
Process dynamics, systems analysis, computer applications, process control.

**563 Chemical Engineering Design.** (3) NR; Belamy  
Computational methods; the design of chemical plants and processes.

**571 Electrochemical Engineering.** (3) NR; Pierini  
Principles of electrochemical reactions applied to chemical production, electroplating, electrodeposition, and fuel cells.

**581 Optimization Techniques.** (3) S; Kuester  
Development and application of classical, search and dynamic programming methods for optimizing unconstrained, equality constrained and inequality constrained problems Prerequisite: MAT 212.  
**Special Courses:** CHE 484, 492, 498, 499, 584, 590, 591, 592, 593 594, 598, 599 792, 799.

---

## Civil Engineering

---

### PROFESSORS:

HILL (ECG 120D), BETZ, BLACKBURN, KLOCK, LUNDGREN, O'BANNON, PIAN, RUFF, TUMA

### ASSOCIATE PROFESSORS:

BORGO, DOWNS, MATTHIAS, SINGHAL

### ASSISTANT PROFESSORS:

DUFFY, HANSEN, HIGGINS

**CEE 310 Materials for Construction.** (2-3) F, S  
Structural and behavioral characteristics, engineering properties, measurements and application of construction materials Not open to engineering students. Prerequisite: CON 323 or equivalent Lecture and laboratory

**321 Structural Analysis.** (3) F, S  
Statically determinate and indeterminate structures by classical and matrix methods: trusses beams and frames Prerequisite: same as CEE 322 except ECE 351 and 371

**322 Structural Elements.** (3) F, S  
Fundamentals of behavior and design of steel concrete, and timber components Prerequisites: Completion of Engineering Core (except electrical and communication courses) with an average grade of C or better plus at least a C in MAT 120 and 121, ECE 211, 313, 371 and 380. Corequisite: CEE 321. Two lectures, 2 hours laboratory.

**323 Structural Engineering.** (3) F, S  
Structural design in accordance with the provisions of building codes and specifications. Prerequisites: CEE 321, 322 Two lectures 3 hours laboratory

**341 Surveying.** (3) F, S  
Theory and field work in construction and land surveys Prerequisite: MAT 118. Two lectures 3 hours laboratory.

**342 Surveying Calculation Techniques.** (3) F  
Office calculations including traverses adjustment of traverse curve calculations horizontal, vertical, spir-

ral coordinates and azimuth determination by solar observations

**344 Route Surveying.** (3) F, S

Simple compound and transition curves, reconnaissance preliminary and location surveys. Calculation of earthwork. Solar observations for azimuth. Prerequisite: CEE 341. Two lectures, 3 hours laboratory

**345 Surveying of Public Lands.** (3) S

History and methods of surveying public lands of the United States. Problems in resurveys of public lands.

**351 Soil Mechanics.** (4) F, S

Index properties and engineering characteristics of soils. Compression, shear, compressibility, and permeability. Prerequisite: Same as CEE 322. Three lectures, 3 hours laboratory

**361 Environmental Engineering.** (3) F, S

Natural environment, water resources, hydrologic cycle, chemistry of natural waters, quality requirements and water treatment, water distribution systems. Prerequisite: Same as CEE 322. Corequisite: CEE 381.

**362 Environmental Engineering.** (3) F, S

Natural environment, the carbon cycle and biochemistry of wastes, principles of waste treatment, drainage systems. Prerequisite: Same as CEE 322. Corequisite: CEE 381

**371 Urban Problems.** (3) F

Problems of the modern urban environment. Concepts of comprehensive planning. History of urban development, transportation, public service, zoning, land division, urban renewal, neighborhood planning. See PUP 371, page 228.

**372 Transportation Engineering.** (3) F, S

Elementary forms of transportation: highway, rail, water, air. Similarities and differences in construction operation, planning and administration. Prerequisite: Same as CEE 322.

**380 Hydraulics and Hydrology.** (3) F, S

Water supply and distribution, precipitation and runoff, wells. Flow in pressure conduits and open channels. Hydraulic machinery. Not open to engineering students. Prerequisite: CON 221. Two lectures, 2 hours laboratory

**381 Hydraulic Engineering.** (4) F, S

Application of fluid mechanics to water engineering. Pressure conduit and free surface flow, unsteady flow and turbo-machinery. Introduction to hydrology. Prerequisite: Same as CEE 322. Three lectures, 3 hours laboratory

**423 Structural Design.** (3) F, S; Pian, Lundgren

Analysis and design of structural systems. Prerequisite: CEE 323. Two lectures, 3 hours laboratory.

**450 Soil Mechanics in Construction.** (3-4) F, S

Soil mechanics as applied to the construction of field foundations, highways, retaining walls and slope stability. Relationship between soil characteristics and geologic formations. Not open to engineering students. Prerequisite: CON 323. Lecture and laboratory.

**452 Foundations.** (3) F, S, Duffy

Applications of soil mechanics to slope stability, highways, earth dams, foundations and stress distribution in soil media. Prerequisite: CEE 351.

**461 Environment and Society.** (3) F

Physical, chemical and biological components of the natural environment. Impact of man, origins and types of pollution. Environmental factors affecting society. Open to juniors, seniors and graduate students

**466 Sanitary Systems Design.** (3) F, Klock

Capacity planning and design of water supply, domestic and storm drainage, and solid waste systems. Prerequisite: CEE 361 or 362.

**471 Planning and Design of Urban Systems.** (3) F

Matthias, Blackburn

For students in city planning, urban systems, civil engineering and related areas working as interdisciplinary planning and design teams. Effect of economic base, employment and population on urban and use requirements. Location and required capacity of urban systems to serve urban and uses. Prerequisite: senior standing. Two lectures, 3 hours laboratory

**475 Highway Geometric Design.** (3) S, Matthias, Blackburn

Design of the various elements of the roadway. Fundamental design controls with application to rural roads, at-grade intersections, freeways and interchanges. Prerequisite: CEE 372. Two lectures, 2 hours laboratory

**481 Water Resources Engineering.** (3) S, Ruff, Downs

Formulation of hydraulic engineering systems concepts pertaining to irrigation, hydroelectric power, flood control, municipal and industrial water supply, navigation, recreation, fish and wildlife conservation. Prerequisite: CEE 381.

**496 Topics in Civil Engineering Practice.** (1-4) F, S

Technical, economic, political, legal and social aspects of civil engineering practice as related to the formulation, planning, design and management of engineering projects

**521 Stress Analysis.** (3) F, Hill, Singha

Advanced topics in the analytical determination of stress and strain

**524 Steel Structures.** (3) F, Pian

Strength properties of steel and their effects on structural behavior. Elastic design of steel structures. Plastic analysis and design of beams, frames and bents. Plastic

deflections. Plastic design requirements. Multi-story buildings.

**526 Finite Element Methods in Civil Engineering.** (1-3) S; Hill, Lundgren, Singha

Finite element formulation for solutions of structural, geotechnical and hydraulic problems. Prerequisite: CEE 532.

**527 Concrete Structures.** (3) S, Pian, Lundgren

Elastic, ultimate strength and yield line theory. Deflection, torsion, shrinkage and plastic flow. Prestressed concrete special systems.

**528 Stability of Structures.** (3) S, Lundgren

Elastic and inelastic buckling of rolled and cold formed columns and beams. Stability of plates, rigid frames and trusses

**529 Complex Structures.** (1-3) S, Tuma

Classical and numerical investigations of linear and non-linear structures composed of flat and curved surfaces and linear or curvilinear elements.

**531 Theory of Structures.** (3) F, Tuma, Pian, Lundgren

General theorems relating to elastic systems: deflection of trusses and beams, statically indeterminate trusses, beams, rings, arches and frames by consistent deformation; east work and elastic center, horizontally curved members in bending and torsion

**532 Matrix Methods in Structural Analysis.** (3) F;

Lundgren, Singha

Matrix methods applied to structural engineering and structural mechanics. Stiffness and flexibility methods. Introduction to finite elements, differences. Corequisite: Computer programming

**536 Dynamics of Structures.** (3) S, Hill, Lundgren

Singha

Structures and structural members subjected to dynamic loadings: response spectra theory emphasizing earthquake applications, investigations of the response of multi-degree of freedom structures: matrix methods of analysis.

**537 Topics in Structural Engineering.** (1-3) F, S

Lundgren, Pian, Singha, Tuma

Advanced topics including wind engineering, earthquake engineering, probabilistic concepts, optimization and behavior of structural systems

**552 Geological Engineering.** (3) S, Duffy, O'Bannon, Hansen

Geological investigations for engineering purposes: case histories, major aspects of geologic structure, weathering, river mechanics, glacial deposits, erosion, deposits, airphoto interpretation for engineering site locations

**553 Theoretical Soil Mechanics.** (3) F; Duffy, O'Bannon

Hansen

Engineering properties of soils, application of theory of elasticity to soil media, failure theories, theories of consolidation and shear strength of granular materials. Prerequisite: CEE 351. Two lectures, 3 hours laboratory.

**554 Theoretical Soil Mechanics.** (3) S; Duffy, O'Bannon, Hansen

Shear strength of cohesive materials, clay mineralogy and soil structure, theories of bearing capacity, slope stability, soil dynamics. Prerequisite: CEE 351. Two lectures, 3 hours laboratory.

**555 Applied Soil Mechanics.** (3) S; Duffy, O'Bannon, Hansen

Application of theoretical soil mechanics to engineering problems. Subsoil investigations, sampling techniques, field measurements, underpinning, dewatering systems, chemical and mechanical stabilization techniques. Prerequisite: CEE 553.

**556 Seepage and Earth Dams.** (3) F; O'Bannon, Duffy, Hansen

Transient and steady state flow of water through soil media, confined and unconfined flow, pore water pressures, and application of theories to the design of earth dams. Prerequisite: CEE 351.

**557 Topics in Soil Mechanics and Foundations.** (1-4) F, S; Hansen, Duffy, O'Bannon

Topics include foundations, retaining walls, excavations, bulkheads, cofferdams, rock mechanics, numerical techniques and earthquake engineering.

**561 Physical-Chemical Treatment of Water and Waste.** (3-4) F; Klock

Theory and design of physical and chemical processes for the treatment of water and waste waters. Prerequisite: CEE 361 or equivalent.

**562 Environmental Biochemistry and Waste Treatment.** (3-4) S; Klock

Theory and design of biological waste treatment systems. Pollution and environmental assimilation of wastes. Prerequisite: CEE 362 or equivalent.

**563 Environmental Chemistry Laboratory.** (3) S; Klock  
Analysis of water, domestic and industrial wastes, laboratory procedures for pollution evaluation and the control of water and waste treatment processes. Prerequisite: CEE 361 or 362. One lecture, 5 hours laboratory.

**564 Industrial Hygiene.** (2-4) F

Survey methods, legal and physiological aspects of occupational health hazards. Methods of measurement and analysis and physiological actions of such contaminants as toxic gases, mineral dusts, metals and their compounds, and industrial solvents.

**566 Sanitary Engineering Processes Laboratory.** (3) F; Klock

Study of unit processes involved in water and waste treatment. One lecture, 6 hours laboratory.

**567 Atmospheric Pollution.** (1-3) S

Atmospheric composition and dynamics, origins and chemistry of contamination, biological significance, analytical measurement, engineering control methods and air pollution legislation.

**568 Epidemiology and Public Health Engineering.** (1-3) S

Biology and transmission of diseases, epidemics, sanitation and public health administration.

**572 Design of Highway and Airport Pavements.** (3) S; Blackburn, Matthias

Design practices, materials, and testing of flexible and rigid pavements. Prerequisites: CEE 351, 372.

**573 Engineering Interpretation of Land Forms.** (3) S; Matthias, Blackburn

North America by geographic regions and the engineering problems and characteristics of each area.

**574 Traffic Engineering.** (3) F; Matthias, Blackburn

Operator and vehicle characteristics, street capacity, signals, signs and markings, etc. All phases of traffic engineering as applied to urban areas.

**576 Airport Engineering.** (3) F; Matthias, Blackburn

Planning and design of airport facilities, financing, air traffic control, aircraft characteristics, demand, site selection, runway configuration and terminal areas. Prerequisite: CEE 372.

**577 Urban Transportation Planning.** (3) S '80; Betz, Blackburn

Application of land use parameters traffic generation theory, traffic distribution and assignment models, transit analysis and economic factors to the solution of the urban transportation problem.

**578 Highway Engineering, Planning and Economics.** (3) S '81; Betz, Blackburn

Highway transportation including design, operation, planning, environmental impact, economic feasibility and financing. Highways as a regional system.

**579, 581 Hydrology.** (2-3) F, S; Downs, Ruff

Theory and the application of hydrologic principles to the solution of typical water resources systems planning and engineering design problems. Prerequisite: CEE 381.

**582 Open Channel Flow.** (2) S; Ruff, Downs

Introduction to hydrodynamics of open channel flow. Emphasis on applications. Prerequisite: CEE 381.

**583 Water Resources Systems Planning.** (3) F; Downs, Ruff

Introduction to the theory of quantitative planning methodologies for large scale systems. Case studies.

**586 Water Resources Systems.** (2) F; Ruff, Downs

Application of quantitative planning methodologies to the engineering aspects of water resource systems. Case studies. Corequisite: CEE 583.

**587 Water Resources Systems.** (2-3) F; Downs, Ruff

Application of quantitative planning methodologies to the social, legal, political and economic aspects of water resources systems. Case studies. Corequisite: CEE 583.

**589 Water Resources Systems Management.** (3) S; Downs, Ruff

Systematic approach to the management of water resources systems. Synthesis of the technical and non-technical system components. Case studies of large scale developments. Prerequisites: CEE 583, 586 and 587.

**Special Courses:** CEE 484, 494, 498, 499, 580, 584, 590, 591, 592, 594, 598, 599, 792, 799. (See pages 30-31.)

Students enrolled in CEE 580, 584, 590, 592, 599, 792 and 799 are required to attend graduate student seminars at time shown in class schedule. Each semester, every graduate student enrolled for more than 6 credit hours is to enroll for at least 1 credit hour of CEE 592, 599, 792 or 799. Each civil engineering graduate student holding an appointment as a Teaching or Research Assistant or Associate is to enroll for 1 credit hour of CEE 580; such credit does not apply toward graduation.



---

## Electrical and Computer Engineering

---

### PROFESSORS:

P E RUSSELL (EC A-209), BLACKLEDGE, CLARK, DEMASSA, DONNELLY, GELOPULOS, HADEN, HIGGINS, JELSMAN, KAUFMAN, KELLY, PALAIS, PATTERSON, SIRKIS, T.B. THOMPSON T O E WELCH, WOODFILL

### ASSOCIATE PROFESSORS:

O'GRADY, ROBBINS, SNIDER STEINMANN, WHITE, ZIMMER

### ASSISTANT PROFESSOR:

PHEAN S

#### EEE 273 Electrical Construction Fundamentals. (4) F S

Circuits and machinery. Power transmission and distribution, with emphasis on secondary distribution systems. Measurements and instrumentation. (Not for degree credit for EEE majors.) Prerequisites: PHY 112 114 MAT 120 or 261. Three lectures, 3 hours laboratory.

#### 301 Electrical Networks. (3) F, S, SS

Analysis of linear networks and electronic circuit models. Corequisite: ECE 335

#### 303 Signals and Filters. (3) F, S, SS

Filtering and spectral analysis in continuous and discrete systems. Prerequisite: EEE 301.

#### 320 Digital Computer Fundamentals. (4) F, S, SS

Introduction to digital computers and microprocessors. Prerequisite: junior standing and ECE 122. Three lectures, 3 hours laboratory.

#### 332 Introduction to Integrated Circuits. (4) F, S, SS

Internal analysis, external characteristics and basic applications of analog and digital integrated circuits. Three lectures 3 hours laboratory.

#### 340 Electromagnetic Engineering I. (3) F, S, SS

Static and time varying vector fields. Dielectric and magnetic materials. Maxwell's equations. Uniform plane waves. Energy Radiation. Prerequisites: ECE 202 MAT 362

#### 402 Network Analysis. (3) S Patterson, Thompson

Advanced topics in linear network analysis. Multiports scattering parameters and topological methods. Prerequisite: EEE 303 or equivalent.

**405 Filter Design.** (3) F, Patterson, Thompson  
Principles of filter synthesis. Time and frequency domain approximation. Prerequisite: EEE 303 or equivalent

#### 406 Computer-Aided Network Design. (3) S; Zimmer, Snider, Patterson

Computer methods in AC, DC and transient analysis of linear and nonlinear networks. Active device modeling. Theory and use of selected general purpose programs such as SPICE, ECAP, CIRCUUS and SCEPTRE. Prerequisite: EEE 303 or equivalent

#### 420 Microcomputer Fundamentals. (3) F, S Phean S, Woodford O'Grady, Snider, Blackedge, Higgins

Hardware, programming, and software of one microcomputer system are used as a vehicle to teach fundamentals of digital systems design. Prerequisite: EEE 320. 2.5 hours lecture, 1.5 hours laboratory.

#### 425 Digital Systems Circuits. (3) S, O'Grady Snider Steinmann

Saturating and non saturating logic families. TTL, ECL, LIL, NMOS, PMOS, CMOS. Selected LSI components including memories and bit slices. Prerequisites: EEE 301, 320. Corequisite: EEE 426 or equivalent

#### 426 Digital Circuits Laboratory. (1) S; O'Grady, Snider, Steinmann

Experiments dealing with the characteristics of various logic families and incorporation of digital components into circuits for digital systems applications. Corequisite: EEE 425.

#### 427 Digital Switching Theory. (3) F, S Steinmann

Robbins Snider  
Minimization of Boolean functions for combinatorial single and multiple output switching circuits. Symmetrical functions, threshold functions, memory elements, and completely specified sequential machines. Prerequisite: EEE 320.

#### 428 Analog and Hybrid Computers. (3) F Higgins

Design and application of hybrid analog digital computer systems and components. Prerequisites: EEE 320, 332. 2.5 hours lecture, 1.5 hours laboratory.

#### 431 Solid State Devices. (3) F, Zimmer

Network models and model parameters for bipolar and field-effect devices with emphasis on transistor and charge control concepts. Optimization of model parameters for computer simulation; system application. Prerequisites: EEE 332, ECE 352.

#### 432 Solid State Circuits. (4) F Zimmer

Bipolar and field-effect transistor models for large-scale CAD programs, macromodeling. Basic monolithic integrated circuit techniques; simulation of digital and analog system performance. Prerequisite: EEE 332. Three hours lecture, 3 hours laboratory.

#### 433 Analog Circuit Design. (4) F, S Blackedge

Design of electronic circuits including amplifiers, mixers, waveform generators and active filters. Prerequisite: EEE 332 or equivalent. Three lectures, 3 hours laboratory.

#### 434 Quantum Mechanics for Engineers. (3) F; Kaufman, Sirkis

Probability, Schrodinger equation, eigenfunctions, harmonic oscillator, periodic potential, superposition, angular momentum, scattering, tunneling, perturbation theory. Prerequisite: EEE 340

#### 435 Microelectronics. (3) S, DeMassa

Practice of solid state device fabrication techniques including thin film and integrated circuit fabrication principles. Prerequisite: ECE 352 or equivalent. Two lectures 3 hours laboratory

#### 436 Fundamentals of Solid State Devices. (3) SS DeMassa

Introductory treatment of PN diodes, Schottky diodes and transistors providing a basic understanding of device behavior. Prerequisite: ECE 352

#### 438 Solar Cells. (3) S; Sirkis

Photovoltaic devices including homojunctions and heterojunctions. Photogeneration of carriers, spectral response, electrical characteristics, efficiency. Prerequisite: ECE 352.

**439 Measurement Systems Engineering.** (3) F; Staff  
System design concepts applied to static and dynamic measurements. Carrying process shaping and converting energy and information. Prerequisites: ECE 312 335. Lectures, demonstrations, laboratory and recitation.

#### 440 Electromagnetic Engineering II. (4) F, S; Donnelly

Guided waves. Systems lines and components. Prerequisites: ECE 122, EEE 340. Three lectures 3 hours laboratory

#### 441 Advanced Engineering Electromagnetics. (3) F;

Kaufman, Sirkis, Jelsma  
Static and time varying fields. Polarization. Magnetization. High frequency impedance. Propagation and reflection of plane waves. Guided waves. Slow waves. Anisotropic media. Resonators. Coupling. Radiation. Prerequisite: EEE 340.

#### 443 Antennas. (3) S; Tce

Engineering principles, arrays, measurements, numerical computation. Prerequisites: EEE 340, 440.

**445 Microwaves.** (4) F Donnelly, Kaufman, Sirkis  
Components, systems and measurements. Prerequisites: EEE 340 440. Three lectures 3 hours laboratory

**448 Coherent Optics.** (3) F Paas  
Analysis and design of systems using lasers. Prerequisite: EEE 340

**451 Error-Correcting Codes.** (3) S, Ste nmann  
App lication of modern algebra to the analysis and synthesis of random error-detecting and error correcting block codes. Prerequisite: EEE 320

**455 Communication Systems I.** (4) F, S, Kelly  
Signal analysis Linear exponential and pulse modulation. Comparative analysis of circuits and systems Prerequisites: EEE 303, 332. Three lectures 3 hours laboratory

**456 Communication Systems II.** (3) S, Kelly  
Continuation of EEE 455 Prerequisite: EEE 455

**465 Clinical Engineering I.** (3) F, Thompson  
Responsibilities of the clinician engineer Design of patient safety programs Application codes and regulations administered by FDA, HEW, OSHA and other agencies Prerequisite: ECE 335, CHE 364 or EEE 332, ECE 122.

**466 Clinical Engineering II.** (3) S, Thompson  
Continuation of EEE 465 Safety research, and regulatory procedures with patient involvement. Prerequisite: EEE 465.

**467 Selected Topics in Biomedical Engineering.** (3) F, Staff  
Lectures on biomedical topics of current interest to the engineering and medical communities May be repeated for credit Prerequisite: senior or standing

**470 Power Networks.** (3) S, Donnelly, Geopulos, Thompson  
Steady state solution of networks with a terminating current sources Matrix formulation of large power network problems Prerequisite: EEE 301

**471 Electrical Transmission Systems.** (3) F, Geopulos  
Formulation of transmission line equations Introduction to system planning Prerequisite: EEE 301

**472 Power System Faults.** (3) S, Geopulos  
Symmetrical components unbalanced faults in electrical power systems. Classification power systems stability criteria Prerequisite: EEE 471.

**473 Electrical Machinery.** (3) F, Geopulos, Thompson, Russe!  
Fundamentals of transformers and rotating machinery. commutator induction, and synchronous machines Prerequisite: ECE 335

**474 Energy Conversion Laboratory.** (1) F, Geopulos, Thompson, Russe!  
Laboratory experiments with transformers commutator machines induction motors and synchronous machines Corequisite: EEE 473 or equivalent Three hours laboratory.

**475 Power Systems Control.** (3) S, Geopulos  
Design modeling and simulation of systems which control the voltage and/or power flow on interconnected electrical systems Corequisite: EEE 480

**480 Feedback Systems.** (4) F, S, SS, Russe!, White  
Analysis and design of linear feedback systems Frequency response and root locus techniques series compensation and state variable feedback Prerequisites: EEE 303, 332 Three lectures 3 hours laboratory

**482 Digital Simulation of Continuous Systems.** (3) S, Higgins  
System representation continuous system simulation languages, operational and numerical methods Corequisite: EEE 480

**483 Digital Controls Hardware.** (4) F, S, Blackledge  
Hardware and software design of digital controllers Includes elementary controllers microprocessors analog-to-digital and digital-to-analog converters assembly kits and programming. Prerequisite: EEE 320 Three hours lecture 3 hours laboratory

**496 Professional Seminar.** (0) F, S, Robbins  
Topics of interest to graduating electrical engineers. Prerequisite: senior or standing One hour lecture.

**501 Passive Filter Synthesis.** (3) S, Patterson, Thompson, Snider  
Advanced topics in the synthesis of passive filters and frequency and time domain approximation including both analytical and numerical methods Prerequisite: EEE 405.

**503 Active Networks.** (3) S, Patterson, Zimmerman  
Theory of networks containing general active elements Numerical methods in design Prerequisite: EEE 402 or equivalent

**504 Active Filter Synthesis.** (3) S, Patterson  
Synthesis of active and passive RC networks Theory of switching networks Applications of low frequency filter design Prerequisite: EEE 402 or equivalent.

**505 Digital Processing of Signals.** (3) F, Ste nmann, Smider  
Frequency domain description of digital filtering Discrete spectrum analysis by z transform and discrete Fourier transform with quantization effects Prerequisite: EEE 303 or equivalent.

**514 Fundamental Computer Algorithms.** (3) F, Phean S  
Assembly language treatment of subroutines recursion, and interpretive routines such as trace routines and simulators Multiplex buffering of input and output, and basic linked-list concepts. Analysis and timing of algorithms Prerequisite: ASE 423 or EEE 420 or equivalent experience Lecture and laboratory.

**515 Computer Information Structures.** (3) S, Phean S  
Assembly language handling of linear lists and trees. Stacks queues dequeues, sequential allocation, linked allocation circular lists, doubly linked lists, arrays, dynamic storage allocation, binary trees Analysis and

timing of algorithms for processing data structures Prerequisite: EEE 514 Lecture and laboratory

**516 System Programming Methods.** (3) S, Clark  
Macro programming, hierarchical data-structures, memory vs. computing resource trade off analysis and programming implementation languages such as APL Prerequisite: ASE 422 Lecture and laboratory

**517 Design of Automatic Programming Systems.** (3) F, Clark  
Methods and techniques of designing compilers for languages such as FORTRAN and ALGOL Prerequisite: EEE 516; and ASE 423 or equivalent Lecture and laboratory.

**518 Compiler Compilers.** (3) S, Clark  
Theoretical basis of compiler generators with specific examples Topics include generalizing translators, self-compiling, and bootstrap compiling of one-dimensional computer languages. Prerequisite: EEE 516 Lecture and laboratory

**519 Artificial Intelligence.** (3) F, Clark  
Progress, problems and prospects of automating cognitive and heuristic reasoning processes. Programming in LISP Prerequisite: EEE 516 Lecture and laboratory

**520 Digital System Design.** (3) F, S, Woodfield, Phean S  
Programming logic design and hardware of one micro-computer system are used as a vehicle to teach digital systems design in depth. Prerequisite: EEE 420, 2, 5 hours lecture 1.5 hours laboratory.

**521 Digital Systems Hardware.** (3) F, Woodfield  
The memory input output and interrupt components of the digital system studied in EEE 520 are scrutinized and the relationship to the system software is investigated A ternate system design schemes are examined Prerequisite: EEE 520.

**522 System Design Using Microprocessors.** (3) S, Woodfield  
Microprocessor technology and its application to the design of practical digital systems. Hardware, programming, and interface of microprocessor oriented systems. Prerequisite: EEE 520. Lecture and laboratory

**523 Microprogramming.** (3) F, Woodfield  
Theory practice, and application of microprogramming and available microprogrammed computer systems Prerequisite: EEE 520

**524 Digital Systems Software.** (3) S, Woodfield  
Design of digital system software including relocatable loaders assembly, on-line utility systems, and multiprogramming operating systems A continuation of EEE 520 Prerequisite: EEE 520

**525 Digital Circuit Design.** (3) F, Ste nmann, O Grady  
Voltage and current time base generators, multivibrators, negative resistance circuits active and magnetic

memory elements. Prerequisite: EEE 425.

**526 Computer Sorting Algorithms.** (3) F, Pheanis  
Algorithms for sorting data within a computer including comparison count, distribution count, insertion sort, insertion, diminishing increment, Shell bubble, selection radix sort, heap and quick sorts. Assembly language computer programs will be written and run to implement various sorting algorithms. Corequisite: EEE 514

**527 Advanced Switching Theory.** (3) S Steinmann Robbins  
Application of matrices, partially ordered sets, lattices, equivalence and compatibility relations to logic design of complete and incomplete specified sequential machines. Prerequisite: EEE 427

**528 Automata.** (3) F Steinmann, Robbins  
Theory of finite state machines and their connection with (mathematical) linguistic models. Prerequisite: EEE 527.

**529 Digital Systems Seminar.** (3) S Staff  
Selected topics in theory, design, or application. May be repeated for credit.

**531 Semiconductor Device Theory I.** (3) F DeMassa Jelsma  
Junction diodes, junction and field effect transistors, nonhomogeneous impurity profiles, high injection effects, basic fabrication techniques, surface effects, analysis of MOS field effect transistors. Prerequisite: EEE 436 or equivalent

**532 Semiconductor Device Theory II.** (3) S DeMassa, Jelsma  
Semiconductor device phenomena including tunneling, light emission and absorption, negative resistance effects, meta-semiconductor, meta-insulator and multiple junctions. Prerequisite: EEE 531

**533 Integrated Circuit Design.** (3) F, Staff  
Integrated circuit fabrication, device modeling, active and passive parasitics. Comparison of integrated and discrete circuits. Characterization and design of integrated logic and signal processing circuits. Prerequisite: EEE 431 or equivalent

**541 Advanced Electromagnetic Fields.** (3) S Jelsma  
Analytical techniques applied to electromagnetic field problems. Prerequisite: EEE 340, 440 or equivalent

**543 Antennas.** (3) F Tice  
Analysis and synthesis of selected radiating structures and systems. Prerequisite: EEE 443 or equivalent

**547 Microwave Solid State Electronics.** (3) S Kaufman, Srkis  
Use of ferrite semiconductor and piezoelectric materials in microwave systems. Prerequisites: ECE 352 and EEE 445 or equivalent.

**548 Optical Electronics.** (3) S Pala s  
Laser communication devices and systems. Prerequisite: EEE 448

**549 Laser Engineering.** (3) S Parris Jelsma  
Theory and design of lasers. Prerequisite: EEE 448

**550 Transform Theory and Applications.** (3) F S Russe White  
Applications of complex variables to Fourier, Laplace, and z transforms. Oriented to applications in control, network communication and near system theory. Prerequisite: EEE 303.

**551 Error-Correcting Codes.** (3) F, Steinmann  
Burst error-correcting codes, convolution codes, comma free codes, arithmetic codes, and error control probability. Prerequisite: EEE 451

**552 Coherent Communications.** (3) F Kelly  
Systems analysis and design of telecommunication systems using phase-locked loops. Prerequisite: EEE 555

**553 Pattern Recognition Principles.** (3) S Kelly  
Basic principles and techniques for the analysis and design of pattern processing and recognition systems. Prerequisite: EEE 554

**554 Random Signal Theory.** (3) F S Staff  
Application of statistical techniques to the representation and analysis of electrical signals and to communication systems analysis. Prerequisite: EEE 303

**555 Electrical Communications.** (3) S, Staff  
Processing of signals in the presence of noise. Random signals, correlation, frequency spectra, estimation, filtering, noise prediction, transients. Prerequisite: EEE 554

**556 Detection and Estimation Theory.** (3) F Staff  
Combination of the classical techniques of statistical inference and the random process characterization of communication, radar and other modern data processing systems. Prerequisite: EEE 455, 550, 555.

**557 Information Theory.** (3) S, Staff  
Definitions of information sources and channels, fundamental theorems of information theory and the relationship: simple error-detecting and error-correcting codes. Prerequisite: EEE 554

**558 Modulation Theory.** (3) F Staff  
Linear and nonlinear modulation, optimum processors including the development of performance bounds. Prerequisite: EEE 455, 555

**556 Advanced Medical Instrumentation.** (3) S Staff  
Design and analysis of sophisticated components and systems for laboratory analysis, research, medical care and monitoring. Prerequisites: BSEE or equivalent.

**580 Digital Control Systems.** (3) F, Higgins

Analysis and design of digital and sampled data control systems including sampling theory, z transforms, the state transition method, stability, design and synthesis. Prerequisites: EEE 550, 582

**581 Random Processes in Control Systems.** (3) S Higgins  
Statistical filtering, estimation and control with emphasis on the Kalman filter and its applications and computational problems. Prerequisite: EEE 550, 554, 582

**582 Linear System Theory.** (3) F S White  
State variables, controllability and observability, state feedback and observers, multivariable systems. Prerequisite: EEE 480

**586 Nonlinear Control Systems.** (3) S Higgins  
Stability theory including phase plane description, Pontryagin's method and frequency domain criteria for continuous and discrete nonlinear and time varying systems. Prerequisite: EEE 582

**587 Optimal Control Systems.** (3) F Higgins  
Application of calculus of variations, Pontryagin's principle, and dynamic programming to control problems. Computational techniques for solving optimal control problems. Prerequisite: EEE 582.

**Special Courses:** EEE 484, 498, 499, 590, 591, 592, 594, 599, 792, 799. See pages 30-31

---

## Engineering Core

---

**ECE 102 Introduction to Engineering.** (2) F S  
Role of the engineer, elementary engineering problems, current trends in engineering, methods of engineering design, and design project. Lecture, recitation and laboratory

**104 Engineering Graphics and Design.** (2) F S  
Graphics as a fundamental means of communication in engineering analysis and design. Sketching, spatial visualization, descriptive geometry and modern engineering drawing practices for design application. Six hours lecture, laboratory

**118 Chemical Foundations of Engineering.** (4) F S  
Atomic and molecular structure, states of matter and the energies, chemical equilibria and reaction rates, organic compounds and industrial processes. Prerequisite: superior performance in one year of high school physics and chemistry. Lecture, demonstrations and recitation

**122 Computer Programming.** (2) F S, SS  
Definition, formulation and flow charting leading to the solution of complex problems by digital computer, using

FORTRAN Computer software is required for projects  
Corequisite: MAT 120 or prerequisite: MAT 142 or 260

**201 Mechanics.** (3) F, S, SS

Basic concepts of mechanics with applications to engineering. Prerequisite: MAT 120. Lecture, recitation and laboratory.

**202 Electricity and Magnetism.** (4) F, S, SS

Basic concepts of electricity and magnetism with applications to engineering. Prerequisite: ECE 201, corequisite: MAT 121. Lecture, recitation and laboratory.

**203 Sound and Optics.** (2) F, S, SS

Basic concepts of wave phenomena with applications to engineering. Prerequisite: ECE 202

**211 Engineering Mechanics I.** (2) F, S, SS

Force systems, resultants, equilibrium, distributed forces, friction. First and second moments of areas. Prerequisite: ECE 201, corequisite: ECE 380 or MAT 212. Lecture and recitation.

**217 Particle Mechanics.** (2) F

The mechanics of a particle and systems of particles. Static and dynamic analysis. Momentum and energy methods. Prerequisite: ECE 201, corequisite: ECE 380 or MAT 212.

**305 System Dynamics and Networks.** (4) F, S, SS

Unified treatment of electrical, mechanical, fluid, and thermodynamic systems. The idealized models, response, and analytical description. Prerequisites: ECE 122, 202, ECE 380 or MAT 212. Lecture and recitation.

**312 Engineering Mechanics II.** (3) F, S, SS

Kinematics and kinetics of particles, translation and rotating coordinate systems. Rigid body kinematics. Dynamics of systems of particles and rigid bodies. Energy and momentum methods. Prerequisites: ECE 211; ECE 380 or MAT 212. Lecture and recitation.

**313 Mechanics of Materials.** (3) F, S, SS

Stress and strain, Hooke's law, strength and deflection of axial force members, shafts, torsion and beams, flexure; combined stress; stability of columns. Prerequisites: ECE 211 or 217; ECE 380 or MAT 212. Lecture and recitation.

**318 Rigid Body Mechanics.** (3) S

The mechanics of a rigid body and systems of rigid bodies. Static and dynamic analysis. Momentum and energy methods. Prerequisites: ECE 217, ECE 380 or MAT 212.

**335 Electrical Science.** (4) F, S, SS

Introduction to significant areas of application of electrical science including energy conversion, electro-mechanics, electronic devices and circuits. Prerequisite: ECE 305. Lecture, recitation and laboratory.

**340 Thermodynamics.** (3) F, S, SS

Work, heat and energy transformations. Relation of properties. Laws, concepts and modes of analysis common to applications of thermodynamics in engineering. Lecture-recitation. Corequisite: ECE 312 or 318.

**350 Structure and Properties of Materials.** (3) F, S, SS

Basic concepts of material structure and its relation to properties. Application to engineering problems. Corequisite: ECE 340. Lecture and recitation.

**351 Engineering Materials.** (3) F, S

Structure and behavior of civil engineering materials. Laboratory investigations and test criteria. Prerequisite: ECE 313. Two lectures, 3 hours laboratory.

**352 Semiconductors and Devices.** (3) F, S, SS

Semiconductors, drift, diffusion, generation, recombination, junctions, diodes, switching, transistors, Ebers-Moll equations. Prerequisites: ECE 335, ECE 380 or MAT 212.

**371 Transport Phenomena.** (4) F, S, SS

Heat, mass, and momentum transfer. Prerequisite: ECE 340 or CHE 311 with corequisite: CHM 441. Lecture and recitation.

**380 Ordinary Differential Equations for Engineers.** (3) F, S, SS

First order equations, second and higher order, linear equations, series solutions, Laplace transforms, numerical solutions, boundary value problems. Prerequisites: ECE 122, MAT 121. Lecture and recitation.

**382 Linear Algebra for Engineers.** (2) F, S, SS

Matrices and systems of linear equations, determinants, vector spaces, and eigenvalue problems. Prerequisite: MAT 121.

**383 Probability and Statistics for Engineers.** (2) F, S, SS

Topics include discrete and continuous distributions, random variables, sampling and descriptive statistics as well as tests of hypotheses and estimates. Prerequisite: MAT 121.

**384 Numerical Analysis for Engineers.** (2) F, S

Numerical solution of algebraic and transcendental equations and systems of linear equations. Numerical integration. Curve fitting. Error bounds and error propagation. Emphasis on use of digital computer. Prerequisites: ECE 122, MAT 121.

**385 Vector Analysis for Engineers.** (2) F

Algebra of vectors, functions of vectors, Jacobians and implicit function theorem, line and surface integrals, Green's, Stokes' and divergence theorems. Prerequisite: MAT 121.

**386 Partial Differential Equations for Engineers.** (2) F, S

Boundary value problems, separation of variables,

Fourier series as applied to a boundary value problem. Prerequisite: ECE 380 or MAT 212.

**387 Complex Variables for Engineers.** (2) S

Complex numbers, analytic functions, elementary functions, integrals, power series, residues and poles. Prerequisite: MAT 121.

**400 Engineering Communications.** (3) F, S, SS

Composition for technical papers, reports, and scientific articles suitable for publication. Oral and written presentation. Prerequisite: upper division standing.

---

## Industrial and Management Systems Engineering

---

**PROFESSORS:**

BEDWORTH (ECG 136C), DECKER, SMITH,  
YOUNG

**ASSOCIATE PROFESSORS:**

BAILEY, DEAN, LEWIS, LOVELL, MOOR  
ROLLIER

**ASSISTANT PROFESSOR:**

ANDERSON

**PROFESSOR EMERITUS:**

HOYT

**IEE 300 Economic Analysis for Engineers.** (2) F, S

Economic evaluation for engineering decisions emphasizing the time value of money.

**330 Introduction to Data Base Design.** (2) S

Data structures and techniques with special attention to DBTG standards. Design implementation, control and case studies of data management systems. Prerequisite: ECE 122.

**362 Industrial Engineering Analysis.** (3) F, S

Analysis and design of man-machine systems using methods of industrial engineering. Applications to manufacturing service, ceramic and technical fields. Two lectures, 2 hours laboratory. Prerequisite: MEE 332 or equivalent.

**374 Quality Control.** (2) S

Role of measurement and attribute control charts in the manufacturing process. Lot-by-lot acceptance sampling by attributes. Life testing and reliability. Prerequisite: ECE 383.

**411 Engineering Economy.** (3) S; Moor

Cash flow model, pricing, economic production charts

economic balance analysis profitability models Prerequisite EE 300.

**422 Information Acquisition.** (3) S Moor  
Application of industrial engineering techniques to the design of systems to collect information Emphasis on human information processing methods of information gathering and managerial decision making introduction to organizational information systems

**425 Human Resources Engineering.** (3) F Moor Young  
Study of people at work, designing for human performance effectiveness and productivity in shop, office and vehicle habitats. Considerations of human physiology and psychological factors in the design of work environments and in the employment of people in man-machine systems Prerequisite: IEE 362.

**431 Engineering Administration.** (3) F SS Barey Hoyt Moor

Engineering organization and administration; introduction to decision making and quantitative approaches to management qualitative approaches to management, and engineering administration

**461 Planning, Scheduling and Control of Resources.** (3) F S Barey Bedworth Young

Use of industrial engineering techniques for planning, analyzing control and evaluation of operating systems Emphasis on the use of time series forecasting, network planning, scheduling and control with the systems approach Applications to manufacturing, service centers and technical fields Prerequisite: ECE 383

**463 Process Control Computers.** (3) F, Bedworth Lewis Lovel

The equipment and programming requirements of computer systems which interact with external physical processes includes interfacing computers with data acquisition and control devices Laboratory work emphasizes the application of micro and macro systems to process control Prerequisite ECE 122

**473 System Applications of Linear Programming.** (3) F Dean Lewis Smith

Linear programming in a systems context Emphasis on design aspects of linear programming models for a variety of problems involving transportation allocation and total industrial systems Prerequisite ECE 382

**475 Fundamentals of Simulation.** (3) F Lewis Love  
Concepts of discrete event system modeling, and the use of digital computer in implementing models

**476 Introduction to Operations Research Models.** (3) S Dean Lewis Smith

Operational research methodology for industrial systems Development of models and techniques for solving decision problems such as queue inventory and replacement Prerequisite: ECE 383

**492 Project in Design and Development.** (3) A  
Individual project in creative design and synthesis

**500 Systems Research Methods.** (3) SS Barey Moor Young

Scientific and systems methods as applied to master's and doctoral degree research.

**510 Measurement of Productivity.** (3) F Hoyt

The engineering economic audit and its use to determine real valued output with applications to break even analysis, variable budget control of manufacturing costs, cost analysis, and product pricing. Prerequisite ECE 383

**511 Analysis of Decision Processes.** (3) SS, Roer, Smith, Young

Methods of making economic decisions, statistical decisions on theory effects of risk uncertainty, and strategy on managerial economic decisions. Prerequisite ECE 383.

**520 Topics in Human Engineering.** (3) S Moor Young

Current topics and research directions in human factors engineering with industry and government applications as an end goal Prerequisite EE 425 or IEE 362 and approval of instructor

**521 Applied Synecology.** (3) S, Decker

Systematized solution of supervisory and personal problems arising from interpersonal friction

**531 Topics in Engineering Administration.** (3) S Barey Hoyt, Moor

Consideration given to philosophical psychological, political and social implications of administrative decisions

**532 Theory in Engineering Administration.** (3) F 79 Moor

Theories of human and organizational behavior as applied to engineering administration Development of models appropriate to engineering organizational design and control Prerequisite EE 531.

**533 Scheduling and Network Analysis Models.** (3) F Barey Roer, Smith

Application of sequencing algorithms deterministic and stochastic network analysis and flow algorithms Topics include CPM PERT GERT GERTS and QGERTS. Prerequisite EE 461

**560 Data Base Concepts for Industrial Management Systems.** (3) S, Barey Lewis Smith

Application of database concepts and software to industrial systems problems Topics include data structures and database management software. Emphasis will be on CODASYL based systems Prerequisite ASE 324

**561 Production Control Information Systems.** (3) F Barey Bedworth Smith

Development of system designs for production control

Topics include material requirement planning, scheduling sequencing, and inventory control On line design concepts are covered Prerequisite EE 461

**563 Systems Analysis for Distributed Systems.** (3) F 80 Staff

Development of systems methodology for the design of distributed and network oriented teleprocessing systems. Data communication concepts are covered. Prerequisite EE 476.

**567 Combined Simulation by Digital Computer** (3) S, Love Young

Development of concepts of combined discrete and continuous simulation Use of combined simulation analog in the study of large scale system problems Prerequisite EE 475

**569 Nonparametric Statistical Inference.** (3) F 79 S 81; Anderson Roer

Application of statistical inference procedures based on ranks to engineering problems. Efficient alternatives to classical statistical inference constrained by normality assumptions. Prerequisite ASE 485

**570 Advanced Quality Control.** (3) F 80 Dean Roer

Statistical design of sampling plans and procedures for attributes and variables data operating characteristic curves federal specifications and standards of quality. Prerequisite EE 374

**571 Probability for Engineers.** (3) NR, Anderson Dean Roer

Special topics in probability emphasizing applications to engineering problems Prerequisite ASE 483

**572 Engineering Statistics.** (3) S Anderson Dean Roer

Analysis of variance and experimental design Topics include general design methodology, incomplete blocks confounding fractional replication response surface methodology Prerequisite ASE 485.

**574 Applied Deterministic Operations Research Models.** (3) S 80 Staff

Formulation solution analysis and application of deterministic models in operations research including those of linear programming integer programming and nonlinear programming Prerequisite EE 473

**575 Applied Stochastic Operations Research Models.** (3) S 81 Staff

Formulation solution analysis and application of stochastic models operations research, including those of inventory theory queueing theory Markov processes stochastic programming, and renewal theory Prerequisite IEE 476

**576 Applications of Operations Research.** (3) F; Staff  
Case studies and investigation of the use of operations research tools. Topics include application of linear and

non-linear models including special techniques such as dynamic and geometric programming, and general types of search techniques Prerequisite: EE 476.

**577 Information Systems Methodology.** (3) F 80 Bailey Moor Smith

Systems approach to the analysis design and implementation of management systems Emphasis is on generalized techniques Concern given to questions of user perceptions and systems effectiveness

**578 Advanced Decision Theory.** (3) F 79 Smith  
Formulation, solution analysis and application of advanced decision theory techniques for industrial systems Topics include conjugate families of distributions, value theory, decisions with multiple objectives and goal programming. Prerequisite: IE 511

**579 Time Series Analysis and Forecasting.** (3) F 80 Bedworth Roer

Forecasting time series by the Box-Jenkins and exponential smoothing techniques, extending digital computer programs for the two techniques are utilized to augment the theory Prerequisite: ASE 485

**Special Courses:** EE 484, 498, 499, 590, 591, 592, 598, 599, 784, 790, 792, 799 See pages 30-31

---

## Computer Science Engineering

---

**CSE 304 Advanced Programming and Graphics.** (3) F  
Advanced FORTRAN concepts including file handling Graphics using both plotters and interactive devices Prerequisite: ASE 101 (Same as ASE 425)

**305 Assembly Language Programming.** (3) F, S  
Assembly language programming techniques and applications Prerequisite: ASE 101 (Same as ASE 423)

**310 Computer Organization and Architecture.** (3) F 80  
Hardware and software concepts of processor memory, I/O and communication subsystems Case studies of hardware systems organization including parallel, associative and fault-tolerant concepts Design of software systems to exploit hardware organization Economic and reliability aspects of various hardware configurations Prerequisites: ASE 101 and EEE 320

**315 Formal Languages and Syntax.** (3) S 80  
Grammars and automata syntactic analysis recognizers, analyzers and generators Modes of the formal definition of programming language semantics. Prerequisites: MAT 305 and CSE 305

**324 Introduction to COBOL.** (3) F

Introduction to the business-oriented language COBOL Emphasis is on applications to management information systems Same as ASE 324

**325 Introduction to PL/1.** (3) S

Basic concepts of the programming language PL/1 Prerequisite: ASE 101 (Same as ASE 325)

**410 Real Time Systems.** (3) F 80 Bedworth Lewis  
Equipment and programming requirements of computer systems which interact with external physical processes includes interfacing computers with data acquisition and control devices Laboratory work emphasizes the application of micro and macro systems to process control Prerequisite: ASE 100 Lectures and laboratory Same as EE 463

**430 Data Base Languages.** (3) F 80, Bailey Lewis Smith

Introduction to various data base implementation languages emphasizing a comparison of CODASYL and relational data base concepts Prerequisite: EE 330.

**435 Computer System Performance Measurement and Evaluation.** (3) S 81, Bailey, Lewis  
Techniques used in computer system performance evaluation on-line analytical techniques, hardware and software monitoring, simulation and workload characterization Prerequisite: CSE 305 and 310

**445 Computer Center Management.** (3) F 80, Bailey Smith

Addresses problems and techniques inherent in managing a data center Topics include the control of systems programming projects, the control of production and quality in the operations center the planning and implementation of new systems and the measurement of data center productivity. Prerequisite: senior standing

**450 Teleprocessing and Telecommunications.** (3) S 81 Staff

Communication characteristics, modems synchronous and asynchronous protocols error detection schemes elements of information theory Consideration in the design of telecommunication systems and networks Prerequisite: CSE 310

**492 Senior Seminar and Project.** (3) S 81

Students are expected to attend a series of seminars on topics of interest to graduating computer science majors in addition to completing a computer science related project Prerequisite: senior standing

**Special Courses:** CSE 484, 498, 499

---

## Mechanical and Energy Systems Engineering

---

### PROFESSORS:

METZGER (EC G-133), ALLEN, BACKUS, BEAKLEY, COOPERRIDER, DAVISON, DITSWORTH, EVANS, FLORSCHUETZ, JACOBSON, JANKOWSKI, LOGAN, PRICE, RICE

### ASSOCIATE PROFESSORS:

AUTORE FRY, MCKLVEEN, WOOD, WOOLDRIDGE

### ASSISTANT PROFESSORS:

HIRLEMAN LIMBERT, McNEILL

**MEE 321 Kinematics and Force Analysis in Machinery.** (3) F

Positions, velocities, and accelerations of machine parts: cams, gears, flexible connectors, rolling contact, synthesis of mechanisms force analysis linkages balancing Prerequisite: ECE 312

**332 Production Processes.** (3) F, S

Production techniques and equipment Casting and molding pressure forming, material removal joining and assembly processes automation and material handling.

**365 Control System Principles.** (3) F, S

Analysis and synthesis of feedback control systems Linear system analysis including root locus frequency response and state space representation of dynamic systems Controller realization Laboratory experimentation with various types of control systems Prerequisites: ECE 305, 312

**372 Fluid Mechanics.** (4) F, S

Application of basic principles of fluid mechanics to problems in viscous and compressible flow Laboratory experimentation and demonstrations Prerequisites: ECE 122, 371, 386

**380 Applied Thermodynamics.** (3) F, S

Thermodynamics of engines, compressors, turbines and related components. Not open to engineering students Prerequisites: MAT 120, PHY 112

**381 Applied Thermodynamics and Heat Transfer.** (3) F, S

Gas mixtures, vapor cycles, gas and vapor mixtures Fundamentals of conduction, radiation and convection

heat transfer. Not open to engineering students. Prerequisite: MEE 380.

**382 Thermodynamics.** (3) F S

Applied thermodynamics gas mixtures power cycles and reactive systems Laboratory experimentation and demonstrations Prerequisite: ECE 340.

**383 Internal Combustion Engines.** (3) S

Performance characteristics combustion carburetor, cooling and control of internal combustion engines. Prerequisite: MEE 381 or 382 or approval of instructor

**386 Air Conditioning and Refrigeration.** (3) F

Refrigeration cycles, refrigerant properties heating, cooling loads psychrometry; purification temperature and humidity control Prerequisite: MEE 381 or 382 or approval of instructor.

**411 Nuclear Engineering.** (3) F Backus McKlveen Principles of neutron chain reacting systems and nuclear power systems Prerequisites: ECE 122 201 and MAT 120

**412 Health Physics Principles and Radiation Measurements.** (3) S McKlveen

Source characteristics dosimetry and measurement techniques for natural and man-made radiation. Philosophy of radiation protection Two lectures 3 hours laboratory

**413 Reactor Safety Analysis.** (3) S; McKlveen

Power reactor safety and licensing problems Reactor transient and accident analysis Prerequisite: MEE 411

**415 Nuclear System Design.** (3) S; Backus McKlveen

Engineering design of nuclear steam supply systems with emphasis on core heat removal problems Prerequisites: ECE 371 and MEE 411

**417 Nuclear Engineering Laboratory.** (3) F, McKlveen

Theory and applied concepts reactor design, construction, instrumentation and shielding Two lectures 3 hours laboratory Corequisite: MEE 411

**441 Principles of Design I.** (3) F S

Design procedures failure modes stress and deflection analysis stress concentration; fatigue; selected components Prerequisites: ECE 313 and 350

**442 Principles of Design II.** (3) S Fry

Continuation of MEE 441 with application of the principles and empirical concepts of engineering to the creative design of machine components and subsystems Prerequisite: MEE 441

**445 Engineering Design.** (3) F S

Projects in design engineering systems requiring problem formulation creativity application of knowledge from engineering disciplines and consideration of cost reliability and social and environmental impacts. Prerequisite: MEE 441 One lecture 6 hours laboratory

**446 Thermal System Design.** (3) A, Evans, Forschuetz McNeil, Metzger, Rice

Continuation of thermodynamics and heat transfer with emphasis on design of systems such as nuclear reactors turbine engines power plants Prerequisites: MEE 382 and 488

**450 Aerodynamics.** (3) F; Logan

Aerodynamic characteristics of airfoils, finite wings airfoils wings and bodies in high speed flow; boundary layer control; stability and aircraft performance Corequisite: MEE 372

**452 Gas Dynamics.** (3) NR Evans Logan

Compressible flow at subsonic and supersonic speeds normal and oblique shocks duct flow; numerical techniques Prerequisite: MEE 382; corequisite: MEE 372.

**453 Propulsion.** (3) F Evans Logan Price

Performance analysis of propulsion systems including turbojet, fanjet and turboprop engines solid and liquid fueled rockets and on propulsion devices Prerequisite: MEE 382.

**455 Turbomachinery.** (3) S Logan, Price

Principles of turbomachines utilized in power plants including steam and gas turbines hydraulic turbines, centrifugal pumps compressors fans and blowers Corequisites: MEE 372 and 382.

**456 Combustion.** (3) NR; Hrliman Price

Thermodynamics and chemical kinetics of combustion Structure propagation and stability of flames Poissant formaton Prerequisite: MEE 382.

**458 Solar Energy.** (3) NR Backus, Evans, Wood

Solar radiation and instrumentation design and testing of collectors, performance analyses of systems, thermal storage photovoltaics materials and economic analysis Prerequisites: MEE 382 and 488

**465 Control System Design.** (3) S Cooperrider Lambert

Modeling and simulation of dynamic systems introduction to state variable techniques. Compensation techniques performance indices and error criteria Design and implementation of a control system in a laboratory environment Prerequisite: MEE 365

**471 Numerical Fluid Mechanics.** (3) S Jankowski

Numerical solutions for selected problems in fluid mechanics. Prerequisite: MEE 372

**487 Direct Energy Conversion.** (3) F Backus, Jacobson

Unconventional methods of energy conversion fuel cells thermoelectrics thermionic photovoltaics and magnetohydrodynamics Prerequisites: ECE 340 350

**488 Heat Transfer.** (3) F S

Steady and unsteady heat conduction including numerical solutions thermal boundary layer concepts and applications to free and forced convection. Thermal radiation concepts Laboratory experimentation and

demonstrations Corequisite: MEE 372.

**489 Statistical Thermodynamics.** (3) NR; D Tsworth

Jacobson Statistical mechanics approach to thermodynamic concepts, laws and methods of analysis. Generalized p-v-T data. Special systems Prerequisite: ECE 340

**491 Experimental Mechanical Engineering.** (3) F, S

Experimental and analytical studies of phenomena and performance of fluid flow, heat transfer thermodynamics, refrigeration and mechanical power systems. Prerequisites: MEE 382 ECE 335, corequisite: MEE 488 One lecture 6 hours laboratory

**492 Mechanical Engineering Projects.** (2) F S

Small group projects in fundamental or applied aspects of mechanical engineering; emphasis on experimental solutions to complex problems. Prerequisites: MEE 441 491 Six hours laboratory

**498 Pro-Seminar.** (1-3) NR

Special topics for advanced students Application of the engineering disciplines to design and analysis of modern technical devices and systems Prerequisite: approval of instructor

**512 Reactor Theory.** (3) NR McKlveen

Neutron moderation; Fermi Age theory diffusion theory and applications reflected reactors, multigroup diffusion equations Prerequisite: MEE 411

**514 Reactor Design.** (3) NR, McKlveen

Heterogeneous reactor systems, perturbation theory, fuel burn up introduction to neutron transport theory Prerequisite: MEE 512

**544 Mechanical Design and Failure Prevention.** (3) F

Davison Modes of mechanical failure application of principles of elasticity and plasticity in multiaxial state of stress to design synthesis failure theories fatigue creep impact Prerequisite: MEE 445 or equivalent

**548 Mechanism Synthesis and Analysis.** (3) S, Davison

Algebraic and graphical methods for exact and approximate synthesis of cam gear and linkage mechanisms design optimization methods of planar motion analysis characteristics of plane motion; spatial kinematics

**553 Propulsion Systems.** (3) NR, Logan

Aircraft and rocket propulsion principles with emphasis on air breathing systems; cycle analysis non-rotating and rotating components component matching notes Prerequisite: MEE 452

**555 Turbomachinery.** (3) NR Logan

Performance characteristics, energy transfer in rotors, cascade mechanics, thin airfoil theory axisymmetric potential flow, loss mechanisms cavitation surge

**556 Combustion.** (3) NR; Hrliman Price



Kinetic theory, chemical kinetics and reaction rate theories. Ignition theories; droplet, coal and fluidized bed combustion. Laser diagnostics in combustion. Prerequisite: MEE 456 or approval of instructor.

**560 Advanced System Modeling, Dynamics, and Control.** (3) F; Limbert

Lumped-parameter modeling of physical systems using bond graphs, with examples; their representation and response. Introduction to modern control. Prerequisite: MEE 365 or equivalent.

**561 Modern Control Theory and Applications.** (3) NR; Limbert

Techniques for the optimal control of physical systems. Variational calculus, dynamic programming, deterministic observers. Stochastic systems; Kalman filtering and estimation. Prerequisite: MEE 560.

**571 Fluid Mechanics.** (3) F; Jankowski, Logan, Rice  
Basic kinematic, dynamic and thermodynamic equations of the fluid continuum and their application to some basic models.

**572 Fluid Mechanics.** (3) NR; Jankowski  
Continuation of unified treatment of MEE 571 emphasizing compressible and turbulent flows. Prerequisite: MEE 571.

**573 Turbulence.** (3) NR; Logan  
Prediction methods and experimental results for turbulent shear flows. Introduction to research methods and survey of current research activity. Prerequisite: MEE 571.

**574 Mechanics of Viscous Fluids.** (3) NR; Rice  
Laminar and turbulent viscous flows. Perturbation theory, similarity solutions and numerical solutions for the various flow regimes. Prerequisite: MEE 571.

**575 Mechanics of Viscous Fluids.** (3) NR; Rice  
Laminar and turbulent boundary layer flows; other vis-

cus flows having boundary layer characteristics. Prerequisite: MEE 574.

**581 Thermodynamics.** (3) F; Ditsworth, Jacobson  
Basic concepts and laws of classical equilibrium thermodynamics. Introduction to statistical thermodynamics. Applications to engineering systems.

**582 Thermodynamics.** (3) S; Ditsworth, Jacobson  
Continuation of MEE 581, including irreversible thermodynamics. Prerequisite: MEE 581.

**583 Direct Energy Conversion.** (3) NR; Backus, Jacobson  
Basic concepts of direct energy conversion and associated electrical, magnetic, and thermal phenomena. Prerequisite: MEE 581.

**585 Heat Transfer.** (3) F, S; Allen, Florschuetz, Metzger, Wood  
Basic equations and concepts of heat transfer; applications to conductive, convective and radiative heat transfer. Prerequisite: MEE 488 or equivalent.

**586 Heat Transfer.** (3) S; Florschuetz, Metzger  
Continuation of MEE 585, emphasizing convection heat transfer. Prerequisite: MEE 585.

**587 Heat Transfer.** (3) F; Florschuetz, Wood  
Continuation of MEE 585, emphasizing radiative heat transfer. Prerequisite: MEE 585.

**591 Seminar.** (1-3) NR  
Topics such as the following are offered frequently for advanced study beyond the regular courses and for study of engineering applications of current interest: (a) Aerodynamics, (b) Hydrodynamic Stability, (c) Photo-voltaics, (d) Physical Gas Dynamics, (e) Propulsion, (f) Two Phase Flow and Heat Transfer.

**594 Graduate Research Conference.** (1) F, S  
Topics in contemporary research. Required every semester of all Mechanical Engineering graduate students

registered for 9 or more semester hours. Not for degree credit.

**Special Courses:** MEE 484, 499, 590, 592, 598, 599, 792, 799. (See pages 30-31.)

---

## Society, Values, and Technology

---

**STE 201 Technology and Social Change.** (2) F, S  
Technology as related to social change, contemporary and possible future impacts of technology on society. (Also listed as HUM 201).

**303 Energy, Technical and Societal Aspects.** (2) S  
The role of energy in modern technical society. Transformation of energy from natural forms into forms useful to man; physical laws and material behaviors governing transformation; methodology used to solve engineering problems. (Not for engineering degree credit.) Prerequisite: algebra.

**310 Man and Machine.** (2) F  
Mechanical invention and technical progress, and evolution of social forms and institutions. (Also listed as HUM 310.)

**311, 312 Science and Technology in History I, II.** (3-3) F, 311; S, 312

Development and applications of scientific knowledge and its effects on human aspirations and values, from ancient times through Industrial Revolution to present. STE 311 is not a prerequisite for STE 312. (Also listed as HUM 311, 312.)

**402 Technology, Society and Human Values.** (3) F, S, SS; Welch, Bush, Stadmler

Values which motivate mankind to create technology. Areas of conflict and resolution between basic human values and technological society. Reading and discussion with visiting lecturers. (Also listed under HUM 402.) Prerequisite: junior standing.

**403 Technology and Public Policy.** (3) S; Welch  
Technology assessment involving natural resources, environment, and social consequences of technology related to public policy formulation, planning process and management by objectives. Case studies and group projects. Prerequisite: junior standing.

**411 Social Effects of Invention.** (3) S  
Invention as an instrument of change in civilization. Assessment of effects of interaction of social, cultural, and technological forces. (Also listed as HUM 411).

**Special Courses:** STE 484, 494, 498, 499, 591.

---

## Division of Technology

---

### Purpose

The Division of Technology serves three major functions. One is the preparation of engineering and industrial technologists as members of the total technological team comprised of scientists, engineers, technologists and technicians. A second function is the preparation of other specialists who are not properly categorized as technologists, although their preparation is intensively industrially oriented. This function embraces the preparation of such specialists as graphic and printing management personnel, industrial supervisors, technical managers, and technical communicators. A third function is the preparation of teachers of industrial and technical education in the elementary and secondary schools, technical institutes, community colleges, universities and in industry.

Each four year Bachelor of Science degree technology curriculum prepares supporting and specialist personnel in the major areas of research and development, design and manufacturing. While comprehensive and foundational understanding of scientific principles is required, the essential nature of the task to be performed is in translation of the scientific ideas or discoveries into useful products and services. Consequently, these curricula combine general foundations of scientific theory and facts with laboratory experiences which are designed to instruct in methods rather than to develop extensive skills. Finally, it is the added purpose of these curricula to make the student keenly aware of the urgent problems of society and to develop deeper appreciation of the cultural achievements of man.

The industrial and technical education curricula prepare graduates for positions as industrial arts and technical teachers, department heads, supervisors or directors, consultants and industrial training directors. It is the purpose of the Division of Technology to meet these needs through offerings leading to the completion of the Bachelor of Arts in Education, the Bachelor of Science, the Master of Education, the Master of Technology (Technical Teacher Concentration), the Education Specialist, the Doctor of Philosophy, and the Doctor of Education degrees with specialization in Secondary Education industrial education. (See *Graduate Catalog*)

### Organization

The Division of Technology faculty members are organized into five faculties under the leadership of a faculty chair. Each faculty is representative of a subject matter area in which all offerings are organized as programs of study with fields of specialization, concentrations and areas of emphasis as follows.

#### Aeronautics Faculty

- Aeronautical Engineering Technology
- Aeronautical Industrial Technology
- Air Transportation Technology (Flight)
- Air Transportation Management Technology

#### Electronics Faculty

- Electronic Engineering Technology
- Clinical Engineering Technology
- Communication Systems
- Controls and Measurements
- Digital Systems
- Electrical Power Systems
- Electrical Engineering Technology
- Electronic Systems

Interdisciplinary Patterns

(see Electronic Section)

Electronic Industrial Technology

Electronic Technology

#### Graphic Communications Faculty

##### Industrial Technical Education Faculty

Industrial Arts Education

Technical Teacher Education

Industrial Supervision

##### Manufacturing Faculty

Manufacturing Engineering Technology

Mechanical Engineering Technology

Welding Engineering Technology

Because each program of study has its own unique educational mission, each is organized around its own structured core of required courses. These respective program cores provide the unifying elements of mathematics, science, graphics, communications, and technical sciences which are appropriate to that particular program of study.

Division programs of study and their fields of specializations are presented and defined as appropriate to these faculty groups under the headings of: Aeronautics; Electronics; Graphic Communications; Industrial Technical Education; and Manufacturing.

### Degrees

**Bachelor of Science.** Programs of study within the Division of Technology require the satisfactory completion of not less than 126 semester hours, or more where indicated by the specific program or by student entrance deficiencies. Included are the General Studies courses, university English, courses of the selected program of studies core, required courses in the field of specialization, supporting field courses and electives.

Specific details regarding purposes of these programs and their requirements are presented in the appropriate program of studies section

**Bachelor of Arts in Education** (Fields of Specialization). Students majoring in Industrial Arts Education may specialize in one of the following areas: transportation and power, drafting, electronics, graphic arts, metals, woods, and general industrial arts.

**Graduate Degrees.** The Division of Technology offers programs leading to the Master of Technology degree (M.T.) with concentrations in a technology preparing for either industrial technical employment or technical teaching. In addition, the Faculty of Industrial Technical Education participates in: (1) the Master of Education degree program as a subject matter field in Secondary Education, (2) the Education Specialist degree program as a major teaching field, and (3) the Doctor of Philosophy and Doctor of Education degree programs with a major in Secondary Education Industrial Education Consult the *Graduate Catalog* for requirements.

**General Studies.** The Division requires a total of 16 hours in behavioral and social sciences, and humanities and fine arts; with a minimum of 6 hours in each of these areas; 8 hours of science and mathematics; and 12 hours of General Studies electives to fulfill the General Studies requirement.

Students in the Division of Technology shall consult their advisors for the approved list from which courses may be selected

**Engineering Technology**

Baccalaureate engineering technology programs are intimately related to engineering education as engineering technologists are prepared to serve with and in close support of engineers as a part of the total technological enterprise that extends from planning to production and the continuing service

The essential program content is therefore mathematics, basic science, technical science, and study related to a particular area of engineering practice Provisions for these elements are presented below in the form of the engineering technology core together with the requirements specified in the concentration The latter consists of aeronautical engineering technology, electronic engineering technology, manufacturing engineering technology, mechanical engineering technology and welding engineering technology. In each case a minimum of 130 semester hours of satisfactory credits are required.

**Engineering Technology Core**

|  | <i>Semester<br/>Hour</i> |
|--|--------------------------|
| PHY 111 General Physics . . . . .                          | 3                        |
| PHY 112 General Physics . . . . .                          | 3                        |
| TST 101 Manufacturing Processes and<br>Materials . . . . . | 3                        |
| TST 111 Technical Graphics . . . . .                       | 2                        |
| TST 121 Problem Solving . . . . .                          | 3                        |
| TST 200 Applied Electrical Science . . . . .               | 3                        |
| TST 362 Applied Calculus . . . . .                         | 3                        |
| or   |                          |
| 372 Applied Linear Analysis (3)                            | 3                        |
| TST 420 Technical Writing . . . . .                        | 3                        |
| ECN 201 Principles of Economics . . . . .                  | 3                        |
| MAT 115 College Algebra and<br>Trigonometry . . . . .      | 4                        |
| MAT 260 Technical Calculus I . . . . .                     | 3                        |
| MAT 261 Technical Calculus II . . . . .                    | 3                        |
| ASE 226 Digital Computer Programming . . . . .             | 2                        |
| Total . . . . .  | 38                       |

While there are variations in the sequence in which courses are taken by students in a particular engineering technology, the suggested freshman pattern presented below may be useful as a general guide for Engineering Technology students subject to the final approval of their faculty advisor:

**Engineering Technology**

**Suggested Course Pattern for Freshmen**

| <b>Fall Semester</b>                         |  | <i>Semester<br/>Hours</i> |
|--|--|---------------------------|
| ENG 101                                      | First Year English . . . . .                       | 3                         |
| TST 101                                      | Manufacturing Processes and<br>Materials . . . . . | 3                         |
| TST 111                                      | Technical Graphics . . . . .                       | 2                         |
| MAT 115                                      | College Algebra and Trigonometry . . . . .         | 4                         |
| (Required course in area of major) . . . . . |  | 3 to 5                    |
| Total Credit Hours . . . . .                 |  | 15 to 17                  |

**Spring Semester**

|  |                                   |    |
|--|-----------------------------------|----|
| ENG 102                                      | First Year English . . . . .      | 3  |
| TST 121                                      | Problem Solving . . . . .         | 3  |
| PHY 111                                      | General Physics . . . . .         | 3  |
| ECN 201                                      | Principles of Economics . . . . . | 3  |
| (Humanities Fine Arts elective) . . . . .    |                                   | 3  |
| (Required course in area of major) . . . . . |                                   | 3  |
| Total Credit Hours . . . . .                 |                                   | 18 |

Students planning to complete one to two years at a community college or college-accredited private technical institute prior to entering this program should consult an Arizona State University Engineering Technology advisor for assistance in planning a transferable program.

Beyond the engineering technology core and the further requirements of General Studies, the requirements for the various concentrations are presented under the appropriate subject headings of Aeronautics, Electronics, and Manufacturing

**Industrial Technology**

The employment objective of the industrial technologist is properly defined as that of production management. Program and employment emphasis is on applied aspects of industrial processes and on personnel leadership To assist in understanding the interfaces,

it is appropriate to describe the industrial technologist as occupying the mid ground between engineering, engineering technology and business administration. Programmatically, then, industrial technology requires selected courses in mathematics, basic science, technical science, technical specialties and in business and personnel management.

Variations of the industrial technology programs which permit a high degree of technical emphasis within a field of specialization have been demonstrated by employers to be highly desirable. These areas of emphasis are presented in the concentration requirements where appropriate. All programs in industrial technology are organized around the industrial technology core with the remaining requirements specified in the fields.

| <b>Industrial Technology Core</b> |   | <i>Semester<br/>Hours</i> |
|-----------------------------------|---|---------------------------|
| TST 101                           | Manufacturing Processes and Materials . . . . . | 3                         |
| TST 111                           | Technical Graphics . . . . .                    | 2                         |
| TST 121                           | Problem Solving . . . . .                       | 3                         |
| TST 200                           | Applied Electrical Science . . . . .            | 3                         |
| TST 420                           | Technical Writing . . . . .                     | 3                         |
| MAT 115                           | College Algebra and Trigonometry . . . . .      | 4                         |
| MAT 260                           | Technical Calculus I . . . . .                  | 3                         |
| ECN 201                           | Principles of Economics . . . . .               | 3                         |
| MGT 301                           | Principles of Management . . . . .              | 3                         |
| ASE 226                           | Digital Computer Programming . . . . .          | 2                         |
| Total . . . . .                   |   | 29                        |

Beyond the industrial technology core and the further requirements of General Studies, the concentration requirements are presented under the respective subject heading of Aeronautics, Electronics, and Graphic Communications

While there are variations in the sequence in which courses are taken by students in a

particular industrial technology, the suggested freshman pattern presented below may be useful as a general guide for Industrial Technology students subject to the final approval of their faculty advisor:

### **Industrial Technology**

#### **Suggested Course Pattern for Freshmen**

| <b>Fall Semester</b>                         |   | <i>Semester<br/>Hours</i> |
|--|---|---------------------------|
| ENG 101                                      | First Year English . . . . .                    | 3                         |
| TST 101                                      | Manufacturing Processes and Materials . . . . . | 3                         |
| TST 111                                      | Technical Graphics . . . . .                    | 2                         |
| MAT 115                                      | College Algebra and Trigonometry . . . . .      | 4                         |
| (Required course in area of major) . . . . . |   | 3 to 5                    |
| Total Credit Hours . . . . .                 |   | 15 to 17                  |

#### **Spring Semester**

|  |                                   |          |
|--|-----------------------------------|----------|
| ENG 102                                      | First Year English . . . . .      | 3        |
| TST 121                                      | Problem Solving . . . . .         | 3        |
| ECN 201                                      | Principles of Economics . . . . . | 3        |
| (Physics or Chemistry . . . . .)             |                                   | 3        |
| (Required course in area of major) . . . . . |                                   | 3 to 5   |
| Total Credit Hours . . . . .                 |                                   | 15 to 17 |

Students planning to complete one to two years at a community college or college accredited private technical institute prior to entering this program should consult an ASU Industrial Technology advisor for assistance in planning a transferable program

## **Aeronautics**

### **Aeronautical Engineering Technology**

*An ECPD accredited engineering technology program*

The aeronautical engineering technology program is designed to prepare the technologist for technical support of engineering activities

throughout the aerospace field. Areas of responsibilities include the application of applied engineering practice related to: aircraft and aerospace vehicle design, internal combustion engines, combustion processes, turbomachinery, systems analysis and environmental control. A minimum of 130 semester hours of satisfactory credits are required to complete this program.

The following courses, along with 3 hours of technical elective courses approved by the student's advisor, are required in addition to the engineering technology core courses and General Studies requirements:

*Required courses:* ELT 201; TST 310, 311, 360; MEE 380, 381; CHM 114; PHY 113, 114; MET 116, 407; MGT 301; AET 180, 181, 287, 288, 301, 306, 307, 308, 309, 310, 330, 388, 390, 487, 490.

### **Aeronautical Industrial Technology**

Instruction combines thorough technical training with a general university education. The curricula are designed to prepare both aeronautical technologists and industrial technologists with theoretical and practical applications in the area of structures, internal combustion, turbomachinery, design, management, general and commercial aviation, systems analysis, and environmental control

Two areas of emphasis are available in this degree program: Air Transportation Technology (Flight); Air Transportation Management Technology (Non Flight). These emphases each require a minimum of 127 semester hours of satisfactory credits for completion.

Each of these areas of emphasis requires a common aeronautical technology core and technical elective courses approved by the student's advisor, in addition to the required industrial technology core and the General Studies requirements.

**Aeronautical Technology Core**

|     |     |   | Semester<br>Hours |
|-----|-----|---|-------------------|
| CHM | 114 | General Chemistry for Engineers               | 4                 |
| PHY | 111 | and 113 General Physics                       | 4                 |
| PHY | 112 | and 114 General Physics                       | 4                 |
| AET | 180 | Aerospace Structures and<br>Materials         | 3                 |
| AET | 181 | Aerospace Systems                             | 3                 |
| AET | 287 | Aerospace Powerplants                         | 3                 |
| AET | 288 | Gas Turbines and<br>Turbomachinery            | 3                 |
| AET | 303 | Aviation Law and Regulations                  | 2                 |
| AET | 305 | Vector and Structure Analysis                 | 2                 |
| AET | 306 | Aircraft Electrical and Electronic<br>Systems | 3                 |
| AET | 330 | Aircraft Design I                             | 3                 |
| AET | 384 | Airport Planning                              | 3                 |
| AET | 390 | Aerospace Systems Analysis I                  | 3                 |
| AET | 391 | Airport Operation                             | 2                 |
| AET | 410 | Aviation Safety                               | 2                 |
| AET | 411 | Aircraft Accident Investigation               | 3                 |
| AET | 487 | Aircraft Design II                            | 3                 |
| AET | 488 | The Air Transportation System                 | 3                 |
| AET | 489 | Airline Administration                        | 2                 |
|     |     | Total   | 55                |

**Air Transportation.** (Flight courses are Federal Aviation Administration certified courses.)

The air transportation technology (flight) area of emphasis encompasses academic and technical studies with flight training to prepare graduates for positions within the air transportation industry. All phases of training are available to enable the student to complete the private pilot, glider pilot, commercial pilot, and flight instructor certificates, as well as the instrument and multi-engine rating requirements of the Federal Aviation Administration.

While enrolled at Arizona State University, students will not receive college credit for

flight instruction received at flight schools other than the flight schools with which the University has currently contracted for such instruction. Consideration for credit will be given for flight experience and certificates received prior to enrollment at the University.

Flight instruction costs are not included in University tuition.

*Required courses:* AET 182, 183, 202, 314, 380, 382, 383, 385, 386 and 387, 389 or 392 and 393

**Air Transportation Management.** The management area of emphasis is designed to prepare graduates for managerial and supervisory positions within the air transport industry. It encompasses areas leading to jobs with manufacturers, fixed based operations, airports and government service. Included is a depth of technical training as well as a broad exposure to business management curricula.

*Required courses:* AET 490; ACC 101, 102; ECN 202; FIN 300; MKT 300, MGT 311, ADS 305

**Electronics**

Programs in electronics are organized into two major categories. The first, Electronic Engineering Technology (an ECPD accredited program), is an integrated four year program aimed at technical careers in industry in support of engineering functions and related activities. The second, Electronic Technology, provides for a variety of electronics-related careers which are in support of general industrial functions and related activities. Program patterns under Electronic Technology are generally of the two plus two variety, or are intern-related in nature and are intended to support in-process or established career patterns.

Several formal cooperative education and internship programs are available. These programs consist of formal agreements between

the Electronics department and electronics industries. Cooperative programs usually involve students at the junior or senior level in electronics, with full-time academic work rotated with full time employment using the fall, spring, and summer sessions as school work periods. Intern programs usually involve continuous concurrent part time enrollment at ASU and part time employment at a participating electronic industry. Graduation (starting as a junior) is usually extended by one to two semesters for either type of program.

A Master of Technology program is available for qualified B.S. Technology graduates (See Division of Technology Graduate Degrees and *Graduate Catalog*).

All Electronics bachelor's program patterns require the basic electronics core of 13 hours shown below.

**Electronics Core**

|     |     |  | Semester<br>Hours |
|-----|-----|--|-------------------|
| ELT | 201 | Applied Electronic Science<br>Laboratory | 1                 |
| ELT | 210 | Active Devices                           | 3                 |
| ELT | 211 | Electronics Laboratory I                 | 1                 |
| ELT | 300 | Electric Circuits                        | 3                 |
| ELT | 315 | Electronics Design Principles I          | 2                 |
| ELT | 330 | Electronic Instrumentation               | 2                 |
| ELT | 331 | Instrumentation Laboratory               | 1                 |
|     |     | Total                                    | 13                |

Beyond the Electronics Core, the requirements for various program patterns in electronics follow. A minimum of 24 upper division hours of electronics must be taken at Arizona State University.

**Electronic Engineering Technology**

*An ECPD accredited engineering technology program*

Electronic Engineering Technology is a con

centration available to students interested in applied electronics with emphasis on state of the art design and application. This four-year program is designed primarily to prepare students for employment in technical positions in industry in engineering related activities.

The graduate typically finds employment in most major industries at various levels of responsibility including research and development support, design support, product support, fabrication, production, testing and evaluation, technical writing, and field engineering. Some typical positions open to Electronic Engineering Technology graduates include: research and development technologist, design specialist, field engineering specialist, test equipment specialist, process control technologist, high frequency systems technologist, and technical writer

The Electronic Engineering Technology program is arranged as a cohesive four-year program of career preparation. The department offers a rotational selection of evening courses to serve the part time evening student.

The program elements of the Electronic Engineering Technology program are

|   | <i>Semester<br/>Hour</i> |
|---|--------------------------|
| Engineering Technology Core . . . . .                 | 38                       |
| Electronics Core . . . . .                            | 13                       |
| Electronic Engineering Technology Core . . . . .      | 27                       |
| Approved Area of Emphasis . . . . .                   | 27                       |
| Approved Technical Electives . . . . .                | 6                        |
| Remaining General Studies (for total of 42) . . . . . | 19                       |
| Total program (minimum) . . . . .                     | 130                      |

**Electronic Engineering Technology Core**

|   | <i>Semester<br/>Hour</i> |
|---|--------------------------|
| ELT 301 Electric Networks I . . . . .           | 3                        |
| ELT 310 Electronic Circuits I . . . . .         | 3                        |
| ELT 322 Electronic Circuits II . . . . .        | 3                        |
| ELT 323 Electronics Design Laboratory . . . . . | 1                        |

|  |    |
|--|----|
| ELT 400 Electric Networks II . . . . .                               | 3  |
| ELT 415 Electronics Design Principles II . . . . .                   | 2  |
| ELT 450 Digital System Principles . . . . .                          | 3  |
| ELT 472 Communication System I . . . . .                             | 3  |
| PHY 460 Elements of Atomic Physics . . . . .<br>or CHM 113 4)        | 3  |
| TST 372 Applied Linear Analysis . . . . .<br>(TST 362 also required) | 3  |
| Total . . . . .  | 27 |

**Area of Emphasis:** In addition to the various cores required and remaining General Studies requirements, the student must select an area of emphasis according to career interests within the field of electronics. The emphasis consists of 27 hours in an approved pattern which must include the equivalent of six (6) approved upper division design-laboratory emphasis units. Upper division labs related to ELT 315, 331, 323 and 415 are core labs and do not count towards the six semester hours of upper division emphasis lab requirements. Required courses for several approved areas of emphasis are shown below:

*Communication Systems Emphasis.* Required courses: ELT 404, 470, 471, 473, 476; plus an additional 14 hours of approved upper division emphasis electives which must include five semester hours of approved upper division emphasis labs.

*Digital Systems Emphasis:* Required courses: ELT 452, 453, 454, 455, 456; plus an additional 16 hours of approved upper division emphasis electives which must include three semester hours of approved upper division emphasis labs.

*Clinical Engineering Technology Emphasis* (Intern program available). Required courses: ELT 420, 421, 430, 431; ZOL 201, 202; plus an additional 11 hours of approved emphasis electives which must include four semester hours of approved upper division emphasis labs.

*Electrical Power Systems Emphasis.* Required courses: ELT 340, 404, 430, 431, 460, 461, 486; plus an additional 10 hours of approved upper division emphasis electives which must include three semester hours of approved upper division emphasis labs.

In addition, approved emphasis patterns are available for an emphasis in one of the following: Electronic Systems, Controls and Measurements, Electrical Engineering Technology

Further interdisciplinary approved patterns are available for emphasis in one of the following: Manufacturing Systems, Manufacturing Control Systems, Industrial Management Technology, Industrial Engineering Technology, Technical Management, and Computer Science Technology.

**Electronic Technology**

The employment objective of the industrial technologist is more closely allied with production support and management in contrast with the engineering activities associated with the engineering technologist. Program and employment emphasis is on applied aspects of industrial processes and upon personnel leadership. The industrial technologist works with engineering and technological personnel and contributes to their ideas as well as supervises and manages personnel in the coordination of their efforts in the utilization of materials and machines for producing and distributing industrial products.

Graduates of an electronics oriented technology program find employment in the electrical and electronics industry as industrial technologists in such activities as product support and coordination, manufacturing and process development, production support and management.

Two-year associate degree graduates and others who have identified specific career needs in connection with their job require-

ments and goals, may pursue programs in Electronic Technology which allow for supporting patterns in electronic industrial technology, technical education, business administration, aerospace or military science, technical distribution, technical construction, technical theater, avionics, electronics fabrication, audio systems, technical communication and others.

Programs in Electronic Technology are organized around the industrial technology core with the remaining requirements specified in the program elements shown below

|  | <i>Semester<br/>Hours</i> |
|--|---------------------------|
| Industrial Technology Core . . . . .                       | 29                        |
| Electronics Core . . . . .                                 | 13                        |
| Technical Area (approved pattern) . . . . .                | 24                        |
| Supporting Area (approved pattern) . . . . .               | 24                        |
| Remaining General Studies and Approved Electives . . . . . | 36                        |
| (must include PHY 111, 112, PHY 460 or CHM 113)            |                           |
| Total (minimum) . . . . .                                  | 126                       |

**Technical Area Courses:** An approved pattern of 24 hours is required and must include the following courses or approved equivalents. Required courses: ELT 301, 310, 340; plus ELT 476 or 472; 322 or 460; ELT 450 or EEE 320, ELT 430 or 486, ELT 415 or three approved upper division ELT lab units in addition to core lab requirements.

**Supporting Area:** An approved pattern of 24 hours is required. Required courses for currently approved supporting areas are shown below. Other proposed patterns must be approved by the Electronics Curriculum Committee. Some of the required courses may also be utilized for General Studies requirements, thus providing for additional approved electives.

*Electronic Industrial Technology.* MAT 226 or 326 or 420 or QBA 221 or TST 372;

ACC 300 or FIN 203; IEE 301 or MGT 451; COM 100 or 300; TST 314 or ASE 200 or ITE 403 or MGT 331 or 335; ASE 402 or 403 or ITE 346; MET 110 or 200 or 418; MET 301 or 305 or 401; MET 303 or 400 or 402 or 408; ITE 450 or 452 or 453 or IEE 431 or MGT 311; ITE 443 or IEE 335.

*Technical Education* (satisfies technical education entrance requirements for Master of Technology-Technical Teacher Education): ITE 402, 442; 450 or 480; ITE 445 or equivalent; ITE 485 or SED 433 or equivalent

*Business Administration* (satisfies business entrance requirements for MBA) ECN 201 and 202 (or ECN 500); FIN 300 or 500; QBA 221; ADS 305; MGT 301; MKT 300; ACC 101 and 102 (or ACE 500)

*Aerospace/Military Science:* AES/MIS 101, 102, 201, 202, 301, 302, 401, 402.

**Graphic Communications**

The graphic communications field of specialization provides a diversified approach for individuals interested in communication techniques. The impact of written and printed business and industrial communications, such as newspapers, magazines, manuals, books, package printing and other visual materials is of great social significance

The industrial technology core as well as the General Studies courses are also required of all graphic communications majors. Graphic communications is designed to provide broad professional education essential for a wide range of careers in the graphic arts industry. Among these are positions in administration and general management, production and quality control, sales and sales management, communications, design, estimating, marketing, advertising, photography and research. The needs of each student are reviewed and program flexibility beyond required courses is reflected in the selection of supporting area of

emphasis courses as well as technical electives.

*Required courses:* GRC 135, 136, 236, 237, 238, 332, 333, 334, 336, 337, 339, 433, 435, 436, 437, 438, 439; MGT 311; ITE 443; CHM 101; PHY 101; ACC 300. A minimum of an additional 12 hours are required in a supporting area of emphasis

**Industrial Technical Education**

Combining courses in technology, General Studies and professional education, students may prepare for educational careers in industrial arts education, technical teacher education and industrial supervision. Concentrations in a variety of technical areas are provided.

The following common core is required for those in industrial arts and technical teacher education.

**Industrial Arts and Technical Teacher Education Core**

|  | <i>Semester<br/>Hours</i> |
|--|---------------------------|
| ELT 280 Electricity Electronics . . . . .                | 3                         |
| ITE 202 Integrated Drafting Studies . . . . .            | 2                         |
| ITE 402 Analysis and Course Development . . . . .        | 3                         |
| ITE 442 Facility Planning and Management . . . . .       | 3                         |
| ITE 480 Teaching Industrial Technical Subjects . . . . . | 3                         |
| MAT 115 College Algebra and Trigonometry . . . . .       | 4                         |
| Physics, Chemistry . . . . .                             | 6                         |
| Total . . . . .  | 24                        |

While there are variations in the sequence in which courses are taken by students in a particular program within Industrial Technical Education, the suggested freshman pattern presented below may be useful as a general guide for students subject to the final approval of their faculty advisor:

### Industrial Technical Education

#### Suggested Course Pattern for Freshmen

| Fall Semester                              |  | <i>Semester<br/>Hour</i> |
|--|--|--------------------------|
| FNG 10                                     | First Year English . . . . .                     | 3                        |
| MAT 117                                    | College Algebra . . . . .                        | 3                        |
| COM 100                                    | Introduction to Human<br>Communication . . . . . | 3                        |
| (Required courses in major area . . . . .) |  | 6                        |
| Total Credit Hours . . . . .               |  | 15                       |
| Spring Semester                            |  |                          |
| LNG 102                                    | First Year English . . . . .                     | 3                        |
| MAT 118                                    | Plane Trigonometry . . . . .                     | 2                        |
| EE 250                                     | Electricity Electronics . . . . .                | 3                        |
| PGS 100                                    | Introduction to Psychology . . . . .             | 3                        |
| (Required courses in major area . . . . .) |  | 6                        |
| Total Credit Hours . . . . .               |  | 17                       |

**Industrial Arts Education.** The specific objective of this program is to prepare students for the requirements of industrial arts teaching. The carefully planned pattern of course work permits students to receive a balance and sequence of study. The curriculum leads to a Bachelor of Arts in Education and certification for teaching. For the specific requirements of general and professional education, consult the College of Education section of this catalog.

There are two plans available for industrial arts education majors: (1) a comprehensive major of 60 hours, and (2) a 42-hour major with a minor.

**Required courses.** Industrial Arts and Technical Teacher Education core; ITE 200, 201, 222, 346, 403, 460; GRC 135; and TST 420 as part of the General Studies requirement; 3 hours of professional electives, and 21 hours of approved technical courses.

**Technical Teacher Education.** The purpose of this program is to develop competency in one of the technologies and in professional techni-

cal education. This four-year Bachelor of Science degree prepares instructors and training personnel for selected trade and technical programs offered at the various levels.

**Required courses.** Complete Industrial Arts and Technical Teacher Education core; ITE 443, 444, 446, 485, 491; TST 420; ECN 201; COM 100. A minimum of 40 credits, approved by the advisor, is required in a field of study or supporting field, of which ITE 445 and ITE 455 may be a part.

Prior to the completion of the degree, the student must show evidence of adequate and appropriate occupational experience.

**Industrial Supervision.** The purpose of this program is to prepare supervisors and higher level positions in manufacturing and technical fields. Leading to a Bachelor of Science degree, the program provides for a general education background with a concentration in recognized technology and supervisory studies.

Most students will complete the major part of the first two years at a community college. This should include General Studies and lower division specialization courses.

**Required courses:** ELT 280; TST 111, 420, ITE 402, 443, 444, 450, 452, 453; MGT 301, 311, 451, ECN 201, COM 100; 6 hours of Physical Sciences. A minimum of 18 credits, approved by the advisor, is required in supervision and 40 credits in a technology field of specialization, such as safety, fire science, health, and the various concentrations in industrial technology (i.e., aeronautics, drafting design, electronics, graphic arts, or manufacturing of which ITE 445 and ITE 455 may be a part).

Prior to the completion of the degree, the student must show evidence of adequate and appropriate occupational experience.

### Manufacturing

#### Manufacturing Engineering Technology

*An ECPD accredited engineering technology program*

Increased technological complexity and sophistication has created great industrial demand for the services of those individuals who possess working knowledge of the technical phases of planning, testing, production and fabrication of consumer and industrial products and equipment. To meet these needs, three concentrations are available in the manufacturing programs: (1) Manufacturing Engineering Technology, (2) Mechanical Engineering Technology and (3) Welding Engineering Technology. Each of these concentrations requires a minimum of 130 semester hours of satisfactory credits for completion.

Each of these concentrations requires a common manufacturing core in addition to the required engineering technology core and the General Studies requirements.

#### Manufacturing Core

|  | <i>Semester<br/>Hours</i> |
|--|---------------------------|
| Engineering Technology Core                  | 35                        |
| CHM 144 General Chemistry for Engineers      | 4                         |
| TST 300 Applied Mechanics Statics            | 3                         |
| TST 301 Applied Mechanics Materials          | 3                         |
| GRC 344 Machine Drawing . . . . .            | 3                         |
| ELT 201 Applied Electrical Science . . . . . | 1                         |
| MET 200 Manufacturing Processes . . . . .    | 3                         |
| MET 310 Welding Survey . . . . .             | 4                         |
| MET 301 Manufacturing Analysis . . . . .     | 3                         |
| MF 401 Quality Control . . . . .             | 3                         |
| MET 444 Applied Metallurgy . . . . .         | 3                         |
| Total . . . . .                              | 65                        |

**Manufacturing Engineering Technology.** (An ECPD accredited Engineering Technology program) This concentration is designed to

prepare technologists with both conceptual and practical applications of processes, materials, and products related to metalworking industries. Accordingly, this concentration is intended to prepare students to meet the responsibilities in planning the processes of production, developing the tools and machines, and integrating the facilities of production or manufacturing.

*Required courses:* MET 300, 303, 304, 305, 400, 402, 403, 405, 406; AET 309, plus approved electives.

**Mechanical Engineering Technology.** (*An ECPD accredited Engineering Technology program*).

This concentration is designed to prepare the individual for technical positions involved with a broad range of activities such as design, development and the evaluation of machines, power generation and transmission, instrumentation and testing. Typically, the technologist may be required to lay out, develop details and supervise the development of a machine or process, along with testing, evaluating the performance and recommending such alternatives as to make the machine or process operable and competitive.

*Required courses:* AET 310; ELT 340; MEE 380, 381, 386; MET 418, 419; TST 360, 440; COM 100, plus approved electives.

**Welding Engineering Technology.** This area of emphasis is designed primarily to prepare individuals for technical positions in industries utilizing welding and related processes. The focus is on the application of welding technology as applied to current and near future industrial needs. The program is structured to provide the individual with a balance of theory, application and hands on experiences. The general areas covered by the courses are: welding processes, materials, which includes non-destructive testing, and weldment design.

*Required courses:* MET 300, 311, 312, 315,

410, 411, 412, 415; AET 309, plus approved electives

Students planning to complete one to two years at a community college or college-accredited private technical institute prior to entering this program should consult an Arizona State University Manufacturing advisor for assistance in planning a transferable program.

---

## Technology

---

### PROFESSORS:

(TC 201), BARTEL, BROWN,  
BURDETTE, KANNEMAN K G N, LITRELL,  
PRUST, THOMASON

### ASSOCIATE PROFESSORS:

BLANCHARD, COX, DUNLAP, GRADY,  
GRAHAM, MINTER, PARD N , REED, ROPER,  
SCHM DT, STRAWN, B.G. WOOD, M.P. WOOD

### ASSISTANT PROFESSORS:

CARLSEN, EDWARDS, HIRATA KEITH,  
KISIELEWSKI, KRAEMER, McCURDY, MATSON,  
PETERSON, ROOK, SCHOEN, WATK NS,  
WILL AMS

### LECTURERS:

McHENRY, ROBERTS, SHELLER

### AERONAUTICAL TECHNOLOGY

*(Flight instruction costs are not included  
in University tuition)*

#### **AET 180 Aerospace Structures and Materials.** (3) F

Basic aerodynamics, aerospace vehicle structural design and materials. Manufacturing processes, assembly and repair techniques, and hardware selection. Two lectures 4 hours laboratory.

#### **181 Aerospace Systems.** (3) S

Aircraft and aerospace vehicle systems (hydraulics, pneumatics, auxiliary, control instrument, etc.), weight and balance inspection requirements and methods. Prerequisite: AET 180 Two lectures 4 hours laboratory

#### **182 Private Pilot Ground School.** (4) F, S

Ground school in preparation for the FAA Private Pilot

written examination. Three lectures 3 hours recitation.

#### **183 Private Pilot Certificate.** (1) F, S

Flight training for the FAA Private Pilot Certificate. Satisfactory completion of FAA tests is required. Prerequisite or corequisite: AET 182

#### **184 Glider Pilot Rating.** (2) F

Instruction in science and techniques of soaring for FAA Glider Pilot Rating. FAA license required for course completion. Two lectures and flight.

#### **200 Interim Flight Course.** (0) F, S

Allows students to accrue flight time in preparation for the Instrument Pilot Rating and the Commercial Pilot Certificate courses. Prerequisite: Flying time, 30 hours minimum, 150 hours maximum.

#### **202 Aviation Meteorology.** (3) F, S

Evaluation, analysis, interpretation of atmospheric phenomena. Low and high altitude weather from the pilot's viewpoint. Nephology. Prerequisite: PHY 111

#### **287 Aircraft and Aerospace Powerplants.** (3) F

Theory of internal combustion engines, components, performance analysis engine accessories, systems and environmental control. Two lectures 4 hours laboratory.

#### **288 Gas Turbine and Turbomachinery.** (3) S

Development and theory of gas turbine engines. Thrust and performance analysis. Engine components systems aerodynamic problem applications and environmental control. Two lectures 4 hours laboratory

#### **301 Applied Aerodynamics.** (3) S

Properties of air, airfoil theory, wind tunnel testing techniques, air flow measurements, wind tunnel model development. Prerequisites: AET 181, 288; MAT 260; PHY 111 ASE 226. Two lectures 2 hours laboratory

#### **303 Aviation Law and Regulations.** (2) F, S

Basic source of regulatory powers. Statutes, regulations, advisory circulars. State and international rules.

#### **305 Vector and Structure Analysis.** (2) F

Vector analysis and topics in structural analysis. Prerequisites: MAT 115 or equivalent and PHY 111.

#### **306 Aerospace Electrical and Electronic Systems.** (3) F, S

Theory and design of aircraft and aerospace vehicle electrical and electronic systems including navigation and communication on equipment. Prerequisites: TST 200; MAT 260, PHY 112.

#### **307 Aerospace Systems Design.** (3) F

Analysis and design of aircraft and spacecraft systems, performance evaluation for rockets and missiles. Prerequisites: PHY 112; ASE 226 or knowledge of FORTRAN programming.

#### **308 Combustion Analysis.** (3) F

Fuels and combustion, a basic analysis of fuels chemis

try and chemical kinetics of the combustion process. Prerequisites: AET 288 MAT 260 MEE 380; PHY 112 CHM 114 or equivalent Two lectures 2 hours laboratory

**309 Nondestructive Testing and Quality Assurance.** (3) S

Purpose of industrial inspection, quality standards and statistical methods. Theory and application of nondestructive and destructive testing procedures. Two lectures 4 hours laboratory.

**310 Instrumentation.** (2) F

Methods of collecting and analyzing experimental data. Prerequisites: TST 200 AET 306 MAT 260; PHY 112

**314 Commercial Pilot Ground School.** (3) F S

Preparation for the FAA Commercial Pilot written examination. Ten hours simulator required. Prerequisites: AET 183 or equivalent corequisite. AET 202 Three lectures

**330 Aircraft Design I.** (3) F S

Basic applied aerodynamics and airplane performance analysis Prerequisite: AET 306.

**380 Instrument Pilot Ground School.** (3) F, S

Instruction in preparation for the Instrument Pilot written examination. Ten hours of simulator required. AET majors pre- or corequisite. AET 202, 314 or equivalent. Non AET majors, prerequisite. Private Pilot Certificate or equivalent corequisite. AET 202 or equivalent.

**381 Instrument Pilot Rating.** (1) F S

Flight training for the FAA Instrument Pilot Rating. Satisfactory completion of FAA Instrument Rating required. Prerequisite: AET 380 or equivalent flying time 150 hours total. Not for AET majors

**382 Air Navigation.** (2) F

Advanced navigation methods and underlying principles. Dead reckoning, celestial pressure differential techniques and integrated navigation systems. Corequisite: AET 380 or equivalent.

**383 Commercial Pilot Certificate and Instrument Rating.** (2) F, S

Flight training for the FAA Unrestricted Commercial Pilot Certificate. Satisfactory completion of FAA Certificate/Rating required. Prerequisites: AET 314, 380 flying time 150 hours total.

**384 Airport Planning.** (3) F

Community and airport planning, site selection financing navigation, design of and engineering area terminal buildings and support facilities. Prerequisite: junior standing.

**385 Flight Instructor Ground School.** (3) F

Instruction in preparation for FAA Flight Instructor written examination. FAA Flight Instructor written exam and

BG Certificate required. Prerequisite: AET 383 or equivalent.

**386 Flight Instructor Rating.** (1) F, S

Flight training for FAA Flight Instructor Certificate. Certificate required for course completion. Corequisite: AET 385

**387 Multi-Engine Ground School.** (1) F

Instruction in preparation for the FAA Multi-Engine Rating. Prerequisite: AET 383 or equivalent.

**388 Propulsion.** (3) S

Principles, thrust performance cycles, combustion systems mechanical, material and other design considerations ram jets rockets and advanced propulsion systems. Prerequisite: AET 308 Two lectures 2 hours laboratory

**389 Multi-Engine Rating.** (1) F S

Flight training for the FAA Multi-Engine Rating. FAA rating required for course completion. Corequisite: AET 387

**390 Aerospace Systems Analysis I.** (3) F S

A systems concept of quantitative methods in planning, analysis, control including breakeven analysis, PERT CPM and probability theory. Prerequisites: ASE 226 MAT 260

**391 Airport Operation.** (2) F, S

Operational functions commercial airlines general aviation operations, terminal building utilities support facilities, community relations and airport financing. Prerequisite: AET 384.

**392 Flight Instructor Instrument Ground School.** (2) S

Preparation for FAA Instrument Flight Instructor Certificate. FAA CF written examination and the G Certificate required for course completion. Prerequisite: AET 385

**393 Flight Instructor Instrument Rating.** (1) F, S

Flight training for the FAA CFII. CF certificate required for course completion. Prerequisite: AET 386. Corequisite: AET 392

**410 Aviation Safety.** (2) F, S Kraemer

Aviation accident prevention development and analysis of aviation safety programs

**411 Aircraft Accident Investigation.** (3) S; Reed

Development and evaluation of evidence, analysis, and recommendations for preventive practices. Prerequisite: AET 410.

**487 Aircraft Design II.** (3) F S Reed

Basic aerodynamics and airplane performance analysis methods applied to practical design project. Prerequisites: AET 330 390.

**488 The Air Transportation System.** (3) F, S, Thomason

Air commerce related to the transportation system,

regulatory climate of airline and fixed base operations career planning. Prerequisites: ECN 201, MGT 301

**489 Airline Administration.** (2) F, S; Thomason  
Administrative organizations, economics of airline administration operational structure cost analysis, relationship with federal government agencies. Prerequisite: AET 488.

**490 Aerospace Systems Analysis II.** (3) S; Dunlap  
Systems planning, analysis and control forecasting transportation and assignment algorithms, networks. Linear programming, production scheduling. Prerequisite: AET 390

**Special Courses:** AET 484, 494, 498 499 500, 580 584 590 591, 592, 593 594 598. (See pages 30-31)

## ELECTRONICS

**ELT 201 Applied Electrical Science Laboratory.** (1) F, S

Basic circuits laboratory techniques and instruments. Corequisite: TST 200 Three hours laboratory.

**210 Active Devices.** (3) F, S

Active device characteristics modes and basic electronic circuit design principles. Prerequisites: TST 200 ELT 201 Corequisite: ELT 300

**211 Electronic Circuits Laboratory I.** (1) F S

Active device characteristics and basic electronic circuitry. Diagnostic principles and instrumentation. Corequisite: ELT 210 Three hours laboratory

**280 Electricity/Electronics.** (3) F, S

Principles of electricity and electronics with applications toward instruction at the secondary level. Open only to industrial arts and graphic communication majors. Five hours lecture/recitation/laboratory.

**300 Electric Circuits.** (3) F S

Graphical and analytical analysis of electronic circuits and components. Application of circuit theorems. Transient and sinusoidal excitation. Prerequisites: TST 200, MAT 115 or MAT 117 and 118. Four hours lecture/recitation/demonstration

**301 Electric Networks I.** (3) F S

Graphical and analytical analysis of electronic networks using calculus essentials. Transients. Steady state sinusoidal frequency response. Transfer functions. Prerequisite: ELT 300. Corequisite: MAT 260 Four hours lecture/recitation

**310 Electronic Circuits I.** (3) F S

Analysis and design of bipolar and FET electronic circuits using the mode approach. Amplifier and transfer function principles. Prerequisites: ELT 210, 300 Corequisite: ELT 301. Four hours lecture/recitation.

**315 Electronics Design Principles I.** (2) S

Layout, documentation standards and basic fabrication techniques for design of electronic equipment Prerequisite: TST 111 and 121 ELT 210 and 211 Four hours lecture recitation laboratory

**322 Electronics Circuits II.** (3 S)

Analysis and design principles of electronic circuit applications: small large signal, low high frequency linear non linear Prerequisites: ELT 301 310 Corequisite: ELT 323.

**323 Electronics Circuits Laboratory II.** (1) S

Design and application of electronic circuits Prerequisites: ELT 211 and 310 Corequisite: ELT 322. Three hours laboratory recitation

**330 Electronic Instrumentation.** (2 F)

Theory and operation of measurement circuits and electronic instrumentation. Diagnostic and calibration principles and techniques Prerequisites: ELT 210, 211 and 300 Corequisite: ELT 331

**331 Instrumentation Laboratory.** (1 F)

Corequisite: ELT 330 Three hours laboratory.

**340 Electric Circuits and Machines.** (3) F

Principles and analysis of electrical power circuits and components: Transformers Rotating machines and related control equipment Prerequisites: ELT 300 or TST 200 and PHY 112 for non-ELT majors). Four hours lecture recitation demonstration

**400 Electric Networks II.** (3 F, S, Kanneman, Peterson, Strawn

Graphical and analytical analysis of electrical networks. Time frequency and Laplace transform domain techniques: Waveform analysis Prerequisites: ELT 301 MAT 260 Corequisite: MAT 261

**404 Transmission Lines and Waveguides.** (3 S Blanchard, Peterson, Strawn

Theory and application of transmission lines, waveguides and microwave components: Analysis and matching using the Smith Chart Prerequisite: ELT 301 Four hours lecture recitation demonstration

**408 Analog Simulation.** (3) S 80, Blanchard, Grady, Kanneman

Analog simulation of dynamic physical feedback systems: Programming and scaling techniques for linear and non linear simulation Prerequisite: ELT 400 (or TST 362 for non-ELT majors) Four hours lecture recitation laboratory

**410 Linear Electronic Circuits Design.** (3 F 79 McCurdy Kanneman Strawn

Frequency response and feedback design of multistage electronic circuits and systems: Linear integrated circuitry Prerequisites: ELT 301 310

**411 Linear Electronics Design Laboratory.** (1) F 79 Kanneman

Corequisite: ELT 410 Three hours laboratory

**415 Electronics Design Principles II.** (2) F S Blanchard Grady, Wood

Electronic equipment design and fabrication principles and practice: Competition of electronics hardware design project and report Prerequisites: ELT 315: ELT 322 or 460; senior or standing Four hours lecture recitation laboratory

**420 Operational Electronics.** (3 S Kanneman McCurdy, Grady

Differential and operational amplifier circuitry, feedback configurations: op-amp errors and compensation, linear and non linear circuitry Applications Prerequisites: ELT 301 310

**421 Operational Electronics Laboratory.** (1 S; McCurdy, Grady, McHenry

Linear integrated circuits and op amp applications Corequisite: ELT 420 Three hours laboratory

**422 Electronic Switching Circuits.** (3 F 80 McCurdy Grady, Kanneman

Analysis and design of electronic circuitry: operation a switching mode: Wave shaping, timing logic Prerequisites: ELT 450 and 322

**423 Electronic Systems Design Laboratory.** (1 F 80 McCurdy Grady McHenry

Corequisite: ELT 422. Three hours laboratory.

**430 Measurement Systems.** (3 S Blanchard Grady McHenry

Measurement principles and instrumentation techniques: Signal and error analysis. Prerequisites: ELT 322; ELT 420 or 460, ELT 450

**431 Measurement Systems Laboratory.** (1 S Blanchard Grady, McHenry

Prerequisites: ELT 330 and 331, corequisite: ELT 430 Three hours laboratory.

**450 Digital System Principles.** (3) F, S Grady, McCurdy McHenry

Binary logic combination design and simplification: introduction to sequential circuits: introduction to computer arithmetic: hardware and software principles Prerequisite: junior or standing

**451 Digital Electronics Laboratory.** (1 F S Kanneman

Prerequisites: ELT 210 and 211 Corequisite: ELT 450 Three hours laboratory

**452 Digital Logic Design.** (3 S Kanneman, McCurdy, Grady

Analysis and design of sequential logic networks. System design techniques using complex building blocks, programmed logic Prerequisite: ELT 450

**453 Digital Logic Design Laboratory.** (1) S Grady McCurdy, McHenry

Prerequisite: ELT 451 Corequisite: ELT 452 Three hours laboratory

**454 Digital Hardware Systems Design.** (3 F S 80 Grady McCurdy Wood

Analysis and design of small computer systems: Computer organization and hardware: Machine language fundamentals and operations. Prerequisite: ELT 450 and ASE 226

**455 Digital Systems Applications Laboratory.** (1) F S 80 Grady McCurdy, Wood

Prerequisite: ELT 451 Corequisite: ELT 454 Three hours laboratory.

**456 Minicomputer Systems and Programming.** (3) S, F 80 Kanneman McCurdy, Wood

Assembly language programming: Input output and off-line diagnostics: Utilization of utility software Prerequisites: ELT 454 486 Four hours lecture recitation laboratory

**457 Minicomputer Systems and Applications.** (3) S '80, McCurdy, Kanneman, Wood

Applications of micro and micro computer hardware and software: Special purpose controllers: interface design and applications Prerequisites: ELT 454 and 456 Four hours lecture recitation laboratory.

**460 Special Devices and Applications.** (3) F, Grady McHenry, Strawn

Analysis and design of electronic circuitry using special active devices for linear and nonlinear applications. Prerequisites: ELT 301 310

**461 Special Devices Laboratory.** (1 F Kanneman

Corequisite: ELT 460 Three hours laboratory

**470 Communication Circuits.** (3 S Blanchard Peterson Strawn

Analysis and design of passive and active communication circuits: Coupling networks: filters, impedance matching: Modulation and demodulation techniques Prerequisites: ELT 301, 310 472

**471 Communication Circuits Laboratory.** (1 S, Blanchard, Peterson Strawn

Corequisite: ELT 470. Three hours laboratory

**472 Communication Systems.** (3 S F, Blanchard McHenry Strawn

Systems analysis and design of AM, FM, PCM and SSB communication systems: Noise and distortion performance of communication systems Prerequisites: ELT 301 310.

**473 Digital/Data Communication Systems.** (3) F Wood Strawn, Kanneman

Signals: distortion, noise, error detection correction: Transmission and system design: interface techniques and standards: Digital hardware. Applications. Prerequisites: ELT 472 450

**475 Communication Systems Laboratory.** (1) F; Kanneman  
man

Prerequisite: ELT 472 and 404 Three hours laboratory.  
May be repeated for a maximum of 2 hours credit.

**476 Video Circuits and Systems.** (3) F; Edwards, Blanchard  
McHenry

Radio frequency selectors video amplifiers synchronizing  
circuits kescopes and color demodulators  
Prerequisite ELT 322 or approval of instructor Four  
hours lecture demonstration

**477 Video Systems Laboratory.** (1) S Edwards Blanchard  
McHenry

Prerequisite ELT 476 Three hours laboratory.

**478 Communication Transmission System Design.** (3) F  
79 Blanchard

Analysis and design of cable TV and other communication  
transmission systems Strand mapping, system  
layout, installation, performance characteristic measurements  
Prerequisite ELT 404 and 472

**482 Industrial Practice: Internship and Cooperative  
Programs.** (1-4) F, S, SS

Specify assigned approved activities in selected elec-  
tronic industries Report required. Prerequisite  
Electronic major enrolled at junior senior level Max-  
imum of 10 credits

**486 Computer Programming Applications.** (3) F S  
Kanneman McCurdy Wood

Application of computer programming to the solution of  
technology problems of particular interest to electronics  
and related fields. Prerequisites TST 121 and ASE 321.

**488 Electronic Broadcasting Principles.** (1) S; Ed-  
wards Blanchard, Wood

Electronic communication broadcast principles practices  
and regulations for commercial (FCC) licensing  
Prerequisites ELT 450 472 and 476, or approval of  
instructor. Two hours lecture recitation

**501 Network and Signal Theory.** (3) F Strawn, Kanneman  
Peterson

Network and signal analysis theory, and applications.  
Transform and computer techniques. Applications Pre-  
requisites ELT 400 and MAT 261.

**506 System Dynamics and Control.** (3) S '81; Kanneman  
Grady

Time frequency and transform domain analysis of  
physical systems Transfer function analysis of feedback  
control systems performance and stability Compensation.  
Prerequisite ELT 400 (or TST 362 for non-ELT  
majors)

**507 Control Systems Laboratory.** (1) S '81; Kanneman,  
Grady

Laboratory study of control components and systems,  
including analog logic simulations. Applications. Pre-

requisite ELT 450 Corequisite ELT 506. Two hours  
recitation laboratory

**522 Integrated Circuits and Applications.** (3) F '80;  
Kanneman, McCurdy, Grady

Analysis, design and applications of integrated circuits  
and systems. Prerequisites ELT 322 450; 420 or 460.

**540 Electrical Power Systems.** (3) S '80; Edwards  
Kanneman, Grady

Electrical power system analysis transmission, distribu-  
tion instrumentation, protection, and related system  
components. Prerequisites ELT 301 and 340

**552 Digital Systems and Applications.** (3) F; Kanneman,  
Grady McCurdy

Analysis design and applications of digital networks  
and systems Prerequisite ELT 450 and 454

**557 Small Computer Systems and Applications.** (3) S  
Grady McCurdy Wood

Applications of small computer systems, mini and micro  
computer hardware and software. Prerequisite ELT  
454 Four hours lecture recitation/laboratory

**570 Communication Circuits and Applications.** (3) S  
Blanchard Peterson Strawn

Selected topics in electronic communication circuits  
Applications to analog and digital communication. Filter  
design Prerequisites ELT 322 450, 472 Four hours  
lecture recitation/laboratory

**574 Antennas and Propagation.** (3) F 79 Blanchard,  
Strawn

Principles and characteristics of electromagnetic energy  
propagation and transmission Antenna principles  
and applications pattern measurements Prerequisite.  
ELT 404 Four hours lecture recitation/laboratory

**585 Electricity/Electronics Survey.** (3) F; Grady, Mc-  
Henry Wood

Principles of electricity and electronics with applica-  
tions Prerequisites TST 200, ELT 201, or ELT 280. Not  
open to ELT majors Five hours lecture demonstra-  
tion laboratory

**Special Courses:** ELT 294 484, 494, 498, 499, 580,  
584 590 591, 592 593, 594 598, 599. (See pages  
30-31)

## GRAPHIC COMMUNICATIONS

**GRC 135 General Graphic Arts.** (3) F, S  
Basic graphic arts industrial processes Six hours lec-  
ture and laboratory

**136 Graphic Arts Processes.** (3) S  
Screen process planography embossing, photo-  
fabrication, presswork, photography and basic produc-  
tion techniques Six hours lecture and laboratory

**236 Layout and Graphic Arts Design.** (3) F

Basic principles of typographic layout. Preparation of  
thumbnails, roughs and comprehensives

**237 Image Preparation and Carrier Assembly.** (3) S  
Preparing copy for photo conversion

**238 Instruments and Controls.** (3) S '79, F '80  
Instrumentation and methodologies for materials test-  
ing and quality control

**314 Machine Drawing.** (3) S 79 F '80

Application of drafting skills and tolerancing techniques  
to engineering drawings of product on parts Prerequ-  
sitive TST 111 Six hours lecture and laboratory

**332 Pre-Press Preparation, Binding and Finishing.** (3)  
F

Stripping negatives and positives Transferring of nega-  
tive and positive images to image carriers Binding and  
finishing a product.

**333 Offset Lithography (Presswork).** (3) F  
Function of the offset press. Elements required for  
press operation chemicals inks, carriers blankets and  
solvents. Six hours lecture and laboratory

**334 Offset Lithography (Camerawork).** (3) F  
Production of line, halftone and special effects photo-  
graphic negatives and positives Six hours lecture and  
laboratory

**336 Color Separation.** (3) S  
Methods of producing separation negatives and posi-  
tives. Prerequisite GRC 334.

**337 Production Management.** (3) S  
Planning and controlling workflow of graphic arts pro-  
ducts.

**339 Estimating and Cost Analysis.** (3) F  
Estimating printing operations and materials, elements  
of cost finding usages selected systems

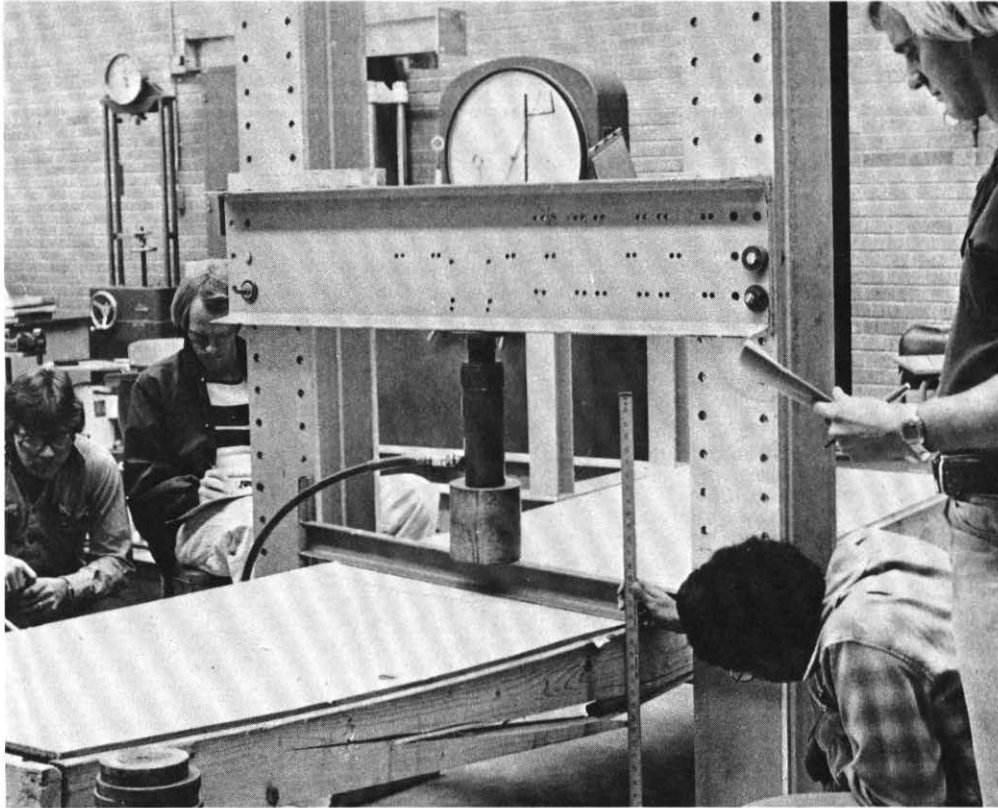
**403 Drafting Applications.** (3) S, Prust  
Survey of drafting clusters. Architecture blueprint read-  
ing construction, developments furniture sketching  
Six hours lecture and laboratory

**433 Production Techniques.** (3) S Prust  
Systematic production planning experience. Six hours  
lecture and laboratory

**435 Plant Management.** (3) F Prust  
Independent documentary research, equipment per-  
sonnel plant site selection and plant management  
problems.

**436 Technical and Research Problems.** (3) F 79 S '81  
Prust  
Individual activities involving investigation and experi-  
mentation.

**437 Advanced Color Reproduction.** (3) F, Prust  
Analysis of color reproduction systems. Six hours lec-  
ture and laboratory



**438 Graphic Arts Techniques and Processes.** (3) F, S, SS; Prust

Relating materials to graphic arts printed products—production practice. Six hours lecture and laboratory.

**439 Photocomposition.** (3) S; Prust

Detailed study of modern image preparation equipment.

**Special Courses:** GRC 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598. (See pages 30-31.)

**INDUSTRIAL TECHNICAL EDUCATION**

**ITE 174 Basic Automotives.** (3) F, S

Operation of automobile systems, consumer education, preventative maintenance, minor repairs. Six hours lecture and laboratory.

**200 Integrated Industrial Studies.** (8) F, S

Individual and group activities, problem applications, design principles, free enterprise. Combines fabrication processes in metal, wood, synthetic materials. Four hours lecture, 6 hours conference, 6 hours laboratory.

**201 Integrated Power Studies.** (3) F, S

Concepts of energy conversion, transmission, control, utilization of heat engines, electrical, mechanical devices, fluid power and small engine repair. Six hours lecture and laboratory.

**202 Integrated Drafting Studies.** (2) F, S

Portfolio preparation, drafting practices, technical sketching, orthographics, pictorials, sections, dimensioning, geometric construction, blueprint reading. Four hours lecture and laboratory.

**222 Wood Technology.** (3) F

Physical properties, products, safe use of tools, maintenance, machines and processes; project design and fabrication. Six hours lecture and laboratory.

**273 Automotive Electrical Systems.** (3) S

Principles of electrical systems, testing and repair of battery, ignition, starting, lighting, charging and accessories. Six hours lecture and laboratory.

**322 Design and Manufacture in Wood.** (3) S

Furniture, cabinet, pricing, experimentation, modified wood products, joining, forming, laminating, structural design. Prerequisite: ITE 222. Six hours lecture and laboratory.

**346 Modern Technology and Civilization.** (2) F

American industries, production systems, patents, metrics, unions, occupations, problems of technology, interrelationships of men, materials and processes.

**361 Industrial Crafts.** (2) A

Design and activities in plastic, leather, lapidary, lost wax process, wood and metal. Four hours lecture and laboratory.

**377 Internal Combustion Engines.** (3) S

Automotive engine principles, design, rebuilding, performance testing; fuels, carburetor operation and rebuilding. Six hours lecture and laboratory. Prerequisite: ITE 174

**402 Analysis and Course Development.** (3) A; Bartel  
Selecting instruction units through task analysis techniques; industrial technical course and training program development.

**405 Improving Instruction in Drafting.** (3) S '80; Brown  
Methods, evaluation, industrial practices, drafting problem sequences, and equipment.

**421 Production Wood Technology.** (3) S '81; Littrell  
Design and manufacture of products, economy of materials, structural factors, jigs and fixtures, work environment, assembling, finishing. Six hours lecture and laboratory.

**423 Industrial Arts for Elementary Teachers.** (3) NR; Littrell

Tool and material centered activities related to teaching children about technology; classroom problems; integrated instruction; instructional aids.

**424 Techniques of Construction.** (3) S '80; Littrell

Buildings, nonbuildings, planning, site preparation, structure, construction materials, personnel. Six hours lecture and laboratory.

**427 Industrial Plastics.** (3) S; Littrell

Fabrication techniques, physical qualities, manufacturing processes, injection molding, vacuum forming, welding, lamination, casting. Six hours lecture and laboratory.

**442 Facility Planning and Management.** (3) F SS

Brown

Planning and management of industrial technology education laboratories equipment and supply selection, facility arrangement.

**443 Industrial Safety.** (3) F SS, Prust, Watkins

Accident prevention accident factors methods of recording and reporting analysis psychological aspects, attitudes recent legislation safety consciousness and liability.

**444 Modern Industries.** (3) S Watkins

Aspects of management labor plant organization and product; for interpretation of industry in industrial supervision programs

**445 Industrial Internship.** (1-10) F S, SS, Watkins

Assignment commensurate with student's program. Manufacturing processes technical information management experiences specialized instruction by industry Division majors only Prerequisites approval of advisor and TE department junior or senior status

**446 Instructional Aids and Materials.** (3) F 80, Hirata

Selection preparation construction and methods of use in industrial technology education

**450 Industrial Training.** (3) NR, LITTLE

Training techniques and learning processes. Planning developing, and evaluating training programs in industry and governmental agencies

**452 Industrial Supervision.** (3) F, Watkins

Supervisory principles as applied to industrial and governmental agencies Supervisory employee relations group morale, leadership techniques policy interpretation and training

**453 Safety Supervision.** (3) S Prust Watkins

Controlling physical conditions, environmental control personal protection controls cost analysis systems safety analysis auxiliary function

**455 Industrial Technical Programs.** (1-12) F, S, SS

Bartel

Industrial, governmental factory, and special school programs. Prerequisites advisor and TE department approval and senior status

**460 Improving Instruction in Metals.** (3) F Pardin

Methods curriculum teaching aids machine problems with athletes and genders. Six hours lecture and laboratory

**461 Hot Metal Techniques** (3) F Pardin

Properties of metals sand and investment casting pattern making Six hours lecture and laboratory

**465 General Metals.** (3) S Pardin

Nonferrous control, chemical machine study of special interest in metalworking processes Prerequisite TE 460 or MET 200 Six hours lecture and laboratory

**470 Improving Instruction in Automotives.** (3) F 80

Hirata

Strategies curriculum teaching aids, activities equipment maintenance new products Selected skill development Prerequisite approval instructor. Six hours lecture and laboratory.

**471 Automotive Power Train and Chassis.** (3) S'80,

Hirata

Principles and servicing of clutches transmissions differential, steering suspension brakes tires front end alignment Six hours lecture and laboratory

**478 Engine Analysis.** (3) F 79 S 81, Hirata

Automotive emissions control and air conditioning operation and testing scope, infrared analysis tune-up procedure. Prerequisites ITE 273 377. Six hours lecture and laboratory

**480 Teaching Industrial Technical Subjects.** (3) F S,

SS; Bartel Little Pardin

Teaching techniques philosophy organization planning evaluation of teaching efficiency.

**485 Teaching Internship.** (1-8) F, S, SS

Classroom laboratory and training procedures in post-secondary institutions industry and/or governmental agencies. Prerequisites TE 402, 480 senior status and departmental approval

**491 Organization and Management of Cooperative**

Programs. (3) S Watkins

Workstudy programs for industrial technology occupations in high schools and community colleges Developing and coordinating programs instructional materials

**513 Experimental Activities.** (3) F Pardin Little

Investigation and solution of technical problems in the student's area of specialization involving material design and analysis.

**540 Evaluation in Industrial Technical Education.** (3)

F 80 Bartel

Evaluative factors such as attitudes behavioral factors skills, technical information; instrument construction evaluation of program effectiveness

**541 Vocational Education for Special Needs.** (3) NR

Little

Organizing and administering vocational programs to meet special needs of youth and adults in schools agencies and industry.

**542 History and Philosophy of Industrial Education.** (3)

S 80, Little

Evolution of model programs, current concepts future trends

**544 Industrial Processes in Special Education.** (3) A,

Little

Emphasize task analysis in development of manpower

activities for special needs learners.

**546 Post-Secondary Occupational Education.** (3) F'79

S'81, Bartel

Trends community surveys, needs, curricula instruction evaluation of occupational programs financing, emphasis on industrial occupational education at the post-secondary level

**548 Administration of Industrial Technical Education.**

(3) SS '80 Brown

Improving instruction fund and material control student personnel problems curricular patterns

**549 Research Techniques and Analysis.** (3) F 79 S'81

Little

Selection of research problems, analysis of literature individual investigations preparing reports, proposal writing

**Special Courses:** ITE 484 494 498 499 580, 584 590

591, 592, 593 594, 598, 599 780 783 784 790 791 792 799 (See pages 30-31)

**MANUFACTURING****MET 110 Welding Survey.** (3) F S

Oxy-acetylene arc brazing, resistance and gas tungsten arc welding procedures for ferrous and nonferrous metals Six hours lecture and laboratory

**116 Aeronautical Welding.** (2) F

Oxy-acetylene and tungsten gas tungsten-arc welding procedures and brazing techniques used for aircraft structures. Four hours lecture and laboratory

**200 Manufacturing Processes.** (3) F

Metal removal processes emphasizing drilling milling and lathe processes including tool bit grinding Emphasis on production speeds and feeds. Six hours lecture and laboratory

**301 Manufacturing Analysis.** (3) S

Introduction to the organization and functional requirements for effective production

**303 Machine Control Systems.** (3) F

Theory and application of electromechanical, hydraulic, pneumatic fluidic and electrical control systems for manufacturing Prerequisites MAT 260 TST 200 or PHY 112. Six hours lecture and laboratory

**304 Casting and Forming Processes.** (3) F 79

Analysis of various casting, molding and forming processes in terms of equipment requirements product characteristics and manufacturing costs

**305 Manufacturing Processes.** (3) S

Metal removal processes emphasizing milling, grinding shaping, turret lathe, tracer lathe, and tool sharpening Six hours lecture and laboratory. Prerequisite MET 200

**306 N/C Manual Programming.** (3) F

Numerical Control as related to point to point and continuous path systems. Methods of programming, setup and operation. Six hours lecture and laboratory. Prerequisite: MET 200

**310 Welding Survey.** (4) F

Theory and application of industry welding processes. Introductory welding metalurgy and weldment design SMAW, GTAW, GMAW, oxy acetylene, brazing experiences. Three hours lecture, 3 hours laboratory. Prerequisite: upperclass standing or instructor's approval.

**311 Welding Processes.** (3) S 80

Theory and application of welding processes commonly used for steel plate fabrications: fixturing, procedures, safety and codes covered. Prerequisite: MET 310. Six hours lecture and laboratory.

**312 Welding Processes.** (3) F 79, S 81

GTAW, GMAW, PAW, EBW and other processes used primarily for materials and joint configurations common to aerospace applications. Prerequisite: MET 310. Six hours lecture and laboratory.

**315 Welding Power Sources Analysis.** (3) F 80

Design and operating characteristics of welding power sources and related equipment. Equipment selection, setup, and troubleshooting procedures covered. Prerequisites: TST 200, ELT 201, MET 310. Four hours lecture and laboratory.

**401 Quality Control.** (3) S, Graham, Minter

Introduction to statistical quality control methods as applied to tolerances, process control, sampling and reliability.

**402 Specialized Production Processes.** (3) S 80, Graham

Non-traditional manufacturing processes emphasizing EDM, ECM, ECG, CM, PM, HERF, EBW, LBW, etc.

**403 N/C Computer Programming.** (3) F 79, F 80

Schmidt  
Theory and application of computer-aided N/C languages with programming emphasis with APT and suitable postprocessors. Six hours lecture and programming laboratory. Prerequisites: MET 306, ASE 226

**404 Applied Metallurgy.** (3) F, Graham

Principles of metalurgy emphasizing concepts most relevant to typical manufacturing requirements, factors affecting properties and evaluation methods, metalography experiences. Two hours lecture, 3 hours laboratory.

**405 N/C Continuous Path Programming.** (3) F 80

Schmidt  
Numerical Control continuous path programming related to two-, three- and four-axis systems. Emphasis

on manual and automatic systems. Six hours lecture and laboratory. Prerequisite: MET 306.

**406 Machinability Theory.** (2) F 79, S'81, Schmidt  
Application of machinability theory to practice implications to adaptive control systems, production costs, tool wear, surface finish. Experiments conducted. Prerequisites: MET 305, 404. Four hours lecture and laboratory.

**407 Aerospace Materials.** (2) S'80; Graham  
Materials used for aircraft powerplants and airframes. Emphasis on criteria for selection in terms of mechanical properties and manufacturing processes. Prerequisite: TST 101 or equivalent.

**408 Production Tooling.** (3) S 80, Schmidt  
Fabrication and design of jigs, fixtures and special industrial tooling related to manufacturing methods. Prerequisite: MET 200. Six hours lecture and laboratory.

**410 Welding Metallurgy.** (4) S, Graham  
Metalurgical principles applied to structural and alloy steel and aluminum weldments. Laboratory emphasis on welding experiments, metalography and mechanical testing. Prerequisites: MET 310 and 404. Six hours lecture and laboratory.

**411 Welding Metallurgy.** (3) F, Graham  
Metalurgical principles as applied to stainless steel, superalloy, titanium and other refractory metal weldments and brazements. Prerequisite: MET 410.

**412 Design of Weldments.** (3) S; Ksewsk  
Design of welded structures and machine elements in terms of allowable stresses, joint configurations, process capabilities and cost analysis, welding procedures emphasized. Prerequisites: MET 310, TST 311.

**415 Welding Codes.** (2) S, Ksewsk, Peterson  
Familiarization with and application of the various codes, standards, specifications applicable to weldments. Corequisite: MET 412.

**418 Mechanical Equipment.** (4) F, Ksewsk, Minter, Sheiler  
Integration of materials, mechanics, and drafting skills into engineering designs or modifications. Prerequisites: TST 311. Six hours lecture and laboratory.

**419 Mechanical Equipment II.** (4) S; Ksewsk, Minter, Sheiler  
Integration of materials, mechanics, and drafting skills into engineering designs or modifications. Prerequisite: MET 418. Six hours lecture and laboratory.

**Special Courses:** MET 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 594, 598. See pages 30-31.

**TECHNICAL SCIENCE**

**TST 101 Manufacturing Processes and Materials.** (3) F, S

Basic manufacturing processes and engineering materials, their properties and typical applications. Two hours lecture, 2 hours recitation.

**111 Technical Graphics.** (2) F, S

Elements of orthographic and axonometric projection, charts and graphs, graphical mathematics, introduction to basic descriptive geometry. Six hours lecture and laboratory.

**121 Problem Solving.** (3) F, S

Methods for defining, organizing, developing ideas and solutions to problems of a technical nature. Prerequisite: MAT 115 or equivalent. Three hours lecture, recitation, laboratory.

**200 Applied Electrical Science.** (3) F, S

Principles of electric circuit elements, introduction to d.c. and a.c. circuit analysis. Prerequisites: MAT 115 or MAT 117, 118, TST 121.

**310 Applied Mechanics-Statics.** (3) F

Vectors, force systems, friction, equilibrium, centroids and moment of inertia. Prerequisites: PHY 111, MAT 261.

**311 Applied Mechanics-Materials.** (3) S

Deformation of members and bodies under stress. Prerequisite: TST 310. Four hours lecture and laboratory.

**360 Applied Mechanics-Dynamics.** (3) F

Masses, motion, kinematics, dynamics of machinery. Prerequisite: TST 310.

**362 Applied Calculus.** (3) F, S

Applied calculus including ordinary differential equations, Laplace transforms. Prerequisite: MAT 261.

**372 Applied Linear Analysis.** (3) F, S

Ordinary differential equations, solutions of polynomials by numerical methods, linear algebra using computer techniques. Prerequisites: ASE 226 or 321 and MAT 261.

**420 Technical Writing.** (3) F, S, Rook

Writing technical organization of material, research methods for technical writers. Prerequisite: junior or senior standing.

**440 Fluid Mechanics.** (3) NR, Minter

Static and dynamic properties of fluids, flow measurement and fluid control design. Prerequisites: MAT 261, PHY 111. Four hours lecture and laboratory.

**Special Courses:** TST 294, 484, 494, 498, 591, 598. See pages 30-31.

# College of Architecture

Hugh Burgess, M.S. Arch.  
*Dean*

## Purpose

The central function of the College of Architecture is to educate students at the professional and graduate levels for architecture, planning and design careers, and to provide leadership to these professions through the development and dissemination of new knowledge resulting from both faculty and graduate research studies. The College also contributes to community efforts to conserve and improve the quality of our natural and built environments through the Research and Service Foundation Office.

## Organization

The College is composed of three academic units: the Department of Architecture, the Department of Planning and the Department of Design Sciences, each administered by chairs. The general administration of the College and the Pre Professional program are the responsibility of the Dean, who in turn is responsible to the President through the Provost.

## Affiliations

The College of Architecture maintains active affiliations with the Arizona Society of Architects, the Central Arizona Chapter of the American Institute of Architects; the Associated Student Chapters of the American Institute of Architects; the Association of Collegiate Schools of Architecture; the American Institute of Planners; the Association of Collegiate Schools of Planning; the American Society of Landscape Architects; the Council of Educators in Landscape Architecture; the Society of Automotive Engineers; the American Society of Interior Designers, the Industrial Designers Society of America, the Interior Design Educators Council; and the National Student Council of the American Society of Interior Designers.

## Accreditation

The professional architecture degree offered by the College is accredited by the National Architectural Accrediting Board and the Arizona State Board of Technical Registration. The professional degree in industrial design is approved by the Industrial Designers Society of America. Accreditation of interior architecture and urban and regional planning programs is pending.

## Facilities

The building for the College of Architecture was first occupied in 1970, and provides classrooms, seminar rooms, design and technology laboratories, the Howe Branch Library, student, faculty, and administrative offices. The lower level contains photographic, environmental and structural laboratories. Additional equipment and facilities include computer terminals, an extensive audio visual collection, lecture rooms and materials exhibition spaces.

An Experimental Testing Station, located adjacent to the College building, contains space for solar, structural and materials testing. The College also maintains 1,500 square feet of the Arizona State University rooftop testing laboratory for solar research.

The Research and Service Foundation Office is in the building and provides facilities for community oriented architectural, planning and design services and basic research activities. An energy efficient house, a demonstration unit, designed by the Office, is available for experimentation and research related to energy technology.

## Information

Further information concerning the course of study, advice on pre professional, professional and graduate studies, admission practices, and expenses and financial assistance are in the publications of the College. Requests for these

publications and professional program application forms should be addressed to the Office of the Dean, College of Architecture, Arizona State University, Tempe, Arizona 85281.

Students seeking admission to a College of Architecture professional program are advised to complete the two year minimum course of study entitled "Pre Professional Preparatory Studies." (Students seeking admission to the College for graduate work should review "Graduate Studies, Department of Planning," page 247.)

### General Studies Courses

These courses are open to any student of the University meeting the stated pre-requisites and are recognized in other colleges' programs of General Studies

(Graduate students or professional students enrolled in colleges other than Architecture may be permitted to enroll in certain courses with the approval of the Dean, the department chair and the instructor. Design and technology laboratories are open only to students enrolled in the appropriate College of Architecture professional degree program.)

**Grading.** Students enrolled in General Studies courses will be graded according to the University grading system shown on page 235. The College does not give "Pass-Fail" or credit no credit grades in General Studies courses.

### ENVIRONMENTAL DESIGN HISTORY

#### DES 100 Introduction to Architecture, Planning and Design I. (2) F S

Understanding our physical environment through the forms, functions and determinants of society's continuity with the past and its relation to the development present. Brief examination of architecture, planning and design as professions

#### 101 Introduction to Architecture, Planning and Design II. (2) F, S

Contemporary interior and landscape architecture, industrial design, urban and regional planning, emphasis on career preparation for these professions

#### 200 History of Human Environments I. (3) F

Representative works of western and eastern designed environments including art facts, products, technology, devices, furnishings, buildings and the development of the city through the medieval period

#### 201 History of Human Environments II. (3) S

Designed human environments, including the technology and components from the Renaissance to the present day as represented by western and eastern cultures

#### 213 History of Western Architecture I. (3) F

Representative works of western architecture ancient through medieval

#### 214 History of Western Architecture II. (3) S

Architecture of the Renaissance to the end of the 19th century

### ARCHITECTURAL PHILOSOPHY AND HISTORY

#### APH 300 World Architecture. (2) F S

Explanation of historical and contemporary built environments of world civilizations as manifestations of cultural history and responses to environmental determinants

#### 304 American Architecture. (3) NR

Architecture in the U.S. from earliest colonial times to the present

#### 305 Contemporary Architecture. (3) NR

Europe and America from the foundations of the modern movement to the present

#### 411 Ancient Architecture. (3) NR

The ancient Mediterranean world with selective emphasis on major historical complexes and monumental styles. Prerequisites: DES 213

#### 413 Renaissance Architecture. (3) NR

Europe and America in the 15th and 16th centuries. Prerequisite: DES 213 or 214

#### 414 Baroque Architecture. (3) NR

Europe and America from the late 16th to the middle 18th century. Prerequisite: DES 214

#### 415 19th Century Architecture. (3) NR

Europe and America from neoclassicism to art nouveau. Prerequisite: DES 214

### HOUSING AND URBAN DEVELOPMENT

#### ACH 476 Community Housing. (3) F

History, practices, trends and forms of housing includes growth of public programs, national and local programs, zoning law, housing distribution, planning principles and policies, design review standards and private development practice

#### 477 Housing Environments. (3) S

Contemporary housing environments, housing types and lifestyles as determined by user preference, density, development and property standards, cost, community and privacy, security, identity, movement, and the need for open space.

### CONSTRUCTION ADMINISTRATION AND MANAGEMENT

#### AAD 551 Construction Management I. (3) F, Rummel

Advanced professional management methodology and techniques including organizational, legal and economic aspects of professional practice. Office organization, personnel policies, organizing and managing the production team, scheduling, production budgeting and control

#### 552 Construction Management II. (3) S Rumme

Advanced production and professional management including bookkeeping and cost accounting, record keeping, fast track production methods, comprehensive services, advanced production techniques. Selection, negotiation and contracts with outside consultants and clients, cost-based compensation and techniques of liability loss prevention

#### 553 Construction Administration I. (3) F Perre I

Responsibilities of the architect during the construction phases of architectural services includes preparation of bidding documents, issuance of addenda, bid evaluation, negotiation of construction contracts. Field office organization, legal responsibilities, construction contract agreements, use of Critical Path Method (CPM)

#### 554 Construction Administration II. (3) S Perre

Continuation of AAD 553 with emphasis on field observation of construction, shop drawings, reports and materials testing. Meetings, records, field orders, schedules, arbitration of disputes, architect's responsibilities to client during construction, applications for payment and project closeout

### DESIGN SCIENCE

#### DSC 340 Materials. (3) F

Materials application in design. Characteristics and properties of ferrous and nonferrous metals, plastics and elastomers.

#### 342 Human Factors in Design. (3) F

Man-machine environment systems, human characteristics and behavior applied to design of products, systems and the operating environment

#### 441 Product Liability. (2) S

Manufacturer's liability. Statutes, regulations and common law rules of expert witnesses, insurance and product safety programs

**443 Value Analysis.** 2 S

Critical evaluation of functions, cost and design manufacturing interface in component development Case histories

**ENERGY TECHNOLOGIES AND PLANNING**

**ETE 434 Energy Conservation in Buildings.** 3) S  
Impact of natural forces on the design of buildings with emphasis on pre-design decisions of past construction practices leading to minimum energy consumption investment on new energy resources

**452 Introduction to Solar Energy.** 3 S  
Theoretical and practical aspects of use of solar radiation and nocturnal cooling for control of building environments

**501 Energy Environment Theory.** 3 F  
The historical, theoretical and practical influence of energy and other resource system on the designed environment architecture landscape urban and regional impact of resource strategies especially emphasizing solar and other renewable resources

**552 Solar Energy.** (3 F) Ye Ott  
Utilization of solar radiation and nocturnal cooling for heating and cooling buildings in arid and other regions

**ENVIRONMENTAL ANALYSIS AND PROGRAMMING**

**ANP 431 Programming for Public Health and Safety.** 3 NR

Analysis of public health and safety requirements for the built environment water quality sanitation materials environmental safety building structure human factors except on user personal security and crime prevention Consideration of requirements legal precedents and research findings

**433 Building Codes and Ordinances.** 3) F  
Physical record of man's attitude toward the and Ancient through contemporary landscape planning and design

**INTERIOR ARCHITECTURE**

**INT 348 Theory of Built Environments.** 3 NR  
Interdisciplinary study of built environmental forms the theoretical foundations and relations to social processes

**LANDSCAPE ARCHITECTURE**

**PLA 441 History of Landscape Architecture.** (3 F)  
Physical record of man's attitude toward the and Ancient through contemporary landscape planning and design

**URBAN/REGIONAL PLANNING**

**PUP 371 Introduction to Urban Planning.** (3 F)  
Theoretical and practical aspects of city planning emphasizing urban design interrelationships between physical planning, government and society See CEE 371 page 202.

**373 The Planned Environment.** 3 F S  
Esthetic social economic political and other factors influencing urban development in the 20th century

**474 History of the City.** (3 S)  
The city from its ancient origins to the present day emphasizing the cities of Europe and America during the last five centuries

**VISUAL COMMUNICATIONS**

**VCD 382 Water Color.** 2 F S  
Painting in transparent water color Emphasis on technique composition and color as they relate to various subject and the environment Four hours studio

**Special Courses:** DSC, APH ANP ATE ADE AAD ACH EDE ETE PLA P P294 494 498 499 500 584 590 591 592 593 594 598 599 See pages 30-31

**Pre-Professional Preparatory Studies**

**General Information**

Students interested in pursuing studies in Architecture, Planning and Design Sciences and their separate professional programs, and various emphasis areas offered within the College of Architecture at Arizona State University should contact the Director of Admissions, Arizona State University, Tempe, Arizona 85281. If qualified for University admission, students will be admitted to the College of Architecture in a pre-professional status. In this status, students will enter into a two-year course of preparatory studies as outlined in the separate options and various plans.

The College of Architecture provides pre-professional advisement for all students. Contact the Pre-Professional Advisor, Architect

ture Annex, College of Architecture for information and appointments.

**Option "A" Architecture/Planning/Design Pre-Professional Preparation**

**Minimum Requirements.** This option prepares students for admission to one of the following majors: architecture, design science, industrial design, interior architecture, urban planning or course work emphasis within one of the above majors relating to: landscape architecture, city planning, transportation design and visual communications

**Liberal, General and Preparatory Studies.** Preparatory work may be completed in the ASU College of Architecture pre-professional preparatory program by completion of the ASU courses listed below, or equivalent courses at other accredited institutions, including community colleges. Four semesters or equivalent is the minimum required preparation.

**Curriculum Content**

| Course   | Hours | Requirement |
|--|-------|-------------|
| English Proficiency (6 Sem. Hrs.)  | 6     | 11          |
| LANG 001, First Year English I   | 3     | 11          |
| LANG 002, First Year English II  | 3     | 11          |
| <b>Humanities</b> (1 Sem. Hrs.)  | 1     |             |
| COM 301 Group Communications   | 3     | 3           |
| DES 101 Introduction to Architecture, Planning and Design I  | 4     | 4           |
| Electives (art history, music history, literature, philosophy, speech humanities)  | 3     | 3           |
| <b>Social and Behavioral Sciences</b> (9 Sem. Hrs.)  | 9     |             |
| ECN 201 Principles of Economics  | 3     | 3           |
| Electives (anthropology, economics, multicultural studies, geography, history, psychology, sociology, political science) | 6     | 6           |
| <b>Science and Mathematics</b> (2 Sem. Hrs.)   | 2     |             |
| MAT 101 College Algebra and Trigonometry   | 4     | 4           |

|            |   |   |
|------------|---|---|
| MAT 260,   | Calculus for Applied Sciences                           |   |
| 261        | or Statistics QBA 221 or<br>MAT 226 . . . . .           | 6 |
| ECE 102*** | Introduction to Engineering                             | 2 |
| PHY 111,   | General Physics I, II                                   |   |
| 112        | or Physical or Biological<br>Science Elective . . . . . | 6 |
| ASL 321    | Fundamentals of Computer<br>Programming . . . . .       | 3 |

**Environmental Design History (6 Sem Hrs)**

|          |                                       |  |
|----------|---------------------------------------|--|
| DLS 200, | History of Human Environment I, II    |  |
| 21*      | or                                    |  |
| DLS 213, | History of Western Architecture I, II |  |
| 214*     |                                       |  |

**Technical Graphics and Design (3 Sem Hrs)**

|  |                               |    |
|--|-------------------------------|----|
| DES 14                                 | Design Graphics . . . . .     | 2  |
|  | Lab . . . . .                 | 1  |
| DLS 160                                | Sketching and Rendering I, II | 4  |
| 161                                    |                               |    |
| DES 221,                               | Basic Design I, II . . . . .  | 6  |
| 222                                    |                               |    |
| Minimum Total Semester Hours . . . . . |                               | 65 |

**Option "B" Architecture/Engineering Pre-Professional Preparation**

**Minimum Requirements.** For students in the Engineering Sciences, preparing for sequential Bachelor of Architecture and Master of Science (Engineering) Degrees.

**Liberal, General and Preparatory Studies.** Students seeking to complete the sequential Bachelor of Architecture and Master of Science (Engineering) degree programs, focusing on building design and structures, enroll either in the Department of Civil Engineering within the College of Engineering and Applied Sciences or an approved equivalent program at

\* See Course Subtitle page 23  
 \*\* See Course Subtitle page 23  
 \*\*\* See Course Subtitle page 23

another institution for pre-professional preparatory work as specified  
 This six year program (two years pre-professional, three years of architecture at the professional level, and one year of engineering at the graduate level), provides students completing this curriculum with the basic educational requirements generally required for State Registration in both Architecture and Structural Engineering.

**Curriculum Content**

|   | <i>Semester<br/>Hours</i> |
|---|---------------------------|
| <b>English Proficiency (3 Sem Hrs)</b>  |                           |
| ENG 102 First Year English (to 104)   | 3                         |
| <b>Humanities (4 Sem Hrs)</b>   |                           |
| DLS 200, Introduction to Architecture, Planning and Design I, II  | 4                         |
| Remaining hours required by the University are satisfied by design history  |                           |
| <b>Social and Behavioral Sciences (9 Sem Hrs)</b>   |                           |
| ECN 201 Principles of Economics   | 3                         |
| Electives: anthropology, economics, cultural geography, history, psychology, sociology, political science . . . . . |                           |
|   | 6                         |
| <b>Mathematics (4 Sem Hrs)</b>  |                           |
| MAT 260, Calculus . . . . .   | 6                         |
| 121   |                           |
| ICE 360 Differential Equations  | 2                         |
| ICE 353 Probability and Statistics  | 2                         |
| <b>Engineering Core (13 Sem Hrs)</b>  |                           |
| ICE 102***Introduction to Engineering   | 2                         |
| ICE 201 Mechanics and Heat . . . . .  | 3                         |
| ICE 211 Mechanics I . . . . .   | 2                         |
| ICE 311 Mechanics II . . . . .  | 3                         |
| ICE 313 Materials Mechanics . . . . .   | 3                         |
| <b>Engineering Sciences (3 Sem Hrs)</b>   |                           |
| ASE 321 Fundamentals of Computer Programming . . . . .  | 3                         |

**Environmental Design History (6 Sem Hrs)**

|          |                                    |  |
|----------|------------------------------------|--|
| DLS 200, | History of Human Environment I, II |  |
| 20*      | or                                 |  |
| DLS 213, | History of Western Architecture I, |  |
| 214*     | II                                 |  |

**Technical Graphics and Design (3 Sem Hrs)**

|          |                               |   |
|----------|-------------------------------|---|
| DLS 141  | Design Graphics . . . . .     | 2 |
|          | Lab . . . . .                 | 1 |
| DLS 160, | Sketching and Rendering I, II | 4 |
| 161      |                               |   |
| DLS 221, | Basic Design I, II . . . . .  | 6 |
| 222      |                               |   |

Minimum Total Semester Hours . . . . . 65

**Option "C" Design Science/Packaging Design/Production Design/Technical Management**

**Pre-Professional Preparation**

**Minimum Requirements.** For students preparing for design science, packaging design, production design or technical management concentrations of the Bachelor of Science in Design degree.

**Liberal, General and Preparatory Studies.** Students with interests in design science, packaging design, production design or technical management may complete all preparatory course work in the College of Architecture pre-professional program or at other accredited institutions, including community colleges, offering courses with equivalent content. Four semesters or equivalent is the minimum required preparation.

**Curriculum Content**

|  | <i>Semester<br/>Hours</i> |
|--|---------------------------|
| <b>English Proficiency (6 Sem Hrs)</b> |                           |
| ENG 102, 2** First Year English        | 6                         |
| <b>Humanities (7 Sem Hrs.)</b>         |                           |
| COM 301 Group Communications . . . . . | 3                         |

DES 100, Introduction to Architecture,  
101\* Planning and Design I, II . . . 4

**Social and Behavioral Sciences**

†3 cr ††12 Sem Hrs

ECN 201 Principles of Economics . . . 3  
ADI 233†† Business Communications . . . 3  
ACC 101, Elementary Accounting . . . 6  
102††

**Science and Mathematics (†36 or ††27 Sem. Hrs)**

MAT 15 College Algebra and Trigonometry 4  
MAT 26), Calculus for Applied Science . . 6  
26  
MAT 262† Calculus for Applied Science . . 3  
ECE 2\*\*\*Introduction to Engineering . . . 2  
ECE 104 Engineering Graphics . . . . . 7  
PHY 11), Physics I, II . . . . . 6  
11†  
PHY 13 Physics I Lab . . . . . 1  
PHY 14† Physics II Lab. . . . . 1  
CHM 14† General Chemistry for Engineers 4  
MIE 33? Production Processes . . . . . 3  
ASE 321 Fundamentals of Computer  
Programming . . . . . 3  
Elective† . . . . .

**Environmental Design History (6 Sem. Hrs)**

DES 200, History of Human Environment I, II  
201\* or  
DES 213, History of Western Architecture I  
214 II

**Technical Graphics and Design (7 Sem. Hrs)**

DES 160, Sketching and Rendering I, II . . . 4  
16  
DES 210 Production Drafting . . . . . 3  
Minimum Total Semester Hours . . . . . 65

†Design, Science, Packaging, Design Production Design/Pre-rite  
††Total Minimum Elective Prerequisite

\*See Course Substitutions this page

\*\*See College Substitutions this page

\*\*\*See College Substitutions this page

**Course Substitutions**

Exceptions and alternative course substitutions for certain students and those completing an equivalent program at another institution. Refer to Options "A", "B" and "C" above.

\*DES 100, 101 Introduction to Architecture Planning and Design I, II and DES 200, 201 History of Human Environments I, II or DES 213, 214 History of Western Architecture may be replaced by ten (10) hours of art, architecture, or history electives if completing requirements at institutions other than ASU.

\*\*ENG 101, 102 First Year English I, II may be replaced by ENG 104 and an elective by students who pass an exemption examination

\*\*\*ECE 102 Introduction to Engineering may be replaced by two semester hours of additional credit in science methods in a basic biological or physical science course if completing requirements at institutions other than ASU

**Pre-Professional Design Lecture and Laboratory Courses**

These courses constitute a block of instruction offered by the College of Architecture to augment other required course work in general and liberal studies. These courses provide preparatory instruction for basic visual design theory and technique necessary for all professional level studies. These courses are open to College of Architecture pre-professional students only.

**Grading.** Students enrolled in pre-professional courses will be graded according to the University grading system shown on page 235. The College does not give "Pass-Fail" or credit no credit grades in pre-professional courses.

**Environmental Design History**

See course descriptions for DES 100, 101, 200, 201, 213 and 214 on page 227.

**VISUAL COMMUNICATIONS**

**DES 141 Design Graphics.** (2 F S SS)  
Elements of orthographic and axonometric projection perspective, shades and shadows charts and graphs photographic theory, graphical mathematics introduction to basic descriptive geometry

**142 Design Graphics Lab.** (1) F S SS  
Applications of photography relating to graphical presentation

**160 Sketching and Rendering.** 2) F S SS  
Free hand sketching and rendering, light and shade: two point perspective. Quick visual presentations of objects and concepts. Four hours lecture and laboratory.

**161 Advanced Sketching and Rendering.** (2 F S SS)  
Reinforcement of quick rendering fundamentals of perspective color in various media applied to rendering techniques and line drawing Prerequisite DES 160  
Four hours lecture and laboratory

**221 Basic Design I.** 3 F S  
Studio experiments in space, human scale and motion, form and color leading to a first understanding of the aesthetic technique and human objectives of the environmental design professions.

**222 Basic Design II.** (3) F S  
Continuation of DES 221

**Degrees**

**Bachelor of Architecture Degree.** The College of Architecture offers a three year program of studies at the advanced undergraduate and graduate levels leading to the professional degree, Bachelor of Architecture, and entry into the architecture profession and related career areas in practice, government, business, construction, and education. The professional degree also serves as preparation for graduate programs leading to more specialized careers.

See Pre-Professional Preparatory Studies, page 228; and Department of Architecture, Professional Program, page 236.

**Joint Degree: B. Arch./M.S. (Engineering).**

A program of studies is offered jointly by the College of Architecture and the College of Engineering and Applied Sciences, leading to

the professional degree, Bachelor of Architecture, and the Master of Science degree (Engineering) The two-year course of pre professional studies may be completed in the Department of Civil Engineering with the College of Engineering and Applied Sciences (or at another comparable institution) Qualified students may then be admitted to the College of Architecture for the three-year course of professional studies to qualify for the degree, Bachelor of Architecture Following that, the students return to the Department of Civil Engineering to complete the one-year program to qualify for the Master of Science degree (Engineering)

See Pre Professional Preparation for Joint Degree, page 229; Department of Architecture, Professional Program, page 236, and Master of Science Degree (Engineering), page 189.

**Bachelor of Science in Design.** A two-year program of studies at the advanced undergraduate and graduate levels leading to the professional degree, Bachelor of Science in Design, and entry into design professions related to design science, industrial design, interior architecture and urban planning for careers with both public and private organizations

See Pre Professional Preparatory Studies, page 228; and Departments of Design Sciences and Planning, Professional Programs, pages 240 and 245.

**Master of Environmental Planning.** The graduate program of the College of Architecture leads to the Master of Environmental Planning, a graduate degree under which various course work concentrations may be pursued within two areas of specialization.

See Department of Planning, Graduate Program, page 247, and interdisciplinary program in City and Regional Planning, page 246.

### Admission

Students are admitted to the College of Archi

ecture upon approval of admission to Arizona State University. A separate admission procedure is required for entry to all professional and graduate programs sponsored by the Departments of Architecture, Design Science, and Planning.

Students are admitted to the two or three year professional programs leading to the degrees of Bachelor of Science in Design and Bachelor of Architecture in classes starting each Fall Semester only For the typical requirements for admission to these degree programs, see page 232 in the Professional Studies section of this catalog.

**Transfer Students.** (See advanced standing admission, page 234.) It is the policy of the College of Architecture to accept, on a space available basis, transfers from the professional programs of other accredited institutions. A student who has completed the first or second year of a professional program with a substantially better than average grade point at an accredited professional program may be permitted to transfer into the ASU College of Architecture with advanced standing. A transfer applicant is considered, however, only to the extent that vacancies exist in the relevant class All conditions shall be set forth by the College at the time of admittance The amount of credit to be allowed for previous professional work shall also be set forth at the time of admittance.

No transfer credit is granted for courses with less than "C" grades The College reserves the right to deny or reduce credit for particular courses. Grades received at another professional program are not counted in determining a student's cumulative grade-point average.

**Graduate Program.** Admission to the graduate program in Environmental Planning requires

1. Completion of all admission requirements

and procedures set forth by the Graduate College and the following additional requirements of the College of Architecture.

2. Completion of baccalaureate degree and preferably one additional year of work or other experience acceptable to the Admissions Committee.
3. Submission and approval of a proposed course of study in a specialization offered by the College.
4. Selection of the candidate by the Department of Planning Admission Committee for one of two program majors (1) Urban Regional Planning or (2) Energy Planning and Technology

(See complete information for requirements and procedures, Department of Planning, page 248.)

### General Information

**Special Honors at Graduation.** At the time of graduation, students with academic distinction in the professional programs of the College may be awarded the respective designations *cum laude*, *magna cum laude*, and *summa cum laude*. Recipients of these awards are selected by the respective department on the basis of graded performance in professional courses for the length of the particular program

**Employment.** It is difficult for professional level students to carry part time employment while in school. Acceptance of admission to the College carries a commitment on the part of the student to an eight (8) hour day in the College in order that the necessary time will be available for professional studies. However, if there is no other solution to the financial problem, then it is strongly recommended that employment not exceed 10 hours per week, and the department chair be informed.

**Financial Aids.** A wide variety of financial aids and loan programs are available to students with demonstrated need without regard to race, creed, color, national origin, or sex. For further details consult the University Financial Aids Office.

**Advisement and Counseling.** Pre-professional student records are maintained in the Office of the Dean. Professional and graduate student records are maintained by the respective department office. Appointments may be made to discuss academic records, completion of requirements, certification for graduation, and evaluation of long term goals. It is, however, the ultimate responsibility of each student to register for and to complete all required academic, professional and professional emphasis course work. Day-to-day career advisement and counseling is available on a less formal basis from all faculty members.

## Resources

**Research and Service Foundation Office.** The Foundation was established in June 1988, to provide for enrichment of the programs of the College of Architecture. It supports programs relating to research, service publications, academic support, and clinical education.

**ASU Architecture, Planning and Design Alumni Associations.** These associations were formed on September 4, 1974, with the recognition that graduates can and should bring to the College a special contribution by acting as liaisons among the College, community, students, and the practicing profession.

**Student Professional Associations.** The purpose of the student associations is to assist students with the transition into professional life, and to acquaint them with the profession relating to their program of study.

## Retention Standards

**General.** To be eligible to continue in the programs in the College of Architecture, a student must successfully complete each semester according to the standards established for each program. See Retention Standards - Professional Programs. The College of Architecture also requires students to meet all standards for retention of the Graduate College. (See page 301.)

**Code of Professional Student Responsibility.** The purpose of this code is to promulgate standards of conduct for students of the ASU College of Architecture, and to establish procedures for dealing with violations. As designers of environments, all professional students are expected to support and maintain the highest professional standards with regard to their individual conduct and their personal and common environments of the College of Architecture during their tenure at this institution. (Code adopted Fall, 1974.)

## Professional Studies

### General Information

The following information pertains to all professional level programs of the College. Students not currently enrolled in Arizona State University interested in pursuing professional studies in Architecture, Planning and Design Sciences, and the separate professional majors and course emphasis areas offered within the College of Architecture should contact the Director of Admissions, Arizona State University, Tempe, Arizona 85281. If qualified for University admission, students may apply to the College of Architecture.

Students residing in states other than Arizona or foreign countries are encouraged to consider completing the pre-professional preparatory

requirements at their local institutions. Residency at Arizona State University for this preparatory course work does not alter the separate and selective admission requirements to professional studies in the college's programs nor does attendance at ASU for pre-professional studies guarantee admittance to professional programs of the College.

Arizona State University and the College of Architecture welcome qualified students without regard to race, creed, color, religion, sex or national origin.

Application for admission to College of Architecture professional programs may be made only after completion of the minimum requirements of "Pre-Professional Preparation for the Study of Architecture, Planning and Design Science at ASU."

The professional programs in the College of Architecture are either a three year course of study leading to the professional degree of Bachelor of Architecture or two year course of study leading to a Bachelor of Science in Design.

The majors and course emphasis areas for these degrees are listed below with the respective sponsoring department.

**Department of Design Sciences: B.S. Design**

### Design Science Major

Emphasis Areas:

- Design Science
- Packaging Design
- Production Design
- Technical Management
- Visual Communications

### Industrial Design Major

- Emphasis Areas
- Product Design
- Transportation Design

### Interior Architecture Major

**Department of Planning: B.S. Design**

**Urban Planning Major**

Emphasis Areas:

- City Planning
- Landscape Architecture

**Department of Architecture: B. Arch**

**Architecture Major**

Emphasis Areas (Third Year Only)

- Architectural Communications
- Architectural History and Preservation
- Architectural Office Management
- Construction Technology and Administration
- Environmental Analysis and Programming
- Environmental Technology
- Housing and Urban Development
- Industrial Design
- Interior Architecture
- Landscape Architecture
- Structural Technology
- Urban Planning
- Structural Technology

**Professional Degrees**

The College of Architecture offers a two- or three-year program of studies leading to the professional degrees, Bachelor of Architecture and Bachelor of Science in Design. To fulfill the requirements for these degrees, a student must satisfy all of the following:

1. Admittance to the professional program by the sponsoring department as a candidate for the degree and satisfaction of any conditions imposed at the time of admission to professional level studies or prior to graduation during the course of his/her study
2. Satisfaction of full-time residency course and attendance requirements for the Col-

lege of Architecture and department program

3. Successful completion of the minimum specified hours of academic professional studies credit with a cumulative weighted average of 70 or better
4. Completion of all College of Architecture required courses for professional programs.
5. Maintain a personal code of conduct in keeping with the highest standards of a professional student and as defined in the Code of Student Responsibilities section of the College of Architecture Faculty Handbook.

A student must be in residence on full-time attendance for a minimum of four or six semesters or the equivalent to the program, with the exception of those students who transfer with advanced standing from another accredited professional program. A semester in residence is earned when a student has been enrolled and maintained, without dropping course work, a minimum of 15 to 18 credit hours as specified by the various curricula. A student admitted with advanced standing must complete the work of at least two semesters in the College of Architecture immediately preceding the granting of a degree.

**Professional Programs — Admission Requirements and Procedures**

(For further information see appropriate University and College Professional Program literature.)

These requirements and procedures for admission to the professional programs of the College are separate from and subsequent to the completion of Pre-Professional Preparatory Core Options "A", "B" or "C"

Each year more students apply than can be accommodated within the professional programs of the College. Accordingly, the admission process is selective. The Admissions

Committee carefully considers all aspects of each application in selecting students for the limited number of spaces available in the class entering each fall semester.

**Application Procedures.** Application to professional programs within the Departments of Architecture, Planning, and Design Sciences is separate from, and in addition to, the required admission to Arizona State University (Students not in attendance at ASU must contact the ASU Director of Admissions to obtain university application forms and procedures.) Students having completed all entrance requirements, and those completing all requirements by work in progress in the Spring semester or Summer Session may submit application documents to the appropriate Department Admissions Committee(s) of the chosen professional program prior to the March 15 deadline for admission to the following Fall term only.

**Entrance Requirements.** The formal requirements for admission typically are:

1. Qualified for admission or in good standing Arizona State University.
2. A cumulative grade index of approximately 3.00, (B), or above, for academic work completed at all institutions attended.
3. Minimum composite scores of 23 in the ACT test or SAT test scores of 580 or above.
4. Completion of all specified Pre-Professional Preparatory requirements at ASU or other institutions including community colleges.
5. Established technical skills in drawing and sketching, design graphics, Two- and three-dimensional design, and other evidence of the applicant's creative and organizational endeavors.
6. Good character evidenced by supporting letters, attendance records and other records from high school and previous college experience.

7 Selection of the candidate by the Department Admissions Committee sponsoring the professional program(s) for which he or she has applied.

In an unusual circumstance, when the admission standard deficiency is slight, evidence of extenuating circumstances is convincing, and promise for success is evidenced, a student may be granted admission on a provisional basis. Continuance in the program beyond the first semester of the first level course work is contingent upon academic achievement higher than the minimum standards. Students who meet a substantial number of the above requirements are encouraged to apply.

**Advanced Standing Admission.** It is the policy of the College to accept on a space available basis transfer from other professional programs. A student who has completed the first or second year of professional studies, with a better than average grade level, at an accredited school may be permitted to transfer into the programs with advanced standing, as spaces in the year or level of the program exist. Applicants requesting advanced standing (for second or third professional studies levels) will be reviewed by the appropriate Department Admissions Committee to determine: a) if qualified for admission, and b) if so, the proper level for admission. The Department Admissions Committee may recommend admission to a level other than that requested by the applicant.

**Evaluation Factors.** The Department Admissions Committee will carefully evaluate all aspects of the individual application documents. The limited number of spaces available each year will be awarded to applicants evidencing the highest promise for professional success in a particular career field including evidence of ability and prospect for significant public service. As a state institution, residency is a factor for admission.

**Tentative Admission.** Qualified applicants (including those completing requirements in a Spring semester but submitting documents to meet the stated deadline) may be notified of early tentative admission on or about April 15. However, it is important to understand that the final semester's transcript must show completion of all entrance requirements and that the applicant's grade index was not significantly reduced. A tentative admission may be revoked if upon receipt of final transcripts, the applicant's academic record is substantially lower than at the time of initial application or if all requirements have not been completed.

**Final Admission and Notification.** Final evaluations are made by the Department Admissions Committee upon receipt of transcripts showing the completion of all pre-professional requirements, which may include Spring semester or Summer Session grades if this course work is necessary to complete the pre-professional requirements. (Students not in attendance at ASU must submit final transcripts on or about June 15, but not later than the final selection date of July 15.) All applicants can expect to be informed, by letter of final admission or non-admission on or about July 15. A signed receipt of admission conditions is required to be returned by successful applicants prior to final certification of admission and registration of classes.

**Department Application Documents.** (All of the following items are in addition to the documents submitted to the ASU Director of Admissions for University Admission.) All documents must be obtained by the applicant and submitted at one time, bound together in 8 1/2" x 11" portfolio format, using a notebook similar to a Ful-Vu CB-10 presentation binder with plastic sleeves. Items must appear in the following order:

Page 1 Department application form,

completely filled out, with page 1 visible (Available upon request - Departments of Architecture, Planning and Design Sciences)  
Page 2 Department application with page 4 visible.

Page 3 High School transcripts from all schools attended, including attendance and personal records.

Page 4 Certificates of ACT or SAT test scores.

Page 5 College transcripts, from all schools attended showing completion of pre-professional requirements. ASU transcripts may be omitted. They will be obtained by the College of Architecture.)

Page 6 Names and addresses of persons who are supplying letters of reference for this application - sent directly to the appropriate Department Admissions Committee, (Departments of Architecture, Planning or Design Sciences) on forms supplied by each department for each professional studies program to which you are applying. Majors and course emphasis areas sponsored by each department are shown on pages 232-233.

Page 7 Blank for letters when received.

Pages following Examples showing the level of development of applicant's graphic skills and creative ability. a) Four or five examples of sketches and drawings. b) four or five examples of two or three dimensional designs, c) two or three examples of basic graphic or drafting skills, and d) one or two examples of organizational or creative endeavors.

Additional examples of self-directed skills and creative endeavors that the applicant believes may best represent his or her aptitude, skills, and motivation for professional studies also may be included as desired. Original examples or slides must not be submitted. All examples shall be photographs or other graphic media.

Application documents remain the property of the department. However, graphic examples may be returned provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage or personally signs for return of the examples following the selection date. Examples not so returned will be discarded by the department after retention of one year.

Students are advised to seek further professional program admission information from the College Coordinator of Pre-Professional Advisement.

For further information on both pre-professional and professional studies offered by the departments of the College of Architecture, contact Pre-Professional Advisor, College of Architecture.

For further information on admissions to Arizona State University, contact Office of the Director of Admissions, Arizona State University, Tempe, Arizona 85281.

**Advanced Credit Examinations.** Advanced credit exams may be taken by persons who believe they have already taken courses required in the program. If the exam is passed and the course waived, then the student shall select an advanced elective course in the same general area. The elective selected must be approved by the chair. Students must take a minimum total of semester hours credit as specified in a particular professional program and carry the full semester loading required for all students.

All advanced credit examinations must be taken before completion of the drop-add period of the semester in which the course is scheduled to be taken.

**Clinical Internships.** All students at the College of Architecture are required to participate in the internship program during the summer between the first and second or second and third professional years by enroll-

ing in the ASU Summer Sessions program as determined in the first year of the professional program.

A full-time internship offers 3 credits. Although a student may enroll in more than one internship (subject to the availability of positions), the maximum credit permitted toward graduation is 4 hours unless the Dean of the College specifically changes the limitation.

### Foreign Study

The College of Architecture maintains active communications with several foreign institutions offering similar professional programs related to the various departments of this College, should students wish to pursue professional studies at a foreign institution in lieu of resident course work up to a maximum of one (1) academic year. Interested students are encouraged to inform the College and the respective departmental offices of any intentions for foreign study that may be available at the earliest possible date.

In cooperation with the University Institute of Foreign Study, current exchange programs exist with the Universität Stuttgart, Kaplerstrasse, Germany, and the Universidad Autónoma de Guadalajara, Guadalajara, Mexico. Other programs may be added and students should consult their respective department office for any new affiliations. Students also may complete the clinical internship requirement in foreign architectural, planning or design offices.

All students are encouraged to consider foreign travel and study for either a semester or an entire academic year. The individual departments reserve the right to evaluate the content and the student's competency in each of the courses completed at foreign institutions. Students may be advanced to the next level of a professional program and complete professional degrees without added years of academic work providing complete document-

tation of work accomplished is received according to a plan of study approved by the Department Chair and Dean prior to commencing any foreign study.

### Grading

Performance in all professional program courses is graded under the following numerical scale:

|              |                |
|--------------|----------------|
| 99-90        | A, Distinction |
| 89-80        | B, Excellent   |
| 79-70        | C, Good        |
| 69-60        | D, Deficient   |
| 59 and below | E, Failing     |

**Incomplete Grades.** A grade of "I" (Incomplete) may be given only when a student is unable to complete a lot of the course work because of illness or other serious personal reason. Each student receiving an "Incomplete" must contact the instructor to determine the work to be completed to enable the grade to be changed to an appropriate grade. If the work is not thus completed within one calendar year, or within such shorter period as may be required by the instructor, the instructor is expected to change the "Incomplete" to a failing grade. If the instructor is no longer available, the Dean may act in his place.

All incompletes in modular and sequential course work in the professional program must be removed prior to registration for the next semester.

Students contemplating graduation should remove an incomplete grade no later than two months prior to the graduation date in order to qualify for certification of candidacy.

**Withdrawal.** The professional program is modular and sequential and, therefore, a student may not withdraw from an individual course. All required course work of each level must be completed in sequence. Students may

withdraw from the College of Architecture or Arizona State University by proper procedures. A grade of "W" in all their Architecture courses will be given if passing at the time of withdrawal. Otherwise a failing grade will be recorded.

**Examinations.** A student may be excused from taking an examination only for health reasons or other serious personal difficulties. Any excuse shall be reviewed by the chair in consultation with the appropriate faculty members.

In unusual cases, and with the instructor's approval, a student may be allowed to take a late or special examination.

### Retention Standards

To be eligible to continue in the College of Architecture professional program, a student must successfully complete each required course and maintain a grade average of 70 or better for each semester completed. Any student is automatically placed on probation under the following conditions:

- a. failure in (or to complete) any single course.
- b. semester grade average below 70% ("C")
- c. design laboratory grade of 69-60% ("D")
- d. violation of the Code of Professional Student Responsibility, admission agreement or College or department policies or regulations.

Continuation of enrollment shall be contingent upon such terms and conditions as determined for each individual by the Department Standards Committee.

Any professional student on a probationary status must correct all deficiencies and be eligible for removal from probation by the end of the Summer Session preceding the next level of advancement, or be subject to automatic dismissal from the College. Dismissed students may petition the faculty through the respective department chair for readmission. If granted

continuation in the College will be conditioned on achieving a level of performance higher than the minimum academic standards until all terms and conditions determined for each individual case have been satisfied and probationary status is removed.

Any failed course must be successfully completed by a student, in addition to the full course schedule, at the next time the course is offered, including Summer Sessions if offered. Any failed course must be passed by the second attempt. Failure to do so will result in automatic dismissal from the College. No course in the College of Architecture may be repeated more than once, including replacement or substitute courses. Records of individual student rankings within his/her class for each semester are maintained in the department office and are available to the student upon request.

**Attendance.** Required attendance at classes, laboratories, and seminars is a vital part of professional studies and is an essential element in determining whether a student is in residence for purposes satisfying requirements for graduation. Admission to the College implies a commitment by the student to an eight (8) hour day in the College. As a general matter, if absences are noted in a particular course, the student will be asked to confer with the chair; continued absence after such invitation may result in a student being administratively withdrawn from the program.

**Leave of Absence.** Students may request a leave of absence from the College by written petition to the appropriate department office, for periods of one year increments. Leave may be approved for personal reasons, travel, work, or additional study in other disciplines. Students on leave must make written request to the appropriate department office for readmission prior to July 1 of the year of return to the

program, in order that a space may be reserved.

**Student Projects.** The College of Architecture reserves the right to retain any or all student projects for the College's future use.

---

## Department of Architecture

### PROFESSIONAL PROGRAM

---

### Purpose

The professional program of study in the Department of Architecture is designed for full-time students over a three year period, paralleling other professional curricula such as law and medicine. It concentrates and combines fully integrated lecture and laboratory course work involving both individual and team experiences. It is aimed at giving students skill and faculty as they prepare for the practice of architecture. The curriculum assumes each student has previously acquired a liberal arts education and provides for applications of that preparatory education, but the program thrust is toward acquiring competency in professional skills in a rapidly changing and increasingly competitive technological society. The professional curriculum is designed to aid students in their quest for a successful career in architecture. One summer of clinical internship in an architect's office under the direction of an approved preceptor and licensed practitioner is required and provides a distinct educational experience.

### Organization

The Department of Architecture's professional program is organized under the direction of the chair, and administered by academic coordinators responsible for respective professional levels. Subject matters organized as

follows: architectural philosophy and history; architecture technologies; architectural design, technology and communications laboratories, architectural administration, environmental analysis and programming; landscape architecture; urban planning and clinical internship. The area of special studies, including continuing education, is administered by the assistant chair.

**Professional Curriculum  
Bachelor of Architecture**

A student seeking the Bachelor of Architecture degree must satisfactorily complete a curriculum of 111 semester hours beyond the 65 hours pre professional requirements. The major categories of course work are classified as follows.

**Architectural Administration and Management (AAD)** develops the organizational and managerial aspects of architectural practice. These studies examine the professional processes of architectural practice.

**Architectural Design and Technology Laboratories (ADF)** demand and encourage synthesis of the knowledge and understanding the student has gained from course work and all other sources in the comprehensive design of architectural projects. These laboratories integrate the reasons, analytical methods, and technical sciences of architecture.

**Architectural Philosophy and History (APH)** develops an understanding of architecture as both a determinant and a consequence of man's behavior in the past and present. These studies are concerned with the reasons for design and construction.

**Architectural Technology (ATE)** develops knowledge of the technical determinants, resources and processes of architecture. These studies are concerned with the technical science of design and construction.

**Environmental Analysis and Programming (ANP)** develops capabilities to analyze and program natural environmental and human factors as pre conditions for architectural design. These studies are concerned with the analytical methods used by architects.

**Urban Planning (PUP)** exposes the student to the theories, methods, and interdisciplinary concerns of the urban planning profession and the related area of urban design.

**Architectural Communications (AVC)** provides the student with an opportunity to reinforce special areas of skill and expertise such as graphics, communications and design.

**Special Studies (ARP)** provides students with residency opportunities and educational experience at off-campus locations.

**Professional Studies—Required Courses**

**First Professional Year**

|     |     | Fall                         | Spring | Hours |
|-----|-----|------------------------------|--------|-------|
| ATE | 351 | Building Systems I           |        | 3     |
| ATI | 353 | Architectural Construction I |        | 3     |
| ANP | 331 | Analysis and Programming I   |        | 3     |
| APH | 316 | 20th Century Architecture I  |        | 3     |
| AVC | 301 | Communications I             |        | 2     |
| ADF | 371 | Elements of Architecture     |        | 4     |
|     |     |                              |        | 8     |

**Spring**

|     |     |                               |  |    |
|-----|-----|-------------------------------|--|----|
| ATI | 362 | Building Structures I         |  | 3  |
| ATE | 354 | Architectural Construction II |  | 3  |
| ANP | 332 | Analysis and Programming II   |  | 3  |
| APH | 317 | 20th Century Architecture II  |  | 3  |
| AVC | 302 | Communications II             |  | 2  |
| ADF | 322 | Human Habitats                |  | 4  |
|     |     |                               |  | 18 |

**Summer**

|     |     |                     |  |   |
|-----|-----|---------------------|--|---|
| ARP | 484 | Clinical Internship |  | 3   |
|     |     |                     |  | (or between second and third professional levels) |

**Second Professional Year**

**Fall**

|     |     |                                |  |   |
|-----|-----|--------------------------------|--|---|
| ATE | 461 | Building Structures II         |  | 3 |
| ATI | 451 | Architectural Construction III |  | 3 |
| ATE | 453 | Building Systems II            |  | 3 |
| AAD | 457 | Construction Documents         |  | 3 |
| ADF | 421 | Community Facilities           |  | 6 |
|     |     |                                |  | 8 |

**Spring**

|     |     |                                      |  |   |
|-----|-----|--------------------------------------|--|---|
| ATI | 462 | Building Structures III              |  | 3 |
| AAD | 451 | Construction Specifications          |  | 3 |
| ATI | 454 | Building Systems III                 |  | 3 |
| ANP | 442 | Landscape Construction and Materials |  | 3 |
| ADF | 422 | Building Complexes                   |  | 6 |
|     |     |                                      |  | 8 |

**Summer**

|     |     |             |  |  |
|-----|-----|-------------|--|--|
| ARP | 485 | Field Study |  | 6  |
|     |     |             |  | (Optional; may be used for professional I emphasis requirement with chair approval.) |

**Third Professional Year**

**Fall**

|      |     |   |  |   |
|------|-----|---|--|---|
| ATE  | 48  | Building Structures IV                                    |  | 3 |
| AAD  | 455 | Professional Practice I                                   |  | 3 |
| ANP  | 47  | Theory of Urban Planning                                  |  | 3 |
| *ARP | 495 | Building Programming or Professional Emphasis Requirement |  | 3 |
| ADF  | 43  | Multi Story Urban Building Complexes I                    |  | 6 |
|      |     |   |  | 8 |

**Spring**

|     |     |                          |  |                                     |
|-----|-----|--------------------------|--|-------------------------------------|
| ATI | 452 | Building Structures V    |  | 3                                   |
| AAD | 456 | Professional Practice II |  | 3                                   |
|     |     |                          |  | (Professional Emphasis Requirement) |
|     |     |                          |  | 3                                   |

\*ARP 485 prerequisite for ADE 434



|  |     |
|--|-----|
| ADE 432 Multi-Story Urban Building<br>Complexes II ..... | 6   |
| (or ADE 434 Architectural Design Options)                | 18  |
| <b>Total Credit Hours:</b>                               |     |
| Pre-Professional Program .....                           | 65  |
| plus Professional Program .....                          | 111 |
|  | 176 |

### Professional Emphasis Course Work

Each student will select an "emphasis area" and will present a plan consisting of nine credit hours of supporting course work for approval during the Spring Semester of the second year of the program from one of the following emphasis areas.

Architectural Office Management (also courses in the College of Business.)

Construction Technology and Administration (also courses in the Division of Construction.)

Architectural Communications

Landscape Architecture (also courses in the Department of Botany/Microbiology and Division of Agriculture.)

Structural Technology (also courses in the College of Engineering and Applied Sciences.)

Architectural History and Preservation (also courses in Art History, College of Fine Arts.)

Environmental Analysis and Programming (also courses in the Department of Psychology.)

Environmental Technology (also courses in the College of Engineering and Applied Sciences.)

Housing and Urban Development

Urban Planning

Interior Architecture

Industrial Design

## Architecture PROFESSIONAL PROGRAM

### PROFESSORS:

STRAUB (ARCH 140), BURGESS, ELLNER,  
OLIVER, RAPP, WHIFFEN

### ASSOCIATE PROFESSORS:

FLYNN, HINSHAW, JAKOB, PETERSON,  
RUMMELL, SAMUCHIN

### ASSISTANT PROFESSORS:

BERTELSEN, CHRISTENSEN, FELLOWS,  
PERRELL, SCALISE, SHEYDAYI, WOOLDRIDGE

### LECTURER:

KIM

### PROFESSORS EMERITUS:

LOWENSTEIN, STRAUB

### Professional Program Courses Bachelor of Architecture

These courses are open only to students admitted to the professional or certain graduate programs of the College of Architecture (see page 233).

Other architectural courses open to any student meeting the stated pre/co-requisites are listed under the College of Architecture General Studies offerings. See pages 227-228 for listing of these other courses.

### ARCHITECTURAL PHILOSOPHY AND HISTORY

**APH 316 20th Century Architecture I.** (3) F  
Europe and America from the foundations of the modern movement to the culmination of the international style.

**317 20th Century Architecture II.** (3) S  
Developments in architecture since the international style.

### ARCHITECTURAL COMMUNICATIONS

**AVC 301 Architectural Communication.** (2) F  
Basic graphic skills, use of material and equipment, architectural drafting, drawing conventions, values,

graphic symbols and lettering, sketching, and presentation vocabulary. Two afternoons in laboratory per week.

**302 Architectural Communication.** (2) S  
Continuation of AVC 301.

### ARCHITECTURAL TECHNOLOGIES

**ATE 351 Building Systems I.** (3) F  
Introduction to building structural, mechanical, and electrical systems.

**353 Architectural Construction I.** (3) F  
Basic materials and methods of architectural construction.

**354 Architectural Construction II.** (3) S  
Selection and employment of materials and systems according to their nature and the techniques of their use, and basic construction cost estimating procedures for architects. Prerequisite: ATE 353.

**362 Structures I.** (3) S  
Statics, dynamics and strength of materials. Elasticity of structural materials; properties of sections; elastic stress analysis of determinate structures; computer applications. Preliminary design of simple structural systems. Prerequisite: ATE 351.

**451 Architectural Construction III.** (3) F  
Selection and employment of materials and systems according to their nature and the techniques of their use, and basic construction cost estimating procedures for architects. Prerequisite: ATE 354.

**453 Building Systems II.** (3) F  
Technical problems of climate control, acoustics, lighting, communications and other mechanical and electrical systems. Prerequisite: ATE 351.

**454 Building Systems III.** (3) S  
Continuation of previous work with technical problems of climate control, acoustics, lighting, communications and other mechanical and electrical systems. Prerequisite: ATE 453.

**461 Building Structures II.** (3) F  
Analysis and design of wood and timber structural systems and connections. Lateral analysis and design, utilizing wood shear walls and diagrams. Computer applications. Prerequisite: ATE 362.

**462 Building Structures III.** (3) S  
Analysis and design of steel buildings and frames. Lateral (wind and seismic) analysis of steel systems. Use of existing computer programs. Prerequisites: ATE 354, 461.

**481 Building Structures IV.** (3) F  
Analysis and design of concrete systems, considering continuity, multi-story frames and shear walls, and lateral analysis. Computer application of existing programs. Prerequisites: ATE 462, ARP 471.

**482 Building Structures V.** (3) S

Total building design. Advanced topics emphasizing complex structural systems, wind and seismic analysis and design of foundations. Prerequisite: ATE 481.

**563 Soil Mechanics and Foundations.** (3) F S

Soil characteristics, elementary soil mechanics, development of flow diagrams and computer programs for preliminary foundation design. Prerequisite: ATE 562

**565 Architectural Acoustics.** (3) F

Physical properties of sound. Reflection, absorption, and diffraction of sound waves. Sound-absorptive materials and constructions. Room acoustics and resonance. Diffusion and decay of sound. Designing for optimum reverberation time. Acoustical defects and how to avoid them. Acoustical design. Noise transmissions.

**567 Building Transportation Systems.** (3) S

Mechanical, electrical and vacuum systems for horizontal and vertical transportation of persons and supplies in buildings.

**568 Architectural Lighting.** (3) S

Light as an aspect of interior and exterior building design. Developing brightness relationships in internal spaces; appraisal of alternatives. Daylight and electrical lighting as a single system. Evaluation of light sources for distribution, color, and cost. Design methodology, experiments, and case studies.

**ARCHITECTURAL DESIGN AND TECHNOLOGY LABORATORIES**

These courses are open only to students admitted to the professional program of the Department of Architecture. Each semester an academic course work is integrated with the design and technology laboratories. The common format of all major projects includes environmental analysis and programming, site planning, schematics, design development, construction detailing and specifications, structural, mechanical and electrical systems design, professional administration documents and cost estimates. Periodic examinations and sketch projects complement major projects and are in addition to the normal schedule listed with each course.

**ADE 321 Elements of Architecture.** (4) F

Architectural design graphics and the principles of order applied to architectural form, space and time within the context of natural and man-made sensory environments. Sketch projects and examinations; three afternoons in lab per week.

**322 Human Habitation.** (4) S

Applications of the comprehensive process of architectural practice to dwelling unit design and site planning. Sketch projects and examinations; three afternoons in lab per week. Prerequisite: ADE 321

**421 Community Facilities.** (6) F

Design of specific community facilities within an urban or natural environmental setting. Sketch projects and examinations. Five afternoons in lab per week. Prerequisite: ADE 322

**422 Building Complexes.** (6) S

Programmatic and comprehensive development of building complexes relating to community development and urban services. Sketch projects and examinations; five afternoons in lab per week. Prerequisite: ADE 421.

**431 Multi-Story Urban Building Complexes I.** (6) F

Comprehensive architectural design and technology of multi-story buildings as related to urban complexes. Location and economics of community facility distribution including the public and private sectors of the development process with a major facility as a generator of urban growth. Sketch projects and examinations. Five afternoons per week in lab. Prerequisites: ADE 422, ARP 484.

**432 Multi-Story Urban Building Complexes II.** (6) S

Continuation of ADE 431. Five afternoons per week in lab. Prerequisite: ADE 431

**434 Architectural Design Options.** (6) S

Selected design program options will be offered by each section of this course. These will include comprehensive architectural design and technology of various complex building types, each incorporating a specific emphasis area, with a focus on competition projects. Additional sketch problems and examinations; five afternoons per week in lab. Prerequisites: ADE 431 and ARP 498. Pro Seminar: Building Programming. 3 hours.

**ARCHITECTURAL ADMINISTRATION**

**AAD 451 Construction Specifications.** (3) S

Preparation of architectural construction specifications, legal status relationships to working drawings, organization, methods of specifying, bidding, general conditions, contracts, bonds, guarantees, technical sections. Interpretation. Prerequisite: AAD 457

**455 Professional Practice I.** (3) F

Economic and contractual aspects of professional practice including finance sources, project funding, partnerships, corporate practice, insurance, and administration of building contracts. Prerequisites: third year standing, AAD 454, ARP 484

**456 Professional Practice II.** (3) S

Legal and management aspects relating to professional

practice, including legal responsibilities and liabilities, management of time and people, and accounting and marketing services. Prerequisite: third year standing, AAD 455

**457 Construction Documents I.** (3) F

Production of architectural working drawings: legal status organization, layout, site survey plans, sections, elevations, details, schedules and coordination.

**ENVIRONMENTAL ANALYSIS AND PROGRAMMING**

**ANP 331 Analysis and Programming I.** (3) F

The natural and human environments of architecture as a basis of the programming and design of built environments. Emphasis on site and climate analysis.

**332 Analysis and Programming II.** (3) S

Programming and design methodologies, including problem seeking, goal identification, code search, observation, questioning, descriptive statistics, relationship diagrams, brainstorming, space allocation, and simulation as techniques for processing information for building design.

**442 Landscape Construction and Materials.** (3) S

Design, construction, materials and site engineering aspects of landscape architecture.

**481 Theory of Urban Planning.** (3) F

Introduction to theoretical and practical aspects of city planning and urban design, including interrelationships between physical planning, government, and society. Prerequisite: ARP 484

**SPECIAL STUDIES**

**ARP 484 Clinical Internship.** (3) SS

Full-time internship under the supervision of practitioners in the Phoenix area or other locales.

**451 Architecture Field Studies.** (1-6) F, S, SS

Organized field study of architecture in specified national and international locations. May be repeated.

**Special Courses:** APH, ANP, ATE, ADE, AAD

ARP 294, 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599. See pages 30-31. Also consult University Continuing Education brochures for special course offerings.

---

## Department of Design Sciences

### PROFESSIONAL PROGRAMS

---

#### **Purpose**

Professional designers work within areas requiring an understanding of systems, functions, scientific and technical processes including human factors. They must also integrate esthetic considerations into the products and spaces for which they design.

The Department of Design Sciences serves three major programs of study in industrial design, interior architecture, and design science.

The professional programs of study within Design Sciences are scheduled for full-time students. Certain emphases and program options within the major of Design Sciences, however, will allow for part time student participation and study. The professional design curricula concentrate and combine fully-integrated lecture, laboratory, and studio course work involving both individual and team experiences. The curricula are further directed at providing students the skills and facilities required for the practice of design or design-related careers.

All programs assume each student has previously acquired a broad foundational education and provides for applications of this preparatory education. The program thrust is toward acquiring competency in professional skills in a rapidly changing and increasingly competitive technological society.

One summer of clinical internship in design related activities under the direction of an approved preceptor is required and provides a distinct educational experience.

#### **Organization**

The professional programs within the Department of Design Sciences are organized under the direction of the chair, and are administered by program coordinators representing each designated program of study. The Department of Design Sciences offers the following programs of study (major), with emphasis areas.

- Industrial Design (major)
  - Product Design
  - Transportation Design
- Interior Architecture (major)
- Design Science (major)
  - Package Design
  - Production Design
  - Technical Management
  - Design Science (independent studies emphasis)
  - Visual Communications

#### **Professional Curriculum**

##### **Bachelor of Science in Design**

A student seeking the Bachelor of Science in Design degree within the Department of Design Sciences must satisfactorily complete a planned curriculum of 69 semester hours beyond the 65 hours of pre-professional core requirements. The major categories of course work are classified as follows:

**Design Science (DSC)** represents all course work utilized in more than one program of study within design sciences. These studies develop knowledge of the technical determinants, resources, and processes of design and are concerned primarily with the technical science of design.

**Industrial Design (IND)** identifies course work primarily utilized by the program majors in industrial design. Courses with this prefix include interdisciplinary design methodology and problem solving related to planning and

form, giving experiences that involve synthesis of design knowledge gained from all other major course work.

**Interior Architecture (INT)** identifies course work primarily utilized by the program majors in interior architecture. Courses with this prefix include design methodology, planning, and studio experiences that involve synthesis of design knowledge gained from all other major course work.

**Visual Communications Design (VCD)** identifies course work primarily utilized by program majors in the visual communications design emphasis. Courses with this prefix include design, methodology, planning, technique, and studio experiences that involve the synthesis of design knowledge gained from all other major course work.

#### **Industrial Design**

Industrial design has been defined as the professional service of creating and developing concepts and specifications that optimize the appearance, function, and value of products and systems for the mutual benefit of both the user and the manufacturer.

This service is often provided in the context of a cooperative working relationship with other members of a development group. The industrial designer's contribution places special emphasis on human characteristics, needs, and interests which require particular understanding of visual, tactile, safety, and convenience criteria. Industrial designers combine these considerations with practical concern for technical processes and requirements for manufacture; marketing opportunities and economic constraints; and distribution, sales, and servicing arrangements.

The Industrial Design program of the Design Sciences Department has developed two areas of emphasis. These emphases are product design and transportation design. Each

emphasis is a two-year professional program, and student admittance to each is subject to the application and admissions procedures found on pages 231 and 233.

**Product Design Emphasis.** The product designer is generally involved in the entire development process from initial ideation, sketching and modeling, through production; including product planning, marketing and packaging, to the ultimate use of that product. Esthetics and human factors are of primary concern to the product designer as well as how the product developed relates to and affects human activities—the man-machine/environment relationship.

**Professional Studies—Required Courses**

**Product Design**

**First Professional Year**

|               |     | Fall  | Spring |
|---------------|-----|---|--------|
| IND           | 360 | Design Methodology and Techniques . . . . . | 5      |
| DSC           | 342 | Human Factors in Design . . . . .           | 3      |
| IND           | 340 | Color . . . . .                             | 3      |
| IND           | 342 | Color Sketching . . . . .                   | 3      |
| DSC           | 340 | Materials . . . . .                         | 3      |
| 1             |     |   |        |
| <b>Spring</b> |     |   |        |
| IND           | 361 | Concept Development . . . . .               | 5      |
| DSC           | 440 | Plastics Design . . . . .                   | 2      |
| VCD           | 331 | Photo Design Technique . . . . .            | 3      |
| MFE           | 332 | Production Processes . . . . .              | 3      |
| DSC           | 443 | Value Analysis . . . . .                    | 2      |
| 15            |     |   |        |

**Summer**

|     |     |                      |   |
|-----|-----|----------------------|---|
| IND | 484 | Internship . . . . . | 3 |
|-----|-----|----------------------|---|

**Second Professional Year**

**Fall**

|     |     |                                    |   |
|-----|-----|------------------------------------|---|
| IND | 460 | Unit Analysis and Design . . . . . | 5 |
|-----|-----|------------------------------------|---|

|     |     |                                 |   |
|-----|-----|---------------------------------|---|
| DSC | 460 | Design Project . . . . .        | 3 |
| ATE | 362 | Structures I . . . . .          | 3 |
| DSC | 498 | Pro Seminar . . . . .           | 1 |
| IND | 420 | Graphics Design . . . . .       | 3 |
| IND | 400 | Professional Practice . . . . . | 3 |
| 18  |     |                                 |   |

**Spring**

|  |     |  |   |
|--|-----|--|---|
| IND                                      | 461 | Systems Synthesis and Design . . . . . | 5 |
| DSC                                      | 46  | Design Project . . . . .               | 3 |
| DSC                                      | 44  | Product Liability . . . . .            | 2 |
| IND                                      | 421 | Package Design . . . . .               | 3 |
| Approved Professional Elective . . . . . |     |  |   |
| 16                                       |     |  |   |

**Transportation Design Emphasis.** This emphasis is concerned with integrating the functional, psychological, and esthetic characteristic of transport forms and systems with the human user. The transportation designer develops vehicular concepts to move people and goods. The designer works to optimize solutions to the diverse requirements of engineering, technology and esthetic development. The transportation design process makes use of human factors, structures and materials, propulsion and support systems, and places special emphasis on creating unique and appropriate physical form solutions to perceived human needs.

**Transportation Design**

**First Professional Year**

|     |     | Fall  | Spring |
|-----|-----|---|--------|
| IND | 360 | Design Methodology and Techniques . . . . . | 5      |
| DSC | 342 | Human Factors in Design . . . . .           | 3      |
| IND | 340 | Color . . . . .                             | 3      |
| IND | 342 | Color Sketching . . . . .                   | 3      |
| DSC | 340 | Materials . . . . .                         | 3      |
| 17  |     |   |        |

**Spring**

|     |     |                                   |   |
|-----|-----|-----------------------------------|---|
| IND | 361 | Concept Development . . . . .     | 5 |
| TRA | 305 | Urban Transportation . . . . .    | 3 |
| VCD | 322 | Photo Design Techniques . . . . . | 3 |
| MEE | 332 | Production Processes . . . . .    | 3 |
| DSC | 443 | Value Analysis . . . . .          | 2 |
| 16  |     |                                   |   |

**Summer**

|     |     |                      |   |
|-----|-----|----------------------|---|
| IND | 484 | Internship . . . . . | 3 |
|-----|-----|----------------------|---|

**Second Professional Year**

**Fall**

|     |     |                                      |   |
|-----|-----|--------------------------------------|---|
| DSC | 494 | ST Transportation Design I . . . . . | 5 |
| DSC | 460 | Design Project . . . . .             | 3 |
| IND | 420 | Graphic Design . . . . .             | 3 |
| IND | 400 | Professional Practice . . . . .      | 3 |
| ECL | 400 | Engineering Communication . . . . .  | 3 |
| 7   |     |                                      |   |

**Spring**

|     |     |                                       |   |
|-----|-----|---------------------------------------|---|
| DSC | 494 | ST Transportation Design II . . . . . | 5 |
| DSC | 461 | Design Project . . . . .              | 3 |
| IND | 421 | Package Design . . . . .              | 3 |
| IND | 498 | Pro Seminar . . . . .                 | 3 |
| DSC | 441 | Product Liability . . . . .           | 2 |
| 16  |     |                                       |   |

**Interior Architecture**

The professional activities of the interior designer have expanded during the last two decades to address more complex and dynamically changing social environmental situations.

In collaboration with allied professions, interior designers are now in the unique position to respond to man's needs. As a young and dynamic profession, it is assuming an increasingly broader commitment to society in humanizing man's leisure, living and working spaces.

The program is structured with the primary

mission to educate designers who will be qualified to assume responsible leadership roles in the continuing growth of the profession, and in the improvement of the quality of man's immediate environment by constructively relating the design process to man's life process.

Graduates from the program are qualified to practice interior design in a variety of specialized areas. These include institutions, corporations, sales, space planning, architecture offices, industry and government. Students expecting to pursue graduate studies will also be prepared to develop advanced specializations in related professional areas

### Professional Studies—Required Courses

#### Interior Architecture

##### First Professional Year

|     |     | Fall  | <i>Semester<br/>Hours</i> |
|-----|-----|---|---------------------------|
| INT | 360 | Human Habitation Space Design                     | 5                         |
| INT | 320 | Interior Architectural Rendering                  | 3                         |
| DSC | 342 | Human Factors in Design                           | 3                         |
| ATE | 353 | Architectural Construction                        | 3                         |
| ATE | 565 | Architectural Acoustics                           | 3                         |
|     |     |   | 17                        |
|     |     | Spring  |                           |
| INT | 361 | Community Space Design                            | 5                         |
| INT | 355 | Interior Architectural Construction               | 3                         |
| INT | 321 | Interior Architectural Construction Documents     | 3                         |
| INT | 345 | Interior Exterior Plant Materials and Furnishings | 3                         |
| ATE | 568 | Architectural Lighting                            | 3                         |
|     |     |   | 17                        |
|     |     | Summer  |                           |
| INT | 484 | Clinical Internship                               | 3                         |

### Second Professional Year

#### Fall

|     |     |   |    |
|-----|-----|---|----|
| INT | 460 | Commercial Space Design                   | 5  |
| INT | 440 | Interior Materials Performance Criteria I | 3  |
| INT | 442 | Professional Practice I                   | 3  |
| ATE | 453 | Building Systems I                        | 3  |
| DEH | 474 | History of Interior Furnishings I         | 3  |
|     |     |   | 17 |

#### Spring

|     |     |  |    |
|-----|-----|--|----|
| INT | 461 | Institutional Space Design                 | 5  |
| INT | 441 | Interior Materials Performance Criteria II | 3  |
| INT | 443 | Professional Practice II                   | 2  |
| INT | 455 | Advanced Environmental Control Systems     | 2  |
| DEH | 475 | History of Interior Furnishings II         | 3  |
|     |     |  | 15 |

### Design Science

Design Science as a primary program of study combines those areas of emphasis of design studies that are generally more interdisciplinary in program construction and have a stronger technical and science bias. Depending upon the emphasis area followed, additional course work is substituted in place of the professional laboratory requirement. Otherwise the program requirements, including the total number of hours required for graduation, is the same as in all other programs within the department. Specific requirements are shown within the following design science emphasis areas.

The design science program has developed distinct emphasis areas packaging design, production design, technical management, independent studies, and visual communications.

**Packaging Design Emphasis.** The Department of Design Sciences offers one of the most complete undergraduate programs in package

design in the western United States. This undergraduate program attempts to inculcate in the student disciplines relevant to both of the major divisions of package design activity. The marketing, graphics and art related subjects emphasize those areas of need in the consumer packaging field, where marketing, advertising, sales and product esthetics are vital to the package's role as a silent salesman. On the other hand, the technical, structural and distribution systems related subjects emphasize those areas of need for the industrial or distribution package designer, where shock, vibration, physical protection and systems integration roles of the package are emphasized. By uniting these requirements in one curriculum, the major needs of both packaging divisions are satisfied and the student is equipped to function effectively in either.

### Professional Studies—Required Courses Package Design

#### First Professional Year

|     |     | Fall                              | <i>Semester<br/>Hours</i> |
|-----|-----|-----------------------------------|---------------------------|
| DSC | 342 | Human Factors in Design           | 3                         |
| IND | 420 | Graphic Design                    | 3                         |
| ATE | 362 | Structures I                      | 3                         |
| DSC | 498 | Pro Seminar                       | 1                         |
| MGT | 301 | Principles of Management          | 3                         |
| IND | 360 | Design Methodology and Techniques | 5                         |
|     |     |                                   | 18                        |
|     |     | Spring                            |                           |
| IND | 342 | Color Sketching                   | 3                         |
| IND | 421 | Package Design                    | 3                         |
| DSC | 445 | Structural Package Design         | 2                         |
| IND | 361 | Concept Development               | 5                         |
| MKT | 300 | Principles of Marketing           | 3                         |
| DSC | 498 | Shock and Vibration in Packaging  | 2                         |
|     |     |                                   | 16                        |

|               |     |            |   |
|---------------|-----|------------|---|
| <b>Summer</b> |     |            |   |
| DSC           | 484 | Internship | 3 |

**Second Professional Year**

|             |     |                                  |    |
|-------------|-----|----------------------------------|----|
| <b>Fall</b> |     |                                  |    |
| DSC         | 340 | Materials                        | 3  |
| ECE         | 400 | Engineering Communications       | 3  |
| DSC         | 440 | Plastics Design                  | 2  |
| DSC         | 494 | ST: Package Design Studio I      | 4  |
| TRA         | 445 | Physical Distribution Management | 3  |
|             |     |                                  | 16 |

|               |     |                                  |    |
|---------------|-----|----------------------------------|----|
| <b>Spring</b> |     |                                  |    |
| GRA           | 438 | Graphic Arts Technology          | 3  |
| DSC           | 498 | Shock and Vibration in Packaging | 2  |
| DSC           | 443 | Value Analysis                   | 2  |
| DSC           | 494 | ST: Package Design Studio II     | 2  |
| TRA           | 301 | Principles of Transportation     | 3  |
| MKT           | 302 | Principles of Marketing          | 3  |
|               |     |                                  | 16 |

**Production Design Emphasis.** The production designer is primarily concerned with the functional aspects of consumer products, industrial products, productive equipment and material handling equipment. A prime objective in design is to optimize considerations of function, cost, energy consumption, efficiency, safety, human factors, durability, and material utilization justified through "state of the art" applied science and supported by appropriate computation. Professional level course work requires preparation in mathematics, basic science, communication (written, oral and graphic) and the historical and social perspective of the profession. Applied science courses in mechanics (both solid and fluid), materials, thermodynamics, electricity, and machine design prepare the graduate for creative design of machinery for industry and the consumer marketplace.

**Professional Studies—Required Courses**

**Production Design**

**First Professional Year**

|             |     |                                      |    |                       |
|-------------|-----|--------------------------------------|----|-----------------------|
| <b>Fall</b> |     |                                      |    | <i>Semester Hours</i> |
| CON         | 221 | Static Mechanics                     | 3  | 3                     |
| DSC         | 340 | Materials                            | 3  | 3                     |
| DSC         | 342 | Human Factors in Design              | 3  | 3                     |
| MEE         | 380 | Applied Thermodynamics               | 3  | 3                     |
| EEE         | 273 | Electrical Construction Fundamentals | 4  | 4                     |
|             |     |                                      | 16 | 16                    |

|               |     |  |    |
|---------------|-----|--|----|
| <b>Spring</b> |     |  |    |
| CON           | 203 | Strength of Materials                    | 3  |
| DSC           | 353 | Mechanical Design I                      | 4  |
| CEE           | 380 | Hydraulics and Hydrology                 | 3  |
| MEE           | 381 | Applied Thermodynamics and Heat Transfer | 3  |
| ECE           | 400 | Engineering Communications               | 3  |
|               |     |  | 16 |

|               |     |            |   |
|---------------|-----|------------|---|
| <b>Summer</b> |     |            |   |
| DSC           | 484 | Internship | 3 |

**Second Professional Year**

|             |     |                                    |    |
|-------------|-----|------------------------------------|----|
| <b>Fall</b> |     |                                    |    |
| DSC         | 354 | Mechanical Design II               | 4  |
| DSC         | 494 | Special Topics: Machinery          | 3  |
| DSC         | 460 | Design Project                     | 3  |
| ESE         | 355 | Metallurgy                         | 3  |
| MEE         | 386 | Air Conditioning and Refrigeration | 3  |
| DSC         | 498 | Pro-Seminar                        | 1  |
|             |     |                                    | 17 |

|               |     |                   |   |
|---------------|-----|-------------------|---|
| <b>Spring</b> |     |                   |   |
| DSC           | 463 | Systems Design    | 4 |
| DSC           | 441 | Product Liability | 2 |
| DSC           | 461 | Design Project    | 3 |
| DSC           | 498 | Pro Seminar       | 2 |

|     |     |                             |    |
|-----|-----|-----------------------------|----|
| DSC | 443 | Value Analysis              | 2  |
| ESE | 410 | Acoustics and Noise Control | 2  |
| DSC | 440 | Plastics Design             | 2  |
|     |     |                             | 17 |

**Technical Management Emphasis.** The primary objectives of the technical management field of specialization are: 1) preparation for entry level positions leading to policy level management in manufacturing production enterprises, and 2) satisfactory completion of Master of Business Administration entrance requirements. This field requires a basic background in mathematics, applied science and production design; basic business tools and skills, and an understanding of business procedures; and an area of emphasis in design, value analysis, management or marketing. Other areas of emphasis may be elected with the approval of the Department of Design Sciences. The area of emphasis will consist of 24 semester hours structured to attain entry level capability in such areas as design, product planning, product value analysis, industrial sales, product service, industrial purchasing, budget administration, production management, etc. The specialization is constructed with approximately 20 percent each in business, design, mathematics and applied sciences, communication and general studies, and an elected area of emphasis. Technical management will be of interest to students seeking management in a product producing industry where understanding of the technical aspects of product or production is essential.

**Professional Studies—Required Courses**

**Technical Management**

**First Professional Year**

|             |     |              |   |                       |
|-------------|-----|--------------|---|-----------------------|
| <b>Fall</b> |     |              |   | <i>Semester Hours</i> |
| ATE         | 362 | Structures I | 3 | 3                     |
| DSC         | 498 | Pro Seminar  | 1 | 1                     |

|     |     |                          |    |
|-----|-----|--------------------------|----|
| DSC | 340 | Materials                | 3  |
| ECN | 202 | Principles of Economics  | 3  |
| QBA | 221 | Statistical Analysis     | 3  |
| MGT | 301 | Principles of Management | 3  |
|     |     |                          | 16 |

#### Spring

|     |     |                            |    |
|-----|-----|----------------------------|----|
| DSC | 353 | Mechanical Design I        | 4  |
| FIN | 300 | Fundamentals of Finance    | 3  |
| MKT | 300 | Principles of Marketing    | 3  |
| ADS | 305 | Business Law               | 3  |
| ECE | 400 | Engineering Communications | 3  |
|     |     |                            | 16 |

#### Summer

|     |     |            |   |
|-----|-----|------------|---|
| DSC | 484 | Internship | 3 |
|-----|-----|------------|---|

#### Second Professional Year

##### Fall

|     |     |                            |    |
|-----|-----|----------------------------|----|
| DSC | 354 | Mechanical Design II       | 4  |
| MGT | 463 | Business Policies          | 3  |
|     |     | Area of Emphasis Electives | 9  |
| DSC | 498 | Pro-Seminar                | 1  |
|     |     |                            | 16 |

##### Spring

|     |     |                            |    |
|-----|-----|----------------------------|----|
| DSC | 441 | Product Liability          | 2  |
|     |     | Area of Emphasis Electives | 15 |
|     |     |                            | 17 |

An area of emphasis will consist of one of the following:

*Design.* DSC 443, 451, 460, 461, 494; CEE 380; MEE 380, 381

*Value Analysis.* DSC 443; ACC 331; MGT 331, 355, 368, 451; 6 semester hours of approved electives.

*Management.* DSC 460, 461; ACC 331; MGT 331, 355, 368, 432, 451.

*Marketing.* MKT 302, 304, 412, 434, 435, 444, 451, 460.

*(Arranged):* 24 semester hours of approved electives.

**Independent Studies Emphasis.** The emphasis area referred to as Design Sciences (Independent Studies) is offered as a separate, interdisciplinary program in a design field of specialization not offered through any other existing program. Examples of programs proposed under this emphasis might include computer aided design, human factors design, or other design related and university supportable program areas.

The program requirements within this emphasis are structurally the same as in all other areas of design science. In addition, core requirements for one of the design programs within the College of Architecture is required prior to the student admission to this program in design science. Students interested in this emphasis are required to prepare their program of study under the advisement of a departmental program coordinator and approved by the Chair, Department of Design Sciences. Specific instructors and detailed program requirements for this program are available from the Design Sciences departmental office.

**Visual Communications Emphasis.** The visual communications design program is directed towards the preparation of students proficient in the myriad aspects of production and design of photographic, electronic, visual media.

Most large corporations, educational and governmental institutions have media production departments that, along with the growing number of independent producers, offer promising and exciting careers for graduates.

The areas covered in the professional curriculum include videotape, motion picture, slidetape, multi-image and audio production, with an emphasis on the commercial, industrial, scientific, and documentary markets. The student will gain a working knowledge of lighting, editing, photography, directing and

mation, sound, equipment and special effects, in addition to an appreciation of the photo electronic visual medium.

Visual Communications students will select a total of 46 credit hours from Special Studies courses or approved professional course substitutions. For further information, contact: Chair, Department of Design Sciences

**Special Courses:** DSC, IND, INT, VCD 294, 451, 484, 494, 498, 499, 500, 580, 584, 590, 592, 593, 594, 599. Also, consult University Continuing Education brochures for special course offerings.

---

## Design Sciences

### PROFESSIONAL PROGRAMS

---

#### ASSOCIATE PROFESSORS:

ADAMS (Arch 140), BENZINGER, KN GHT, REZNIKOFF, W TT

#### ASSISTANT PROFESSORS:

NIELSEN, QUESADA, SADLER, SMITH

#### VISITING PROFESSOR:

SHIPLEY

### Professional Program Courses

#### Bachelor of Science in Design

These courses are intended only for students admitted to the professional programs of study in design sciences. Other design sciences courses open to any eligible student meeting the stated pre-/co-requisites are listed under the General Studies section of the College of Architecture.

#### DESIGN SCIENCES

**DSC 353 Mechanical Design I.** (4) S  
Linkages; cams, dimensions determination; stress concentration; fasteners: springs, screws. Three lectures, 3 hours laboratory

**354 Mechanical Design II.** (4) F  
Couplings, clutches, brakes, gears, bearings; tribology

tion. Prerequisite: DSC 353. Three lectures, 3 hours laboratory

**440 Plastics Design.** (2) S

Mold design for part requirements; molded hoses; threads; inserts; fastening and joining, decorating, extrusion design, reinforced plastics. Prerequisite: DSC 340. One lecture, 3 hours laboratory.

**445 Structural Package Design.** (2) S

Design; testing cushioning industry standards materials in packaging.

**460 Design Project.** (3) F

Large-scale interdisciplinary class project involving project planning and control, design, prototype development, feasibility study and reporting. Prerequisites: senior standing and approval of instructor. Six hours lecture and laboratory.

**461 Design Project.** (3) S

Design finalization; model final technical and summary reports; graphics oral presentation of results. Prerequisite: DSC 460. Six hours lecture and laboratory.

**463 Systems Design.** (4) S

Integration of kinematics, human factors materials and layout of components into total design concept. Prerequisite: DSC 354. Three lectures, 3 hours laboratory.

**484 Internship.** (3) SS

Clinical internship full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Consent of design sciences coordinator is required.

**INDUSTRIAL DESIGN**

**IND 340 Color.** (3) F

Theory and practice of basic color concepts, color systems, color relationships, psychology of color color in industry. Six hours lecture and laboratory.

**342 Color Sketching.** (3) F S

Field markers quick representation and concept communication on sketching. Forms in space light and shade, material reflectance properties. Six hours lecture and laboratory.

**360 Design Methodology and Techniques.** (5) F

Acquaints the student with methods of visual thinking, conceptualization, and decision while building skill levels in professional design presentation techniques. Five afternoons in lab per week.

**361 Concept Development.** (5) S

Emphasis on developing ideas into a complete functional product including survey and application of aesthetics human factors materials and manufacturing. Five afternoons in lab per week.

**400 Professional Practice.** (3) F

Business procedures, management techniques, ac-

counting systems ethical and legal responsibilities of the design professions. Prerequisite: senior standing. May be repeated for credit.

**420 Graphic Design.** (3) F

Visual design relating to products, packaging display and signage. Mixed media. Three hours lecture.

**421 Package Design.** (3) S

Esthetic and marketing considerations of containing, protecting and promoting a product through packaging. Three hours lecture.

**460 Unit Analysis and Design.** (5) F

Complete analysis of the product unit as an element of mass production emphasizing marketing packaging cost development, aesthetics and detailing. Special attention to professional presentation. Five afternoons in lab per week.

**461 System Synthesis and Design.** (5) S

Product design with emphasis in systems interaction. Culmination of design process and technique. Individual project directions encouraged. Five afternoons per week.

**484 Internship.** (3) SS

Clinical internship, full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Consent of industrial design coordinator is required.

**INTERIOR ARCHITECTURE**

**INT 320 Interior Architectural Rendering.** (3) F

Graphic representation on methods used to describe and analyze space, emphasis on quick presentation techniques. Prerequisites: DES 141, 161. Six hours per week.

**321 Interior Architectural Construction Documents.** (3) S

Production of construction documents and specifications for interior spaces. Prerequisites: DES 141, 161. Six hours per week.

**345 Interior/Exterior Plant Materials and Furnishings.** (3) S

Use of plant materials to enhance the quality of human spaces; use of exterior spaces as extension of interior spaces.

**355 Interior Architectural Construction.** (3) S

Application of finish materials and construction detailing for interior spaces. Prerequisite: ATE 353.

**360 Human Habitation Space Design.** (5) F

Studio problems in interior architecture related to behavioral response in personal and small group spaces for static and mobile situations. Fifteen hours per week. Laboratory.

**361 Community Space Design.** (5) S

Studio problems in interior architecture related to hu-

man privacy, emphasis on issues of public and private use of interior spaces. Prerequisite: INT 360. Fifteen hours per week.

**440 Interior Materials Performance Criteria I.** (3) F

General analysis of interior architectural materials and performance criteria codes and regulations.

**441 Interior Materials Performance Criteria II.** (3) S

Continuation of INT 440, with emphasis of furniture systems for commercial and institutional use. Prerequisite: INT 440.

**442 Professional Practice I.** (3) F

Business procedures, contractual forms, fee structures and professional abilities of interior architecture practice.

**443 Professional Practice II.** (2) S

Continuation of INT 442. Prerequisite: INT 442.

**455 Advanced Environmental Control Systems.** (2) S

Methods of specifying and constructing systems which control the sensory input from the ambient environment. Prerequisite: ATE 453.

**460 Commercial Space Design.** (5) F

Studio problems in interior architecture related to commercial spaces such as restaurants, stores, business offices, banks and hotels. Prerequisite: INT 361. Fifteen hours per week.

**461 Institutional Space Design.** (5) S

Studio problems in interior architecture related to institutional spaces such as schools, hospitals, and health care facilities. Prerequisite: INT 460. Fifteen hours per week.

**484 Clinical Internship.** (3) SS

Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Consent of coordinator of placement for interior architecture required.

---

**Department of Planning**  
**PROFESSIONAL PROGRAM**

---

**Purpose**

The professional program of study in the Department of Planning is designed for full-time students over a two-year period. It concentrates and combines fully integrated lecture and laboratory course work involving both individual and team experiences. It is aimed at

giving students skill and facility as they prepare for the practice of landscape architecture or planning. The curriculum assumes each student has previously acquired a liberal arts education and provides for applications of this preparatory education, but the program thrust is toward acquiring competency in professional skills in a rapidly changing and increasingly competitive technological society. The professional curriculum is designed to aid students in their quest for a successful career in landscape architecture or planning. One summer of clinical internship in a professional office under the direction of an approved preceptor and licensed practitioner is required and provides a distinct educational experience.

### Organization

The Department of Planning's professional program is organized under the direction of the chair, and is administered by faculty coordinators in charge of the emphasis areas of Landscape Architecture and City Planning.

### Professional Curriculum

#### Bachelor of Science in Design

A student seeking the Bachelor of Science in Design degree in the Department of Planning must complete satisfactorily a curriculum of 69 semester hours beyond the 65 hours pre professional requirements. The areas of course work emphasis are:

**Landscape Architecture (PLA)**, which explores the reasons for and the techniques involved in, the analysis, planning and design of the exterior environment, both natural and man-made.

**City Planning (PUP)**, which exposes the students to the theories, methods and interdisciplinary concerns of the planning profession and the related area of urban design.

### Professional Studies—Required Courses

#### Landscape Architecture

##### First Professional Year

| Fall |     |                                      | Semester<br>Hour |
|------|-----|--------------------------------------|------------------|
| CHM  | 101 | Introductory Chemistry . . . . .     | 4                |
| CEE  | 241 | Surveying . . . . .                  | 3                |
| BOT  | 100 | Botany (Plant Environment) . . .     | 3                |
| PLA  | 321 | Landscape Design I . . . . .         | 5                |
| PUP  | 371 | Introduction to Urban Planning . . . | 3                |
|      |     |                                      | 18               |

##### Spring

|     |     |  |    |
|-----|-----|--|----|
| PLA | 442 | Landscape Construction and Materials . . . . . | 3  |
| IND | 240 | Rendering . . . . .                            | 3  |
| BOT | 300 | Survey of the Plant Kingdom . . .              | 4  |
| PLA | 322 | Landscape Design II . . . . .                  | 5  |
| PLA | 443 | Plant Materials . . . . .                      | 3  |
|     |     |  | 18 |

##### Summer

|     |     |                               |   |
|-----|-----|-------------------------------|---|
| PLA | 484 | Clinical Internship . . . . . | 3 |
|-----|-----|-------------------------------|---|

##### Second Professional Year

##### Fall

|     |     |  |    |
|-----|-----|--|----|
| PLA | 457 | Landscape Construction Documents I . . . . . | 3  |
| BOT | 370 | Flora of Arizona . . . . .                   | 4  |
| PLA | 421 | Landscape Design III . . . . .               | 5  |
| PLA | 441 | History of Landscape Architecture . . . . .  | 3  |
|     |     |  | 15 |

##### Spring

|     |     |   |    |
|-----|-----|---|----|
| PLA | 458 | Landscape Construction Documents II . . . . . | 3  |
| ERA | 325 | Soils . . . . .                               | 3  |
| ERA | 326 | Soils Laboratory . . . . .                    | 1  |
| PLA | 422 | Landscape Design IV . . . . .                 | 5  |
| AAD | 454 | Professional Practice . . . . .               | 3  |
|     |     |   | 15 |

### Total Credit Hours

|                                     |     |
|-------------------------------------|-----|
| Pre professional Program . . . . .  | 65  |
| plus Professional Program . . . . . | 69  |
|                                     | 134 |

#### City Planning

##### First Professional Year

##### Fall

|     |     |                                      | Semester<br>Hour |
|-----|-----|--------------------------------------|------------------|
| PUP | 371 | Introduction to Urban Planning . . . | 3                |
| QBA | 221 | Statistical Analysis . . . . .       | 3                |
|     |     | or                                   |                  |
| MAT | 226 | Elements of Statistics . . . . .     |                  |
| GCU | 361 | Urban Geography . . . . .            | 3                |
| SOC | 332 | Modern City . . . . .                | 3                |
|     |     | Electives . . . . .                  | 6                |
|     |     |                                      | 18               |

##### Spring

|     |     |  |    |
|-----|-----|--|----|
| PUP | 475 | Interdisciplinary Urban Planning . . .         | 3  |
| ECN | 473 | Urban Economics . . . . .                      | 3  |
| CEE | 372 | Transportation Engineering . . . . .           | 3  |
|     |     | or   |    |
| TRA | 305 | Urban Transportation . . . . .                 |    |
| PLA | 442 | Landscape Construction and Materials . . . . . | 3  |
|     |     | Electives . . . . .                            | 6  |
|     |     |  | 18 |
| PUP | 484 | Clinical Internship . . . . .                  | 3  |

##### Second Professional Year

##### Fall

|     |     |                                    |    |
|-----|-----|------------------------------------|----|
| HIS | 420 | Urban History . . . . .            | 3  |
| REA | 441 | Real Estate Land Development . . . | 3  |
|     |     | Electives . . . . .                | 9  |
|     |     |                                    | 15 |

##### Spring

|     |     |                                  |    |
|-----|-----|----------------------------------|----|
| PUP | 474 | History of the City . . . . .    | 3  |
| DEA | 472 | Housing and Society II . . . . . | 3  |
|     |     | Electives . . . . .              | 9  |
|     |     |                                  | 15 |

|                                     |     |
|-------------------------------------|-----|
| <b>Total Credit Hours</b>           |     |
| Pre professional Program . . . . .  | 65  |
| plus Professional Program . . . . . | 69  |
|                                     | 134 |

---

## Planning PROFESSIONAL PROGRAM

---

**PROFESSORS:**

BOYLE (Arch 138), COOK, ELMORE,  
HERSHBERGER

**ASSOCIATE PROFESSORS:**

LAI, MUMMA

**ASSISTANT PROFESSOR:**

LARSON

**DISTINGUISHED VISITING PROFESSORS:**

SOLERI, YELLOTT

### Professional Program Courses

#### Bachelor of Science in Design

These courses are open only to students admitted to the professional or certain graduate programs of the Department of Planning. Other courses offered by the department which are open to any student meeting the stated pre/co requisites are listed under the College of Architecture General Studies offerings.

#### LANDSCAPE ARCHITECTURE

**PLA 321 Landscape Design I.** (5) F  
Landscape design; graphic skills and principles of order applied to utilization of natural forms and materials

**322 Landscape Design II.** (5) S  
Continuation of PLA 321; principles of landscape design, analysis and planning of landscape projects.

**421 Landscape Design III.** (5) F  
Theory and methods of large scale landscape design and site planning.

**422 Landscape Design IV.** (5) S  
Design of landscape projects in arid regions

**442 Landscape Construction and Materials.** (3) S  
Design, construction, materials and site engineering aspects of landscape architecture

**443 Plant Materials.** (3) S  
Natural components of landscape design characteristics, applications select on and use

**451 Field Studies.** (1-6) F, S, SS  
Organized field study in specified national and international locations. May be repeated

**457 Landscape Construction Documents I.** (3) F  
Preparation of landscape construction drawings; legal status, organization, layout site survey plans, sections, elevations, details schedules and coordination.

**458 Landscape Construction Documents II.** (3) S  
Continuation of PLA 457.

**484 Clinical Internship.** (3) SS  
Full time internship under the supervision of practitioners in the Phoenix area or other locales.

#### CITY PLANNING

**PUP 451 Field Studies.** (1-6) F, S, SS  
Organized field study in specified national and international locations. May be repeated.

**475 Interdisciplinary Urban Planning.** (3) F  
Basic theories and methods of urban planning with introduction into substantive issues of concern to planners. Interdisciplinary with visiting lecturers.

**484 Clinical Internship.** (3) SS  
Full time internship under the supervision of practitioners in the Phoenix area or other locales

**571 Planning, Society, and the Law.** (3) F, Lai  
Law as a determinant of urban planning and development both in history and in the context of present laws on police power, eminent domain, tax policy, and governmental programs.

**572 Planning and Development Control Law.** (3) S, La  
Case studies of the law affecting land development and public planning. Police power and eminent domain, zoning, subdivision controls official mapping, urban renewal, housing, design controls historic preservation and excusatory practices

**671 Urban Statistical Analysis.** (3) F, Stephenson  
Quantitative analysis in the urban context demographic analysis, data processing, planning application and urban systems.

**672 Land Economics.** (3) S; Staff  
Economic determinants for urban and regional planning; analytical techniques, elementary market analysis and feasibility studies economic incentive in urban planning

---

## Department of Planning GRADUATE PROFESSIONAL PROGRAMS

---

### Purpose

The purpose of the graduate program of the Department of Planning is to produce professionals who are equipped to deal with the problems of energy technology and planning and urban regional planning. It leads to the degree of Master of Environmental Planning, under which various course work concentrations may be pursued within the above two areas.

In addition, programs of independent studies are available in the areas of architectural administration and management, environmental analysis and programming, and preservation planning.

### Goals

The explicit goals of the graduate program are

- a) To advance the student's ability to conduct research relevant to the energy technology and planning professions.
- b) To enable students to develop their capabilities to fill specific professional planning roles of individual interest
- c) To render service to the university, profession, community, state and region by pursuing research and planning projects directly related to them
- d) To expand the store of knowledge about urban regional planning and human settlement in arid regions.

### Organization

The Department of Planning is organized under the direction of the chair, and administered by academic coordinators responsible for

the various course work concentrations. Course subject matter is organized as follows: energy, design, planning, and technology laboratories, energy technologies and planning, and urban regional planning.

### Master of Environmental Planning Degree Program

The Master of Environmental Planning degree curriculum consists of two segments—a basic program of 24 hours and an advanced program of 30 hours—for a total of 54 semester hours of credit for those students not admitted directly into the advanced program.

The basic program is required of all students in the energy technology and planning course work concentration who do not hold a previous professional degree in architecture or engineering, and in the urban regional planning concentration who do not hold a previous degree in the planning area for which they are applying. The basic program is intended to equip students of various backgrounds with sufficient professional preparation to undertake the course work required in the advanced program. In this regard, faculty advisory committees are especially constituted to establish the length of the student's basic program and to approve the courses to be taken.

The advanced program consists of 30 hours of course work in the concentration selected, as determined by the faculty advisory committee when the student completes the basic program.

Course work in the advanced program is divided as follows:

|                                      | <i>Semester<br/>Hours</i> |
|--------------------------------------|---------------------------|
| Required Courses . . . . .           | 18                        |
| Coordinate Electives . . . . .       | 6                         |
| Research Project or Thesis . . . . . | 6                         |
| Total . . . . .                      | 30                        |

It is intended that within each concentration

there be individual choice by the student with approval of the departmental advisory committee as follows:

Selection of coordinate electives offered in the College of Architecture or in other colleges of the University.

Selection of specific subjects for research or thesis projects.

Current listings of required courses and approved coordinate electives for each concentration are available from the Office of the Chair, Department of Planning.

### Courses

Courses offered in the graduate program are available on the following basis:

1. Six-credit hour laboratory or workshop courses are open only to those admitted to the graduate program of the Department of Planning unless otherwise indicated.
2. Three-credit hour, 500 level courses are open with the instructor's approval to all graduate students in the University and to junior and senior level students in the professional programs in architecture, planning and design sciences.
3. Three-credit hour, 600-level courses are open with the instructor's approval to all graduate students in the University.

### Admission

Admission to the graduate program in Planning requires completion of all admission requirements and procedures set forth by the Graduate College; and the following additional requirements of the Department of Planning; completion of a baccalaureate or first professional degree and, preferably, at least one additional year of professional employment or other experience acceptable to the admissions committee; submission and approval of a proposed course of study in a

concentration offered by the Department, and selection of the candidate by the admissions committee. At the time of admission, students are enrolled in either the basic or advanced program depending on the type and amount of their previous preparation.

**Note:** Undergraduate students at Arizona State University interested in applying for the urban/regional planning course work concentration are advised to enroll in the professional program for urban planning. See the College of Architecture Planning Studies Bulletin.

**Application.** The following should be submitted to the Admissions Office, Graduate College, Arizona State University, Tempe, Arizona 85281:

- a) The application for admission to the Graduate College.
- b) Two transcripts from each institution that the applicant has attended previously (except ASU).

The following should be submitted to the Office of the Chair, Department of Planning, College of Architecture, Arizona State University:

- a) Statement of the applicant's qualifications, including previous degree(s), employment, and travel history.
- b) Examples of the applicant's work evidencing prior preparation for the proposed course work concentration.
- c) Statement of the applicant's educational objectives in sufficient detail to indicate that they are congruent with the aims and capabilities of the Department.
- d) Certificate of Graduate Record Examination score.
- e) At least three letters of reference from the applicant's undergraduate instructors or others able to comment knowledgeably on his/her ability to do graduate work. Such letters shall be sent directly from the ref

ere to the Office of the Chair, Department of Planning

The above listed documents should be submitted together in 8½" x 11" portfolio format, using a notebook similar to a Ful-Vu CB-10 presentation binder with plastic sleeves

Note Application documents remain the property of the Department, however, examples of the applicant's work may be returned provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage or personally signs for return of the examples following the selection date. Examples not so returned will be discarded by the Department after retention for one year.

**Financial Aid.** University scholarships, fellowships, grants, and financial aid are available as outlined in the *Graduate Catalog*. In addition, a number of assistantships are granted to the Department each year to help to support graduate students with financial need.

---

## Planning

### GRADUATE PROFESSIONAL PROGRAMS

---

**PROFESSORS:**

BOYLE (ARCH 138), COOK, ELMORE, HERSHBERGER

**ASSOCIATE PROFESSORS:**

LAI, MUMMA

**ASSISTANT PROFESSOR:**

LARSON

**DISTINGUISHED VISITING PROFESSORS:**

SOLER YELLOTT

### Graduate Program Courses

These courses are open to students admitted to the professional and graduate programs of the College of Architecture (see page 233)

Other courses open to any student meeting the stated pre-requisites are listed under the College of Architecture General Studies offerings. See pages 227-228 for listing of these other courses

### ENERGY DESIGN, PLANNING AND TECHNOLOGIES LABORATORIES

**EDE 621 Climatic and Solar Architectural Design.** 4 F Cook

Laboratory and field experience in architectural synthesis emphasizing material criteria and analysis. Comparative climatic cases including arid and semi-arid regions. Emphasis on appropriate technology and passive thermal systems

**622 Energy Efficient Design and Planning.** 4 S Cook  
Laboratory and field experience in energy efficient design emphasizing solar energy and related renewable and natural means for heating and cooling of multiple energy efficient building types in urban and institutional complexes.

### ENERGY TECHNOLOGIES AND PLANNING

**ETE 434 Energy Conservation in Buildings.** 3) S  
Impact of natural forces on the design of buildings emphasizing pre-design decisions and post-construction practices leading to minimum energy consumption. Investigation of new energy sources

**452 Introduction to Solar Energy.** 3 S  
Introduction to theoretical and practical aspects of solar radiation and nocturnal cooling for control of building environments

**551 Desert Habitation Technology.** 3 F Yeott  
Analysis of habitation approaches in non-technological and technological societies arising from the nature of desert areas: includes aridity, availability of solar radiation and extremes of temperature fluctuation both diurnal and annual

**552 Solar Energy.** 3 F Yeott  
Utilization of solar radiation and nocturnal cooling for heating and cooling buildings in arid and other regions

**554 Experimental Energy Efficient Systems.** 3 6 F Mumma

Design calculations and testing of experimental or advanced building systems and structures for energy efficiency and solar energy applications

**555 Energy Efficient Systems Research.** 3 6) S Mumma

Empirical analysis of building materials and systems for energy efficiency and evaluation or team research

### URBAN/REGIONAL PLANNING

**PUP 474 History of the City.** (3) S

The city from its ancient origins to the present day emphasizing the cities of Europe and America during the last five centuries

**475 Interdisciplinary Urban Planning.** 3 F

Basic theories and methods of urban planning with introduction into substantive issues of concern to planners interdisciplinary with visiting lecturers

**571 Planning, Society, and the Law.** (3) F La

Law as a determinant of urban planning and development both in history and in the context of present laws on police power, eminent domain, tax policy and governmental programs

**572 Planning and Development Control Law.** 3) S La

Case studies of the law affecting and development and public planning. Police power and eminent domain zoning, subdivision controls, official mapping, urban renewal housing design controls, historic preservation and excursionary practices

**573 Interdisciplinary Urban Planning Practicum I.** 4 S La

Comprehensive planning workshop dealing with actual problems in an Arizona community. Data gathering and analysis, formulation and recommendation of alternative plans, policies, and strategies. Inclusive of interrelated social economic physical and governmental considerations interdisciplinary open to upper-class and graduate students with approval of the instructor

**574 Interdisciplinary Urban Planning Practicum II.** 4) NR La

Interdisciplinary workshop emphasizing large scale physical project planning in an urban new community, regional context with development by either a public agency or private enterprise. Development feasibility, urban and landscape design housing transportation engineering ecology and regional planning. Open to upper class graduate students with approval of the instructor.

**671 Urban Statistical Analysis.** 3) F, Stephenson

Quantitative analysis in the urban context demographic analysis data processing, planning application and urban systems.

**672 Land Economics.** (3) S Staff

Economic determinants for urban and regional planning analytical techniques, elementary market analysis and feasibility studies economic incentives in urban planning

**Special Courses:** EDE ETE PLA, PUP 488 499 500 580 584, 590 591 592, 593 594, 598 599 600 680 683 684, 690 691 692, 693 (See pages 30-31.)

# College of Nursing

Juanita F. Murphy, Ph.D.

Dean

## Purpose

The faculty of the College of Nursing acknowledges its responsibility to health service consumers for the preparation of individuals who will provide nursing care of professional quality through teaching, research and service. The purpose of the College is to provide an educational program which prepares beginning professional nurses and specialists who consider the emotional, biophysical, socio-cultural and ecological needs in the prevention and treatment of human ills. This nursing care is based on the belief that all human life has dignity and worth, that there is potential for growth in every individual, and that every individual should have the opportunity to achieve and maintain health.

It is the belief of the College of Nursing that professional preparation in nursing is most appropriately composed of a combination of liberal and specialized educational content, and that the professional nurse is committed to the utilization of knowledge and skills to help other human beings achieve and maintain well being. We also believe that the professional nurse must be prepared as a change agent for the betterment of nursing and health care.

## Organization

The College of Nursing is organized as follows:

### Baccalaureate Program

The baccalaureate program is a generic four-year curriculum leading to the Bachelor of Science in Nursing degree. It is designed with an upper division nursing major. The first two years of the four-year baccalaureate program consist of required pre-nursing and elective courses. All students seeking the Bachelor of Science in Nursing degree are admitted to the generic baccalaureate program, including graduates of Diploma and Associate Degree in Nursing programs.

## Graduate Program

The graduate program is a Master of Science degree with a major in Nursing. This program offers specialization in the following areas.

- Community Mental Health-Psychiatric Nursing
- Maternal-Child Nursing
- Medical-Surgical Nursing
- Community Health Nursing

## Continuing Education Program

This program presents a variety of courses both on and off campus, some of which are for academic credit, and all of which are designed to assist Registered Nurses to increase the knowledge and skills needed in their professional roles.

## Degrees

**Bachelor of Science in Nursing.** The completion of a four year curriculum in nursing leads to the degree of Bachelor of Science in Nursing. The purpose of the baccalaureate program in nursing at Arizona State University is to prepare beginning professional nurses who possess clinical competence to function in various health care settings. The graduate is prepared to deliver nursing care services to individuals, families, and communities. The program provides a foundation for graduate studies in nursing.

The program objectives for the baccalaureate curriculum are directed toward preparation of graduates with generalist abilities. With a base of theoretical and empirical knowledge from the humanities, physical, biological and behavioral sciences, and nursing, graduates are prepared to: 1) provide comprehensive patient care in concert with individuals, families, and other health team members, by utilizing skills of observation and assessment, decision making, intervention and evaluation; 2) assume responsibility for the

provision of nursing care and accountability for identifying and evaluating outcomes of that care; 3) apply the scientific process and utilize research findings in the delivery of health care; 4) assume a leadership role in the promotion, maintenance and restoration of health through teaching and collaborative planning within the interdisciplinary team; and 5) continue professional development in response to trends in health care, changing nursing roles, and the impact of these and other health issues on the consumer.

The candidate for the degree of Bachelor of Science in Nursing must complete a minimum of 126 semester credit hours. The curriculum is planned to include 40 semester credit hours of General Studies required by the University for graduation. These 40 credit hours are part of the approximately 61 semester credit hours required before entering the nursing major. There are 14 semester credit hours of additional free electives required to meet the minimum number of credits for graduation.

The upper division nursing major consists of 51 semester credit hours. Forty-eight are the prescribed professional major sequence and three are upper division required elective credit with the NUR prefix and a clinical component. Up to nine credit hours of the aforementioned 14 free elective hours may be in approved nursing courses. Of the latter, a limit of six credit hours in approved upper division courses with the NCE prefix may be substituted and applied toward the baccalaureate degree, either as general electives or as nursing electives. All elective nursing courses must have had prior approval by the Baccalaureate Curriculum Committee. To apply any nursing credit toward minimum graduation requirements, other than courses offered at Arizona State University with the NUR prefix, students must petition to the Baccalaureate Standards Committee in advance of enrollment for approval. Lower

division nursing course credit will not be accepted toward the Bachelor of Science in Nursing degree.

**Master of Science.** The College of Nursing offers a program leading to a Master of Science degree which requires 50 semester credit hours. Requirements for this program are given in the *Graduate Catalog*. Persons interested in applying for admission to the program should write to the Arizona State University Graduate College for a catalog and application form.

### General Information

**Accreditation.** The baccalaureate and master's programs of the College of Nursing are accredited by the Arizona State Board of Nursing and the National League for Nursing. The Continuing Education Program is accredited by the Western Regional Accreditation Committee of the American Nurses' Association as a provider of Continuing Education for Nursing. The College is a member of the Council of Member Agencies for the Baccalaureate and Higher Degree Programs of the National League for Nursing, and the Western Council on Higher Education for Nursing.

**Scholarships and Financial Aid.** For information regarding scholarships and loans, see page 27 of this catalog. Information about scholarship and loan funds for nursing students may be obtained from the Director of Financial Aids or from the program chair.

**Student Activities.** The nursing students are members of the general student body of the University, and select and participate in those campus activities which are of interest to them. They are represented on University and College of Nursing committees. Students enrolled in the baccalaureate program of the College of Nursing, in the pre-nursing major as well as the upper division nursing major,

are eligible for membership in the Arizona Association of Student Nurses, the National Student Nurses Association, and ASASU. Students are represented in the Student Senate of ASASU.

**Sigma Theta Tau.** Beta Upsilon chapter of Sigma Theta Tau was chartered at Arizona State University College of Nursing in 1976. Membership in Sigma Theta Tau is an honor conferred on students in baccalaureate and graduate programs who have demonstrated outstanding academic and professional achievement.

**Graduate Nurse Organization.** The Graduate Nurse Organization (GNO) is the coordinating body for nursing students in the graduate program. It provides programs, information, and orientation services for graduate students and complements their academic experiences.

**Learning Resources.** The College of Nursing offers learning resources which include the University's Hayden Library and the College of Nursing's multi-media learning resources laboratory.

**Clinical Facilities.** Learning experiences with patients and families are provided through federal, state, county, and private health and other agencies under the supervision of qualified nursing faculty. The College of Nursing has contracts with more than 50 different agencies in the Phoenix metropolitan area. Thus a variety of clinical laboratory facilities is available to students in this significant component of the program.

**Student Transportation.** Students are responsible for their own transportation to health agencies and other selected experience settings, such as home visits to clients.

### Bachelor of Science in Nursing

The program leading to the Bachelor of Science in Nursing degree is divided into the pre-

nursing major and the upper division nursing major. The pre nursing major consists of the 61 semester credit hours of prescribed prerequisite courses. The upper division nursing major consists of the planned four semester nursing sequence plus three hours of NUR elective credit. The remaining 14 semester credit hours are free electives, non nursing and/or nursing. Students are advised to have no more than 12 elective hours outstanding at the time of enrolling in the upper division nursing courses.

Admission to the upper division nursing major is *not* automatic. Students admitted to Arizona State University declaring nursing as their interest are classified as pre-nursing majors. There is a separate College of Nursing procedure for admission to the upper division nursing major.

Students are admitted to the upper division nursing major each fall and spring semester. Admissions are competitive and selective due to program limitations in terms of College of Nursing physical facilities, clinical resources, and availability of qualified faculty. The number of qualified applicants may exceed the number which can be accepted into each entering class.

### Pre-Nursing Major

**Admission Requirements.** Students admitted to the University automatically qualify for admission to the pre nursing major.

**Academic Advisement.** Students admitted to the pre-nursing major are advised by the College of Nursing pre-nursing academic advisors. All students are encouraged to seek advisement in order to plan an appropriate program of studies. (Students in the upper-division nursing major are advised by College of Nursing baccalaureate faculty.)

**Pre-Nursing Curriculum.** There are approximately 61 semester credit hours of prerequisite

course work. Comparable courses may be completed at other accredited colleges or universities. Credit for transfer is initially evaluated by the Admissions Office of ASU. In addition, the College of Nursing Baccalaureate Standards Committee reviews each transcript to determine course equivalency with the prescribed prerequisite courses and applicability of credit toward the Bachelor of Science in Nursing degree. The College of Nursing does not accept credit toward the baccalaureate nursing degree for lower division courses in nursing or other coursework with a technical/vocational orientation. Course work, particularly in the natural sciences, completed more than 10 years before the date of application to the upper division nursing major will be evaluated for acceptability by the Baccalaureate Standards Committee. Prerequisite courses may not be taken for pass/fail credit.

### Prerequisite Courses

|  | Semester<br>Hours |
|--|-------------------|
| ENGL 111 and 120 or 141 . . . . .  | 3/6               |
| Humanities (See Humanities under General Studies) Selected with advisor approval . . . . . | 8                 |
| Social and Behavioral Sciences   |                   |
| PGS 100 Psychology . . . . .   | 3                 |
| SOC 101 or 301 Sociology . . . . .   | 3                 |
| ASB 102 or 305 Anthropology . . . . .  | 3                 |
| CDE 232 Child Development . . . . .  | 3                 |
| FAS 331 Family Relationships . . . . .   | 3                 |
| COM 200 Human Communication Systems . . . . .  | 3                 |
| Science and Mathematics  |                   |
| CHM 101 Inorganic Chemistry . . . . .  | 4                 |
| CHM 231 Organic Chemistry . . . . .  | 4                 |
| MIC 201 and 202 Microbiology . . . . .   | 4                 |
| ZOO 201 and 202 Anatomy and Physiology . . . . .   | 8                 |
| ZOO 241 Human Genetics . . . . .   | 3                 |
| FON 141 Human Nutrition . . . . .  | 3                 |

|  |       |
|--|-------|
| Statistics . . . . .   | 3     |
| Math 06 Intermediate Algebra (or departmental math proficiency placement test) . . . . . | 3     |
|  | 55/64 |

Any prerequisite course substitution must be approved in advance through the Office of the Pre-Nursing Academic Advisors, Baccalaureate Nursing Program.

### Nursing Major

Admission to the upper division nursing major is a process separate from admission to Arizona State University and the pre nursing major. Eligible individuals are responsible for initiating the application procedure and submitting the required documents in accordance with the designated deadlines. Qualification requirements and application procedures are described in the following section.

**Admission Requirements.** Minimum requirements for admission to the upper division nursing major include:

- 1 Admission to Arizona State University and classification of good standing;
- 2 Attainment of a minimum grade point average of 2.5 for in-state\* students and 2.75 for out of state\* students in the prerequisite courses as well as in the cumulative grade point average for the total number of credit hours earned;
- 3 Completion of all prescribed prerequisite courses with a grade of C or better in each;
- 4 Submission of all documents to the office of Pre-Nursing Academic Advisors, Baccalaureate Nursing Program.

*\*The domicile status is that which has been designated by the classification officer on tuition status at the deadline date for filing of application to the upper division nursing major.*

## Application Procedures

1. **Eligibility.** Applicants who have completed at least 45 of the 61 prerequisite credit hours with the necessary prerequisite and cumulative grade point averages and are currently enrolled in the remaining prerequisite courses are eligible to submit the required documents by the designated deadlines.
2. **Deadlines.**
  - a. Applications for admission to the upper division nursing major for Fall Semester must be submitted by January 31 of the same calendar year.
  - b. Applications for admission to the upper division nursing major for Spring Semester must be submitted by August 31 of the preceding year.
3. **Documents**  
The following documents must be on file in the Office of the Pre-Nursing Academic Advisors by the designated deadline in order for students to be considered for admission to the upper division nursing major:
  - a. Certificate of Admission to Arizona State University
  - b. Completed application to the upper-division nursing major. Obtain form in the Office of Pre-Nursing Academic Advisors, Baccalaureate Nursing Program, College of Nursing
  - c. Official transcripts of completed course work from other colleges or universities. This is in addition to the transcript on file in the Admissions Office, Arizona State University.
  - d. College of Nursing Health History Inventory and Record of Physical Examination completed within three months prior to deadline for application. Both forms are available in the Office of the Pre-Nursing Academic Advisors.

Applicants may be requested to come for an interview and/or submit additional documents in the event that further information is deemed necessary.

### Selection and Notification of Admission.

A limited number of applicants can be accepted in each entering class. Therefore admissions are competitive and selective. The limited number of spaces available for each entering class will be awarded to those qualified applicants who have met the minimum criteria for admission to the upper division nursing major and have given evidence of the most reasonable prospect for success in the nursing major. *Full admission* status may be granted to applicants who have completed all prerequisite courses with the necessary prerequisite and cumulative grade point averages. *Provisional admission* status may be granted to applicants who have completed at least 45 of the 61 prerequisite credit hours with the necessary prerequisite and cumulative grade point averages and are enrolled in the remaining prerequisite courses.

Notification of admission status will be by June 15 for Fall Semester and December 31 for Spring Semester. *Provisional admission* to the upper division nursing major will be *automatically* revoked if all prescribed prerequisite courses are not completed and the required cumulative and prerequisite grade point averages maintained.

**Re-admission.** Students who have not been in continuous enrollment in the upper division nursing major at Arizona State University must submit an application for re-admission to the major. Re-admission is not automatic.

**Student Health.** In addition to the health policies of the University, applicants to the upper division nursing major are responsible for submitting a College of Nursing Health History Inventory and a record of physical examination completed within three months

prior to deadline for application. Students enrolled in the upper division nursing major are responsible for fulfilling the requirements in the current health policies of the College of Nursing, available from the Baccalaureate Program Office. All students enrolled in the upper-division nursing major should carry health and accident insurance as outlined in the current health policies of the College.

**Liability Insurance.** Students are encouraged to carry their own professional liability insurance.

### Grading Policy for Nursing Courses.

Within the baccalaureate program, grades are assigned to reflect levels of achievement in relation to course objectives. The grade of D is not used inasmuch as it does not reflect acceptable performance.

Students who do not complete a required nursing course(s) satisfactorily, receiving either a grade of E (failing) or a mark of W (withdrawal), are ineligible to progress in the nursing major. To repeat any required nursing course, students must petition to the Baccalaureate Standards Committee for readmission to the nursing course and/or the nursing major. The form, "Petition to Standards Committee for Adjustment of Curriculum Requirements," is available from the secretary to Baccalaureate Program Chair.

*Failing* a required nursing course necessitates repeating the course in its entirety. A required nursing course may be repeated *only once*.

*Withdrawal* is in accordance with the withdrawal policy of the University. Students who withdraw from required nursing courses must complete the form, "Withdrawal from Nursing Courses." This should be done in conjunction with the appropriate faculty member. In addition, students are responsible for completing the University withdrawal procedure. Two withdrawals from any single



nursing course constitute ineligibility to continue in the nursing major.

An *incomplete* in a required nursing course must be satisfactorily removed before progression in the nursing major is permitted.

*Audits* are not permitted in required upper-division nursing courses.

*Pass/fail* grades are not acceptable within the minimum credit requirement for graduation.

Retention in the upper-division nursing major is contingent upon maintaining sound physical and mental health. Students who appear to lack the degree of physical and mental health necessary to function successfully as a professional nurse may be required to have a medical examination and the results made available to the Baccalaureate Standards Committee of the College of Nursing. Qualifications of students whose behavior and/or performance has been questioned will be reviewed by the Baccalaureate Standards Committee. The student shall be informed of

the results of the medical examination, and may appear in person before the committee and personally present information relevant to the committee's review. Such additional information may also be presented in writing without personal appearance. The decision of the committee to continue or discontinue the student's clinical nursing experience is final.

---

## Nursing

---

### PROFESSORS:

MURPHY (NURS 457), BARDEWYCK,  
BRANSTETTER, HORNOF, JOHNSON,  
MANSELL, MCLEOD

### ASSOCIATE PROFESSORS:

BRUNER, D'ANTONIO, HICKS, MUHLENKAMP,  
STEFFL, STUMPF, L. WHITE, ZORNOW

### ASSISTANT PROFESSORS:

ABBOTT, BAGWELL, BLEWETT, BRUSH,  
CONNELL, DUNWELL, EVANESHKO,

FANCHER, FELLER, FINCH, FOOTE, GARRITY,  
KURTH, LOEHNING, LUDLOW, MARTHALER,  
MELVIN, OSBORN, PORTER, REID, REYES,  
RICHARDS, SANDLING, SEHESTED,  
SHERIDAN, TETTING, TOBIASON,  
VANDERLINDEN, WHERRY, WURZELL, ZEHR

### INSTRUCTORS:

BELL, BRAMOWETH, COPELAND, FAIRBURN,  
HANSEN, DORIS HENSON, DOROTHY  
HENSON, HINDMAN, HORACEK, HUDSON,  
HUFF, JASPER, LANGE, B. MILLER,  
V. MILLER, MUMFORD, OLSON, ONG,  
PETERSON, SAUM, STARKEY,  
SULLIVAN-BOLYAI, WARWICK, N. WHITE

### NURSING

Prerequisite course numbers marked with a dagger (†) have further prerequisites. Each student is required to take the indicated prerequisite courses.

#### **NUR 301 Professional Development I.** (2) F, S

Historical development of nursing, beginning concepts of professionalism. Changing concepts of health, growing functions of nursing, legal aspects as factors influencing nursing practice and professional development. Enrollment restricted to students admitted to the upper-division nursing program.

#### **302 Professional Development II.** (2) F, S

Role socialization, individual development, relationships with other health professionals, ethical and legal issues as they relate to professional nursing practice. Prerequisites: NUR 301†, 310†, 320†.

#### **310 Human Development and Adaptation I.** (3) F, S

Adaptation theories provide a framework to examine human behavior and the holistic nature of man. Focus on primary prevention for promotion of optimum health. Enrollment restricted to students admitted to the upper-division nursing program.

#### **311 Human Development and Adaptation II.** (3) F, S

Selected altered psychological, physiological and environmental factors associated with disease. Bio-psycho-social responses of individuals experiencing acute disruption of health. Prerequisites: NUR 301†, 310†, 320†.

#### **320 Nursing I.** (7) F, S

Focuses on systematic decision making, relationship development and beginning health assessment. Content and clinical practice related to maternity nursing and the mature adult to develop decision making, psycho-

motor and interpersonal skills Prerequisites or concurrent NUR 301† 310† Two lectures, 2 hours conference, 9 hours laboratory.

**321 Nursing II.** (7 F, S)

Application of decisions making interpersonal and psychomotor skills in providing nursing care to acute hospitalized clients of all ages Prerequisites or concurrent NUR 302† 311† One lecture, 2 hours conference 12 hours laboratory

**401 Nursing Research.** (2) F, S

Concepts underlying the research process Significance of research within a profession Prerequisites: NUR 302† 311† 321†

**402 Leadership in Nursing.** (4 F, S)

Contemporary issues and trends influencing health care systems and professional nursing services Principles of management theories of change related to group behavior and role socialization strategies for facilitating transition to the professional role Prerequisites: NUR 401†, 410† 420†

**410 Human Development and Adaptation III.** (3) F, S

Adaptative responses of individuals and families to actual or potential stressors in life threatening and chronic disrupted states. Interrelationships of biopsychosocial environmental stressors and adaptations Prerequisites: NUR 302†, 311†, 321†

**420 Nursing III.** (7 F, S)

Application of the nursing process development of therapeutic relationships techniques and interventions in the delivery of nursing care to clients experiencing life threatening and/or long term disruptions of health Prerequisite or concurrent NUR 401† 410† Two lectures, 15 hours laboratory

**421 Nursing IV.** (8) F, S

Application of principles of management, health education change, and epidemiology to the nursing care of groups of clients in hospital and community settings Prerequisite or concurrent NUR 402† Two hours conference, 18 hours laboratory

**431 Introduction to Cardiovascular Nursing.** (3) F, S, SS

Overview of selected specific aspects of cardiovascular nursing including diagnostic evaluation history and physical assessment medical and surgical interventions, acute rehabilitative and preventive management. Prerequisites: NUR 302† 311† 321† or approval of instructor

**432 Cardiovascular Nursing Laboratory.** (1) F, S, SS

Selected experiences to accompany NUR 431 includes observation and practice, direct care decisions on making and planning for clients in various stages of cardiac disease Prerequisites: NUR 302† 311†, 321† or

approval of instructor, plus concurrent enrollment in NUR 431 Three hours laboratory

**494 Special Topics.** (1-4) F, S, SS

Advanced study and/or supervised practice in an area of nursing Lecture and lab to be arranged Credit may be accumulated to 12 hours Prerequisite 12 hours in the nursing major and approval of instructor

**498 Pro-Seminar.** (1-7) F, S, SS

Small group study for advanced students within the major area Prerequisite 12 hours in the nursing major and approval of the instructor

**499 Independent Study (Honors).** (1-3) F, S, SS

Formulate and execute an independent study on a nursing care problem Prerequisites: NUR 401† 410† 420† 3.40 GPA application must be filed eight weeks before beginning course

**500 Research Methods.** (3) F, S Muhlenkamp

Advanced study of research methodology. Content in theory development and conceptualization, research design data reduction and analysis Prerequisite or concurrent graduate course that includes inferential statistics

**580 Advanced Nursing Practicum I.** (1) F, S Prmas

Required concurrently with NUR 581 Three hour laboratory Conference included.

**580 Advanced Nursing Practicum II.** (1) F, S, Garr ty

Required concurrently with NUR 582 Three hour laboratory Conference included

**581 Advanced Theory I.** (2) F, S Prmas

Analysis of health care delivery systems with emphasis on current roles issues trends and expectations Concurrent practicum required (NUR 580)

**582 Advanced Theory II.** (2) F, S; Garr ty

Theories of health and illness behavior with emphasis on coping and adaptation. Concurrent practicum required (NUR 580)

**599 Thesis.** Credit, (1-6). (6 hours required)

**680 Advanced Nursing Practicum III.** (2-6) F, Staff  
To be taken concurrently with NUR 681 (2 hours required) Conference included. Sections are:

1. Maternal Child Nursing
2. Community Mental Health Psychiatric Nursing
3. Medical-Surgical Nursing
4. Community Health Nursing

**680 Advanced Nursing Practicum IV.** (2-6) S, Staff

To be taken concurrently with NUR 682 See sections listed under NUR 680 I (2 hours required) Conference included.

**681 Advanced Theory III.** (2-4) F, Staff

Advanced specialized theory Sections same as NUR 680 II Prerequisite: NUR 581, 582 undergraduate ge

netics for the maternal child nursing and medical surgical nursing sections Concurrent practicum: NUR 680 (2 hours required)

**682 Advanced Theory IV.** (2-4) S, Staff

Continuation of advanced specialized theory Sections same as NUR 680 I Prerequisite: NUR 681 and approval of instructor Concurrent practicum: NUR 680 V (2 hours required)

**Special Courses:** NUR 580 590, 591 592, 598 680 690, 691 See pages 30-31

**HUMAN DEVELOPMENT**

**HDE 586 Origins of Human Behavior.** (3) F, S

D Antonio  
Critical examination of theories, issues and research in the developmental period of infancy through adolescence Biological, social psychological and cognitive considered Prerequisite: course in child development or equivalent

**588 Development in Adulthood and Aging.** (3) F, S

Staff  
Developmental changes in adulthood and aging. Biological social psychological influences related to adult roles lifestyle health status and problems of aging

**CONTINUING EDUCATION**

Full descriptions of courses topics and prerequisites are published each semester and are also available in the Continuing Education Program office

**NCE 194 Current Topics.** (1-4) F, S, SS

Courses designed to provide new knowledge about selected health care areas. Offered primarily for consumers May be repeated for credit under different specific titles

**294 Special Topics.** (1-4) F, S, SS

Introductory courses in selected health care areas Offered for RNs other health related providers by instructor permission May be repeated for credit under different specific titles

**394 Special Problems in Health Care.** (1-8) F, S, SS

Content chosen from various health care fields Offered for RNs other health related professionals by instructor permission May be repeated for credit under different specific titles

**494 Special Topics.** (1-4) F, S, SS

Advanced study in an area of health care Offered for RNs, other health related professionals by instructor permission May be repeated for credit under different specific titles

**Special Courses:** NCE 598, 690 691 790 791 See pages 30-31.

# College of Fine Arts

Jules Heller, Ph.D.  
*Dean*

## Purpose

The College of Fine Arts provides a rich cultural focus within the structure and philosophy of the University. The mission of the College represents not only the provision for an in-depth professional preparation for properly qualified students in the several arts disciplines but also the opportunity for participation in the arts by the general student. Selected courses, available to non-majors, allow participation and involvement in creative and performance aspects of the arts.

The College, through its programs in art, communication, dance, humanities and religious studies, music, and theatre reflects a wide range of challenges facing the artist and scholar in the 20th century. The arts as an integral part of the University and of human expression offer the student a rewarding educational development balanced and strengthened by studies in the humanities, social sciences and sciences.

In addition to professional curricula offered in each department, the College makes available courses designed to meet the specific educational needs of students pursuing majors in other colleges. The cultural life of the University community is further enriched by study opportunities offered at off campus sites in the Continuing Education Program. The College of Fine Arts also offers the community many hours of cultural enjoyment through the University Art Collections, the Boulton Collection of World Music and Musical Instruments, myriad concerts and recitals, dramatic productions, opera, and lectures.

## Information

**Credit-No Credit Grade Option.** Students enrolled in the College of Fine Arts may take credit-no credit courses consistent with the general University requirements pertaining to such enrollment (see page 88 of this catalog

## Transfer of Community College Credits.

Credits transferred from accredited junior or community colleges will be accepted up to a maximum of 64 semester hours. Additional credit may be accepted only upon authorization of the standards committee of the college in which the student is enrolled at Arizona State University. Community college students planning to transfer to Arizona State University at the end of their first or second year should plan their community college courses to meet the requirements of the curriculum selected. Students will be permitted to follow the degree requirements specified in the Arizona State University catalog in effect at the time they began their community college work, providing their college attendance has been continuous.

Courses transferred from community colleges will not be accepted as upper division credit at Arizona State University. Students are urged to choose their courses carefully, in view of the fact that a minimum of 50 semester hours of work taken at the University must be upper division credits. It is therefore suggested that they elect General Studies courses and lower division courses in their major field while attending a community college.

**General Transfer Credit.** Direct transfer of courses from other accredited institutions to the College of Fine Arts will be subject to: (1) the existence of parallel and equal courses in the College's curriculum, and (2) departmental evaluation of studio courses with respect to performance standards.

## Undergraduate Credit for Graduate

**Courses.** To enable interested students to benefit as much as possible from their undergraduate studies, the Graduate College and the College of Fine Arts extend to seniors, with a grade point index of at least 2.50, the privilege of taking 500 level graduate courses for undergraduate credit. Application for ad



mission to a graduate course for undergraduate credit must be completed in advance of the regular registration period. The application must be approved by the instructor of the class, the student's advisor, by the chair of the department, and dean of the College in which the course is offered.

**Honors Programs.** The Honors Programs in the College of Fine Arts are intended for the outstandingly competent student whose interests and specific curriculum indicate that definite advantages may accrue from a program emphasizing individual study. For details of the programs in the College of Fine Arts, consult with the Honors Representatives in your department or the Assistant Dean.

**Pre-Professional Programs.** Students preparing for admission to professional graduate schools should obtain information regarding admission requirements by writing directly to schools in which they may be interested.

### Degrees

**Bachelor's Degrees.** The College of Fine Arts offers work leading to four baccalaureate degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Fine Arts, and Bachelor of Music. In general, the distinctions among these curricula lie in the degree of specialization permitted in the major field, with the Bachelor of Arts degree providing a broader, scholarly, humanistic program, and the other three placing greater emphasis upon the major field while maintaining the principle of Gen-

eral Studies required of all University students.

In cooperation with the College of Education, certain departments of the College of Fine Arts offer programs designed to provide teachers of art, music, theatre, and humanities for the public schools. Students intending to prepare for a teaching certificate within the College of Fine Arts curricula should indicate this to the office of teacher certification in the College of Education by the end of the sophomore year.

Bachelor's degrees are offered in the following fields:

#### *Bachelor of Arts:*

|               |            |
|---------------|------------|
| Art           | Humanities |
| Communication | Music      |
| Dance         | Theatre    |

#### *Bachelor of Science:*

|               |                            |
|---------------|----------------------------|
| Communication | Speech and Hearing Science |
|---------------|----------------------------|

#### *Bachelor of Music:*

|                      |   |
|----------------------|---|
| Choral-General Music | Performance (Accompanying, Guitar, Jazz, Keyboard, Music Theatre, Orchestral Instrument, Voice) |
| Instrumental Music   |   |
| Music Therapy        | Theory and Composition  |

#### *Bachelor of Fine Arts:*

|       |                                  |
|-------|----------------------------------|
| Art   | Theatre (Child Drama, Directing) |
| Dance |                                  |

*Inter-media Bachelor of Arts in Education* (in cooperation with the College of Education):

Offered with a focus on courses in art, communication arts, dance, humanities, music, communication, theatre.

**Master's Degrees.** A graduate program consisting of a minimum of 30 semester hours of approved work leads to a master's degree in the following fields:

#### *Master of Arts:*

|               |                              |
|---------------|------------------------------|
| Art           | Music History and Literature |
| Communication |                              |
| Humanities    | Theatre                      |

#### *Master of Fine Arts:*

|                         |  |
|-------------------------|--|
| Art                     |  |
| <i>Master of Music:</i> |  |
| Choral Music            | Performance                                      |
| Instrumental Music      | Solo Performance (Instrumental, Keyboard, Voice) |
| Music                   | Music Theatre Performance                        |
| Theory and Composition  | Music Theatre Direction                          |

#### *Master of Science:*

|                         |
|-------------------------|
| Communication Disorders |
|-------------------------|

*Master of Arts in Education: (Secondary Education)* (in cooperation with the College of Education)

|               |                 |
|---------------|-----------------|
| Art Education | Music Education |
| Communication | Theatre         |

**Doctoral Degrees.** In cooperation with the College of Education, the Ph.D. or the Ed.D. degrees are offered with a major in Secondary Education with a content or focus in Art Education and Music Education.

### Bachelor Degree Requirements

**General Degree Requirements.** There are requirements that pertain to each baccalaureate degree program in the College of Fine Arts.

**General Studies Requirements.** To meet the General Studies requirement, students in the Bachelor of Arts and the Bachelor of Science degree programs must take a minimum of 54 semester hours of credit in General Studies. (Exception: The Bachelor of Arts in Music requires 48 semester hours of credit.) Students in the Bachelor of Fine Arts and Bachelor of Music degree programs must meet the University minimum requirement of 36 hours of credit in General Studies. In addition, students must meet the University requirement of the equivalent of two semesters of English composition. A minimum of 6 hours of course work must be taken in the following areas: Humanities; fine arts; social and behavioral sciences; and science and mathematics. The student must elect at least one course in a laboratory science.

Courses in the field of specialization may not be used to meet the General Studies requirement, but courses included in related fields normally considered as part of the major may be included. See pages 36-37 for complete description of the University General Studies program.

**Graduation Requirements.** At least 126 semester hours with grades of "C" or higher in the major, and a cumulative scholarship index of 2.00 are required for graduation. (See exception to this grade point requirement in the Humanities, Speech and Hearing Science, and the BFA Theatre curriculum).

**Upper Division Courses.** Of the total of 126 hours required for graduation, at least 50 credit hours must consist of upper division courses.

**Specific Degree Requirements.** In addition to the above general degree requirements, each of the degree programs offered in the College of Fine Arts has specific requirements.

**Bachelor of Arts Degree.** The curriculum for the degree Bachelor of Arts is designed to give

the student a broad academic background with a scholarly orientation in the principal fields of human knowledge and a reasonable amount of specialized training in a selected area. This degree is offered in the fields of art, communication, dance, humanities, music, and theatre. At least 18 semester hours of credit in the major field must be in upper division courses.

**Major Requirements** The major consists of at least 45 to 55 semester hours of credit. Normally, not more than 30 semester hours will be taken in the field of specialization and approximately 15 semester hours in one or more related fields. The exact content of the major is selected by the student in consultation with his/her advisor under the rules and regulations of the department concerned

**General Studies Requirement.** In the field of science and mathematics, the student must elect at least one course in a laboratory science.

**Foreign Language Requirement.** Knowledge in one foreign language equivalent to the level obtained through 16 college credit hours of instruction is required. This requirement may be fulfilled in whole or in part through language instruction in secondary schools or by other means. If acquired in secondary school, two years of instruction in one foreign language will be considered the equivalent of one year of instruction on the college level. Students who transfer from other colleges with less than two years of credit in a foreign language will be placed in a course at the next level above the work completed. Majors in communication or theatre should consult their advisor on modification of the foreign language requirement.

**Bachelor of Science Degree.** The curriculum for the degree Bachelor of Science is designed to give the student a broad, academic background with a scientific orientation in the

principal fields of human knowledge and an opportunity to specialize in one specific selected area. This degree is offered with majors in communication and speech and hearing science

**Major Requirements** The major consists of from 45 to 55 semester hours of credit. The content of the major is selected by the student in consultation with his/her advisor under the rules and regulations of the department concerned.

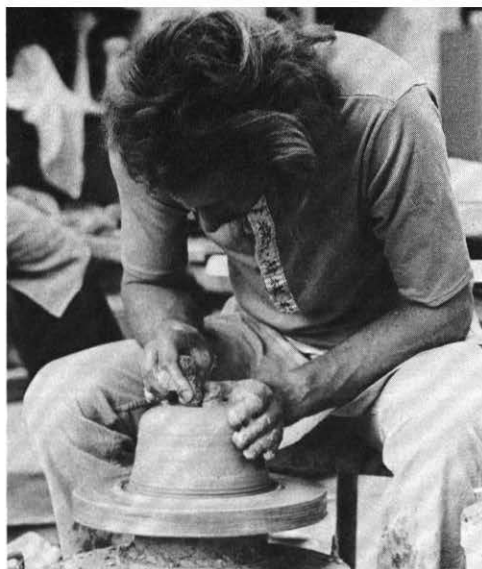
**General Studies Requirements.** In the field of sciences and mathematics the student must elect at least one course in the physical sciences, one course in the life sciences, and one course in mathematics. One of these courses must be a laboratory science.

**Bachelor of Fine Arts Degree.** The curriculum for the degree Bachelor of Fine Arts is designed to meet the needs of the student with specific pre-professional interest in the visual or performing arts, while providing an academic orientation in the principal fields of human knowledge. This degree is offered in the fields of art, dance and theatre.

**Major Requirements** A major in studio art consists of 75 semester hours of credit, divided between the core curriculum and the area of specialization. A major in theatre requires 84 hours. The major in dance consists of a minimum of 70 semester hours of course work in dance and related fields. See page 93 of this catalog for detailed requirements in the dance program.

**General Studies Requirement.** In the field of sciences and mathematics the student must take at least one course in a laboratory science

**Bachelor of Music Degree.** The curriculum for the degree Bachelor of Music is designed to give the student a broad, yet concentrated, background in the fields of music perfor



mance, music theory, music theatre, jazz, music therapy, accompanying, theory and composition, teaching of choral-general music, and instrumental music. Entering undergraduate students must perform an entrance audition in their primary performing medium. Audition forms and specific audition requirements for each instrument or voice may be obtained upon request by writing the Department of Music. Four official dates for these auditions will be set for each academic year. Students may request to audition on other dates if necessary or may send a tape recording if distance prohibits coming to the campus. Placement tests in theory and piano are required of all freshman and transfer students. These normally are administered during orientation week at the beginning of each semester.

**Foreign Language Requirement.** Students specializing in voice performance must earn 16 semester hours of credit in more than one foreign language, chosen from French, German, or Italian. A student may elect one year of one language and either one or two semesters of the other(s), chosen in conference with the advisor. For other means by which the student can meet this requirement see the statement above pertaining to foreign languages in the Bachelor of Arts degree program.

There is no foreign language requirement in any other major leading to the Bachelor of Music degree.

---

## Art

---

### PROFESSORS:

LEHRER (ART 102), BRECKENRIDGE, BROADLEY, FINK, GOO, GRIGSBY, HALE, HALL, HELLER, JACOBSON, LINDERMAN, SCHAUMBURG, STULER, J. J. TAYLOR, WAGNER, WOODS

### ASSOCIATE PROFESSORS:

CHOU, DeMATTIES, GASOWSKI, GILLINGWATER, GULLY, HAHN, JAY, KIMBALL, MAGENTA, PILE, SCHMIDT, WATSON

### ASSISTANT PROFESSORS:

ANTONIE, ECKERT, FARNNESS, KRONENGOLD, OTIS-FRONSKE, PETERSON, PIMENTEL, RABINER, ROD, SHARER, SHIPP, J. R. TAYLOR, URRY, YOUNGBLOOD

### INSTRUCTORS:

BRITTON, HAJICEK

### Departmental Major Requirements

For advisement purposes, all students registering in an art degree program will enroll through the College of Fine Arts. Each degree program and area of specialization has its own check sheet which describes the particulars of course sequence and special requirements. These are available in the Department of Art office.

### Bachelor of Arts Degree Curriculum

**Art**—Consists of a minimum of 45 semester hours of credit as approved by the student's advisor. An emphasis in studio art requires 30 credit hours in studio and 15 hours in a related field(s). Normally the related field is art history. At least 18 of the 45 hours must be upper division credit. All upper division credit applied to the emphasis must be a "C" or better. Courses ART 110, 111; ARH 101 and

## ART

102 are required. The foreign language requirement of the B.A. degree is optional but strongly recommended.

**Art History**—Consists of a minimum of 45 semester hours of credit as approved by student's advisor.

An emphasis in art history requires 30 credit hours of art history courses and 15 in a related field(s). Normally the related field is studio art. At least 18 of the 45 hours must be upper division credit. All upper division credit applied to the major must be with a "C" or better. The art history areas of Ancient, Medieval, Renaissance, Baroque, Modern and Non-Western Art must each be represented with at least one course. Satisfactory completion of ARH 480, Research Methods, is required before the senior year. Other requirements are ARH 101, 102; two ARH 498 Pro-Seminars; ART 110 and 111 with at least one additional studio art course chosen from ART 201, 214, 223, 231, 261, 271, 272, 274, or 276. Knowledge in at least one foreign language is required, equivalent to the level obtained through 16 semester hours of instruction.

### Bachelor of Fine Arts Degree Curriculum

**Art**—Consists of 75 semester hours of credit, with a concentration in one area of specialization selected on the basis of the student's interests. The following areas of specialization are available to the student: ceramics, crafts, drawing, graphic design, inter-media, painting, photography, printmaking and sculpture. Courses required are ART 110, 111; ARH 101 and 102. In addition the student will select six credit hours from ART 201, 211, 214, 223 and 227; six hours from ART 231, 261, 271, 272, 274 and 276; and six hours of upper division art history courses.

At least 30 upper division credit hours must be earned within the emphasis, with a minimum of 12 credit hours within the area of

specialization. All upper division work counted in the major must be "C" or better. The requirements and recommendations (e.g., portfolio or other criteria) for the area of specialization are determined by the faculty advisors of the area, and are listed on departmental checksheets.

Courses from other departments may apply to the major when it is determined they make a special contribution to the student's program of study.

### Departmental Major Teaching Field Requirements

#### Bachelor of Arts in Education Degree Curriculum

**Art** Consists of 60 semester hours of credit in art. Courses ART 110, 111, 201, 214, 223, 231, 261, 271, ARH 101, 102, ARE 302, 484, 412 and 480 are required. Additional hours to complete the required 60 hours are to be approved by the advisor in consultation with the student. At least 24 semester hours must be in upper division courses, 3 of which must be in art history.

Students transfer to the College of Education at the end of the sophomore year, but retain their Art Education advisor.

### Departmental Minor Teaching Field Requirements

#### Elementary Education Major: Minor in Art

Consists of 27 semester hours including ART 110, 111; ARH 101, 102; ARE 301 and 484 which are required. The remaining 6 semester hours are to be selected in consultation with an art education advisor.

#### Secondary Education Major: Minor in Art

Consists of 24 semester hours including ART 110, 111; ARH 101, 102; ARE 412, 480 and 484 which are required. The remaining 3 semester hours are to be selected in consultation with an art education advisor.

#### Secondary Education Major: Minor in Photography

Consists of 24 semester hours including ART 110, 201, 205, 304, 305; ARE 480; ARH 460; and one additional upper division photography course.

### Departmental Graduate Programs

The Department of Art offers programs leading to the degree of Master of Arts with a major in Art, including an emphasis in art education or art history, and the Master of Fine Arts degree with a specialization in ceramics, crafts, drawing, painting, photography, printmaking, or sculpture. In cooperation with the College of Education, the degrees of Master of Arts in Education, Doctor of Education and Doctor of Philosophy are offered with a field in art education. Consult the *Graduate Catalog* for requirements for all graduate degrees.

#### ART

**ART 110 Introduction to Studio Art.** (3) F, S, SS  
Development of perceptual, imaginative, and expressive responses through problem solving, discussion, and critical evaluation. Emphasis on individual creative solutions, knowledge of media, visual organization and contemporary art concepts. Six hours a week.

**111 Beginning Drawing I.** (3) F, S, SS  
Fundamental technique and perceptual skills using common drawing media and their application to pictorial organization. Six hours a week.

#### DRAWING

**ART 211 Beginning Drawing II.** (3) F, S, SS  
Continued development of technical and perceptual skills. Prerequisite: ART 111. Six hours a week.

**214 Beginning Life Drawing.** (3) F, S, SS  
Development of skill and expressiveness in drawing the basic form, construction and gesture from the human figure. Prerequisite: ART 111. Six hours a week.

**311 Intermediate Drawing.** (3) F, S  
Emphasis on composition, exploration of drawing media. Prerequisite: ART 211, 214 and approval of instructor. Six hours a week.

**314 Intermediate Life Drawing I.** (3) F, S  
Drawing from the model with greater reference to structural, graphic and compositional concerns. Prerequisite: ART 214 and approval of instructor. Six hours a week.

#### 315 Intermediate Life Drawing II.

(3) F, S  
The human figure as the subject for drawing. Emphasis on conceptual alternatives and management of materials. Prerequisite: ART 314 and approval of instructor. Six hours a week.

#### 411 Advanced Drawing.

(3) F, S  
Visual and intellectual concepts through problem solving and independent study. Emphasis on the individual creative statement. May be repeated for credit. Prerequisites: ART 311 and approval of instructor. Six hours a week.

**412 Drawing Techniques of the Old Masters.** (3) NR  
Historical techniques of drawing from early Renaissance to the present. The making and use of materials and tools including silverpoint, bistre, ink, quill pen, pastels and chiaroscuro drawings as used by Michelangelo, Rembrandt, Tintoretto and other masters. May be repeated for credit. Prerequisite: approval of instructor. Six hours a week.

#### 414 Advanced Life Drawing.

(3) F, S  
Various media and techniques on an advanced level. The human figure as an expressive vehicle in various contexts. Encouragement of innovative approaches. May be repeated for credit. Prerequisite: ART 315 and approval of instructor. Six hours a week.

#### 415 Art Anatomy.

(3) NR  
Study of human anatomical structures as applied to the practice of figure or oriented art. Prerequisite: ART 214. Lecture, studio, six hours per week.

#### PAINTING

**ART 223 Beginning Painting.** (3) F, S, SS  
Fundamental concepts and materials of traditional and experimental painting media. Emphasis on preparation of painting supports, composition and color. Prerequisites: ART 110 and 111. Six hours a week.

#### 227 Beginning Watercolor.

(3) F, S  
Painting in all water soluble media. Emphasis on techniques, composition and color. Prerequisites: ART 110 and 111. Six hours a week.

#### 323 Intermediate Painting I.

(3) F, S  
Development of competency in skills and expressiveness. Assigned problems involving light, space, color, form and content. Prerequisites: ART 223 and approval of instructor. Six hours a week.

#### 324 Intermediate Painting II.

(3) F, S  
Continuation of ART 323. Prerequisites: ART 323 and approval of instructor. Six hours a week.

#### 325 Figure Painting.

(3) F, S  
The human figure clothed and nude as the subject for painting in selected media. Prerequisites: ART 314 and 323. Six hours a week.

**327 Intermediate Watercolor.** (3) A

Explorations using a variety of surfaces, and a combination of media and materials Prerequisite ART 227 Six hours a week

**421 Painting Materials and Techniques.** (3) A

Traditional and modern materials and techniques of painting Experimental problems in tempera, encaustic casein emulsions Maroger's Medium and synthetic media Prerequisite approval of instructor. Six hours a week.

**423 Advanced Painting.** (3) F, S

Continuation of ART 324 May be repeated for credit Prerequisite: ART 324 Six hours a week

**425 Advanced Figure Painting.** (3) F, S

Continuation of ART 325. May be repeated for credit Prerequisites: ART 315 324 and 325 Six hours a week

**427 Advanced Watercolor.** (3) F, S

Continuation of ART 327. May be repeated for credit. Prerequisite ART 327. Six hours a week

**INTER MEDIA****ART 246 Introduction to Inter-Media.** (3) F, S

Experimental conceptual and inter-disciplinary study with emphasis on new media and technology Prerequisites ART 110 and 111. Six hours a week

**340 New Media Concepts.** (3) F, S

Continuation of ART 246 Prerequisites ART 201 211, 246 or approval of instructor Six hours a week

**341 Mixed Media.** (3) A

Exploring visual effects by combining traditional and non-traditional methods, techniques and concepts Repeatable once for credit Prerequisites ART 201 223 and or 231 or approval of instructor. Six hours a week

**PHOTOGRAPHY****ART 201 Beginning Photographic Art.** (3) F, S

Photography as an art medium. Prerequisite ART 110 Two lectures 3 hours laboratory

**205, 206 Intermediate Photography.** (3) F, S

Photography as an art medium with additional exploration into personal photographic aesthetics. Prerequisites ART 201 and approval of instructor. Six hours a week.

**304 Advanced Photography.** (3) F, S

Interpretation and manipulation of light as a tool in the performance of expressive photography. Prerequisites ART 205 or 206 and approval of instructor Six hours a week

**305 Color Photography.** (3) F, S

Application of color transparencies and prints to photographic art Prerequisites: ART 304 and approval of instructor Six hours a week

**306 Photo Techniques.** (3) F, S

Exploration of camera and darkroom techniques with emphasis on creative control for the well-crafted black and white print Prerequisites ART 205 or 206 and approval of instructor Six hours a week

**401 Nonsilver Photography.** (3) F, S

Recognition of the inherent characteristics of nonsilver processes and the use of these processes in the communication of ideas Prerequisite ART 306 and approval of instructor. May be repeated for credit Six hours a week.

**402 Extensions of the Photographic Image.** (3) NR

Designed to broaden the student's concept of the photographic medium May be repeated for credit Prerequisite ART 304 and approval of instructor Six hours a week

**403 Black and White Photography.** (3) F, S

Advanced exploration of experimental interpretive and straight photography May be repeated for credit Prerequisites ART 304 and approval of instructor. Six hours a week

**405 Advanced Color Photography.** (3) F, S

Intensive use of subtractive color process in photographic printing Prerequisites: ART 305 and approval of instructor May be repeated for credit Six hours a week.

**409 Photographic Exhibition.** (3) A

Care of photographic prints, print presentation and exhibition Practical experience in gallery operations. Prerequisite ART 304 and approval of instructor May be repeated for credit. Six hours a week

**PRINTMAKING****ART 351 Intaglio.** (3) F, S

Traditional concepts and techniques for black and white prints including drypoint, mezzotint, etching engraving, aquatint, sugar lift, soft ground and contemporary approaches. Prerequisite approval of instructor Six hours a week.

**352 Lithography.** (3) F, S

Process using stone and plates incorporating drawings transfer, photo transfer and color techniques Prerequisite approval of instructor Six hours a week

**353 Relief Printmaking.** (3) NR

Process using wood, masonry and other relief techniques Prerequisite approval of instructor Six hours a week

**354 Screen Printing.** (3) A

Various methods and applications including the photographic stencil and transfer techniques Prerequisite approval of instructor Six hours a week

**355 Photo Process for Printmaking.** (3) A

Introduction to photographic processes and skills to conceive and develop transparencies for photo mechanical printing processes, including photo screen photo-thermo and photo-etching. Prerequisite approval of instructor Six hours a week.

**451 Advanced Intaglio.** (3) F, S

Single and multiple color prints including stencil, aloupe and viscosity methods of color application. Photo mechanical etching process for zinc, copper brass, aluminum and magnesium May be repeated for credit Prerequisite approval of instructor Six hours a week

**452 Advanced Lithography.** (3) F, S

Continuation of ART 352 May be repeated for credit Prerequisite approval of instructor Six hours a week

**453 Advanced Relief Printmaking.** (3) NR

Continuation of ART 353 May be repeated for credit Prerequisite approval of instructor. Six hours a week.

**454 Advanced Screen Printing.** (3) A

Continuation of ART 354 May be repeated for credit Prerequisite approval of instructor Six hours a week

**458 Papermaking.** (3) F, S

History theory, demonstrations, sheet forming, collage treatments and three dimensional approaches Prerequisite approval of instructor. Six hours a week

**SCULPTURE****ART 231 Beginning Sculpture.** (3) F, S, SS

Exploration and expression of sculpture form through ideas and concepts related to basic materials studio safety Six hours a week

**331 Intermediate Sculpture.** (3) F, S

Continuation of ART 231 Prerequisite: ART 231 Six hours a week.

**332 Advanced Sculpture.** (3) F, S

Sculptural problems related to architecture and man's environment. Exploration in a media. Color related to shapes as applied to sculpture. Prerequisite ART 331 Six hours a week

**333 Experimental Sculpture.** (3) NR

An experimental approach to form material relationship toward atmospheric network, audio, electronic and earth works Prerequisite ART 332 or approval of instructor Six hours a week

**431 Special Problems in Sculpture.** (3) F, S

Development of a personal approach to sculpture emphasis on form, individual problems and related color technology Professional practices and presentation May be repeated for credit Prerequisite ART 332 and approval of instructor Six hours a week

**432 New Directions in Sculpture.** (3) A

Examination of man's total environment as resource for

images and ideas. Experimental nontraditional methods and inter-relating disciplines. Use of film and photography as a supplement to exploring 3-D attitudes. May be repeated for credit. Prerequisite: ART 332 or approval of instructor. Six hours a week.

#### **436 Architectural Sculpture.** (3) NR

Sculptural concepts as related to architecture and other man-made environments. Scale drawing and models, and full-scale free standing and relief sculpture for walls and facade. May be repeated for credit. Prerequisite: ART 332 or approval of instructor. Six hours a week.

#### **437 Non-Permanent Sculpture.** (3) NR

Art of a temporary nature including sequential and conceptual works. Attitudes utilizing natural phenomena may be presented in films or other visual media. May be repeated for credit. Prerequisite: approval of instructor. Six hours a week.

#### **438 Experimental Systems in Sculpture.** (3) NR

Development of systems and concepts for phase changes of materials: temperature, pressure, feed time, compression and extension, and electronic activation of dimensional forms. May be repeated for credit. Prerequisite: approval of instructor. Six hours a week.

### **CERAMICS**

#### **ART 261 Ceramic Survey.** (3) F, S, SS

Handforming methods: throwing on the wheel, decorative processes, glaze application. Prerequisites: ART 110 and 111. Six hours a week.

#### **360 Ceramic Throwing.** (3) F, S

Design analysis and production of functional pottery. Emphasis on throwing techniques, surface enrichment and glaze application. Prerequisite: ART 261. Six hours a week.

#### **364 Ceramic Handbuilding.** (3) F, S

Search for form and personal expression through handbuilding techniques. Kiln firing and related problems. Prerequisite: ART 231 and 360. Six hours a week.

#### **365 Intermediate Ceramics.** (3) F, S

Studio problems and instruction with emphasis on personal expression. Prerequisite: ART 364 or approval of instructor. Six hours a week.

#### **460 Ceramic Clay.** (3) F

Research into various clay body formulations: natural, raw materials, slip glazes and engobes. Prerequisite: ART 365 or approval of instructor. Six hours a week.

#### **463 Ceramic Glaze.** (3) S

Glaze formulation and calculation. Prerequisite: ART 365 or approval of instructor. Six hours a week.

#### **466 Advanced Ceramics.** (3) F, S, SS

Continued emphasis on personal expression with a structure of scheduled seminars, critiques and studio

work. Professional methods of presentation and documentation of work. May be repeated for credit. Prerequisites: ART 365 or approval of instructor. Six hours a week.

### **CRAFTS**

#### **ART 271 Introduction to Crafts.** (3) A

Studio survey of contemporary crafts. Development of professional disciplines and attitudes. Prerequisite: ART 110. Six hours a week.

#### **272 Beginning Jewelry.** (3) F, S

Emphasis on fabrication in jewelry making. Basic techniques of forming, cutting and piercing, forging and soldering. Six hours a week.

#### **274 Beginning Wood.** (3) F, S

Fundamental woodworking techniques to produce creative functional three-dimensional objects. Prerequisite: ART 110. Six hours a week.

#### **276 Beginning Fiber Arts.** (3) F, S

Structural use of fiber including crochet, basket techniques, twinning and padding, spinning and natural dyeing. Surface treatment including batik, block printing, food and tie-dye. Prerequisites: ART 110 and 111. Six hours a week.

#### **372 Intermediate Jewelry.** (3) F, S

Fabricated approach to jewelry making. Techniques in stone setting and surface embellishment. Prerequisite: ART 272. Six hours a week.

#### **373 Metalworking.** (3) A

Compression, die and stretch forming as applied to hollow form construction. Hot and cold forging techniques as applied to smithing. Prerequisite: ART 272. Six hours a week.

#### **374 Intermediate Wood.** (3) F, S

Individual and directed problems in wood, related to the production of unique functional art objects. Prerequisite: ART 274. Six hours a week.

#### **376 Intermediate Fiber Arts.** (3) F, S

Surface treatment of fabric with emphasis on silk screening. Loom controlled techniques, use of dyes. Prerequisite: ART 276. Six hours a week.

#### **378 Furniture I.** (3) A

Design and building of contemporary furniture. Exploration in the technique of joinery, assembly, carving and finishing procedures. Prerequisite: ART 274 or approval of instructor. Six hours a week.

#### **472 Advanced Jewelry.** (3) F, S

Jewelry making with emphasis on developing personal statements and craftsmanship. May be repeated for credit. Prerequisite: ART 372 and approval of instructor. Six hours a week.

#### **473 Advanced Metalworking.** (3) A

Forging and forming techniques in individualized creations. May be repeated for credit. Prerequisites: ART 373 and approval of instructor. Six hours a week.

#### **474 Advanced Wood.** (3) F, S

Extended experience and advanced techniques in the use of wood to create functional works of art. May be repeated for credit. Prerequisite: ART 374 and approval of instructor. Six hours a week.

#### **476 Advanced Fiber Arts.** (3) F, S

Experimental work with advanced techniques in fiber and fabric. May be repeated for credit. Prerequisite: ART 376 and approval of instructor. Six hours a week.

#### **478 Furniture II.** (3) A

Form concepts are explored in construction of inventive furniture. Emphasis on media experimentation. May be repeated for credit. Prerequisite: ART 378. Six hours a week.

### **GRAPHIC DESIGN**

#### **ART 180 Lettering and Typography I.** (3) F, S

Exploration of type forms as both specific and abstract elements of communication. Basic letterform design, type composition and introduction to creative and technical aspects of typography. Prerequisites: ART 110 and 111. Six hours a week.

#### **181 Graphic Design I.** (3) F, S

Design concepts and creative solutions to problems of visual communication. Exploration of basic perceptual, symbolic, and sequential approaches to design. Development of techniques and skills required for specializations within the graphic design profession. Prerequisites: ART 110, 111 and 180 which may be taken concurrently. Six hours a week.

#### **280 Lettering and Typography II.** (3) F, S

Advanced use of letterforms and typefaces in graphic design. Creative use of existing letters and design of type for specific uses such as logos and signage. Prerequisites: ART 180, 181 and approval of instructor. Six hours a week.

#### **281 Graphic Design II.** (3) F, S

Continuation of problems and development of skills introduced in ART 180 and 181. Prerequisites: ART 180, 181 and approval of instructor. May be taken concurrently with 280. Six hours a week.

#### **282 Illustration I.** (3) F, S

Media and methods of contemporary illustration. Prerequisites: ART 180, 181 and approval of instructor. May be taken concurrently with 281. Six hours a week.

#### **381 Graphic Design III.** (3) F, S

Continuation of ART 281. Prerequisites: ART 280, 281 and approval of instructor. Six hours a week.

**382 Illustration II.** (3) F, S

Continuation of ART 282. Prerequisites: ART 281, 282 and approval of instructor. May be repeated for credit six hours a week.

**383 Reproduction Design.** (3) F, S

Design and preparation of art for printing and reproduction. Pasteups, mechanics, color separations, graphic design considerations and methods of specification for reproduction processes. Prerequisites: ART 280, 281 and/or approval of instructor. Six hours a week.

**481 Portfolio Preparation.** (3) F, S

Development, organization and preparation of a portfolio for the graphic design profession. Prerequisites: ART 381, 382 and approval of instructor. Six hours a week.

**485 Graphic Design Workshop.** (3-6) F, S

Professional graphic design experiences in actual client/designer situations. Involvement in the complete graphic design process from concept to finished piece. Advanced graphic design majors only. Prerequisites: Portfolio presentation and approval of instructor. Six to twelve hours a week.

**SPECIAL STUDIO COURSES****ART 621 Studio Problems.** (3) F, S, SS

Advanced study in the following areas.

- |                 |                |
|-----------------|----------------|
| (a) Drawing     | (f) Ceramics   |
| (b) Painting    | (g) Jewelry    |
| (c) Photography | (h) Wood       |
| (d) Printmaking | (i) Fiber Art  |
| (e) Sculpture   | (j) Studio Art |

Prerequisite: approval of instructor. May be repeated for credit six hours a week each section.

**680 M.F.A. Exhibition.** (1-15) F, S

Studio work in preparation for required M.F.A. exhibition. Public exhibit to be approved by the student's supervisory committee and accompanied by a final examination. Photographic documentation and written statement of problem. Prerequisite: approval of the student's supervisory committee.

**Special Courses:** ART 294, 484, 493, 494, 498, 499, 591, 592, 594, 598 (See pages 30-31)

**ART EDUCATION****ARE 301 Art in the Elementary School.** (3) F, S

(For non majors only) Self-understanding through the use of art concurrent with the study of children's art work from early childhood to mid-adolescence. One lecture, four hours laboratory.

**302 Elementary School Art.** (3) F, S

(Majors only) Curriculum development, instruction and learning, the psychology of the child, current issues in art instruction and classroom management. Prerequisite: approval of art education advisor. One lecture, four hours laboratory.

**412 Curriculum Problems in Art Education.** (3) F, S  
Practical development of curriculum for elementary and secondary art. Prerequisite: ARE 480 or concurrently

**420 Crafts for the Elementary School Teacher.** (3) F, S  
Practical laboratory experiences stressing a variety of media that children can use. Emphasis on three-dimensional activities suitable for classroom teaching. One lecture, four hours laboratory.

**425 Crafts in the High School.** (3) F, S

Teaching strategies, survey of materials, tools and procedures.

**480 Art in the High School.** (3) F, S

Strategies for teaching art including theory, organization, materials and practical. Prerequisites: ARE 302 and 484. One lecture, four hours laboratory.

**485 Women's View of Art.** (3) A

Study of women visual artists and the social, political, esthetic and educational issues related to their status as professionals and their lives. Lecture, discussion, readings and studio experiences. Prerequisite: approval of instructor. Three hours a week.

**510 Art in the Self-Contained and Open Classroom.** (3) NR

Aternate teaching/learning strategies, art concepts, skills and expressive objectives relevant to elementary school art experiences for teachers.

**511 Issues in Art Education.** (3) S

Historical survey of issues in art education.

**515 Foundations of Art Education.** (3) S

Behavioral foundations of education as related to art education. Emphasis on psychological and philosophical frame-of-reference.

**520 Creativity in Art Education.** (3) A

The nature of creative behavior, especially as it applies to the visual arts. Creativity and its relation to student growth and performance for contemporary teaching.

**525 Art and Society.** (3) S

Interrelationship of art, society and social change. Art as a cultural communication system and its relationship to areas such as government, museums and technology.

**530 Research in Art Education.** (3) S

Application of research methods to concepts and issues in art education.

**540 Instructional Resources, Art Education.** (3) S

Inquiry into different views of the nature of visual-verbal

learning and the development of instructional resources. Lecture, discussion, readings and studio.

**545 Perception and Learning.** (3) A

Concepts of perception and learning that are the bases of education in art and related fields.

**550 Esthetic Inquiry.** (3) F

Literature on esthetics, methods of inquiry and implications for art education.

**555 Art and Electronic Media.** (3) F, S

Lecture, discussion, readings, and studio experiences in various electronic media related to the teaching of art.

**570 Criticism, Issues in Contemporary Art.** (3) NR

Issues in contemporary art criticism and their implications for art education.

**575 Curriculum in Art and Education.** (3) F, S

Literature in art education and education on existing strategies for developing curriculum, the issues and problems of differing curriculum orientations, and art supervision.

**610 Issues and Trends in Art Education.** (3) NR

Recent problems and directions in contemporary art education.

**611 Curriculum Development in Art Education.** (3) NR

Development of curriculum in terms of philosophical, psychological and sociological foundations. Relationship of objectives to practice.

**Special Courses:** ARE 294, 484, 493, 494, 498, 499, 590, 591, 592, 593, 594, 598, 599, 690, 691, 692, 790, 791, 792, 799. (See pages 30-31.)

**ART HISTORY****ARH 100 Introduction to Art.** (3) F, S, SS

Development of understanding and enjoyment of art and its relationship to everyday life through the study of painting, sculpture, architecture and design. May not be taken for credit by student who has completed ARH 300, nor used as art history credit by art majors.

**101 History of Art from the Dawn of Civilization to the Renaissance.** (3) F, S, SS

Ancient Near Eastern, Egyptian, Greek, Roman and medieval European art to the Renaissance. Lecture, discussion.

**102 History of Art from Renaissance to the Present Day.** (3) F, S, SS

Western art during the Renaissance, mannerist, baroque, rococo, neoclassical, romantic and modern epochs. Lecture, discussion.

**103 Introduction to Asian Art.** (3) A

Art of India, China and Japan from pre-historic time to the present.

**105 Introduction to Islamic Art.** (3) A

Architecture, painting and minor arts of the Arab countries, Iran, Turkey, North Africa, Mughal India, and Islamic Spain

**110 Introduction to American Indian Art.** (3) A

History of American Indian art in North Central and South America to the time of European contact

**300 Introduction to Art.** (3) F, S, SS

Course content same as ARH 100 but requires a higher level of accomplishment and comprehension. May not be taken for credit by student who has completed ARH 100, nor used as art history credit by art majors

**401 American Art I.** (3) F

History of art in the United States from European settlement of the New World to the Columbian Exposition of 1893. Prerequisites: ARH 101 and 102 or approval of instructor.

**402 American Art II.** (3) S

History of art in the United States from the last decade of the 19th century to World War I. Prerequisites: ARH 101 and 102 or approval of instructor

**403 Pre-Columbian Art.** (3) A

American Indian art from Central Mexico to South America from its origins to the time of European contact. Prerequisites: ARH 101 and 102 or 110

**404 North American Indian Art.** (3) A

American Indian art from northern Mexico to Alaska. Prerequisites: ARH 101 and 102 or 110

**405 Southwest Indian Art.** (3) A

American Indian art in the southwestern states from its origins to the present day. Prerequisites: ARH 101 and 102, or 110

**406 Mexican Art.** (3) A

Art of Mexico and related Central American cultures from the prehistoric to the contemporary schools. Prerequisites: ARH 101, 102 and 110 or approval of instructor

**409 History of Printmaking.** (3) A

History of the print as an art form and its relation to other modes and forms of artistic expression. Prerequisites: ARH 101 and 102 or approval of instructor

**410 Ancient Near Eastern Art.** (3) NR

History of painting, sculpture, and architecture in Mesopotamia, Egypt, and the Aegean. Prerequisites: ARH 101 and 102 or approval of instructor

**411 Greek Art.** (3) A

Art and architecture of Greece and the Hellenistic Empire. Prerequisites: ARH 101 and 102 or approval of instructor.

**412 Roman Art.** (3) A

Art and architecture of Etruria, Rome, and the Roman

Empire. Prerequisites: ARH 101 and 102 or approval of instructor

**414 Early Christian and Byzantine Art.** (3) A

Art and architecture of the early church and the Byzantine Empire from the 4th to the 15th century. Prerequisites: ARH 101 and 102 or approval of instructor

**420 Early Medieval Art.** (3) A

Architecture, sculpture, and painting in the Latin West from the 7th century to the end of the Ottonian Period. Prerequisites: ARH 101 and 102 or approval of instructor

**422 Romanesque Art.** (3) A

Sculpture, painting, architecture, and minor arts in western Europe during the Romanesque period. Prerequisites: ARH 101 and 102 or approval of instructor

**424 Gothic Art.** (3) A

Painting, sculpture, and architecture in western Europe during the Gothic period. Prerequisites: ARH 101 and 102 or approval of instructor

**428 15th-Century Art in Northern Europe.** (3) A

Painting, sculpture, and architecture during the 1400s north of the Alps. Prerequisites: ARH 101 and 102 or approval of instructor.

**432 Early Renaissance Art in Italy.** (3) A

Painting, sculpture, and architecture in Italy from 1300 to 1500. Prerequisites: ARH 101 and 102 or approval of instructor

**434 Art of the Italian High Renaissance and Mannerism.** (3) A

History of art during the 16th century, including the achievements and influence of Leonardo da Vinci, Raphael, and Michelangelo. Prerequisites: ARH 101 and 102 or approval of instructor.

**440 Art of the 17th Century in Southern Europe.** (3) A

Painting, sculpture, and architecture in 17th century Italy, Spain, and Portugal. Prerequisites: ARH 101 and 102 or approval of instructor.

**442 Art of the 17th Century in Northern Europe.** (3) A

Painting, sculpture, and architecture in 17th century Flanders, Holland, France, Germany, and England. Prerequisites: ARH 101 and 102 or approval of instructor.

**444 Art of the 18th Century.** (3) A

History of painting, graphic arts, sculpture, decorative arts, architecture, and landscape garden design from 1700 to the French Revolution (1789). Prerequisites: ARH 101 and 102 or approval of instructor

**450 Art of the Early 19th Century.** (3) A

Art from the eve of the French Revolution to the Paris World's Fair of 1855. Emphasis on the neoclassical, romantic, and realist movements. Prerequisites: ARH 101 and 102 or approval of instructor

**452 Art of the Late 19th Century.** (3) A

Art from the mid century to 1900. Emphasis on the pre-Raphaelite, Impressionist, Post-Impressionist, Symbolist, and Art Nouveau movements. Prerequisites: ARH 101 and 102 or approval of instructor.

**454 Art of the 20th Century.** (3) A

Developments and directions in art between 1900 and World War I. Prerequisites: ARH 101 and 102 or approval of instructor

**456 Art Since 1940.** (3) A

Art since World War I with consideration of new concepts and experimentation with media and modes of presentation. Prerequisites: ARH 101, 102, and 454 or approval of instructor

**460 19th Century Photography.** (3) A

History of photography from the medium's prehistory to 1914. Personalities, processes, images, and ideas. Prerequisite: ARH 101, 102 or approval of instructor.

**462 20th Century Photography Before 1950.** (3) A

Personalities, processes, images, and ideas in photography from 1914 to 1950. Prerequisites: ARH 101 and 102 or approval of instructor

**463 20th Century Photography Since 1950.** (3) A

Personalities, processes, images, and ideas in photography from 1950 to the present day. Prerequisites: ARH 101, 102, and 462 or approval of instructor

**466 Photographic Publications of the 19th Century.** (3) NR

Photographs for magazine and book illustrations from Fox Talbot's *Pencil of Nature* to Stieglitz's *Camera Work*. Prerequisite: ARH 460 or approval of instructor.

**470 Art of India.** (3) NR

Painting, sculpture, and architecture of India and South-eastern Asia. Prerequisites: ARH 103 or approval of instructor.

**471 Art of China.** (3) A

Study of major forms in Chinese art: ritual bronze, sculpture, ceramic, calligraphy, painting, and architecture. Prerequisites: ARH 103, or approval of instructor

**472 Art of Japan.** (3) A

Japanese art from the Jōmon period to the present. Prerequisite: ARH 103 or approval of instructor

**474 Chinese Painting.** (3) A

From Ku K'ai-ch'ien to Ch'i Pa-shih. Major artists, styles, and movements in Chinese painting. Prerequisite: ARH 103 or approval of instructor

**476 Islamic Architecture.** (3) NR

Islamic architecture from the 7th century through 18th century in the Near East, Spain, and India. Prerequisite: ARH 105 or approval of instructor.

**477 Islamic Painting.** (3) NR

Manuscript illumination and painted ceramics in Iran,

Turkey, Arab countries, and Mughal and also as well as Iranian paintings and folk art. Prerequisites: ARH 105 or approval of instructor.

**478 Persian Art.** (3) NR

Architecture, painting, ceramics, carpets and minor arts of Iran from the 9th through the 19th century. Prerequisites: ARH 105 or approval of instructor.

**480 Research Methods.** (3) F, S

Methodology and resource materials for art historical research. Techniques of scholarly and critical writing and evaluation of bibliographic sources. Prerequisites: ARH 101 and 102 or approval of instructor.

**488 Pro-Seminar.** (3) A

Undergraduate seminar in topics selected from the following. Prerequisite: approval of instructor.

Problems or criticism in:

- |                     |                          |
|---------------------|--------------------------|
| (a) Chinese Art     | (f) Modern Art           |
| (b) Ancient Art     | (g) American Indian Art  |
| (c) Medieval Art    | (h) Islamic Art          |
| (d) Renaissance Art | (i) Photographic History |
| (e) Baroque Art     |                          |

**591 Seminar.** (3) A

Graduate seminar in topics selected from the following. Prerequisite: approval of instructor.

Problems or criticism in:

- |                     |                          |
|---------------------|--------------------------|
| (a) Chinese Art     | (f) Modern Art           |
| (b) Ancient Art     | (g) American Indian Art  |
| (c) Medieval Art    | (h) Islamic Art          |
| (d) Renaissance Art | (i) Photographic History |
| (e) Baroque Art     |                          |

**Special Courses:** ARH 294, 492, 493, 494, 499, 500, 590, 592, 599 (See pages 30-31.)

### AUXILIARY COURSES

**ARA 450 Museography I.** (3) A

Introduction to museums and their operations: method, theory and practice. Prerequisite: approval of instructor.

**451 Museography II.** (3) NR

Museum exhibition and educational program: method theory and practice. Prerequisites: ARA 450 or approval of instructor.

**454 Museology I.** (3) NR

Introduction to the history of museums. History of collecting, conservation, and conservation. Prerequisite: approval of instructor.

**455 Museology II.** (3) NR

History of 20th century museums. Prerequisite: ARA 454.

**Special Courses:** ARA 294, 484, 494, 498, 584, 591, 594, 598. (See pages 30-31.)

## Communication

**PROFESSORS:**

ARNOLD (STAUF 412), CLUFF, DAVIS, MOWRER, PERRILL, RICHARDS, STITES

**ASSOCIATE PROFESSORS:**

BULEY, CASE, CHUBRICH, DORMAN, ELSEA, HIRSCH, JAIN, PRATHER, UNDERWOOD, K. VALENTINE

**ASSISTANT PROFESSORS:**

BOSTER, DAVEY, FRANKS MALANDRO, MAYER, RICHARD, C. VALENTINE, WHALEY, WIGAND

### Departmental Major Requirements Bachelor of Arts Degree Curriculum

**Communication** Consists of 45 semester hours, of which at least 30 hours must be in Communication courses, with a minimum of 15 hours in one or more related fields approved by the advisor. The core courses, COM 100 and 333, are required; and at least 18 hours of the major must be upper division courses. Students majoring in Communication must achieve a grade of "C" or better in all courses counted toward the major. Within Communication, the following areas of emphasis are available: group communication, intercultural communication, interpersonal communication, interpretation, organizational communication, political/legal communication, and speech communication. Specific course work will be determined by the student in consultation with the advisor. This Communication major provides a liberal education in the study of human communication, as the basis for careers in various professions, business and industry, education, or public service.

**General Studies:** To meet the General Studies requirement for the B.A. degree in Communication, all students must take a minimum of

54 semester hours of credit of which 12 semester hours must be in the humanities and fine arts (representing at least two subject fields), 12 in social and behavioral sciences (representing at least two subject fields), and 6 in sciences and mathematics (representing at least two subject fields one of which must be a laboratory science). Students should refer to current check sheets for recommended courses. Courses in Communication may not be used to meet the General Studies requirement, but courses included in related fields normally considered as part of the major may be included.

**Foreign Language Requirement:** Knowledge of a foreign language is optional but all foreign language courses may be used as general studies electives.

### Bachelor of Science Degree Curriculum

**Communication** Consists of 45-55 semester hours, of which at least 30 hours must be in Communication courses, and a minimum of 15 in one or more related fields approved by the advisor. Core courses, COM 100 and 333, are required; and at least 18 hours of the major must be in upper division courses. Within Communication, the following areas of emphasis are available: group communication, intercultural communication, interpersonal communication, interpretation, organizational communication, political/legal communication, and speech communication. In General Studies, the student must meet college requirements for the Bachelor of Science degree and must complete at least 6 semester hours in humanities and fine arts, at least 12 semester hours in the social and behavioral sciences (representing at least two subject fields), and at least 12 semester hours in science and mathematics (including one in a physical science, one in a life science, and one in mathematics). Specific courses are selected by the student in consultation with the advisor.

This Communication major provides a scientific behavioral emphasis in the study of human communication, as the basis for careers in various professions, business and industry, education, or public service.

**Speech and Hearing Science**—Consists of a minimum of 55 semester hours of credit emphasizing the developmental and scientific aspects of language, speech and hearing. Admission to the major is by application. Forms are available in the Speech and Hearing Clinic. Due to limited faculty, staff, and facilities, and due to the pre-professional nature of the program, those students will be admitted who demonstrate the potential of successful completion of a graduate degree in communication disorders. Freshmen may apply for admission to the major if they are in the upper third of their high school graduating class. Students above freshman standing may apply for admission to the major if their cumulative grade point average, at the time of application, is 2.75 or above. After admission to the major, students will be required to make up any deficiencies which may be determined, by their academic advisor, to exist at the time they are admitted. Normally, students pursuing this major will take courses, in addition to those required for the major, in the area of linguistics, child development, psychology, statistics, and the physical sciences (including courses in algebra, trigonometry, physics and electronics)

### **Departmental Major Teaching Field Requirements**

**Bachelor of Arts in Education Degree**  
Secondary Education Curriculum

**Communication Arts** Consists of 60 semester hours and is designed to provide preparation for teaching in three fields. Students may place their major emphasis in either Theatre or Communication. Students placing their

major emphasis in Theatre should check with that department. Students placing their major emphasis in Communication must complete a minimum of 24 hours in Communication and 18 hours in each of two approved related fields. Those in Communication must complete the core courses, COM 100 and 333, and at least 12 hours must be in upper division course work. Communication Arts majors must earn a minimum of 2 hours in two separate activities courses including COM 301, but not more than 4 hours in activities courses may be counted toward the major. Specific courses, from the minor fields options, are selected by the student in consultation with the advisor.

**Communication** Consists of 36 semester hours and anticipates the addition of an approved minor of at least 24 hours. The core courses, COM 100 and 333, are required and at least 18 hours must be in upper division course work. A minimum of 2 hours must be earned in two separate activity courses (COM 301) but not more than four hours in activity courses may be counted toward the major. Specific courses to complete the major and the minor are selected by the student in consultation with his advisor.

**Minor in Communication** Consists of 24 semester hours in Communication and will include COM 100, 333, and 480. At least 9 hours must be in upper division courses

**General Studies and Elective Courses.** The Department offers courses which are appropriate for General Studies credit in humanities and fine arts, and social and behavioral sciences upon approval of an advisor. Students in other colleges should consult with their advisor if they wish to take such courses.

### **Departmental Graduate Programs**

The Department of Communication offers programs leading to the degrees of Master of

Arts and Master of Science. Consult the *Graduate Catalog* for requirements.

### **COMMUNICATION**

**COM 100 Introduction to Human Communication.** (3) F, S, SS

Focus on the basic theory and dimensions of human interaction, including individual and group experiences in human communication

**110 Personal Relationship Communication I.** (3) F, S, SS

Demonstration and practice of communication techniques for meeting people, developing rapport, changing relationships, and maintaining a relationship over time

**200 Human Communication Systems.** (3) S

Human communication processes and systems: major areas of theory and research, and the scientific bases of human communication behavior

**210 Personal Relationship Communication II.** (3) F

Explanation of theoretical, and philosophical approaches to communication in human relationships. Prerequisite: COM 110.

**220 Survey of Speech Communication.** (3) S

Introduction to theory and practice for students developing a teaching minor or contemporary major within the Secondary Education curriculum

**221 Voice Improvement.** (3) F, S

Intensive personal and group experience to improve normal vocal usage including articulation and pronunciation

**241 Introduction to Oral Interpretation.** (3) F, S

The communication of literary materials through the mode of performance. Verbal and nonverbal behavior, interface of interpreter with literature and audience and rhetorical and dramatic analysis of literary modes

**243 Interpreters Theatre Workshop.** (3) S

Students will create and practice ensemble interpretation of literature using a variety of media and verse settings

**263 Minority Communication.** (3) S

Communication behaviors and strategies of minorities through analysis of Black American, Mexican American, Native American, and other domestic social movements

**265 General Semantics.** (3) F

Analysis of relationship to language to reality, nature of meaning, levels of abstraction, application of general semantics to everyday contexts

**294 Special Topics.** (3) F, S, SS

Special topics courses, including the following which are

regularly offered, are open to all students. See Departmental syllabus for course descriptions.

- (a) Communication Effects
- (b) Communication and Social Movements
- (c) Freedom of Speech
- (d) Political Image Making
- (e) Communication Perspectives for the Teacher
- (f) Message Construction and Communication
- (g) Communication Design
- (h) Women's Communication

**300 Group Communication.** (3) F, S, SS

Principles and processes of small group communication. Attitudes and skills for effective participation and leadership in small groups. Small group problem solving and decision-making. Not open to freshmen.

**301 Communication Activities.** (1) F, S, SS

Participation in forensics or Interpreters Theatre, or for student/teachers enrolled in SED 433. May be repeated for credit but not more than 4 hours may be applied toward the major. Prerequisite: approval of instructor.

**302 Classroom Apprenticeship.** (1-3) F, S, SS

For students extending their study of a content area by assisting with classroom supervision and exercises in other COM courses. May be repeated for credit but not more than 3 hours may be applied toward the major. Prerequisite: approval of applicable course instructor.

**303 Interviewing.** (3) F, S

Principles and practice for interviewers in various settings such as: information gathering, employment and appraisal. Training as interviewees for job placement interviews. Not open to freshmen.

**304 Job Interview Training.** (1) F, S

Mini-semester workshop (15 class hours) prepares students as interviewees for job placement interviews. Résumé preparation, communication on practice and simulated interviews. Not open to freshmen. Check Department Office for specific dates and times.

**305 Large Group Communication.** (3) S

Theory, methods, and individual communication behavior relevant to large group interaction systems. Public discussion and parliamentary procedure in various types of public and deliberative assemblies. Not open to freshmen.

**311 Public Speaking.** (3) F, S

Verbal and nonverbal communication platform speaking. Discussion and practice in vocal and physical delivery and in purposeful organization and development of public communication. Not open to freshmen.

**312 Argumentation and Debate.** (3) F, S

Philosophical and theoretical foundations of argumentation

and forensics emphasizing problems in argumentation and debate.

**320 Communication and Consumerism.** (3) F, S

Critical evaluation of messages designed for public consumption. Perceiving, evaluating and responding to political, social, and commercial communication.

**330 Nonverbal Communication.** (3) F, S, SS

The effects of space, time, body language, environment, objects, and voice qualities on communication.

**333 Criticism and Research Methods in Communication.** (3) F, S, SS

Critical analysis and historical descriptive and quantitative research methods for communication.

**341 Interpretation in Social Contexts.** (3) F

Adaptation and performance of literature in situations of crisis and conflict, notably in prisons, mental hospitals, and centers for the aged. Prerequisite: COM 241 or approval of instructor.

**344 Oral Traditions in Literature.** (3) S

Literary forms evolving from oral myths, legends, folk tales, and fables. Prerequisite: COM 241 or approval of instructor.

**363 Intercultural Communication.** (3) F

Processes and problems of communication between people from different racial, ethnic, and cultural backgrounds in both domestic and international settings. Not open to freshmen.

**365 Language, Culture, and Communication.** (3) S

Cultural influences of language on communication, including social functions of language, bilingualism, bilingualism, and dialectalism.

**400 Leadership in Group Communication.** (3) F, S

Theory and process of leadership in group communication, emphasizing philosophical foundations, contemporary research, and applications to group situations. Prerequisite: COM 300 or approval of instructor.

**405 Communication in Business and Profession.** (3) F, S

Interpersonal, group, and public communication methods and practices in business and profession.

**406 Organizational Communication.** (3) S

Communication systems, processes, and problems in formal organizations. Prerequisite: Upper division standing.

**407 Organizational Communication Internship.** (3) F, S

Supervised practice in the analysis and management of communication systems within a formal organization. Prerequisite: COM 406 and approval of instructor. May be repeated once for credit.

**412 Advanced Argumentation.** (3) S

Advanced study of argumentation theories and re-

search as applied to public forum, adversary, scholarly, and legal settings. Prerequisite: COM 312 or approval of instructor.

**415 Communication Behavior in the Elementary School.** (3) S

Communication behavior of elementary children, methods of facilitating expressive, receptive, and interpersonal communication interaction among teachers, students, parents, and administrators.

**433 Quantitative Methods in Communication Research.** (3) S

Introduction to the philosophy and practice of empirical communication research. Prerequisite: COM 333 or approval of instructor.

**441 Interpretation as Literary Criticism.** (3) S

Communication of literature through the medium of performance. Problems of content, structure, and style in poetry, drama, and prose. Prerequisite: COM 241 or approval of instructor.

**442 Interpretation and the Mass Media.** (3) S

The relationship of modern media (radio, TV, and film) to oral interpretation and literature.

**443 Interpreters Theatre: Theory and Practice.** (3) F, S

Studies in visual perception, audience psychology, theory, and critical practice in directing, analyzing, scripting, and staging of literature. Prerequisite: COM 243 or approval of instructor.

**450 Topics in Public Address.** (3) A

The history and criticalism of: (a) American speakers (1700 to 1900); (b) contemporary speakers (1900 to present); and (c) British speakers. Topics offered alternate years.

**467 Communication of Innovations.** (3) S

Role of communication in diffusion of innovations. Principles for effective use of communication for planned change in various social systems. Prerequisite: upper division standing.

**473 Persuasion.** (3) F

Communication variables which influence and modify attitudes and behavior of receivers. Prerequisite: COM 100 or 312.

**476 Political Communication.** (3) F

Theory and research related to political campaign communication. The persuasive process of political campaigning: the role of the media, the candidate and image creation. Prerequisite: upper division standing.

**477 Legal Communication.** (3)

The legal setting as a communication event, featuring discussion of jury selection, legal interviewing, negotiations, and jury behavior. Prerequisite: upper division standing.

**478 Crisis Communication.** (3) S

Role of communication in crisis development and intervention

**479 Communication and Aging.** (3) F

Dynamics of aging as it relates to communication.

**480 Methods of Teaching Communication.** (3) F, S

Analysis, organization, and presentation of textual and other classroom materials

**481 Teaching Practicum.** (2) SS

Teaching high school students the fundamentals of forensics

**494 Special Topics.** (3) F, S, SS

Special topics courses including the following which are regularly offered, are open to all students

- (a) Criticism of Empirical Research
- (b) Measurement in Communication
- (c) Communication Internship
- (d) Communication and Sexuality
- (e) Urban Communication
- (f) Advanced Public Speaking
- (g) International Communication
- (h) Studies in Communication Education
- (i) Speech Writing and Manuscript Speaking
- (j) Preachers and Preaching
- (k) Women's Communication
- (l) Ethics in Communication
- (m) Methods of Agitation and Control
- (n) Medical Communication
- (o) Directed Research in Communication
- (p) Interracial Communication
- (q) Applied General Semantics
- (r) Research Studies in Esthetics
- (s) Vocal Behavior in Language

**591 Seminar.** (3) F, S

Topics may be selected from those listed below

- (a) Communication Studies: The Rhetorical Tradition
- (b) Relationship Communication
- (c) Contemporary Rhetorical Theory
- (d) Rhetorical Criticism
- (e) Persuasion
- (f) Interpretation: Historical Functions
- (g) Interpretation: Contemporary Perspectives
- (h) Group Communication
  - (i) Empirical Research in Communication
- (j) Theories and Processes of Communication
- (k) Organizational Communication

- (l) Communication Education
- (m) Theory and Model Construction in Communication
- (n) Intercultural Communication
- (o) Political Communication
- (p) Language in Communication
- (q) Minority Communication
- (r) Nonverbal Communication
- (s) Analysis of Communication Data

**Special Courses:** COM 484, 499, 500, 580, 584, 590, 592, 593, 594, 598, 599 (See pages 30-31)

### COMMUNICATION DISORDERS

**CDX 305 Survey of Communication Disorders.** (3) F, S

Role of the parent, teacher and others in support of evaluation and treatment of communication disorders. Not open to Speech and Hearing Science majors

**306 Fundamentals of Communication Science.** (3) F, S

Introduction to perception and memory processes in speech and language

**310 Anatomy and Physiology of Speech.** (3) F, S

Anatomy and physiology of the neuromuscular and skeletal systems which subserve human speech behavior

**311 Anatomy and Physiology of Hearing.** (3) F

Anatomy and physiology of the peripheral and central systems which subserve hearing

**315 Acoustics in Communication.** (3) F

Noncalculus introduction to acoustics with emphasis toward the measurement of human communication processes. Three hours lecture, 3 hours recitation. Prerequisites: algebra, trigonometry, physics.

**320 Introduction to Hearing Science.** (3) S

Neurophysiological and psychoacoustic behavior of the auditory system. Prerequisite: CDX 311

**330 Management of Hard of Hearing People.** (3) F

Information about hearing impairment and hearing-impaired persons

**350 Phonetics.** (3) F, S

Speech sounds and the application of the International Phonetic Alphabet to American speech.

**387 Language Acquisition in Early Childhood.** (3) F, S

The process of language development in the normal child from birth through preschool. Open to Speech and Hearing Science majors as freshmen.

**375 Speech Science.** (3) F

The normative aspects of speech, hearing and language. Prerequisites: CDX 310, 311

**380 Introduction to Communication Disorders.** (3) S

Comparison of normal with disordered communicative processes. Prerequisite: CDX 375

**390 Problems of Articulation.** (3) S

Detailed analysis of disorders of articulation. Prerequisite: CDX 380 or approval of instructor

**395 Methods of Modifying Communicative Behavior.**

(4) S

Principles and techniques of modifying speech and language behavior. Two hours lecture, 4 hours laboratory. Prerequisite: approval of instructor.

**400 Methods of Audiometry.** (3) F

Techniques and instrumentation used in measuring auditory threshold and audiogram interpretation. Three lectures, 2 hours laboratory. Prerequisites: CDX 315, 320

**425 Acoustic and Physiologic Phonetics.** (3) F

The acoustic and physiologic characteristics of speech sounds. Prerequisites: CDX 315, 350

**427 Experiences in Hearing Conservation.** (1-3) F, S

Participation in the university hearing conservation program. Two hours experience per week per hour of credit. May be repeated for credit. Prerequisites: CDX 400 and approval of instructor

**430 Psychology of Hearing-Handicapped Children.** (3) F

The effects of hearing impairment on child language acquisition, intellectual development, personality development and educational placement.

**432 Aural Rehabilitation: Children.** (3) S

Theories and practices in the rehabilitation of hearing-handicapped children

**435 Noise and Society.** (3) S

Effects of noise on individuals and communities and practical solutions to noise problems. Prerequisite: CDX 315 or approval of instructor

**445 Perception and Production of Speech.** (3) S

Recent advances in speech perception and production relevant to communication disorders. May be taken concurrently with CDX 425. Prerequisite: CDX 375 or approval of instructor

**450 Observation of Practicum.** (1) F, S

Supervised observation of a minimum of 25 clock hours of evaluation and therapy representing the areas of language, speech and hearing. Prerequisite: approval of instructor

**465 Child Language Acquisition.** (3) F

Consideration of the most recent developments in the study of child language acquisition

**470 Psychology of Language.** (3) S

The nature of language and the effect of language acquisition on thought

**485 Language and the Mentally Retarded Child.** (3) S  
The special difficulties that mentally retarded children encounter in acquiring language and language intervention strategies for retarded children are examined. Persons enrolled will observe and when possible work with a retarded child.

**491 Disorders of Fluency.** (3) F  
Causes, therapies and current trends in problems of speech fluency.

**502 Advanced Audiology.** (4) S  
Procedures in differential diagnosis of auditory pathologies. Three hours lecture, 2 hours laboratory. Prerequisite: CDX 400.

**504 Auditory Prosthetics.** (4) S  
Operation and application of amplifying devices relative to the aurally handicapped. Three hours lecture, 2 hours lab. Prerequisite: CDX 400.

**506 Physiologic Measures of the Auditory System.** (3) F  
Advanced course. Covers procedures in impedance measurements of the middle ear, evoked response audiometry and electronystagmography.

**508 Pediatric Audiology.** (3) F  
Auditory capability, audiologic testing, and management of young children and infants. To be taken concurrently with CDX 527. Prerequisite: CDX 400.

**510 Psycho and Bioacoustics.** (3) S  
The psychoacoustic and physiological correlates of audition. Offered alternate years with CDX 506.

**519 Research Procedures in Communication Disorders.** (3) F  
Research philosophy and models as applied to data collection, evaluation and reporting in the field of communication disorders.

**520 Stuttering.** (3) S  
Trends in understanding and working with persons who stutter.

**521 Treatment of Disorders of Fluency.** (2) S  
Discussion of procedures currently used to improve speech fluency. Concurrent enrollment in CDX 551 required. Prerequisite: CDX 491 or 520 and approval of instructor.

**527 Evaluation: Audiometric Measurement.** (6) F, S  
One hour staffing per week and two hours client contact per week per hour of credit. May be repeated for credit. Prerequisite: approval of instructor.

**528 Adult Aural Rehabilitation.** (3) F  
General principles of rehabilitation of the aurally handicapped adult, including educational and prosthetic approaches. Prerequisite: CDX 504 or approval of instructor.

**531 Advanced Psychology of the Hearing-Impaired.** (3) S  
Recent advances and research in the perception and production of speech and language of the hearing-impaired and sensory aid instrumentation. Prerequisite: CDX 425 or approval of instructor.

**535 Urban Noise.** (3) S  
Problems of noise in an urban environment and approaches to their solution. Prerequisite: CDX 315.

**540 Differential Diagnosis.** (3) F  
Lecture-discussion of procedures appropriate for assessing language-speech acquisition, intellectual development, personality and social development of persons with communication disorders. Prerequisites: EDP 454 and approval of instructor.

**541 Evaluation: Differential Diagnosis.** (1-3) F, S  
Two hours supervised client contact per week per hour of credit. May be repeated for credit. Prerequisite: approval of instructor.

**545 Speech Perception and Production.** (3) S  
Current progress in production and perception of speech. May be taken concurrently with CDX 525. Prerequisite: CDX 375 or approval of instructor.

**550 Therapy: Beginning Practicum.** (1-6) S  
One hour staffing per week and two hours client contact per week per hour of credit. May be repeated for credit. Prerequisite: approval of instructor.

**551 Therapy: Advanced Practicum.** (1-6) F, S, SS  
Supervised practicum for all therapy services provided to persons with communication disorders, including aural rehabilitation, articulation, aphasia, cerebral palsy, cleft palate, language, stuttering, and voice. One hour staffing per week and a minimum of two hours client contact per week per hour of credit. May be repeated for credit. Prerequisite: approval of instructor.

**564 Internship in Communication Disorders.** (1-6) F, S, SS  
Off-campus directed experiences in either speech pathology, language disorders or hearing disorders. Students must reserve enrollment by mid-semester of the previous semester. Special permission from the department is required. May be repeated for credit.

**565 Child Language Development.** (3) S  
Recent advances in the study of child language development.

**566 Psycholinguistics.** (3) S  
Language and thought in interaction.

**567 Language and Mental Retardation.** (3) S  
Problems of language acquisition among mentally retarded children.

**570 Professional Issues in Communication Disorders.** (3) S

Professional issues facing graduating students in communication disorders as they relate to individual class members and their involvement in the profession.

**575 Neurological Disorders of Speech — Aphasia.** (3) F  
Communication disorders related to damage to the language sections of the central nervous system; assessment and treatment of persons manifesting such damage.

**576 Neurological Disorders of Speech — Cerebral Palsy.** (3) S  
Communication disorders related to cerebral palsy — assessment and treatment.

**577 Orofacial Disorders of Communication — Cleft Palate.** (3) S  
Communication disorders related to anomalies of the orofacial structures, including cleft lip with or without cleft palate, and dental malocclusion. Prerequisite: CDX 310 or approval of instructor.

**578 Disorders of Voice.** (3) F  
Communication disorders related to dysfunction of the phonatory and resonance systems of voice production, assessment and treatment. Prerequisite: CDX 310 or approval of instructor.

**590 Reading and Conference.** (3) F, S

**591 Seminar.** (3) F, S

**592 Research.** (3) F, S

**Special Courses:** CDX 294, 484, 494, 498, 499, 500, 580, 584, 593, 598, 599.



---

## Humanities and Religious Studies

---

### PROFESSORS:

DOEBLER (KRAUSE 104), BROWN,  
LAMM, WENTZ

### ASSOCIATE PROFESSORS:

BUSH, FRAZER, KOTROZO, LIU

### ASSISTANT PROFESSORS:

FOARD, GEREBOFF, GILL, GREGORY,  
MARQUARDT, MARTIN, RADER

### LECTURER:

HORWICH

### Major Requirements

#### Bachelor of Arts Degree Curriculum

The Department of Humanities and Religious Studies offers two degree programs: A Bachelor of Arts degree in Humanities through the College of Fine Arts, which may also include certification in Secondary Education and a Bachelor of Arts in Education degree, Secondary Education major (Humanities), through the College of Education

For the B.A. degree in Humanities, students may elect a concentration in interdisciplinary humanities, religious studies, or humanities education. The Interdisciplinary Humanities concentration consists of 70 semester hours of credit, including the interdisciplinary core and selections from the study fields of art, architecture, dance, history, literature (English and foreign language), music, philosophy, religious studies, theatre, and other performing arts. Semester hours will be accumulated in the following pattern: an interdisciplinary core of 31 semester hours; first study field, 24 hours, second study field, 15 hours

The Religious Studies concentration consists of 70 semester hours accumulated in the fol-

lowing pattern: 24 hours of religious studies courses, 15 hours in a second subject, and a required core of 31 semester hours comprised of courses selected from religious studies and interdisciplinary humanities in consultation with the advisor.

The Humanities Education concentration consists of the 70 hours of credit in Interdisciplinary Humanities plus professional education courses and a foreign language

For all concentrations, specific courses are selected by the student in consultation with the advisor. All students registering in a Humanities major program will enroll through the College of Fine Arts. All Humanities degree programs require a minimum of 126 hours for graduation. In addition to the major requirements, General Studies and other academic requirements are listed on pages 36-37 of this catalog. *Minimum* grade point index for retention in the Humanities curriculum are: 0-24 hours, 2.00; 25-55 hours, 2.25; 56-86 hours, 2.50; 87 hours, or more, 2.75

**Minor Requirements.** A 24-semester hour minor in Humanities is offered. This program normally includes 8 semester hours of lower division Humanities courses plus 16 hours of upper division Humanities courses; or, all 24 hours may be upper division. No more than 12 hours may be taken outside the course offerings of the Department of Humanities and Religious Studies. Electives may include applied, studio, technical, and laboratory work in the arts and humanities

### Major Teaching Field Requirements

#### Bachelor of Arts Degree in Humanities, Secondary Education Humanities Curriculum

Consists of 70 hours of credit in Humanities plus professional education courses and a foreign language. Individualized course of study is designed in consultation with the advisor.

#### Bachelor of Arts in Education Degree, Secondary Education Humanities Curriculum

Requirements are the same as for the B.A. in Humanities (Humanities Education concentration) with the following exceptions: general psychology, American history, one mathematics and one science are required; a foreign language is not required. Either the normal education program or the on-site program may be selected in consultation with the advisor. Students transfer to the College of Education at the end of the sophomore year, but retain their Humanities advisor.

### Graduate Program

Consult the *Graduate Catalog* for requirements in the Humanities program leading to the degree of Master of Arts.

### HUMANITIES

*HUM courses may be elected to meet General Studies requirements in Humanities and Fine Arts*

#### **HUM 101, 102 Ideas and Values in the Humanities.**

4, 4 F S  
Interrelation of art, architecture, literature, music, philosophy, religion, theatre and other performing arts in the modern world. Two lectures, two discussions, meetings per week

**118 Encountering the Arts.** (3) F  
Introductory course emphasizing personal contacts with the fine and performing arts. Attendance at a wide range of events with analysis and evaluation. May not be taken for credit by Humanities majors

**130 Introduction to Popular Culture.** 3 S  
Reflections of American values in 20th century popular arts: music, print art, television, radio, movies, the aesthetics of popular culture.

**150 Introduction to Asia.** (3) S  
Introduction to the study of Asia especially in the humanities and social sciences. (Part of programs in Asian studies and interdisciplinary Humanities. Same as LIA 150)

**201 Technology and Social Change.** (2) F  
Technology as related to social change, contemporary and possible future impacts of technology on society (Same as ASE 201)

## HUMANITIES AND RELIGIOUS STUDIES

**275 Introduction to Myth and Symbol.** (3) F  
Myth and symbol as expressive and structural elements of the humanities. Examples from mythology and artistic symbolism of the Western tradition.

**301, 302 Humanities in the Western World.** (4, 4) F, S  
Interaction of art, architecture, literature, music, philosophy, religion, theatre and other performing arts within the contexts of the major stylistic periods of Western civilization. Cultural achievements of the past as they relate to contemporary life. Two lectures two discussions on meetings per week

**303, 304 Humanities in the Eastern World.** (4, 4) F, S  
Interaction of art, architecture, literature, music, philosophy, religion, theatre and other performing arts within the contexts of the major stylistic periods of Eastern civilizations. Cultural achievements of the past as they relate to contemporary life. Two lectures two discussions on meetings per week

**310 Man and Machine.** (2) F  
Mechanical invention and technical progress, and the evolution of social forms and institutions. Same as ASE 310.)

**311, 312 Science and Technology in History.** (3, 3) F, S  
Development and application of scientific knowledge and its effects on human aspirations and values from ancient times through the industrial Revolution to present. HUM 311 not a prerequisite for HUM 312 (Same as ASE 311, 312)

**318 Artistic Styles and Forms.** (3) S  
Formal and stylistic aspects of the fine and performing arts. Development and progress on of style and form in the various arts

**330 American Folk Arts.** (3) S  
Folk arts, folk lore, folk ways of various regions, colonial days to present. Critical standards and relation of folk arts to general culture

**365 Islamic Civilization.** (3) F  
An interdisciplinary survey of art, history, and religion in Islamic civilization

**401 Humanities in World Cultures.** (3-6) F, S, SS  
A humanities study program of foreign travel. Fine and performing arts of the various world cultures. Museums, art galleries, drama, dance and musical events constitute a basic part of the itinerary. Term paper required. May be repeated for credit. Prerequisite: approval of instructor

**402 Technology, Society and Human Values.** (3) F, S, SS  
Values which motivate mankind to create technology. Areas of conflict and resolution on between basic human values and technological society. Reading and discussion with visiting lecturers. Prerequisite: junior or standing

or above. One lecture two discussion meetings per week. (Same as ASE 402.)

**403, 404, 405, 406, 407, 408 Comparative Arts of the West.** (3-4 each) F, S

Art, architecture, literature, music, religion and the performing arts within the contexts of social institutions and philosophical perspectives. May be taken concurrently. Prerequisites: HUM 301, 302 or approval of instructor

**403 The Ancient World.**

**404 The Middle Ages.**

**405 European Renaissance.**

**406 The Age of Reason.**

**407 Nineteenth Century.**

**408 The Twentieth Century.**

**409, 410 Comparative Arts of the East.** (3, 3) F, S  
Styles and forms in visual, verbal, and performing arts within the contexts of social institutions and philosophical perspectives in specific cultures. India, China, Japan. Prerequisite: HUM 303, 304, or approval of instructor

**411 Social Effects of Invention.** (3) S  
Invention as an instrument of change in civilization. Assessment of effects of interaction of social, cultural and technological factors. (Same as ASE 411)

**418 Perception and Judgment in the Arts.** (3) S  
Application of perception theory to the arts. Creativity in art forms as icons of experiential reality. The role of language in evaluation and judgment. Prerequisite: junior or standing or above

**470 Women and the Humanities.** (3) F  
Topics will be selected from the following: women as artists, women and religion; images of women in literature and media, women in Western culture. Prerequisite: junior or standing or above.

**471 The Asian Woman I, II, III.** (1, 1, 1) S, SS  
Series of courses taken singly or in combination. Traditional and modern Asian woman in Eastern and Western societies. Emphasis on the thought, expression and role behavior revealed through the verbal, visual, and performing media.

**475, 476 Myth and Symbol.** (3, 3) F, S  
Myth and symbol as a fundamental language of the humanities and as reflective of values in human experience that transcend the boundaries of time and space. Their expression in literature, the visual arts, and the performing arts.

**480 Methods of Teaching the Humanities.** (3) NR  
Methods of instruction, organization, discussion and presentation of the courses in the interdisciplinary humanities. Prerequisites: HUM 301, 302 or approval of instructor

**494 Special Topics in the Humanities.** (3) NR

Open to all students. Topics include

- (a) Western Historical or Contemporary Cultures
- (b) Non Western Cultures
- (c) Cultures of Ethnic Minorities
- (d) American Fine Arts
- (e) Comparative Fine and Performing Arts

**498 Pro-Seminar in the Humanities.** (3) NR

For students with a major or minor in humanities. Problems of comparative methodologies, and principles of syntheses of disciplinary areas in the humanities. Other students admitted with approval of instructor.

**520 The Aesthetics of Film.** (3) F, SS

Theory and criticism including film image and language, film medium, film as an interdisciplinary art form, film and reality, the film artist and the role and function of the filmmaker. Emphasis on the experimental avant-garde.

**525 Theory and Criticism of the Arts.** (3) NR

Philosophical analyses of the aesthetic experience and the artwork. Social, moral and psychological functions of the arts. Definitions of art, artistic style and artistic truth. Prerequisite: HUM 418 or approval of instructor

**530 Popular Culture in America.** (3) F

The uses of leisure time by the great audience of America from a historical perspective which consumes and thus creates 'popular culture'. Areas of concern include television and radio, film and stage, music, art, and paperbacks

**531 Contemporary American Arts.** (3) S

The status of the humanities in our contemporary society. Areas of concern include music, opera, dance, drama, literature, visual arts and architecture

**535 History of Ideas through the Arts.** (3) S

The arts as they influence and are influenced by cultural and socio-economic factors. Focus on the ideas related to stylistic developments in literature and the fine and performing arts

**538 Comedy: Meaning and Form.** (3) S

Nature and characteristics of satire, farce, humor, and other manifestations of the comic spirit in the literary, fine and performing arts.

**540 Research in the Humanistic Disciplines.** (3) F

Bibliographic methodology, main reference sources and research tools necessary for scholarly research in the interdisciplinary Humanities. Knowledge of a foreign language recommended.

**544, 545 Aesthetic Principles in Eastern Humanities I, II.** (3, 3) F, S

Principles and issues in arts and aesthetics within the

contexts of interdisciplinary humanities in the Eastern World. Prerequisites: HUM 409, 410, or approval of instructor

**550 Technology and the Arts.** (3) F

The impact of technology on art, music, literature, dance, and other art forms. Industry Revolution to the present with emphasis on the developments in the last decade

**575 Contemporary Issues in the Humanities.** (3) NR  
Social, political and ethical issues and their expression in the performing, fine and literary arts. Prerequisite: HUM 408 or approval of instructor

**585 Philosophic Foundations of the Humanities.** (3) S  
Issues in intellectual traditions of the Western world that are basic to the interdisciplinary humanities. Prerequisite: humanities graduate student or approval of instructor

**591 Seminar.** (3) NR

Topics in the comparative arts may be selected from the areas listed below. Prerequisite: Humanities graduate student or approval of instructor

- (a) Ancient Near East Cultures
- (b) Ancient Greece
- (c) Roman and Romanesque Worlds
- (d) The Gothic Synthesis
- (e) The Renaissance
- (f) Baroque and Neo-Classical
- (g) Romanticism
- (h) The Contemporary World

*Additional courses may be selected from Cultural Anthropology, Architecture, Art Communication, Cultural Geography, Intellectual and Cultural History, Dance, Foreign Languages and English (Literature, Mass Communications, Music, Philosophy, and Theatre)*

**Special Courses:** HUM 294, 492, 493, 497, 499, 584, 590, 592, 594, 598, 599, 600, 680, 684, 690, 691, 692 (See pages 30-31)

## RELIGIOUS STUDIES

*Religious Studies is a separate concentration within the Department of Humanities and Religious Studies. Students may select religious studies as a field leading to a B.A. in Humanities. Courses in religious studies may also be elected to meet General Studies requirements in the Humanities and Fine Arts.*

**REL 121 Religions of the World.** (3) F, S

An introduction to religious traditions of the world including Buddhism, Hinduism, Islam, and Christianity

**122 Ways of Being Religious.** (3) A

Comparison of various religious expressions of mankind, focusing on such themes as encounter with the Holy Man's search for self and for community, mystical illumination through spiritual freedom and discipline

**305 Ritual, Symbol and Myth.** (3) A

Ritual, symbol and myth as types of religious expression with examples selected from the religions of the world

**311, 312. Western Religious Traditions.** (3, 3) A

Religious traditions of Ancient Persia, Mesopotamia and Egypt and the rise of Judaism, Christianity and Islam, including the influence of such movements as Gnosticism, the Mysteries and Hermeticism.

**314 Formation of the Christian Tradition.** (3) A

Origins, development and expansion of Christianity, major themes and tensions from New Testament world through the middle ages

**316 Types of Early Judaism.** (3) A

Developments in Judaism during the intertestamental period

**317 Introduction to Rabbinic Judaism.** (3) A

An historical analysis of the thought, literature, and institutions of rabbinic Judaism.

**322 Religion in American Life and Thought.** (3) F, S

The role of religion in American history. Functions, contributions, tensions and perspectives of religion in American culture.

**325 Biography in American Religion.** (3) NR

American religious ideas and institutions through the lives of representative Americans. REL 322 recommended

**330, 331 Native American Religious Traditions.** (3, 3) A

World views and religious thought presented through the art, architecture, literature, music, mythology, ritual and folklore of representative tribes in North America

**341 Contemporary Religious Thought.** (3) A

Issues in current Western religious thought such as theology and revolution, Judaism and Christianity, the impact of science on religion, the 'death of God' controversy, the Bible and tradition

**351, 352 Eastern Religious Traditions.** (3, 3) A

First semester covers Hinduism and Buddhism, the second Confucianism and Taoism. May be taken together or separately

**365 Islamic Civilization.** (3) F

An interdisciplinary survey of art, history and religion in Islamic civilization

**370 Hebrew Bible (Old Testament).** (3) S

The persons, events and ideas that make up the Hebrew Bible (Christian Old Testament). Reference to the social and historical setting of the literature of the prophets, historical works and poetry of the Hebrews

**371 New Testament.** (3) F

Origins and literature of early Christian communities; historical investigations of the types of oral and written tradition found in the New Testament

**374 Classics of Christian Literature.** (3) NR

The interaction of Christian thought and culture as seen in representative Christian literature of various ages (early Christian to contemporary)

**381 Religion and Moral Issues.** (3) F, S

The manner in which human religiousness relates to social concerns: e.g. sexuality, the environment, bioethical issues, and violence

**405 Problems in the History of Religions.** (3) S

An in-depth consideration of selected problems in the history of religions: e.g. ritual as creative process in interpretation of mythology, initiation, crisis cults.

**411 Religion in the Middle Ages.** (3) S

Religious aspects of medieval life and thought: variety of forms of dissent, heresy and reform movements. (4th to 13th centuries)

**412 Reformation and Modern Christianity.** (3) S

Protestant Reformation to contemporary Christian movements, includes factors in the dissolution of the Medieval Christian synthesis, variety of reform movements and reformation patterns. Catholic counter-reform measures, formation of the Ibra theocracy, ecumenical movement. World Council of Churches

**415 The Jewish Mystical Tradition.** (3) S

Examination of some of the esoteric core of Judaism. Movements and literature such as Hasidism and Kabbalah will be studied

**422 American Puritanism and Its Early Rivals.** (3) NR

The Puritan way in 17th and 18th century America. Relation of Puritanism to the rest of religion and culture in those centuries. Contingent influence of the Puritan way. Prerequisite: REL 322 or approval of instructor

**423 Revivalism, Reform, and Americanism.** (3) NR

The unique religious phenomena of 19th century America. The development of an American religious consensus and the dissenting movements. Prerequisite: REL 322, or approval of instructor

**424 Secularization and American Religion.** (3) NR

Movement, institutions and religious thought in the 20th century. Special attention to secularization and its effects. Prerequisite: REL 322 or approval of instructor.

**430 Native American Mystical Traditions.** (3) S

Consideration of Native American mystical practices such as shamanism, vision quest, dreaming, divination, and the use of medicines and drugs such as peyote. Prerequisites: REL 330-331 or approval of instructor.

**435 Problems in Native American Religions.** (3) S

An in-depth consideration of selected problems in Na-

tive American religions Prerequisites: REL 330, 331, 430 or approval of instructor.

**441 Process Theology.** (3) NR

The impact of modern process philosophes on current religious thought Emphasis on the use of A N Whitehead's philosophy in the rethinking of traditional Christian concepts, Catholic and Protestant.

**442 Existentialist Theology.** (3) NR

The contribution of existential thinkers especially Kierkegaard to the work of theologians such as Martin Buber Rudolf Bultmann and Paul Tillich.

**445 Judaism in Modern Times.** (3) A

Variety of expressions of Judaism and Jewishness in the modern period. Topics may include American Judaism or religious responses to the Holocaust

**451 The Religious Traditions of India.** (3) A

The religious literature art history and thought of India, focus on such traditions as Hinduism and Buddhism

**453 Zen.** (3) A

History practices and cultural influence of Zen (Chan) Buddhism in China and Japan.

**455 Religion in Japan.** (3) A

Role of religion in Japanese history and culture. Emphasis on the impact of Buddhism and its transformation in Japan, the vitality of folk religion and intimacy of religion and the arts the deities of the samurai and religion in modern Japan

**460 The Religious Tradition of Islam.** (3) A

The Islamic religious tradition from the time of the Prophet down to the present day Major religious figures, practices institutions and movements will be examined

**464 The Sufi Way.** (3) S

Asceticism, mysticism, and illumination in Islam. Focus on representative Sufi saints, their systems and modes of expression

**494 Special Topics in Religious Studies.** (3) NR

Open to all students, freshmen by approval of instructor only Topics may be selected from various areas

**498 Pro-Seminar in Religious Studies.** (3) NR

For students with a major or minor emphasis in Religious Studies.

**522 Political Religion in America.** (3) NR

Investigation of the relationship between American religion and the political process. Such topics as civil religion, millennialism, and American destiny will be examined Prerequisites: REL 322, and 422, 423, or 424.

**541, 542 Issues in Contemporary Theology.** (3) A

Detailed study of one or two prominent thinkers (e.g., Paul Tillich Teilhard de Chardin) or developments (e.g.,

theology of liberation, theology and technology in contemporary religious thought. May be repeated for credit for different topics

**591 Seminar.** (3) NR

Prerequisite: Religious Studies graduate student or approval of instructor

**624 Problems in American Religion.** (3) NR

Examination of topical issues such as dissent, consensus puritanism, representative American religious thinkers; fundamentalism and modernism Prerequisite: Religious Studies graduate student or approval of instructor

**Special Courses:** REL 294 499 584 590 592, 594 598 See pages 30-31)

---

## Music

---

**PROFESSORS:**

UMBERSON (MUS C 183), ANDRESS, BRITTON, BULLOCK, CARROLL COHEN DRESSKELL, ENGLISH, FERGUSON, JOHNSON, LOMBARD LoPREST McEWEN, PRIDONOFF, RCKEL, SEPP, SKOLDBERG, SPNOSA, STELLHORN, STRANGE

**ASSOCIATE PROFESSORS:**

ATSUMI, BOWERS, CASTLE, D'ANDREA, FLEMING, HANNA, HINES, HOOVER, HOWERY, LOCKWOOD, McLEOD, MAGERS, MILLER, RATTERREE, RAUSCH, RAVE, REYNOLDS, RUCCOLO, SMITH, STALZER, STOCKER SWAM

**ASSISTANT PROFESSORS:**

BLOEMENDAAL, DEBENPORT, HAEFER, HOFFER, HOLBROOK KLEWER, NUTAITIS, SHINN, WILSON, WYTKO

**INSTRUCTORS:**

COSAND, HACKBARTH, MEYER, SUNKETT, WILLAMSON

The Department of Music is a member of the National Association of Schools of Music, and the requirements for entrance and graduation set forth in this catalog are in accordance with

the published regulations of the Association.

The following statement of Basic Musicianship is endorsed by the Department of Music:

"All musicians, whether performers, composers, scholars or teachers, share common professional needs. Every musician must to some extent be a performer, a listener, an historian, a composer, a theorist, and a teacher. For this reason, certain subject matter areas and learning processes are common to all baccalaureate degrees in music

"Basic musicianship is developed in studies which prepare the student to function in a variety of musical roles which are supportive of his major concentration. All undergraduate curricula, therefore, provide the following.

1. A conceptual understanding of such musical properties as *sound rhythm melody, harmony, texture and form* and opportunities for developing a comprehensive grasp of their interrelationships as they form the cognitive affective basis for listening, composing and performing.
2. Repeated opportunities for enacting in a variety of ways the roles of listener (analysis), performer (interpretation), composer (creation), scholar (research), and teacher.
3. A repertory for study that embraces all cultures and historical periods."

### Departmental Major Requirements

For advisement purposes, all students registering in a music major program will enroll through the College of Fine Arts. All music degree programs require a minimum of 126 hours of graduation. In addition to the major requirements listed below, General Studies and other academic requirements are listed on pages 36-37 of this catalog.

**Placement Examinations.** All students who enroll in an undergraduate music degree pro

gram are required to perform an entrance audition in their primary performing medium (instrument or voice). Audition forms and specific audition requirements for each instrument or voice may be obtained upon request by writing the Department of Music. Four official dates for these auditions will be set for each academic year. Students may request to audition on other dates if necessary or may send a tape recording if distance prohibits coming to the campus. Entering students must also take placement tests in theory and piano at the time they enter the university. This includes transfer students who have completed four semesters of theory at another institution; they are required to reach a minimum level of achievement indicated on the Theory Placement Exam. Those who fail to do so must take and pass one of the MTC 200 level theory courses.

**Bachelor of Arts Degree Curriculum in the Music Program** Consists of 50 credit hours. The following courses are required:

*Music Theory.* MTC 125, 221, 222, 223, 320, 327, 422

*Music History and Literature.* MHL 341, 342

*Major Performing Medium* Eight credit hours (MUP 111-311)

*Class Piano.* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Recital Attendance:* Six semesters of MUP 100

Note: The remaining hours in music will be selected by the student in consultation with his/her advisor. At least 18 credit hours of music must be upper division.

**Bachelor of Music Degree Curriculum in the Music Program** Consists of 84 credit hours. This curriculum offers fields of specialization in choral-general music, instrumental

music, performance, music therapy, and theory and composition. Choral-general music and instrumental music majors are provided for students wishing to meet certification requirements for teaching in the public schools. The following requirements are included in each field of specialization:

### Choral-General Music

*Note:* This degree program may include a teaching minor in instrumental music

*Music Theory:* MTC 125, 221, 222, 223, 327, 422, 431

*Music History and Literature:* MHL 341, 342

*Conducting:* MUP 209, 339

*Music Education.* MUE 110, 313, 480

*Major Performing Medium.* Eight credit hours of MUP 111 and 8 credit hours of MUP 311 to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 completes the requirement.

*Minor Performing Medium:* A proficiency equal to six semesters of study in keyboard or voice (whichever is not the major performing medium). Students wishing to extend their proficiency beyond this level may continue to study in MUP 321.

*Ensemble:* Eight different semesters of participation including at least six semesters of MUP 352 and/or MUP 353, or the equivalent, four of which must be at Arizona State University.

*Recital Attendance:* Six semesters of MUP 100

### Instrumental Music

*Note:* It is strongly recommended that the degree program include a minor in choral music.

*Music Theory:* MTC 125, 221, 222, 223, 327, 422

*Music History and Literature:* MHL 341, 342

*Conducting:* MUP 209

*Music Education:* MUE 110, 317, 318, 327, 328, 336, 337, 338, 481, 482

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Major Performing Medium:* Eight credit hours of MUP 111 and 8 credit hours of MUP 311 to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 completes the requirement.

*Ensemble:* Eight different semesters of participation, four of which must be at Arizona State University. For wind and percussion players, two of the four ASU semesters must be in marching band. String players must have a minimum of six semesters of MUP 345. Wind and percussion players must have a minimum of six semesters of MUP 361 or the equivalent.

*Recital Attendance.* Six semesters of MUP 100.

*Recommended Minor.* Choral-General Music MUE 480, MTC 431, MUP 339, 350 or 352-353 (two semesters) and voice (4 hours)

### Performance

Keyboard Concentration

*Music Theory.* MTC 125, 221, 222, 223, 320 or 321, 327, 422, 425 (or 428)

*Music History and Literature:* MHL 341, 342, 447

*Repertoire and Pedagogy:* MUP 451, 481

*Conducting:* MUP 209

*Major Performing Medium:* Sixteen credit hours of MUP 127 and 16 hours of MUP 327 to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495) and a full recital (MUP 496) are required.

*Ensemble:* Eight credit hours within a minimum of six different semesters, of which two semesters of accompanying and two semesters of chamber music are required.

*Recital Attendance:* Six semesters of MUP 100

### Performance

Orchestral Instrument Concentration

*Music Theory:* MTC 125, 221, 222, 223, 320, 327, 422, 425

*Music History and Literature:* MHL 341, 342, 447

*Repertoire and Pedagogy:* MUP 451 or 481

*Conducting:* MUP 209, 340

*Major Performing Medium:* Sixteen credit hours of MUP 127 and 16 hours of MUP 327 to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495) and a full recital (MUP 496) are required.

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Ensemble:* Eight credit hours of large ensembles within a minimum of six different semesters, plus four credit hours of small ensembles within a minimum of four different semesters.

*Recital Attendance:* Six semesters of MUP 100

### Performance

Voice Concentration

*Music Theory:* MTC 125, 221, 222, 223, 320, 327, 422, 425

*Music History and Literature:* MHL 341, 342, 447

*Repertoire and Pedagogy:* MUP 451, 481: Two credits selected from MHL 452, 453 or a repeated enrollment of MUP 451.

*Diction:* MUP 250; four credit hours of diction for singers English, Italian, German, French.

*Conducting:* MUP 209, 339

*Major Performing Medium:* Eight credit hours of MUP 111 and 16 hours of MUP 327 to attain a proficiency level necessary to meet

the graduation recital requirements. A half recital (MUP 495) and a full recital (MUP 496) are required.

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Ensemble:* Four different semesters of large ensembles, plus eight credit hours of ensembles within a minimum of six different semesters to be selected from large and or small ensembles.

*Recital Attendance:* Six semesters of MUP 100

*Additional Requirements:* Sixteen credit hours of credit in more than one foreign language, chosen from French, German or Italian. A student may elect one year of one language, and either one or two semesters of the other(s), chosen in conference with the advisor.

### Performance

Guitar Concentration

*Music Theory:* MTC 125, 221, 222, 223, 227, 320, 327, 422

*Music History and Literature:* MHL 341, 342, 443, 447

*Repertoire and Pedagogy:* MUP 451 or 481

*Conducting:* MUP 209

*Major Performing Medium:* Sixteen credit hours of MUP 127 and 16 hours of MUP 327 to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495) and a full recital (MUP 496) are required.

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Ensemble:* Eight credit hours of ensemble within a minimum of six different semesters. Four of the eight credits must be MUP 379: Chamber Music Ensemble - Guitar.

*Recital Attendance:* Six semesters of MUP 100.

### Performance

Accompanying Concentration

*Music Theory:* MTC 125, 221, 222, 223, 320, 327, 422, 428

*Music History and Literature:* MHL 341, 342, 447, 452, 453

*Diction and Repertoire:* MUP 250 (2 semesters), 451

*Conducting:* MUP 209

*Major Performing Medium:* Sixteen credit hours of MUP 127, 8 credit hours of MUP 311, 8 credit hours of MUP 337. In addition, student will accompany two half-recitals (MUP 495), one for a singer, one for an instrumentalist during the junior year. (A half solo recital may be substituted for either of the above.) During the senior year the student will accompany two full recitals (MUP 496), one vocal and one instrumental.

*Ensemble:* Two semesters of MUP 379 (chamber music), two semesters of MUP 379 (two-piano ensemble); two semesters of MUP 388; two semesters of ensemble elective (minimum of six different semesters)

*Recital Attendance:* Six semesters of MUP 100

In addition, the student will elect two semesters of one foreign language (French, Italian, German recommended).

### Performance

Music Theatre Concentration

*Music Theory:* MTC 125, 221, 222, 223, 327, 422

*Music History and Literature:* MHL 341, 342, 447 and 2 elective hours

*Conducting:* MUP 209

*Major Performing Medium:* Eight credit hours of MUP 111 and 8 credit hours of MUP 311 to attain a proficiency level necessary to meet the graduation requirement of a public

performance of two roles, one of which must be of major proportion.

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Ensemble:* Eight semesters of MUP 371 and eight semesters of MUP 373

*Recital Attendance:* Six semesters of MUP 100

*Additional requirements.* Minimum of six credit hours each in theatre and dance.

### **Performance**

Jazz Performance Concentration

*Music Theory:* MTC 125, 221, 222, 223, 224, 315, 316, 317, 321 (or 482), 327, 422

*Music History and Literature* MHL 341, 342, 352

*Conducting:* MUP 209, 340, 341

*Major Performing Medium:* Eight credit hours of MUP 111 and 8 credit hours of MUP 311 to obtain a proficiency level necessary to meet the graduation recital requirements. Two half recitals (MUP 495) are required, with one in the jazz idiom.

*Class Piano:* MUP 131, 132, 231, 232, 235, 236 (unless waived by proficiency exam)

*Improvisation* MUP 217, 218, 417, 418

*Ensemble:* Four semesters of large ensemble and four semesters of MUP 386

*Recital Attendance:* Six semesters of MUP 100

### **Performance**

Music Theory and Composition

*Music Theory:* MTC 125, 221, 222, 223, 320, 321, 323 (four semesters), 327, 422, 425, 428, 429, 430

*Music History and Literature:* MHL 341, 342, 447 and four elective credit hours.

*Conducting:* MUP 209, 339, 340

*Applied Music:* Eight semesters of study (four

semesters may be on instruments other than the major performing medium)

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency examination)

*Ensemble:* Eight semesters of participation  
*Recital Attendance.* Six semesters of MUP 100

**Bachelor of Arts in Education Degree Curriculum in the Music Program**— Consists of a minimum of 67 to 70 hours of music credit. This curriculum, in addition to the Bachelor of Music, offers work in choral-general music and instrumental music for those wishing to teach music in the public schools. Each field requires the following courses:

### **Music Therapy**

*Music Theory:* MTC 125, 221, 222, 223, 327, 422

*Music History and Literature:* MHL 341, 342  
*Conducting.* MUP 209

*Music Education:* MUE 211, 313, 319, 329, 335, 336, 339

*Music Therapy* MUE 161, 261, 341, 342, 361, 461, 475, 476

*Major Performing Medium:* Eight credit hours of MUP 111 and eight credit hours of MUP 311

*Piano:* Proficiency equal to six semesters of study

*Voice* Four semesters of study

*Ensembles:* Eight semesters of participation with at least four semesters in large groups and at least two semesters in small groups

*Recital Attendance:* Six semesters of MUP 100

*Additional requirements.* Four credit hours of functional dance; specified courses in Social and Behavioral Sciences

*Note* Student must apply to the National Associa

*tion for Music Therapy for registration as a Music Therapist on completion of the requirements for graduation.*

### **Choral General Music**

*Note.* This degree program may include a teaching minor in instrumental music

*Music Theory:* MTC 125, 221, 222, 223, 327, 422, 431

*Music History and Literature.* MHL 341, 342  
*Conducting:* MUP 209, 339

*Music Education:* MUE 110, 313, 480

*Major Performing Medium:* Eight credit hours of MUP 111 and 8 credit hours of MUP 311 to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 completes the requirement.

*Minor Performing Medium:* A proficiency equal to six semesters of study in keyboard or voice (whichever is not the major performing medium). Students wishing to extend their proficiency beyond this level may continue to study in MUP 321.

*Ensemble:* Eight different semesters of participation including at least six semesters of MUP 352 and/or MUP 353, or the equivalent, four of which must be at Arizona State University.

*Recital Attendance:* Six semesters of MUP 100

### **Instrumental Music**

*Note:* It is strongly recommended that the degree program include a minor in choral music

*Music Theory:* MTC 125, 221, 222, 223, 327, 422

*Music History and Literature.* MHL 341, 342  
*Conducting.* MUP 209

*Music Education:* MUE 110, 317, 318, 327, 328, 336, 337, 338, 481, 482

*Class Piano:* MUP 131, 132, 231, 232 (unless waived by proficiency exam)

*Major Performing Medium.* Eight credit

hours of MUP 111 and eight credit hours of MUP 311 to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 completes the requirement.

**Ensemble.** Eight different semesters of participation, four of which must be at Arizona State University. For wind and percussion players, two of the four ASU semesters must be in marching band. String players must have a minimum of six semesters of MUP 345. Wind and percussion players must have a minimum of six semesters of MUP 361, or the equivalent.

**Recital Attendance:** Six semesters of MUP 100.

**Recommended Minor, Choral General Music** MUE 480, MTC 431, MUP 339, 350 or 352-353 (two semesters) and voice (four credit hours)

### Music Minor for an Elementary Education Major

**Music Theory.** MTC 100, 101

**Music History and Literature:** MHL 340

**Music Education:** MUE 311

**Piano:** Four semesters

**Electives:** Two credit hours

Minors for students in Secondary Education and students in Liberal Arts are available through the Department of Music. Consult with the Music Department office for advisement sheets and advisors.

### Departmental Graduate Programs

The Department of Music offers the following graduate programs: the Master of Arts degree provides advanced studies in history and literature of music; the Master of Music degree has majors in the fields of performance, choral music, instrumental music, and music with concentrations in Theory and Composition. The Master of Education degree—Secondary

Education, with a focus on choral, general or instrumental music, the Doctor of Education degree in Secondary Education (Music Education), and the Doctor of Philosophy degree in Education—Secondary Education (Music) are offered in cooperation with the College of Education. Consult the *Graduate Catalog*. A document on graduate degree programs in music may be obtained by writing to the Department of Music.

### MUSIC EDUCATION

**MUE 110 Orientation to Music Education.** (1) F  
The larger field of music education. Esthetic objectives and instructional procedures in nonverbal learning/teaching—school observations. Prerequisite or corequisite for MUE 313, 480, 481

**161 Introduction to Music Therapy.** (2) F  
Includes requirements and qualifications of the music therapist and expectations placed upon him in the field. Visits to facilities for handicapped in the community

**211 Music in Recreation.** (2) S  
Materials, methods and organizational structures appropriate for recreational music

**261 Orientation to Field Experience.** (2) F, S  
Weekly experiences in an approved psychological hospital or other approved agency. Weekly consultation with instructor. Prerequisite: MUE 161.

**310 Music in Early Childhood Education.** (3) F  
Identifying and understanding musical needs of young children. Methods and materials for program development for classroom teachers.

**311 Music for the Classroom Teacher.** (3) F, S  
Development of the classroom music program in the elementary school. No previous music experience or course work required. Not for music majors or minors

**313 Music in the Elementary School.** (3) F  
Methods of instruction, organization and presentation of appropriate content in music. For music majors only

**314 Music in the Elementary School.** (3) S  
Selected problems in elementary school classroom music and choral program. Observation and participation in school music classrooms. Prerequisite: MUE 313

**317, 318, 327, 328, 335, 336, 337, 338 Educational Methods for Teaching Instruments** (1) F, S  
Teaching and playing skills for school music teachers, instrument(s) named. Three hours per week.

**317 Educational Methods for Violin and Viola.**

**318 Educational Methods for Cello and String Bass.**

**327 Educational Methods for Trumpet and Horn.**

**328 Educational Methods for Trombone, Euphonium and Tuba.**

**335 Educational Methods for Guitar.**

**336 Educational Methods for Percussion.**

**337 Educational Methods for Flute, Clarinet, Saxophone.**

**338 Educational Methods for Double Reed Instruments.**

**319 Educational Methods for Strings.** (1) F  
Teaching and playing skills for music therapists and music minors. Three hours per week

**329 Educational Methods for Brass.** (1) S  
Teaching and playing skills for music therapists and music minors. Three hours per week

**339 Educational Methods for Woodwinds.** (1) F  
Teaching and playing skills for music therapists and music minors. Three hours per week

**341 Psychology of Music I.** (2) F  
Acoustical and psychological aspects of music emphasizing problems of perception, experimental esthetics, music function, measurement and diagnosis of musical ability. Prerequisite: MUE 261

**342 Psychology of Music II.** (2) S  
A laboratory and research course emphasizing acoustical and psychological aspects of music perception, experimental esthetics, music function and measurement and diagnosis of musical ability. Prerequisite: MUE 341

**361 Influence of Music on Behavior.** (2) F  
Effect of music on both physical and mental health. Physiological, psychological, neurophysiological and esthetic relationships. Prerequisite: MUE 341

**461 Music in Therapy.** (2) S  
Application of music as a therapy to various types of handicaps in children and adults. Prerequisite: MUE 361. For music majors only.

**475 Therapy Practicum.** (3) S  
An activity class involving the music therapy major in the musicianly roles of arranging, conducting, organizing and maintaining small and large music ensembles. Experiences in directing music earning activities with special education students. Emphasis on adolescent and adult behaviors. Prerequisite: MUE 261.

**476 Internship in Music Therapy.** (1) F, S  
A six-month residency in an approved clinical institution

**480 Choral Music Practicum.** (3) S  
Methods of instruction, organization and presentation of appropriate content in choral music classes. Must be majoring in secondary education.

**481, 482 Instrumental Music Practicum.** (5-5) F, S  
Instrumental music as a means of developing music skills, understandings and attitudes in elementary and secondary school students. Must be majoring in secondary education.

**550 Studies in Music Curricula.** (3) A  
Scope and sequence of musical experiences. Development of criteria for the evaluation of music curricula.

**551 Advanced Studies in Elementary School Music.** (3) A

For experienced teachers: organization and content of the general music classes in kindergarten and the first six grades of elementary school. Emphasis on teaching music reading and ear training to young children.

**552 General Music, Music Theory and Music History Classes in the Junior and Senior High School.** (3) NR  
Organization and content of school music classes which are not performance oriented.

**564 Instrumental Music, Advanced Rehearsal Techniques.** (3) A

Formation of valid musical, educational and aesthetic rehearsal objectives. Observation and review of current practices and materials. Development of individual methods of teaching in a rehearsal situation.

**566 Instrumental Literature for Schools.** (3) NR  
Comprehensive study and analysis of all types of instrumental music.

**568 Choral Music, Advanced Rehearsal Techniques.** (3) A

Musical and vocal techniques necessary for presentation of choral literature. Analysis and experimentation with psychological, acoustical and other problems of rehearsal and performance.

**570 Choral Literature for Schools.** (3) A  
Comprehensive study and analysis of all types of choral music.

**579 Psychology of Music.** (3) NR  
The nature of musicality and its evaluation. A review of recent research.

**733 Experimental Projects and Recent Trends in Music Education.** (3) A  
Recent trends and research developments which challenge traditional practices.

**744 Major Problems in the Education of Music Teachers.** (3) A  
Patterns of music teacher education and a projection of course outlines designed to accommodate the most comprehensive demands of the changing school music curriculum.

**755 Philosophy and Aesthetics in Music Education.** (3) A

Philosophy and aesthetics as they influence curriculum

content and teaching procedures

**Special Courses:** MUE 294, 484, 494, 498, 499, 580, 590, 591, 592, 594, 598, 599, 680, 693, 780, 783, 784, 790, 791, 792, 799. (See pages 30-31.)

## MUSIC HISTORY AND LITERATURE

**MHL 107 Introduction to Music.** (2) F, S, SS  
Correlation of music with literature, science and art. A non-technical course in the humanities for nonmusic majors.

**340 Survey of Music History and Literature.** (3) F, S, SS

Major periods, composers and compositions in the history of music. A humanities course in the General Studies program. May be used to meet the music history requirement for a minor in music.

**341, 342 Music History and Literature.** (3) F, S  
Western music from the Greeks to the present day. Prerequisite: MTC 221. Need not be taken in sequence.

**352 The Evolution of Jazz.** (3) A

Origin, development and styles of jazz music and its exponents. Prerequisite: MTC 223.

**355 Survey of American Music.** (2) F, S, SS  
Growth and development of American music. A humanities course in the General Studies program.

**356 Survey of the Musical Theatre.** (2) NR  
Music's place in the theatre, viewed in terms of historical importance and relative function. A humanities course in the General Studies program.

**357 Esthetic Perception in Music Performance.** (3) F, S, SS

Introduces the nonmusic major to the aesthetics of performance by stressing their physical and emotional involvement in the direct motion, intensity and color spectrum of music. A humanities course in the General Studies program.

**443 History of the Guitar, Lute and Vihuela.** (3) S  
Evolution of these instruments and their repertoire. Study of style periods and the composers associated with each. Prerequisite: MHL 341 and 342. Three hours a week.

**438 Music in the Classic Era.** (3) NR  
Development of the classical style of the 18th century major works of Haydn, Mozart, and Beethoven. Prerequisites: MHL 341, 342, MTC 327, the latter may be taken concurrently.

**439 Music in the 19th Century.** (3) NR  
European art music after Beethoven. Prerequisite: MHL 341, 342, MTC 327; the latter may be taken concurrently.

**441 Music of the Baroque Era.** (3) NR  
Works of major composers and stylistic tendencies of the period. Prerequisites: MHL 341, 342, MTC 327. The latter may be taken concurrently.

**447 Music Since 1900.** (3) NR  
Survey of the works by major composers and stylistic trends. Prerequisites: MHL 341, 342, MTC 327 (may be taken concurrently).

**452 Song Literature.** (2) F  
Early Italian, English, German, and French art song.

**453 Song Literature.** (2) S  
American, Russian, Spanish, Scandinavian and contemporary song.

**510 Introduction to Graduate Study.** (2) NR  
Acquaints the graduate student with basic research materials in music. Bibliographic and technical materials will be incorporated into the preparation and writing of research papers.

**532 Music Bibliography.** (3) NR  
Major historical and analytical writings, systematic and historical collections of music. Reading knowledge of a foreign language recommended.

**535 Medieval Music.** (3) NR  
Music of Europe in the Middle Ages. Gregorian chant, religious and secular monophony and polyphony to 1430.

**536 Music of the Renaissance.** (3) NR  
Musical thought in Europe with emphasis on stylistic concepts and changes, c. 1430-1580.

**541 The Art Song.** (3) NR  
Solo song from its beginning to the present day.

**544 World Music I.** (3) NR  
Music of non-terrestrial cultures: folk music of Europe and the Americas.

**545 World Music II.** (3) NR  
Folk and art music of non-Western cultures.

**575 History of Choral Music.** (3) NR  
Major choral works.

**Special Courses:** MHL 294, 484, 492, 493, 494, 498, 499, 580, 590, 591, 592, 594, 598, 599, 690, 693, 783. (See pages 30-31.)

## MUSIC THEORY AND COMPOSITION

**MTC 100 Fundamentals of Music Notation.** (3) F, S, SS  
Provides nonmusic majors with sufficient symbolic literacy to begin work in the field of musical learning. No credit for music majors.

**101 Foundations of Music Theory.** (3) S  
A survey of music theory. Prerequisite: MTC 100 or approval of instructor. No credit for music majors. This

course may be used to meet the music theory requirements for a minor in music

**125 Basic Music Theory.** (3) F, S

For music majors designed to develop aural and notational skills. Meets daily.

**221 Music Theory-18th Century.** (3) F, S

Music from the 18th century with a view toward developing students' abilities to analyze, theorize, perform and create examples within the style. Development of related aural, visual and keyboard skills. Prerequisite: MTC 125

**222 Music Theory-19th Century.** (3) F, S

Musical compositions chosen from the late 18th and 19th centuries. Harmonic progressions, melodic construction and rhythmic developments, development of related aural, visual and keyboard skills. Prerequisite: MTC 221

**223 Music Theory-20th Century.** (3) F, S

Representative 20th century compositions with particular emphasis on those elements of medieval, harmonic and rhythmic treatment which break with past conventions. Development of related aural, visual and keyboard skills. Prerequisite: MTC 222

**224 Survey of Jazz Styles.** (2) A

Large ensemble compositions and recorded improvised solos. Prerequisite: MTC 221

**227 Fretboard Harmony.** (2) A

Scales, intervals and chords and their inversions in fretboard theory. Concepts applied to guitar through analysis of repertoire, composition and harmonization. Prerequisite: MTC 221. Three hours a week

**315 Modern Arranging.** (2) F

Techniques in arranging for the contemporary jazz radio, television and studio orchestra. Prerequisite: MTC 223

**316 Modern Arranging.** (2) S

Continuation of MTC 315. Prerequisite: MTC 315

**317 Composition for Non-Composition Majors.** (2) F, S

Phrase and period structure, melodic composition and accompaniment, composition of small forms. Not to be elected by composition majors. Prerequisite: MTC 223. May be repeated once for credit

**320, 321 Counterpoint.** (2) F, S

First semester: strict counterpoint in modal style; second semester: strict and free tonal counterpoint. Prerequisite: MTC 221. Need not be taken in sequence

**323 Composition.** (2) F, S

Creative writing in the smaller forms including the use of harmonic textures and contrapuntal devices. Prerequisite: MTC 223. May be repeated for credit

**327 Form and Analysis.** (2) F, S

Organizing elements in the most important contrapuntal and homophonic musical forms from the Renaissance through the 19th century. Prerequisite: MTC 223.

**422 Musical Acoustics.** (4) F, S

Properties of sound and tone. Harmonic series, instruments, the ear, auditorium acoustics and the reproduction of sound. A thorough knowledge of musical notation, intervals, scales and harmony or two years of music theory will be assumed.

**425 Studies in 20th Century Theory.** (3) F

Continued development of analytical techniques and aural skills with an examination of theoretical systems applicable to 20th century music. Prerequisite: MTC 223

**428 Form and Analysis.** (2) S

Organizing principles of the large forms of musical composition in the 19th and 20th centuries. Prerequisite: MTC 327

**429, 430 Canon and Fugue.** (2,2) F, S

Polyphonic studies in form and technique. Prerequisite: MTC 321.

**431 Choral Arranging.** (2) S

Practical studies in editing and arranging for choral organizations. Preparation of suitable materials for young choirs and advanced groups. Study of accompaniments. Prerequisite: MTC 223

**433 Orchestration.** (3) NR

Theoretical and practical study of scoring for orchestral instruments in various combinations, ranging from small ensembles to symphonic orchestra and concert band. Prerequisite: MTC 223

**436 Electronic Studio Techniques.** (2) F, S

Principles of electronic music systems and their applications in the composition and recording of electronic music. May be repeated for credit. Cannot be used to fulfill theory requirements on graduate degrees

**482 Theory of Rhythm.** (2) NR

Musical organization through physiological and psychological principles based upon rhythmic perception. Prerequisites: MTC 428, MHL 447, MUP 339 or 340

**501 Theory Techniques.** (2) F, S, SS

Two hours a week. Credit cannot be applied toward the graduate theory requirement

**520 Advanced Analytical Techniques.** (2) S, SS

Analytical techniques systematically applied to music. Concentration on structural and compositional procedures.

**523 Advanced Composition.** (2) F, S

Creative writing in the larger forms for chorus, orchestra and band. Prerequisites: MTC 323, 428, MHL 447 or equivalent. May be repeated for credit.

**525, 526 Pedagogy of Theory.** (3,3) F, S, S 81

Practices and principles of teaching music theory. Emphasizes most desirable and practical offerings possible. Comparative studies of existing practices.

**527, 528 Evolution of Musical Theory.** (3,3) F, S, S 80

Theory from Pythagoras to the present. Need not be taken in sequence

**553 Advanced Choral Arranging.** (2) F

Choral techniques in composition and arranging. Vocal writing through analysis of choral works. Projects in both arranging and composition

**554 Advanced Scoring Problems.** (2) NR

Instrumentation. Paying characteristics of each instrument, writing and arranging dramatic music for the instrument. Projects in both scoring and composition

**Special Courses:** MTC 294, 484, 492, 493, 494, 498, 499, 580, 590, 591, 592, 594, 598, 599, 690, 693, 783 (See pages 30-31)

## MUSIC PERFORMANCE

**MUP 100 Concert Attendance.** (0) F, S

Required of all music majors for six semesters in each degree program, with a minimum of seven (7) concerts attended each semester

**111, 311, 511 Studio Instruction.** (2,2,2) F, S

For majors in music degree program. Placement audit on required: Piano, organ, harps chord, voice, flute, oboe, clarinet, saxophone, bassoon, trumpet, cornet, horn, euphonium, trombone, tuba, percussion, violin, viola, cello, contrabass. May be repeated for credit. Minimum contact of one hour plus studio class weekly. May not be taken for audit

**121, 321, 521 Studio Instruction.** (1,1,1) F, S

For secondary or minor instrument instruction and nonmajors in the university. Placement examination and audit on required: Piano, organ, harps chord, voice, flute, oboe, clarinet, saxophone, bassoon, trumpet, cornet, horn, euphonium, trombone, tuba, percussion, violin, viola, cello, contrabass. May be repeated for credit. Minimum contact of one half hour per week. May not be taken for audit

**127, 327, 527 Studio Instruction.** (4,4,4 or 2) F, S

For performance majors in Bachelor of and Master of Music degree programs on year. Placement examination and audit on required: Piano, organ, harps chord, voice, flute, oboe, clarinet, guitar, saxophone, bassoon, trumpet, cornet, horn, euphonium, trombone, tuba, percussion, violin, viola, cello, contrabass. May be repeated for credit. Minimum contact of one hour plus studio class weekly. May not be taken for audit

**131, 132, 231, 232 Class Piano.** (1,1,1,1) F, S

A four semester sequence of courses designed for

those lacking piano experience and those who need piano as a classroom tool. Emphasis on keyboard technique, sight reading simple accompaniments and improvisation. Two hours a week. May not be taken for audit.

**133, 134, 233, 234 Class Voice.** (1, 1 1 1) F, S

Open to all students interested in the development of basic singing techniques. Two hours a week. May not be taken for audit.

**137, 138 Classical Guitar Class.** 1, 1 NR

Fundamentals of classical guitar. Prerequisite: approval of instructor. Prerequisite for music majors. May not be taken for audit. Two hours a week.

**209 Elements of Conducting.** (1) F, S

Essentials of conducting techniques used by both choral and instrumental conductors. Two hours a week.

**217, 218 Improvisation Workshop.** (1 1) F, S

Emphasis on basic jazz literature: chord symbol reading, melodic patterns, ear training, melodic concepts and analysis of improvised solos. Prerequisite: MTC 125, 1 semester of MUP 111. Must be taken in sequence. May not be taken for audit.

**235, 236 Jazz Piano.** (1, 1) F, S

Jazz keyboard experience. Emphasis will be on chord symbol reading, simple improvisation and voicing. Prerequisite: MUP 232. Two hours per week. May not be taken for audit.

**250 Diction for Singers.** (1) F, S

Use of phonetics in the study of song and opera literature. Language emphasis differs each semester. May be repeated for credit.

**301 Advanced Class Piano.** (1) F, S

Required for choral, general and therapy majors. Prerequisite: MUP 232 or proficiency. Open to other music majors who have completed MUP 232. Emphasis on accompaniments, ensemble playing, score reading, advanced harmonizations, repertoire, technique, and improvisation. Placement examination required. May not be taken for audit. Two hours per week.

**302 Advanced Class Piano.** (1) S

Required for choral, general and therapy majors. Open to other music majors who have completed MUP 301. A sequential continuation of MUP 301 skills which include both group and student instruction. Prerequisite: MUP 301 or proficiency. Placement examination required. May not be taken for audit. Two hours per week.

**337 Studio Instruction—Accompanying.** (2) S

Lessons for accompanying majors only. Repertoire to be selected from vocal and instrumental literature. Placement examination required. One hour lesson a week. May be repeated for credit.

**339 Choral Conducting.** (2) F, S

Elements of choral conducting technique and interpretation. Prerequisite: MUP 209. Three hours a week.

**340 Instrumental Conducting.** (2) F

Fundamentals of score reading and interpretation of instrumental music. Prerequisite: MUP 209. Three hours a week.

**341 Jazz Conducting and Field Experience.** (3) S

Training and supervised practice in conducting jazz ensembles with emphasis on literature, programming and rehearsal techniques. Prerequisite: MUP 340. Two class hours and two field experience hours each week.

**345 Symphony Orchestra.** (1) F, S

Open to all students who can qualify on the basis of auditions with the director. Over a four-year period the student is introduced to the masterpieces of symphony orchestra literature. Three times a week. May be repeated for credit.

**350 Choral Union.** (1) F, S

Open to all students in the University and to interested singers in the community by audition. Time devoted to preparation and performance of the larger choral works. May be repeated for credit.

**352 Concert Choir.** (1) F, S

Membership chosen by audition. May be repeated for credit. Four hours a week.

**353 University Choir.** (1) F, S

Membership chosen by audition. May be repeated for credit. Four hours a week.

**355 Men's Glee Club.** (1) F, S

Open to all male students in the University who can qualify on the basis of auditions with the director. Rehearsal and performance of music for male voices. Three hours a week. May be repeated for credit.

**357 Women's Chorus.** (1) F, S

Membership chosen by audition. Three hours a week. May be repeated for credit.

**361 Marching and Concert Bands.** (1) F, S

Open to all students who can qualify on the basis of auditions with the director. Staging of formations and drills for football games and other events (Falls), masterpieces of symphonic band literature (Spring Meets). Daily. May be repeated for credit.

**362 Concert Bands.** (1) F

Night rehearsals. Membership chosen by audition. May be repeated for credit.

**371 Music Theatre Workshop.** (1) F, S

Open to all students who can qualify on the basis of auditions with the instructor. May be repeated for credit. *Section 1* (interpretation); Exercises, improvisations and musical drama; interpretation for the singing actor. *Section 2* (Opera Scenes) Rehearsal and production of opera scenes. *Section 3* (Musical Comedy).

Musical-dramatic interpretation of musical materials. Each section: One lecture demonstration, 1 laboratory per week.

**372 Music Theatre Orchestra.** (1) F, S

Open to all students who can qualify on the basis of auditions with the instructor. Participation in Lyric Opera Theatre productions. May be repeated for credit. *Section 1* (Opera Orchestra) 2½ hours per week. *Section 2* (Chamber Opera Orchestra) 4 hours per week.

**373 Music Theatre Production.** (1) F, S

Open to all students who can qualify on the basis of auditions with the instructor. Participation in Lyric Opera production. *Section 1* (Vocal Performance) *Section 2* (Technical Music Theatre) *Section 3* (Problems in Production) to be taken concurrently with MUP 373. *Section 2* may be repeated for credit.

**379 Chamber Music Ensembles.** (1) F, S

String, brass, woodwind, percussion, keyboard, vocal and mixed ensembles. Prerequisite: approval of instructor. Two hours a week. May be repeated for credit.

**382 Collegium Musicum.** (1) F, S

Singers and instrumentalists specializing in the performance of early and unusual music. Prerequisite: approval of instructor. Two hours a week. May be repeated for credit.

**383 University Singers.** (1) F, S

Small choral ensemble chosen by audition. Two hours a week. May be repeated for credit.

**384 Brass Choir.** (1) F, S

Specializing in public performance of music written for brass instruments. Prerequisite: approval of instructor. Three hours a week. May be repeated for credit.

**385 Percussion Ensemble.** (1) F, S

Rehearsal and performance of standard and original repertoire for the percussion ensemble and related instruments. Membership by approval of the instructor. Two hours a week. May be repeated for credit.

**386 Stage Band.** (1) F, S

Rehearsal and performance of literature for the stage band. Membership by approval of the instructor. Four hours a week. May be repeated for credit.

**388 Accompanying.** (1) F, S

Accompanying majors (others at the discretion of instructor). Piano accompaniments found in vocal and instrumental literature; discuss on styles and performance practices; experience in public performance. May be repeated for credit. Two hours a week.

**417, 418 Advanced Improvisation.** (1) F, S

Emphasis on analysis and performance of advanced jazz literature; composition in contemporary styles. Prerequisite: MUP 218. Must be taken in sequence. May not be taken for audit.

**451 Repertoire.** (2) F, S

Literature available for performance in all performing media. Prerequisite: junior standing in major performance field. May be repeated for credit.

**481 Performance Pedagogy and Materials.** (2) F, S

Principles and methods of performance techniques for each performance field. Prerequisite: senior standing or approval of instructor. May be repeated for credit.

**487 Accompanying.** (1) F, S

Keyboard majors. Piano accompaniments found in vocal and instrumental literature; discussion of styles and performance practices; experience in public performance. May be repeated for credit. Two hours per week. May not be taken for audit.

**495 Solo Performance.** (0) F, S

For Bachelor of Music and Bachelor of Arts in Education degree candidates where one-half recital is a graduation requirement.

**496 Solo Performance.** (0) F, S

For Bachelor of Music in Performance degree candidates where a full recital is a graduation requirement. Prerequisite: MUP 495.

**545 Symphony Orchestra.** (1) F, S

Open on the basis of audition with the director. Masterpieces of symphony orchestra literature. Three times a week. May be repeated for credit.

**550 Choral Union.** (1) F, S

Preparation and performance of the larger choral works. Membership chosen by audition. May be repeated for credit.

**551 Repertoire.** (2) NR

Literature available for performance in all performing media. May be repeated for credit.

**552 Concert Choir.** (1) F, S

Membership chosen by audition. May be repeated for credit. Four hours a week.

**553 University Choir.** (1) F, S

Membership chosen by audition. May be repeated for credit. Four hours a week.

**555 Men's Glee Club.** (1) F, S

Open by audition only. Rehearsal and performance of music for male voices. Three hours a week. May be repeated for credit.

**557 Women's Chorus.** (1) F, S

Membership chosen by audition. Three hours a week. May be repeated for credit.

**561 Marching and Concert Bands.** (1) F, S

Open by audition only. Staging of formations and drills for football games and other events. Fall masterpieces of symphonic band literature (Spring Meets day). May be repeated for credit.

**562 Concert Bands.** (1) F, S

Membership chosen by audition (Fall). May be repeated for credit.

**571 Music Theatre Workshop.** (1) F, S

Open on the basis of audition with the instructor. May be repeated for credit. *Section 1* (Interpretation) Exercises, improvisations and musical dramatic interpretation for the singing actor. *Section 2* (Opera Scenes) Rehearsal and production of opera scenes. *Section 3* (Musical Comedy) Musical dramatic interpretation of musical materials. Each section. One lecture demonstration. Laboratory per week.

**572 Music Theatre Orchestra.** (1) F, S

Open on the basis of audition with the instructor. Participation in Lyric Opera Theatre productions. May be repeated for credit. *Section 1* (Opera Orchestra) 2 hours per week, *Section 2* (Chamber Opera Orchestra) 4 hours per week.

**573 Music Theatre Production.** (1) F, S

Open on the basis of audition with the instructor. Participation in Lyric Opera production. *Section 1* (Vocal Performance) *Section 2* (Technical Music Theatre); *Section 3* (Problems in Production), to be taken concurrently with MUP 573, Section 2. May be repeated for credit.

**579 Chamber Music Ensembles.** (1) F, S

String, brass, woodwind, percussion, keyboard, vocal and mixed ensembles. Prerequisite: approval of instructor. Two hours a week. May be repeated for credit.

**581 Performance Pedagogy and Materials.** (2) NR

Principles and methods of performance techniques for each performance field. May be repeated for credit.

**582 Collegium Musicum.** (1) F, S

Singers and instrumentalists specializing in the performance of early and unusual music. Prerequisite: approval of instructor. Two hours a week. May be repeated for credit.

**583 University Singers.** (1) F, S

Small choral ensemble chosen by audition. Two hours a week. May be repeated for credit.

**584 Brass Choir.** (1) F, S

Public performance of music written for brass instruments. Prerequisite: approval of instructor. Two hours a week. May be repeated for credit.

**585 Percussion Ensemble.** (1) F, S

Rehearsal and performance of standard and original repertoire for the percussion ensemble and related instruments. Membership by approval of the instructor. Two hours a week. May be repeated for credit.

**586 Stage Band.** (1) F, S

Rehearsal and performance of literature for the stage band. Membership by approval of the instructor. Four

hours a week. May be repeated for credit.

**595, 596 Solo Performance.** (1) F, S

For Master of Music candidates in applied music only. May be full recital, major operatic role, solo performance with orchestra or an ensemble or lecture recital.

**Special Courses:** MUP 294, 484, 494, 498, 499, 580, 591, 594, 598, 690, 693, 783 (See pages 30-31.)

---

## Theatre

---

**PROFESSORS:**

DOYLE, WITT, YEATER

**ASSOCIATE PROFESSORS:**

AKINS (GHALL 232), DOBKIN, GOHEEN,  
WRIGHT

**ASSISTANT PROFESSORS:**

BARTZ, HELLER, TALLMAN, VINING

**Departmental Major Requirements**

For advisement purposes, all students registering in a Theatre degree program will enroll through the College of Fine Arts. Special advisement check sheets, providing complete information regarding requirements and suggested electives, are available in the Department of Theatre office for each degree program and area of specialization.

**Bachelor of Arts Degree Curriculum**

**Theatre** Consists of a minimum of 45 semester hours. The selected program must include THE 100, 320, 321, THP 101, 213, 215, 330, 340, 345; at least two hours credit in THP 301, chosen from different production options; and at least three hours of credit in THE 325. Theatre electives, chosen in consultation with an advisor, may be concentrated in one area of theatre specialization or chosen to provide a balanced general program. The student may also elect to develop a related area of approximately 15 hours in a field or fields approved by the advisor.

**General Studies** To meet the General Studies requirement for the B.A. degree in Theatre, students must take a minimum of 54 semester hours in the following categories: 12 semester hours representing at least three areas of the humanities and fine arts, to be selected from architecture (APH only), art (ARH only), English (except 101, 102, 104, 111, 112), humanities (HUM and REL), music (MHL only), dance (Dance History only); 12 semester hours representing at least three areas of the social and behavioral sciences, to be selected from anthropology (ASB only), business administration, communication, economics, geography (GCU only), history, mass communications, political science, psychology (PGS only), and sociology; and at least 6 hours, including one laboratory course, from science and mathematics, to be selected from botany and microbiology, chemistry, geography (GPH only), mathematics, physics, psychology (PSY only), and zoology. Students should refer to current departmental check sheets for recommended courses and specific requirements. Courses in the major may not be used to meet the General Studies requirements.

**Foreign Language Requirement** Knowledge of a foreign language is strongly recommended but not required. All foreign language courses may be used as General Studies electives.

### **Bachelor of Fine Arts Degree Curriculum**

Admission to the B.F.A. program is by audition and/or interview only, and with the approval of the faculty of the Department of Theatre. All applicants must have completed successfully at least 15 hours of course work in theatre; students should register as B.A. degree candidates until all requirements for admission to the B.F.A. program have been completed. Retention in the B.F.A. program will be determined by annual faculty review of

all B.F.A. candidates; the review process will include consideration of the student's academic record, professional activities and growth, and artistic potential.

**Theatre**—Consists of 84 hours of theatre and related area course work in the major.

Approved areas of emphasis currently include:

**Directing.** Students in the Directing emphasis are required to take THE 100, 320, 321, 325; THP 101, 105, 106, 113, 205, 206, 213, 215, 301, 305, 315, 316, 330, 340, 345, 415, 417, 450, with remaining courses selected from theatre and approved related areas. THP 215 must be successfully completed prior to admission to this program.

**Child Drama.** Students in the Child Drama emphasis are required to take THE 100, THP 101, 105, 106, 113, 213, 215, 301, 311, 318, 330, 340, 345, 411, 418; EDF 200 or SED 310, EDP 310, SED 311, 411, 433; EED 333, 355, LIS 311, RDG 467, 480, and an approved course in teaching methods. Electives must be chosen from lists of approved courses. THP 311 must be successfully completed prior to admission to this program.

**General Studies** The B.F.A. curriculum requires a minimum of 36 semester hours of approved courses with 12 hours in the humanities and fine arts, 12 hours in social and behavioral sciences, and a minimum of 6 hours in sciences and mathematics. Courses in the major may not be used to meet General Studies requirements.

### **Departmental Major Teaching Field Requirements**

**Bachelor of Arts in Education Degree**—Secondary Education Curriculum

**Theatre** Consists of 42 semester hours. Required courses include THE 100, 320, 321, 325(d); THP 101, 113, 213, 215, 301 (two hours minimum from different production options), 315, 330, 340, 345, 494(c). A teaching

minor in Communication or English is strongly recommended.

**Minor in Theatre**—Consists of 24 semester hours in Theatre courses. THE 100, THP 101, 213, 215 are required; plus one additional course in theatre history, one additional course in technical theatre, and an approved course in teaching methods.

**Communication Arts** Consists of 60 semester hours and is designed to provide preparation for teaching in three fields. Students may place their major emphasis in either Theatre or Communication. Students placing their major emphasis in Theatre must complete a minimum of 24 hours in Theatre, 18 hours of Communication, and 18 hours in a related field, preferably English. Communication Arts majors must earn a minimum of two hours in two separate activities courses (COM 301 and/or THP 301) but not more than six hours in activities courses may be counted toward the major. Specific courses, from the minor fields options, are selected by the student in consultation with the advisor.

### **Department Graduate Programs**

The Department of Theatre offers programs leading to the degree of Master of Arts. Consult the *Graduate Catalog* for requirements.

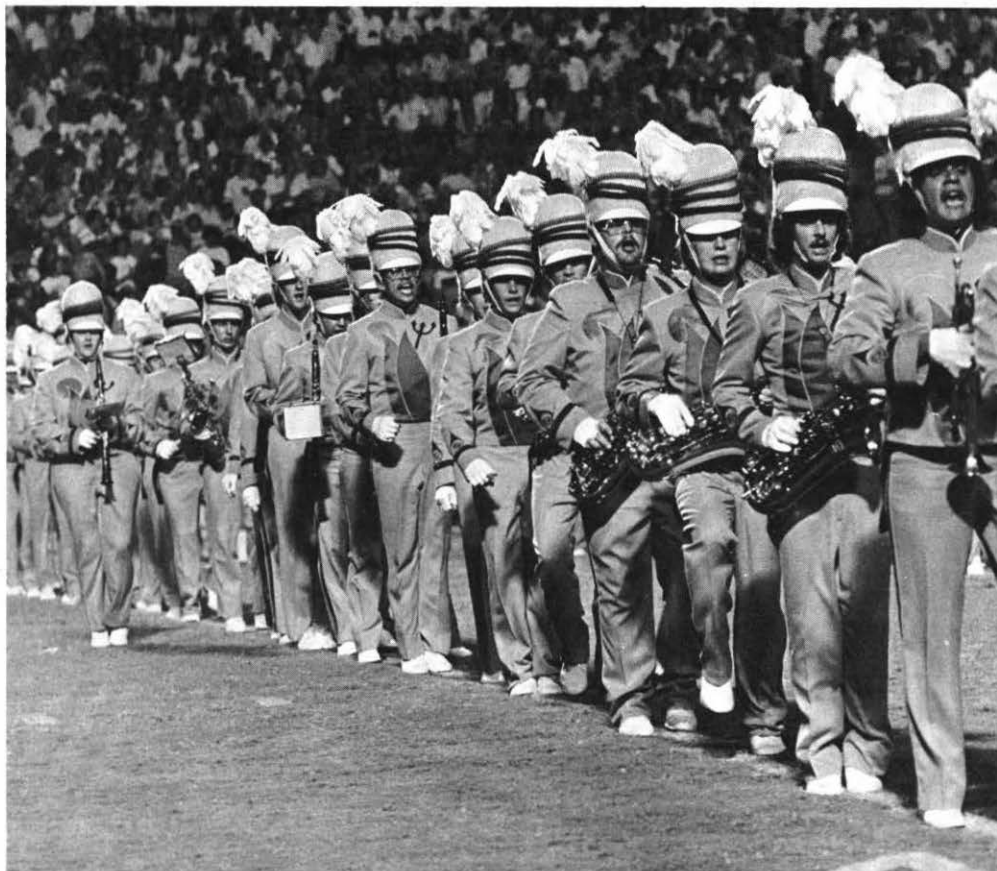
#### **THEATRE**

*General Studies in Theatre,  
History, Literature, and Theory*

**THE 100 Introduction to Theatre.** 3) F, S  
Elements and principles of the theatre. Lecture and discussion.

**300 Film: The Creative Process.** 3) F, S  
Elements of the theatrical film: cinematography, sound editing, directing, acting, scriptwriting, producing and criticism. Three lectures, 2 hours laboratory.

**320, 321 History of the Theatre.** (3-3) F, S  
First semester traces major developments in theatre production from its beginning through the 17th century; second semester continues the survey to modern times.

**325 Play Reading.** (1) F, S, SS

Assigned independent reading programs of plays most frequently included in the modern repertory. May be repeated for credit in different sections. Areas of emphasis:

- (a) Modern European
- (b) Modern English and Irish
- (c) Modern American
- (d) Plays for High School Production.

**420 History of the American Theatre.** (3) S

History of the plays, artists, and events in the develop-

ment of the American theatre from colonial to modern times.

**421 History of the English Theatre.** (3) F

History of the plays, artists, and events in the development of the theatre in England since the Restoration.

**425 History of the Oriental Theatre.** (3) NR

History and production techniques of theatre forms in India, China, and Japan. Prerequisite: six hours of theatre history or approval of instructor.

**480 Methods of Teaching Theatre.** (3) F

Analysis, organization, and presentation of textual and other classroom materials.

**503 Studies in Theatre History.** (3) F

Resources, ideas, and trends in a major area of theatre history with application to modern theatre production.

**504 Studies in Dramatic Theory and Literature.** (3) F

Major dramatic themes from the classical period to the present; related readings in dramatic literature.

**505 Studies in the Theory and Practices of Acting and Directing.** (3) S

Major theories and actual practices in world theatre.

**506 Studies in Scenic Environments.** (3) S

Coordinated studies in conceptualizing the scenic environment with emphasis on innovative visual statements appropriate to actual production.

**510 Studies in Literature.** (1) F, S

Assigned individual reading programs in standard sources and masterpieces in theatre literature. May be repeated for credit in different sections. Topics may be selected from the following:

- (a) Acting-Directing
- (b) Design-Technical
- (c) History
- (d) Criticism

**591 Seminar.** (3) NR

Selected topics in child drama, community theatre, and theatre history. Prerequisite: written approval of instructor.

**Special Courses:** THE 494, 498, 499, 590, 592, 594, 598, 599.

### THEATRE PERFORMANCE AND PRODUCTION

**THP 101 Introduction to the Art of Acting.** (3) F, S, SS

Lectures, exercises, and projects in acting. Special sections provided for the nonmajor and theatre students who plan no additional acting courses.

**105 Acting: Stage Movement.** (3) F, S

Exercises and techniques to achieve freedom and control; emphasis on creative movement in characterization. Prerequisite: THP 101 and/or approval of instructor.

**106 Acting: Stage Speech.** (3) F, S

Exercises and techniques to free the voice and improve projection, resonance, and articulation. International Phonetic Alphabet and Standard Stage Speech will be covered. Prerequisite: THP 101 and/or approval of instructor.

**113 Acting: Makeup.** (3) F, S

Techniques of theatrical make-up; laboratory projects.

**205 Acting: Workshop.** (3) F

Rehearsal and public performance of assigned scenes. May not be taken concurrently with THP 315. Prerequisite:

s tes. THP 101, 105 106 and or written approval of instructor. Two hours performance lecture, 6 hours rehearsal laboratory.

**206 Acting: Character Analysis.** (3) A

Problems, methods and procedures of actors in preparing a role for presentation on the stage through the most frequently included plays in the world repertoire. Prerequisite: THP 205 or written approval of instructor.

**213 Introduction to Technical Theatre.** (3) F, S

Procedures of technical theatre production. Lecture and demonstration. Topics include design and construction of scenery, lighting and properties. Prerequisite: Theatre major or approval of instructor.

**215 Directing: Theatre Techniques.** (3) F, S

Basic tools of the director: composition, blocking, floor plans, stage business, auditions, rehearsal techniques, etc. Prerequisites: THP 101 213 or written approval of instructor.

**301 Theatre Production.** (1-3) F, S, SS

Participation in University Theatre productions. Prerequisite: written approval of instructor. May be repeated for credit.

**305 Acting: Advanced Workshop.** (3) S

Rehearsal and public performance of modern and period plays. May not be taken concurrently with THP 415. Prerequisites: THP 205 206 and or written approval of instructor. Two hours performance lecture, 6 hours rehearsal laboratory.

**307 Acting: The Method.** (3) A

An advanced class for individualized work on concentration, personalization, objective memory, images, substitution, creating inner and outer character. Exercises: monologues, and scenes. Prerequisites: THP 205 305 and written approval of instructor.

**311 Creative Drama.** (3) F, S, SS

Theories, procedures and materials for creative drama in the elementary and junior high schools. Related drama activities: storytelling, choral speaking, and puppetry. Not open to freshmen.

**315 Directing: Workshop.** (3) F

Rehearsals and public performance of scenes and short plays. May not be taken concurrently with THP 205. Prerequisites: THP 215 and or written approval of instructor. Two hours performance-lecture, 6 hours rehearsal laboratory.

**316 Directing: Analysis and Style.** (3) A

Play analysis and production style for the director including preparation of complete prompt books for a modern and a period play. Prerequisites: THP 315 and or approval of instructor.

**318 Theatre for Children.** (3) A

Dramatic literature for children. Experience in acting

directing and production techniques for child audiences.

**330 Introduction to Costuming.** (3) F, S

History of theatrical costume. Laboratory experience in construction of costumes. Three lectures. 2 hours laboratory.

**331 Costume Construction.** (3) A

Uses of materials and techniques for stage costumes with actual construction of period apparel. Prerequisite: THP 330.

**340 Scene Design.** (3) F, S

Studio projects in designing realistic scenery for the contemporary proscenium stage. Prerequisite: THP 213 or approval of instructor.

**345 Lighting Design.** (3) F, S

Principles of modern stage lighting. Two lectures. 2 hours laboratory. Prerequisite: THP 213 or approval of instructor.

**405 Acting: Stage Dialects.** (3) A

Major dialects for the stage based upon study of the International Phonetic Alphabet. Prerequisite: THP 205 and/or written approval of instructor.

**406 Acting: Manners and Movement.** (3) A

Physical movement for period plays; movement in costume and use of properties. Prerequisite: theatre major or approval of instructor.

**407 Acting: TV Film.** (3) A

Special technical aspects of acting before a camera. Four hours a week. Prerequisite: THP 205 and/or written approval of instructor.

**411 Advanced Studies in Creative Drama.** (3) A

Application of theories, techniques, and materials for dramatization. Regular participation with children. Prerequisite: THP 311 or approval of instructor.

**413 Acting: Special Make-up Problems.** (3) NR

Special problems, styles, and materials for stage make-up. Prerequisite: THP 113 and/or approval of instructor.

**415 Directing: Advanced Workshop.** (3) S

Rehearsal and performance of modern and period plays. May not be taken concurrently with THP 305. Prerequisite: THP 315 and or approval of instructor. Two hours performance-lecture, 6 hours rehearsal laboratory.

**417 Stage Management.** (3) F, S

Readings in stage management and participation as a stage manager in a University Theatre production. Prerequisite: written approval of instructor.

**418 Advanced Studies in Theatre for Children.** (3) A

Experimentation with the creation and production of plays for children. Prerequisite: THP 318 or approval of instructor.

**430 Costume Design.** (3) NR

Principles of costume design with special projects in period and modern styles. Prerequisite: THP 330.

**431 Advanced Costume Construction.** (3) NR

Use of materials and techniques for construction of accessories, hats, and armor. Prerequisite: THP 331 or approval of instructor.

**435 Advanced Technical Theatre.** (3) NR

Selection of materials, drafting of working drawings, tool operation, and construction techniques. Two lectures, 2 hours laboratory. Prerequisite: THP 213 or approval of instructor.

**440 Advanced Scene Design.** (3) A

Advanced studio projects in designing nonrealistic scenery for a variety of stage forms. Prerequisite: THP 340 or approval of instructor.

**441 Scene Painting.** (3) A

Studio projects in painting stage scenery. Prerequisite: THP 340 or approval of instructor.

**445 Advanced Lighting Design.** (3) NR

Specialized techniques in stage lighting. Two lectures. 2 hours laboratory. Prerequisite: THP 345 or approval of instructor.

**450 Theatre Organization and Management.** (3) A

Principles of administering professional and nonprofessional theatre production organizations.

**460 Dramatic Composition for the Stage and Screen.** (3) A

Fundamentals of and practice in writing for the theatre, the motion picture, and television. Prerequisite: written approval of instructor.

**494 Special Topics.** (3) A

Topics may be selected from the following.

- (a) Storytelling and Oral Reading
- (b) Curriculum and Supervision of Child Drama in School
- (c) Improvisation and Theatre Games
- (d) Puppetry
- (e) Playwriting for Children

**498 Pro-Seminar: Children's Theatre Tour.** (1-7) S

Prerequisite: written approval of instructor.

**584 Internship.** (1-3) A

Field research and on-site training in child drama, community theatre, and production techniques. Prerequisite: written approval of instructor.

**594 Conference and Workshop in Child Drama.** (3) A

Prerequisite: approval of instructor.

**Special Courses.** THP 498, 499, 580 584, 590, 591 592 593, 594, 598 599

# Center of Criminal Justice

## **Purpose and Philosophy**

The primary purpose of the Center of Criminal Justice is to provide the foundations for professional development to pre-service and in service personnel in the field of criminal justice.

Criminal justice is a multi-disciplinary, problem oriented field of scholarship, research, and teaching, embracing those aspects of social, behavioral, natural, and forensic sciences relevant to understanding crime and social deviance, and entailing a critical examination of the systems which have evolved for handling attendant problems.

## **Degrees**

### **Bachelor of Science in Criminal Justice.**

The curriculum for the Bachelor of Science degree in Criminal Justice is designed to provide the student with a broad, liberal education. The curriculum maintains a strong multi-disciplinary foundation, is social science oriented, academic in content, and has as its objective the preparation of students as generalists for entry level positions in the criminal justice system.

### **Master of Science in Criminal Justice.**

The curriculum for the Master of Science degree with a major in Criminal Justice is designed to prepare students for professional positions in functional criminal justice agencies, for teaching positions in community and four-year colleges, or for further study and research in the field of criminal justice. Information on the Master of Science in Criminal Justice is detailed in the *Graduate Catalog*.

## **Pre-Criminal Justice Major**

**Admission Requirements.** Students admitted to the University automatically qualify for admission to the pre criminal justice major.

**Academic Advisement.** Students admitted to the pre criminal justice major are advised

by the Center of Criminal Justice academic advisors. All students are encouraged to seek advisement in order to plan an appropriate program of studies. Students in the upper division criminal justice major are advised by Center of Criminal Justice faculty.

## **Admission to Undergraduate Program**

Undergraduate students at Arizona State University may apply for admission to the Center of Criminal Justice during the second semester of their sophomore year. Students transferring from outside institutions need not make separate application for admission to the Center, inasmuch as they will be routinely admitted at the time of admission to the University, provided they meet admission criteria.

Candidates for admission must meet the following minimum requirements:

1. Possess a 2.50 cumulative GPA or higher. (If a candidate has completed course work at Arizona State University, the GPA is based on ASU work only, ignoring the effect of grades at another institution.)
2. Have junior standing (defined here as a minimum of 56 semester hours)
3. Complete those course requirements which have been established as prerequisites for entrance to the Center of Criminal Justice. The Center reserves the right to deny admission to those applicants who fail to fulfill the aforementioned requirements.

It is expected that the student would maintain or exceed the same academic standards as required for admission.

## **Degree Requirements**

The Center of Criminal Justice awards a Bachelor of Science degree in Criminal Justice upon the successful completion of a curriculum of 126 semester hours consisting of:

|  | <i>Semester<br/>Hours</i> |
|--|---------------------------|
| General Studies Requirements . . . . . | 49                        |
| Criminal Justice Major . . . . .       | 45                        |
| Electives . . . . .                    | 32                        |
| Total . . . . .                        | 126                       |

In addition, the student must fulfill the following requirements:

1. Have accumulated a minimum of 50 semester hours of upper division courses
2. Have completed a minimum of 30 semester hours including 24 in criminal justice courses at this University
3. Have obtained a cumulative grade point index of 2.00 or better for all criminal justice courses taken at this University
4. Have met the University's residency and scholarship requirements.
5. Have demonstrated a reasonable proficiency in written English by receiving a grade of "C" or better in both ENG 101 and 102, or in ENG 104 or its equivalent

**General Studies Program.** To meet the University's General Studies requirements, and to assure breadth and depth of the student's education, all criminal justice students must complete a total of 49 semester hours of General Studies courses, excluding all criminal justice courses and the related courses counted toward the major, with the designated minimum semester hours in each of the following fields:

|   |              |
|---|--------------|
| Humanities and Fine Arts . . . . .  | 9 sem. hrs.  |
| Architecture (APH courses <i>only</i> ) . . . . .                           | 1            |
| Art History (ARH courses <i>only</i> ) . . . . .                            | 1            |
| English (EXC <i>except</i> ENG 101, 102, 104) . . . . .                     | 1            |
| Foreign Languages, Humanities, Music (MUS courses <i>only</i> ) . . . . .   | 1            |
| Philosophy . . . . .  | 1            |
| Social and Behavioral Sciences . . . . .                                    | 15 sem. hrs. |
| Anthropology (ASB courses <i>only</i> ) . . . . .                           | 1            |
| Economics . . . . .   | 1            |
| History, Political Science, Psychology (PGS courses <i>only</i> ) . . . . . | 1            |
| Sociology . . . . .   | 1            |

Must include at least one course

in each of the following: sociology, psychology, and a political science course in American government.

Sciences and Mathematics . . . . . 10 sem. hrs.  
Must include a science course with a laboratory section and at least one mathematics course at or above the MAT 106 level. Anthropology (ASM courses *only*), botany and microbiology (all BIO, BOT and MIC courses), chemistry, geography, physics (PHG courses *only*), mathematics, physics (PHY, AST, and PHS courses *only*), psychology (PSY courses *only*), zoology (all BIO, ENT and ZOL courses).

Other General Courses . . . . . 15 sem. hrs.  
All criminal justice students must complete a course in Communication, and ENG 104 or both ENG 101 and 102 as part of these 15 hours. Additional courses may be taken from the above fields as limited by the exceptions indicated, or other fields as approved by the student's advisor.

**Criminal Justice Program.** A major in criminal justice consists of 45 semester hours of credit, of which 9 may be taken in related fields approved by the Center of Criminal Justice. CRJ 100, 200, and 301 are required for all degree candidates. Additionally, a group of criminal justice courses may be required to ensure a comprehensive exposure to all aspects of criminal justice.

**Electives.** Students are encouraged to utilize the unique opportunities afforded by the University to pursue personal educational interests, whether in the form of a broad sampling of other disciplines, or the deeper probing of a single field.

**Transfer of Community College Credits.** Credits transferred from accredited community colleges will be accepted as lower division credits up to a maximum of 64 semester hours. The acceptance of credits will be determined by the Director of Admissions, and the applicability of credits toward degree requirements will be determined by the Center of Criminal Justice.

## Criminal Justice

### PROFESSORS:

(AG142B), HAYNES, KENNEDY

### ASSOCIATE PROFESSORS:

BRUNS, HERNANDEZ MUSHENO, SCHADE, SHUMAN

### ASSISTANT PROFESSORS:

CAVENDER, McCLEARY MEL CHAR

**CRJ 100 The Criminal Justice System.** (3) F, S, SS  
Overview of the criminal justice system. Roles of law enforcement personnel, the courts, and correctional agencies. Philosophical and theoretical views in historical perspective.

**200 Concepts and Issues of Criminal Justice.** (3) F, S, SS

Issues relating to criminal justice policies, perspectives, techniques, roles, institutional arrangements, management, uses of research, innovative patterns.

Prerequisite: CRJ 100 or approval of instructor.

**301 Research and Statistics in Criminal Justice.** (3) F, S, SS

Introductory exposure to methods of statistical analysis. Application of social science research methods to criminal justice problems. Problem formulation, study and analysis of data in the context of contemporary agency needs. Prerequisites: CRJ 100 and one mathematics course more advanced than MAT 105 or approval of instructor.

**306 The Police Function.** (3) F, S, SS

Alternative objectives, strategies, programs, institutional arrangements, roles, perspectives and interagency relationships of the police. Prerequisites: CRJ 100, 200 or approval of instructor.

**308 The Adjudication Function.** (3) S

Objective processes, settings, roles, and perspectives of the courts, prosecution, and defense. Prerequisites: CRJ 100, 200, or approval of instructor.

**310 The Correctional Function.** (3) F, S, SS

Alternative correctional objectives, strategies, programs, institutional arrangements, roles, perspectives and interagency relationships. Prerequisites: CRJ 100, 200, or approval of instructor.

**311 Prevention of Delinquent and Criminal Behavior.** (3) F, S

Theories of prevention and individual group and community approaches. Intervention at appropriate stages;



contemporary law enforcement and corrections practices. Prerequisites: CRJ 100, 200, or approval of instructor.

**320 Criminal Justice and Community Relations.** (3) F, S

Relationship between criminal justice and community served. Focus on social stratification, interest groups, and racial/ethnic minorities. Prerequisites: CRJ 100, 200 or approval of instructor.

**360 Law and Social Control.** (3) F, S, SS

Resolution of social issues through the application of law as an agent of social control. Nature, sanctions, and limits of law. Categories of law and schools of jurisprudence. Prerequisites: CRJ 100, 200 or approval of instructor.

**402 Criminal Justice Theory.** (3) F, S

A conceptual examination of the criminal justice system. Integration of contemporary thought into an operational frame of reference. Prerequisites: CRJ 100, 200 and one upper division criminal justice course or approval of instructor.

**404 Imperatives of Proof in Criminal Justice.** (3) F, S

Problems and means of establishing identity and fact in relation to arrest, detention, adjudication, sentencing, and correctional case management. Prerequisites: CRJ 100, 200 and one upper division criminal justice course or approval of instructor.

**440 Organization and Administration of the Criminal Justice System.** (3) F, S, SS

System-wide analysis of organizational structures. Management and administrative policies of criminal justice agencies—law enforcement, courts, and

corrections. Prerequisites: CRJ 100, 200 and one upper division criminal justice course or approval of instructor.

**461 Substantive Criminal Law.** (3) F, S, SS

Criminal liability. Crimes against persons, property, and society. Governmental sanctions of individual conduct as formulated by legislatures and the courts. Prerequisite: CRJ 360 or approval of instructor.

**462 Procedural Criminal Law.** (3) F, S

The criminal process. Constitutional and legal problems associated with criminal procedures. Due process of law. Prerequisite: CRJ 360 or approval of instructor.

**463 Discretionary Justice.** (3) F, S, SS

Use of discretionary authority throughout all phases of the criminal justice system. Cross-purpose effect of discretionary justice. Constitutional limitations on and judicial review of discretionary authority. Prerequisite: CRJ 360 or approval of instructor.

**484 Internship in Criminal Justice.** (3 or 6) F, S, SS

Assignments in a criminal justice agency designed to further the student's integration of theory with practice. Placements are arranged through consultation with students and agencies. Prerequisite: Junior standing and completion of criminal justice required courses (CRJ 100, 200 and 301) or approval of instructor.

**494 Special Topics in Criminal Justice.** (1-3) F, S, SS

Topics chosen from various fields of criminal justice. Prerequisites: CRJ 100, 200, and one upper division criminal justice course or approval of instructor.

**498 Pro-Seminar.** (3) F, S

Small group study and research for advanced students. Prerequisites: CRJ 100, 200 and one upper division criminal justice course or approval of instructor.

**499 Independent Study.** (1-3) F, S, SS

Original study or investigation in the advanced student's field of interest. Prerequisites: CRJ 100, 200, and one upper division criminal justice course or approval of instructor.

**500 Criminal Justice Research Methods.** (3) F, S, SS

Theories and methods of research with emphasis on development of designs most relevant to criminal justice data and problems. Prerequisite: approval of instructor.

**501 Criminal Justice System, Theory and Issues.** (3) F, S

Analysis of the criminal justice structure and process within various theoretical frameworks. Issues such as discretion, diversion and plea negotiations. Prerequisite: approval of instructor.

**502 Primary Management in Criminal Justice.** (3) S

Concepts of modern management and their application to criminal justice agency supervision and management. Prerequisite: approval of instructor.

**503 Crime and Social Causation.** (3) S

Theories of deviance and crime as they relate to social policies and specific response of the criminal justice complex. Prerequisite: approval of instructor.

**509 Statistical Problems in Criminal Justice Research.** (3) F, S

Methodological problems of research design and statistical methods specific to criminal justice. Prerequisite: CRJ 500 and approval of instructor.

**510 Understanding the Offender.** (3) F

Survey of learning, personality, and biological theories of causation and their relevance to understanding criminal and delinquent behavior. Prerequisite: approval of instructor.

**511 Criminal Behavior: Programs and Techniques for Change.** (3) S

Current intervention techniques and programs for juvenile and adult offenders, including diversion, community-based and institutional programs, and current research. Prerequisite: CRJ 503, 510 or approval of instructor.

**512 Treatment Delivery Systems.** (3) S

Treatment delivery systems utilized in the prevention and rehabilitation of criminal and delinquent behavior. Social, school, and government agency networks as resources in planning for individuals. Prerequisite: approval of instructor.

**514 Criminal Justice Policy Analysis.** (3) F

Assessment of the politics of criminal justice policy as well as an understanding of the basic tools available to social scientists for analyzing the formulation, implementation and evaluation of criminal justice policy. Prerequisite: approval of instructor.

**530 Criminal Justice Education.** (3) F

Development and philosophy of criminal justice education and training. Problems of curriculum development and evaluation. Examination and evaluation of teaching methodologies and instructional aids. Prerequisite: approval of instructor.

**540 Criminal Justice Administration.** (3) S

Administrative policies and practices used in criminal justice agencies, and their application to the various facets of the criminal justice administrative process. Prerequisite: approval of instructor.

**541 Criminal Justice Planning: Innovation and Change.** (3) S

Normative factors in planning for standards and goals in the criminal justice system. Application of innovation and change techniques in an interdependent system. Prerequisite: approval of instructor.

**Special Courses.** CRJ 584, 590, 591, 592, 593, 594, 598, 599. See pages 30-31.

# College of Law

Alan A. Matheson, J.D.  
*Dean*

## Purpose

The prime function of the College of Law is to train men and women for the practicing legal profession and related professional assignments. In addition, the College has the responsibility to contribute to the quality of justice administered in our society

## Juris Doctor Degree

The College of Law offers a three-year program of professional studies at the graduate level leading to the degree of Juris Doctor and entry into the many branches of the legal profession and careers in government, business, finance, industry and education.

To fulfill the requirements for a J.D. degree, a student must satisfy all of the following: (1) Admittance to the College as a candidate for the degree and satisfaction of any conditions imposed at the time of admission or prior to graduation during the law course. (2) Satisfaction of residency requirements for the College of Law. (3) Successful completion of a minimum of 87 hours of academic credit with a cumulative weighted average of 70 or better. (4) Completion of all required College courses. (5) Completion of first year writing research program. (6) Completion of the degree requirements within five years of entry into law school

Except in the case of a transfer student, a student must be in residence at the College as a full-time student for a minimum of six semesters or their equivalent. A semester in residence is earned where a student has been enrolled in a minimum of ten hours of course work. A transfer student must complete the work of at least three semesters in the College immediately preceding the granting of a degree

## Admissions

First-year students are admitted only for the

fall semester. The formal requirements for admission to the College of Law are: (1) An undergraduate degree from an accredited four year college or university (B.S., B.A., or equivalent) (2) A score on the Law School Admission Test (administered by the Educational Testing Service, Box 944, Princeton, N.J., in centers throughout the country) Both are to be at a level of achievement giving the applicant reasonable prospect for success in law study

The deadline for completed applications, with college transcripts on all completed course work, the Law School Data Assembly Service Report and the Law School Admission Test score, in the Admissions Office of the College of Law, is April 1.

Each year many more students apply than can possibly be accommodated within the educational program of the College. Accordingly, the admission process is selective. Basic factors for evaluation are the undergraduate academic record and the score on the Law School Admissions Test. The higher the GPA and LSAT scores the better. These are not the only factors considered, however. The admission requirements are flexible and other evidences of ability and an applicant's prospect for significant contribution to the educational program of the law school and to public service will be carefully considered by the Admissions Committee with the object of selecting those who are likely to succeed in law study. As a state institution, the College weighs residency as a factor in admission.

## Course of Study

The program of study in the College of Law is designed for full-time students. In the first year of the three year program, the course of study is prescribed and incorporates the time-proven techniques of legal education. This first year gives the student by the "case method,"

by the "problem method," by "moot court" and through other techniques an intensive exposure to the basic legal processes. The second year includes both prescribed and elective courses; a student is required to take at least 10 of 19 designated courses. The third year offers distinctive educational experiences featuring practice oriented professional subjects; small group seminars; and participation in the actual rendition of legal services under licensed practitioners through internships with a law clinic and other public law offices.

### Grading

#### First- and Second-Year Courses

Performance in first and second-year law courses is graded under the following numerical scale:

- 99-90 A, Distinction
- 89-80 B, Excellent
- 79-70 C, Good
- 69-60 D, Deficient
- 59-50 F, Failure

A grade of 60 or above is required to receive credit for any course.

**Third-Year Courses.** Third-year courses are graded either "Credit" or "No Credit."

**Retention Standards.** To be eligible to continue in the law school, a student must maintain a cumulative weighted average of 70 or better at the end of each semester, summer session or quadrant.

Any student whose average for the first semester of the first year falls below 70 is automatically placed on probation, except that an average below 65 disqualifies a student from further attendance.

Continuation of enrollment shall be upon such terms and conditions as the College may impose. A student whose cumulative average thereafter falls below the 70 level will be dismissed but may apply to the Office of the

Dean for readmission. The Office of the Dean shall refer the application to a faculty Committee on Re-admission. Where the academic average deficiency is slight and evidence of extenuating circumstances is convincing, readmission may be granted on a probationary status after a review of the reasons contributing to unsatisfactory performance and a finding that there is substantial prospect for acceptable academic performance. Continuation in school thereafter may be conditioned on achieving a level of performance higher than the overall 70 average.

**Special Honors at Graduation.** At the time of graduation, students with academic distinction in the study of law may be awarded the respective designations *cum laude*, *magna cum laude* and *summa cum laude*. Recipients of these awards are selected by the Law Faculty on the basis of graded performance in courses for the first two years and evidence of academic achievement in the third year.

### Law Building and Law Library

The John S. Armstrong Law Building is in the central campus near other graduate schools of the University and the Hayden Library. The Law Building provides every modern facility for legal education and has been described by experts on planning law buildings as setting a new standard in functional design.

With an "open stack" policy of accessibility to all law students and a rated seating capacity of three-fourths of the total student body, the Law Library contains a substantial collection of law and law-related books. The modern facility has shelf capacity for approximately 200,000 volumes. The goal is to make the Arizona State University Law Library one of the most outstanding in the country.

### Accreditation

The College is fully accredited by the American

Bar Association and by the Association of American Law Schools.

### Information

Further detailed information concerning the course of study, admission practices, expense and financial assistance will be found in the Bulletin of the College of Law. Requests for the Bulletin and for application forms should be addressed to the Admissions Office, College of Law, Arizona State University, Tempe, Arizona 85281.

---

## Law

---

### PROFESSORS:

MATHESON (AH 102D), ALTMAN, BERCH, BRUFF, CANBY, DAHL, EFFLAND, FURN SH, LEE, MISNER MORRIS, MOULTON PEDRICK, ROSE, SCHROEDER, ZILLMAN

### ASSOCIATE PROFESSORS:

ELLMAN, KARJALA, KAYE, LOWENTHAL

### DIRECTORS:

CIVIL CLINIC, EVANS,  
PUBLIC DEFENDER CLINIC, TOPP

**LAW 501 Contracts I.** (3) F. Furnish Rose  
Contract doctrines and the role in the judicial process  
Judicial doctrines and where applicable the Uniform  
Commercial Code are studied in the context of con-  
tracts covering employment, personal and family  
arrangements, building and construction, the sale of  
goods, loans assignment of wages and accounts receivable

**502 Contracts II.** (3) S. Furnish Rose  
Continuation of 501

**503 Torts I.** (3) F. Pedrick, Zilman  
Protection through the judicial process of personal  
property and real estate interests against physical, ap-  
propriation and defamatory harms. Doctrines of  
trespass, nuisance, negligence, conversion, deceit, pri-  
vacy, slander libel seduction alienation of affections,  
malicious prosecution, inducement of breach of con-  
tract and unfair competition

**504 Torts II.** (2) S Pedrick Zisman  
Continuation of 503.

**505 Procedure I.** (3) F Elman Lowenthal  
The nature of judicial power viewed in the context of historical development and constitutional grants and limitations

**507 Property I.** (3) F; Effland Moulton  
Law of real and personal property, various legal and equitable estates and, life estates remainders current interests executory interests, limitations on creation of future interests. Modern concepts of property.

**508 Property II.** (3) S Moulton, Schroeder  
Continuation of 507. The real estate contract, conveyances the recording system, methods of title assurance, easements, licenses and promises respecting land introduction to legal problems in the regulation of land use and management of natural resources

**510 Constitutional Law.** (4) S; Canby, Matheson  
Role of courts in the federal system, distribution of powers between state and federal governments, role of procedure in litigation of constitutional questions fundamental protection for person, property, political and social rights

**511 Criminal Law and Procedure I.** (3) F; Kaye Misher  
Legislative and judicial formulations designed to deal with antisocial activity the substantive elements of particular crimes problems in the administration of criminal law and the penal system. The role and responsibilities of the legal profession in the administration and improvement of our system of criminal justice.

**512 Criminal Law and Procedure II.** (3) S; Lee, Misner  
Continuation of 511.

**513 Legal Research and Writing I.** (1) F; Staff  
Techniques of research; use of the law library; preparation of legal memoranda.

**514 Legal Research and Writing II.** (1) S; Staff  
Continuation of 513.

**600 Administrative Law.** (3) A Bruff Matheson  
Administrative process, emphasizing nature of powers exercised by administrative agencies of government, problems of procedure and scope of judicial review.

**601 Antitrust Law.** (3) F, S Morris Rose  
Legislation and its implementation to prevent monopoly and business practices in restraint of trade including restrictive agreements involving price-fixing, trade association activities and resale price maintenance.

**602 Commercial Law.** (4) S; Schroeder  
Legal problems arising in the distribution, payment, and financing of goods. The law of checks, notes and bank practices relating thereto, the law of sales and secured

transactions, including its relationship to the federal bankruptcy act; related consumer problems Emphasis on the Uniform Commercial Code

**603 Conflict of Laws.** (3) S; Staff  
Problems arising when the operative facts of a case are connected with more than one state or nation Choice of law, bases of jurisdiction, effect of foreign judgments, underlying federal and constitutional issues.

**604 Corporations.** (4) F, Morris  
The corporation as a legal tool for organizing the business enterprise in comparison with sole proprietorship and partnership Relations of stockholders and management varieties of stock ownership.

**605 Evidence.** (3) S, Cleary  
Principles and practice governing the competency of witnesses and presentation of evidence including the rules of exclusion and roles of lawyer judge and jury under the adversary system

**606 Federal Income Taxation.** (3) F, S, Karjala Lee  
Federal income tax in relation to concepts of income property arrangement business activity and current tax problems, with focus on the process of tax legislation and administration

**607 Procedure II.** (2) F Berch  
Obtaining and exchanging information in advance of trial, isolating the area of controversy, disposing of cases or issues without trial, defining the scope of litigation in terms of parties and subject matter, and the relationship between successive litigations.

**608 Procedure III.** (2) S Berch  
Litigation through appeal, including jurisdiction, right to jury, selection of jury, withdrawing case from jury constructing jury, verdicts, judgments appellate review

**610 Advanced Criminal Procedure.** (3) S, Kaye  
Topics in criminal procedure, with emphasis on legal constraints on grand jury investigations, police practices, pre-trial release, preliminary hearings prosecutor's discretion, and plea bargaining

**611 Estate Planning I.** (3) F, Pedrick  
Tax laws relating to transfer of wealth both at death and during lifetime, including federal estate tax gift tax and income taxation of estates and trusts.

**612 Family Law.** (3) S; E man  
Legal and nonlegal problems which an individual may encounter because of a situation as a family member.

**613 Federal Courts.** (3) S; Berch  
Federal judicial system relationship of federal and state law, jurisdiction of federal courts and their relation to state courts

**614 Labor Relations.** (3) F Staff  
Collective bargaining, including the right of employees to organize and to engage in concerted activities reso-

ution of questions concerning the representation of employees, duty of employers and unions to bargain administration and enforcement of collective bargaining agreements.

**615 Public International Law.** (3) F Staff  
Role of law in international disputes Drafting and interpretation of treaties and multilateral conventions will be considered

**616 Jurisprudence.** (3) F; Kaye  
Introduction to legal philosophy, with readings on the nature of law and legal reasoning, the relationship between law and morality, and equality and social justice

**617 The Legal Process.** (3) NR; Staff  
Institutions and processes of the American legal system and their interrelationships

**618 Trusts and Estates I.** (3) F; Effland  
Substantive concepts involved in transmitting wealth including intestate succession, wills and will substitutes, the modern trust as a family protective device creation of future interests in a planned estate social restrictions of a nontax nature and methods of devoting property to charitable purposes

**619 Trusts and Estates II.** (3) S; Effland  
Continuation of 618

**702 Judicial Remedies.** (2,3) S Staff  
The nature and limits of injunctive, restitutory and compensatory remedies for the protection of personal property political, and civil rights.

**704 Corporate Finance.** (2,3) NR; Staff  
Application of legal materials, training and judgment to problems of small and large scale corporate enterprises. Problems include selection of the capital structure, public offerings of corporate securities, reorganizations of solvent corporate enterprises and corporate dissolution

**705 Corporate Taxation.** (2,3) F Lee  
Problems in taxability of the corporation, corporate distributions and corporate reorganizations

**706 Indian Law.** (2,3) S; Canby  
Inquiry into legal problems special to American Indians and tribes.

**708 Law and Science.** (2,3) S, Kaye  
Legal control and support of science and technology and the use of scientific techniques in the legal process. Topics may include the economics of air pollution, supersonic transport aircraft, recombinant DNA research biomedical interventions in reproduction, and statistical theory

**710 Natural Resources Development.** (2,3) NR Staff  
Legal problems relating to the acquisition, distribution development and conservation of natural resources

federal-state and interstate problems; environmental control public lands.

**711 Insurance.** (2,3) F, Berch

Current trends in the business of insurance, role of government in the insurance field

**712 Creditor-Debtor Relations.** (2,3) S, Furnish  
Creditors' remedies in satisfaction of claims and debtors' protection and relief under bankruptcy, other laws.

**715 Professional Sports.** (2,3) S, Morris

Unique legal problems relating to professional sports including the relationship to antitrust laws the nature of the payer contracts and associated tax problems.

**716 Securities Regulation.** (2,3) S, Karja

Selected problems arising under the major statutes concerned with regulating the securities market.

**719 Consumer Protection.** (2,3) F Staff

Problems of the individual purchaser in mass markets. Fraud, breach of warranty, holder in due course, usury and unconscionable doctrines for voiding contracts, new protective legislation

**720 Legal Problems of the Poor.** (2,3) NR, Staff

Legal problems of the poor in such areas as welfare, housing and consumer law Techniques for attacking these problems through constitutional provisions and court processes

**721 Education and the Law.** (2,3) F Matheson

Current legal problems affecting institutions of higher education, faculty, students and governing boards.

**722 Water Law.** (2,3) S; Staff

Acquisition of water rights water use controls; interstate conflicts.

**723 Environmental Law.** (2,3) S, Bruff

Litigation, administrative law and legislation relating to problems of environmental quality Topics covered may include air and water pollution, toxic substances, pesticides and radiation

**724 Selected Problems in Tort Law.** (2,3) F Zisman

**725 Government Information.** (2,3) NR Staff

Access to and protection of data in governmental files, the interface between the Freedom of Information Act and the Federal Privacy Act

**726 Legal Profession.** (2,3) F S Staff

Organized bar, distribution of legal services in modern society economics of the profession professional canons of ethics for the bar and judiciary and problems in policing the profession

**728 Selected Problems: Legal Profession.**

**731 Professional Skills: Interviewing and Counseling.** (2,3) NR; Staff

Skills and techniques involved in interviewing and counseling, including interdisciplinary materials from other

fields such as psychology and psychiatry.

**732 Professional Skills: Problems in the Practice of Law.** (2,3) NR; Staff

Skills of negotiation, litigation and drafting of typical legal instruments

**733 Professional Skills: Negotiation.** (2,3) S; Lowenthal  
Theoretical models of negotiations; techniques, strategy; examination of the bargaining process.

**735 Estate Planning II.** (2,3) S; Pedrick

Preparation of actual estate plans and implementing legal documents for a variety of typical private clients. Both tax and nontax elements in preparation of the plans will be considered. Prerequisite: LAW 611

**736 Planning for the Business Client.** (2,3) F S, Karja  
a Lee

Planning transactions involving business organizations with special emphasis on income tax and corporate considerations

**737 Planning Private Real Estate Developments.** (2,3) F, Bruff

Legal aspects of real estate development, including negotiation, legal devices for financing, promotion of sales leasing problems and compliance with legal controls, as well as creation of private controls over and use

**738 Practice Court.** (2,3) S; Staff

Students act as lawyers in conducting a case through all stages of trial, from commencement of the action to final judgment.

**739 Techniques of Advocacy.** (2,3) NR, Staff

Designed for family law students with the skills of the advocate by observation, instruction and participation

**740 Problems of Litigation.** (2,3) S; Staff

Current developments in the fields of practice, procedure and evidence.

**741 Freedom of Speech.** (2,3) F Canby

Freedom of speech in competition with a number of governmental and individual interests Problems arising from governmental control of information with particular emphasis upon regulation of the mass media

**742 Equality in Modern Society.** (2,3) F Canby

Discrimination, its social and legal effects and remedies Focus on constitutional, statutory and private organizational attacks upon discrimination on the basis of race, religion, sex or other classifications

**744 Protections From Bureaucracy.** (2,3) NR, Bruff

Proposed and existing mechanisms for protection of individuals from governmental action or inaction Case studies of the operation of the ombudsman, police civilian review boards and other such institutions

**745 The Supreme Court.** (2,3) NR, Staff

intensive examination of selected current decisions of the U.S. Supreme Court

**746 Community Property.** (1,3) S, Eff and

Property rights of husband and wife the Arizona community property system, homestead

**748 State and Local Government.** (2,3) NR, Bruff

Legal problems involved in the organization and administration of governmental units including the city, county, town, village, school district and special district.

**749 Land Use Regulation.** (2,3) F Schroeder

Legal problems in the regulation and control of land development by state and local governments. Administration of zoning subdivision, and other planning controls issues of fairness and procedure in the utilization of such controls

**751 Selected Problems in Labor Law.** (2,3) NR, Staff

Advanced questions in the collective bargaining area

**753 Criminal Behavior and Criminal Law.** (2,3) NR, Staff

Legal problems raised by the various systems of social control Objectives of the criminal justice system theories as to the dynamics of criminal behavior and specific questions raised by the behavior of classes of offenders.

**754 Juvenile Justice System.** (2,3) NR, Altman

Special problems in the juvenile system

**755 Criminal Trial Process.** (2,3) F, Lowenthal

Criminal court procedure, from pretrial motions through sentencing, including discovery jury selection jury composition examination of witnesses, misconduct of counsel, contingencies, mistrials, jury instructions and jury deliberations.

**757 The Legal Monopolies: Patent, Copyright and Labor.** (2,3) F Staff

Legally created and sanctioned monopolies will be examined and compared on the basis of the justifications objectives and limitations.

**758 The Competitive Economy.** (2,3) S; Rose

Legal and economic characteristics of selected problems of the industrial organization in the modern economy. Prerequisite: LAW 601

**761 Selected Problems in Antitrust.** (2,3) F; Morris

Analysis of the private enforcement techniques in antitrust Review and analysis of the various defenses procedural problems and damage issues

**763 Selected Problems in International Law.** (2,3) NR, Staff

Advanced consideration of selected problems

**767 Selected Problems in Developing Nations.** (2,3) F Furnish

The effect of law in social change and development

through agrarian reform, industrial development, economic integration. Emphasis on Latin America.

**768 International Business Transactions.** (2, 3) S; Staff  
Problems and policy considerations involved in international trade; tariffs, international monetary controls, development loans, etc.

**770 Law Journal.** (1, 2) F, S; Staff  
Academic credit for successful completion of work by a member of the staff of *Arizona State Law Journal*; 5 credit hour maximum.

**771-779 Internships in Law.** (3, 6) F, S; Altman, Lowenthal, Moulton

Supervised, practical experience with such agencies as Legal Aid, Public Defender Office, District Attorney's Office and other state and local governmental departments.

**780 Moot Court.** (1) F, S; Staff

Academic credit for successful completion of work as a member of the Moot Court Board of Directors; 3 credit hour maximum.

**781-782-783 Individual Study.** (1-3) F, S; Staff

With the approval of a faculty member, a student may research a legal subject of special interest and prepare a paper suitable for publication.

**790 Field Work.** (1-6) F, S; Staff

Specialized study outside the law school in a particular area where law has an impact. The work must be approved and supervised by a member of the faculty.

**791 Seminar in Law.** (1-3) F, S; Staff



# School of Social Work

Ismael Dieppa, D.S.W.  
Dean

The School of Social Work offers two degree programs: a two year program leading to the degree of Master of Social Work (M.S.W.) and a Bachelor of Social Work (B.S.W.). The programs are accredited by the Council on Social Work Education for the preparations of M.S.W. and B.S.W. level Social Work practitioners.

## Degrees

### Bachelor of Social Work

The School's undergraduate curriculum leads to a Bachelor of Social Work degree (B.S.W.). During the freshman and sophomore years, students concentrate on obtaining a strong background in General Studies and are classified as pre majors until they are officially admitted to the major. Entrance into the social work major from the pre-major is *not* automatic (see section on Admissions).

Junior and senior social work majors focus on social work courses in: social policy, human behavior and social environment, social work methods (social intervention), social work research, and field instruction in community agencies. In addition, majors take additional courses in related areas and electives.

### Objectives

The undergraduate curriculum is designed to prepare students for beginning level social work practice, and to provide preparation for graduate training in social work. It also offers social welfare content in General Studies courses for Liberal Arts students.

In consideration of the varied cultural and ethnic composition of Arizona and the Southwest, the program prepares students for trans ethnic social work and actively recruits from ethnic minority groups.

## Degree Requirements

All candidates for graduation in the Bachelor of Social Work curriculum are required to present at least 126 hours of credit, of which at least 50 hours must consist of upper division courses. A cumulative grade point index of 2.00 is required for graduation.

Requirements for the Bachelor of Social Work degree:

|   | <i>Semester<br/>Hours</i> |
|---|---------------------------|
| I. Communications Requirement . . . . .       | 6                         |
| II. General Studies Requirement . . . . .     | 55                        |
| III. Social Work Core Requirement . . . . .   | 39                        |
| IV. Related Social Work Requirement . . . . . | 9                         |
| V. Electives . . . . .                        | <u>17</u>                 |
| Total . . . . .                               | 126                       |

### I. Communication Requirement.

ENG 101 3 credit hours

ENG 102 3 credit hours

or

ENG 104\* 3 credit hours (see page 22, "University English Proficiency Requirement")

\*Those students taking ENG 104 must complete 3 additional hours in any subject to total 126 semester hours for graduation.

**II. General Studies Requirement.** To meet University General Studies requirements and to assure breadth and depth to the student's education, all social work students must complete a total of 55 semester hours of General Studies courses with the designated minimum semester hours in each of the following fields. Students may choose the requirements for the catalog under which they entered the University or the following:

Humanities and Fine Arts . . . . . 12 sem. hrs  
Architecture (APH courses only), art history (ARH courses only), English (except ENG 101, 102, 104), foreign language, religion, humanities, music (MHL and MTC courses only), philosophy.

Social and Behavioral Sciences ..... 18 sem. hrs.\*

Anthropology (ASB courses only), economics, geography cultural (GCU courses only), history, political science, psychology (PGS courses only), sociology

\*Included in these 18 hours, students must take SOC 101 or 301 and one additional sociology course. The psychology, economic and political science courses required for the major may be used to meet the requirement of social and behavioral sciences or for related areas

Science and Mathematics . . . . . 10 sem. hrs.\*

Anthropology (ASM courses only), botany and microbiology (all BIO, BOT and MIC courses), chemistry, geography-physical (GPH courses only), geology, mathematics, physics (PHY, AST and PHS courses only), psychology (PSY courses only), zoology (all BIO, ENT and ZOL courses).

\*At least one course must include a scheduled laboratory and at least two courses must be taken in the same department

Additional Courses . . . . . 15 sem. hrs.

To complete the 55 hours, additional courses may be taken from the preceding list of approved courses or from the following.

Aerospace Studies (maximum 6 hours ROTC credit), art, communication, criminal justice, health, physical education and recreation (HES 100, 481; DAN 130, 230, 330 and PED 120, 220, 320, 473, REC 160, a maximum of 4 hours in all activities courses), home economics (CDE 232, DEH 171, 271, 272, 472, 474, FON 141; FAS 330, 331, 354, 357, 435, TXC 122), interdisciplinary (LIA courses in Liberal Arts, see page 104 in the catalog), mass communications, military science (maximum of 6 hours ROTC credit), music

### III. Social Work Core Requirements

- SWU 271 Introduction to Social Work
- SWU 301 Human Behavior in the Social Environment I
- SWU 310 Social Work Practice Foundation I\*\*
- SWU 331 Social Policy and Services I
- SWU 402 Human Behavior in the Social Environment II
- SWU 411 Social Work Practice Foundation II\*\*

SWU 412 Field Seminar I\*\*

\*SWU 413 Practicum I\*\*

SWU 414 Field Seminar II\*\*

\*SWU 415 Practicum II\*\*

SWU 420 Research in Social Work\*\*

or

SOC 390 - Social Statistics and

SOC 391 - Social Research

SWU 432 Social Policy and Services II

\*SWU 413 and 415 each require 16 hours weekly in the field and must be taken concurrently with the SWU 412 and 414 Field Seminar. Students planning to take SWU 413 or 415 must file an application for field work before registering for the courses

\*\*Major Only.

*Additional Requirements for Major.* In addition to the social work requirements, students must complete 3 credit hours from each of the following: basic statistics, economics, political sciences and psychology. These hours may also be used for General Studies, related areas or electives.

No credit will be granted toward fulfilling major core requirements in any upper division course in the student's major unless the grade in that course is at least a "C".

**IV. Related Areas.** (9 hours) Although the practice model of the program is a social work generalist, related areas and electives offer students opportunities to pursue their interests in special areas of service. Students are urged to consult their advisors for specific course suggestions.

**V. Electives.** (17 hours) In order to fulfill the University requirement of 126 credit hours for graduation, the student has the option of taking 17 credit hours in any college or department within the University. Students are encouraged, in consultation with their advisor, to use these elective courses to supplement their particular area of concentration suggested under related areas. Economics,

education, management, political science, psychology, quantitative systems and sociology are only a few of the academic units offering a specialized knowledge of value to the professional social work practitioner.

### Admissions

The Bachelor of Social Work degree program at Arizona State University is divided into the pre social work major and the social work major.

Pre-social work major consists of freshman and sophomore students who have been admitted to the University and have declared social work as their major, as well as students transferring to the School of Social Work from other colleges within the University and other universities or junior colleges who have not successfully completed the admission process to the program. Students transferring from other universities or junior colleges as pre-majors should follow the procedure outlined on page 15 of the University catalog. Students transferring from another college within the University must obtain a "Change of College" form from the Undergraduate Social Work office.

### Admission Procedure for Social Work

**Majors.** (Students having 45 credit hours or more). In order to meet accreditation standards, the Undergraduate Program of the School of Social Work has had to place a limitation on the number of social work majors enrolled. Students wishing to enter the social work major are required to apply for admission to the program in addition to obtaining an official certificate of admission to the University. A student is eligible to apply for admission as a social work major during the spring semester of his/her sophomore year, provided the applicant has successfully completed 45 hours at the end of the previous fall semester. Ordinarily students are admitted to the major at the beginning of the fall term following the



spring semester in which they applied.

Students who have been pre-majors will automatically be sent social work major application packets at the end of the fall semester, provided they have successfully completed 45 hours at the end of that semester. Upon notification of formal acceptance to ASU, the Undergraduate Social Work office will mail the social work major application packet to the address listed on the official certificate of admission of transfer students having completed 45 hours during the previous semester or before. For this reason, students are urged to notify the Undergraduate Social Work office of any change in address. Students may also pick up social work major application packets at the Undergraduate Social Work office in West Hall 137 or request that they be mailed to their home address by calling 965-6081.

All students who are applying for fall admission must have an official certificate of admission to the University in their files by February 15. Students should allow at least four additional weeks to process their ASU application to receive their acceptance. All other application material (*i.e.*, application form, additional statement and two letters of reference) must be returned to the Admissions Committee Chair, School of Social Work, Undergraduate Program, Arizona State University, Tempe, AZ 85281 by March 1. Failure to meet these deadlines may result in the applicant having to wait for the next year's admission process. Applicants will be notified by mail of the committee's decision within four weeks following the March 1 deadline. Those applicants who have been denied admission may request a conference to discuss the decision and obtain counseling in the development of alternative plans.

**Criteria for Admission.** The admissions committee, composed of faculty and student

members, will evaluate all applicants on the basis of the following criteria: (1) GPA (Grade Point Average). Generally, a 2.5 cumulative grade point average is required, but consideration is given to applicants whose grades reflect a recent or constant trend of improvement. (2) Motivation. Although motivation is more difficult to assess than grade point average, the committee uses the application form, letters of reference and in particular, the additional statement to judge the applicant's commitment toward working with people in a helping relationship. For this reason, it is recommended that applicants use the additional statement as a means to elaborate about how motivation is demonstrated in their life and work experience by using specific examples. (3) Experience. Volunteer and/or work experience are the usual indicators of interest and potential for the helping professions, but students are encouraged to include any life experience which further qualifies them as helping professionals. (4) References. Two references are required for each applicant. These references should be from two persons who have known the applicant in a professional capacity, *e.g.*, former teacher, employer or social worker, and have knowledge of the person's potential as a social work professional. It is also helpful that the references have some knowledge of the type of qualifications necessary for social workers. Students may submit more reference forms if they wish.

---

## School of Social Work

---

### PROFESSORS:

DIEPPA (WEST HALL), ALDRIDGE, CRANMER, DALEY, MONTIEL

### ASSOCIATE PROFESSORS:

ALBERT, BRAND, BROOKS, BROWN, BURRUEL-FARNAM, COUDROGLOU, ENGELHARDT, FAUSEL, HARRIS, HILL, LAWRENCE, LEYBA, MAGEL, MEANS, NICHOLS, NOWAK, POLENZ, WOODMAN

### ASSISTANT PROFESSORS:

BOUTILIER, CARTSONIS, DAVIS, DeGRAW, GARNER, GOGGIN, HALL, JOHNSON, JONES, KARJALA, KOPLIN, LENNA, MADRIL, MARTINEZ, MUNDY, NEAL, OCHOA, PENA, C. A. PRICE, R. P. PRICE, PRIETO, RAMIREZ, SHAUGHNESSEY, UDALL, WATTS

### INSTRUCTOR:

BAUR

### EMERITI PROFESSORS:

HARWARD, LUNDBERG

### SOCIAL WORK (SWU)

**SWU 271 Introduction to Social Work.** (4) F, S  
Analysis/observation of social welfare services and social work. Two lectures, one 3-hour laboratory, 3-hour field trips, volunteer experience. Not open to students who have credit for SWU 470.

**301 Human Behavior in the Social Environment I.** (3) F, S

Introduction to philosophical and theoretical frameworks applicable to understanding the person's functioning within various socio-cultural systems. Prerequisite: SOC 101 and a developmental psychology course.

**310 Social Work Practice—Foundation I.** (3) F, S  
Introduction to social work methods, major areas of knowledge, values and skills basic to social work helping processes. Prerequisites: Social work major and SWU 301 or approval of instructor.

**331 Social Policy and Services I.** (3) F, S  
History, philosophy and values of social welfare; func-

tion and role of social welfare in society; development of the social work, profession and practice.

**402 Human Behavior in the Social Environment II.** (3) F, S

The ethnic minority experience related to social work practice in the Southwest. Systems impact on ethnic-cultural minority groups. Prerequisites: Social work major and SWU 301

**411 Social Work Practice—Foundation II.** (3) F, S

Interventive techniques for problem solving with individuals, small groups and community groups. Prerequisite: SWU 310 or approval of instructor

**412 Field Seminar I.** (2) F, S

Concurrent with Practicum I. Integrates practice and theory with emphasis on professional identification, communication, interviewing and problem-solving. Intervention on skills. Prerequisite: Social work major.

**413 Practicum I.** (5) F, S

Sixteen hours a week of supervised practice in an approved placement. Prerequisites: Social work major and SWU 310.

**414 Field Seminar II.** (2) F, S

Concurrent with Practicum II. Integrates practice and theory with emphasis on developing skills for intervention across a continuum of systems levels.

**415 Practicum II.** (5) F, S

Sixteen hours a week of supervised practice in an approved placement. Prerequisites: Social work major and SWU 413 or approval of instructor

**420 Practice-Oriented Research.** (3) F, S

Application of scientific principles to field practice, problem formulation, intervention procedures and impact assessment. Concurrent enrollment in an approved field placement. Prerequisite: an approved course in data analysis techniques or equivalent

**432 Social Policy and Services II.** (3) F, S

Contemporary social, political, and economic issues. Special emphasis on poverty and inequality. Analysis and development of social welfare policies and programs. Prerequisite: SWU 331 or approval of the instructor

**470 Community Resources.** (3) F, S

Purpose, structure and delivery of community welfare services. Especially designed for teachers, nurses, police and related professions. Not open to students who have credit for SWU 271

**474 Ethnic/Cultural Variables in Social Work.** (3) F, S

A basic conceptual approach to understanding ethnic/cultural variables of Southwestern ethnic minorities and how these factors intervene in social work practice.

**Special Courses:** SWU 484, 494, 498, 499, 590.

## Master of Social Work

The School offers a two-level, multiple-entry curriculum designed to prepare students for entry into professional practice at either a beginning or advanced level. The program presents selected content from social work and allied disciplines in a uniform and logical progression, with integration of the graduate and undergraduate levels. Students have the options of completing the undergraduate foundation program and entering directly into practice at a beginning level, as generalists, or completing the graduate program and entering practice as advanced specialists.

The School of Social Work places emphasis on preparation of students for services that effectively meet the needs of the socially, ethnically, culturally diverse people who are likely to make up their clientele. The curriculum is committed to developing needed competencies in cross-cultural practice through developing a broad frame of reference and sensitivity to the different problems, needs, values, cultural attributes and efforts to achieve self-determination of the ethnic groups of the Southwest

## Degree Program

The two-year graduate curriculum leading to the degree Master of Social Work is designed to assure competence for the profession. The program includes both classroom and field instruction. The first year of study requires 32 semester hours including human behavior, practice, social policy, research, field practicum two days a week for two semesters, and three courses that focus on the organizational, community and ecological context of social work.

During the second year of study the student specializes. The specialization consists of 28 credits, including research, coordinating seminar, practice, electives and field practicum two

days a week for two semesters.

The student in the specialization curriculum chooses an area of specialization within the social work major from the two currently offered: *Health and Mental Health* and *Family and Child Welfare*. A specialization is defined as an area of study requiring the student's extensive effort of concentration. It calls for a distinctive pattern of instruction which organizes educational experiences appropriate to a specific range of professional roles and functions within a broad yet identifiable field of practice. Both specializations are broad enough to allow flexibility in the location of practice and transferability of skills, while they are concomitantly geared to the specific needs of the community served by graduates of the program.

The student also chooses between two interventional emphases: 1) micro-systems practice—direct delivery of services to clients, or 2) macro systems practice—delivery of services through social welfare organizational activity including community organization, social welfare administration, social policy development, and social planning.

## Three-Year Part-time Program

A limited number of applicants (no more than 20 percent of the entering class) may be admitted to the three-year program through the standard admissions process. Those students admitted will take courses in an established sequence and must be goal-directed toward a degree in social work. Course work normally will be taken with the regular class schedule; i.e., students must start with the beginning courses, adding subsequent courses in a sequential manner. These courses normally will be taken within two years. Additionally, one year of full-time residency of at least 20 credits is required.

### Advanced Standing

Qualified students with a B.S.W. from any Council on Social Work Education accredited program may apply for advanced standing to the master's degree program. Advanced standing may be granted only to those applicants who meet the admissions requirements to the master's degree program and who have been assessed and found to have sufficiently demonstrated proficiency with respect to foundation knowledge and practice skills. *Advanced standing must be applied for at the time of admission.* The program allows admission of only a limited number of advanced standing students. For more information write to the Office of the Dean. Those students who apply for advanced standing but are not accepted into this limited program, may be eligible to take qualifying examinations in the following areas: practice, social policy, human behavior in the social environment, research and field. Students who pass the qualifying examination will be permitted to waive the course. They will, however, be expected to substitute an other approved course in its place.

### Admission to the Graduate Program

The admissions requirements are equivalent to and consistent with the University and the Graduate College. The standard admission into the Master's Degree Program is a B average (3.0) in all undergraduate work and evidence of capacity, motivation, and opportunity to pursue professional social work education. Evidence of successful work experience on a paid or voluntary basis is required. Successful experience in working with persons from the cultures of the Southwest is desirable. Application is made directly to the School of Social Work. For information regarding the course of study, admissions procedure and application form, write to the Office of the Dean.

### SOCIAL WORK (SWG)

#### SWG 501 Human Behavior in the Social Environment I. (2)

Baur, Leyba, Woodman  
Philosophical/theoretical frameworks applicable to understanding the person's functioning within various socio-cultural systems

#### 502 Human Behavior in the Social Environment II. (2)

S, Baur, Leyba, Woodman  
Theoretical frameworks applicable to the systems impact on ethnic-cultural minority groups and their experience regarding social work practice in the Southwest. Prerequisite: SWG 501.

#### 510 Social Work Practice—Foundation I. (2)

F, Brand, Burrue, Farnam, Cartson, Engelhardt, Hi, Lenna, Mage, Nowak, Polenz  
Social work methods, major areas of knowledge, values and skills, interventive techniques for problem solving with individual families and small groups. Normally taken concurrently with SWG 515.

#### 511 Social Work Practice—Foundation II. (2)

S, Brand, Burrue, Farnam, Cartson, Engelhardt, Hi, Lenna, Mage, Nowak, Polenz  
Social work methods, focus on interventive techniques for problem solving with community groups and institutions. Normally taken concurrently with SWG 516. Prerequisite: SWG 510.

#### 515 Special Practicum I. (4)

F, Staff  
Sixteen hours a week integrated practicum/seminar. Supervised practice in an approved placement for students with a non-social work baccalaureate degree. Prerequisites: acceptance to program and approval of instructor.

#### 516 Special Practicum II. (4)

S, Staff  
Sixteen hours a week integrated practicum/seminar. Continuation of SWG 515. Prerequisite: successful completion of SWG 515.

#### 520 Practice-Oriented Research. (2)

S, Montie, Daey, Means, R, P, Prce  
Accelerated course in application of scientific principles to field practice, problem formulation, intervention procedures and impact assessment. Concurrent enrollment in an approved field placement. Prerequisite: an approved course in statistics. Fee required.

#### 531 Social Policy and Services I. (2)

F, Cranmer, Dreppa, Fausel, Martinez  
Advanced conceptual, analytical and historical perspectives in social welfare institutional policies, services and the social work profession.

#### 532 Social Policy and Services II. (2)

S, Cranmer, Dreppa, Fause, Martinez  
Political, socioeconomic, ideological forces, issues, poverty and inequality related to the social work

profession. Prerequisite: SWG 531.

#### 580 Organizational Context of Social Work Practice. (3)

F, SS, Aldridge, Brooks, Brown, Daey, DeGraw  
Structural analysis function/systemic relationship of formal organizations. Organizational behavior and goal achievement. Social work approaches/practice for organizational innovation, evaluation and change.

#### 581 Community Context of Social Work Practice. (3)

S, SS, Aldridge, Brooks, Brown, Daey, DeGraw  
Socio-cultural, ethnic, economic, political and social systems within the geographic community, their impact on the community power structure decision making. Needs assessment intervention to effect social/institutional change.

#### 582 Ecological Context of Social Work Practice. (2)

F, SS, Aldridge, Brooks, Brown, Daey, DeGraw  
Transaction of economic, psychological, socio-cultural, physical factors as they enhance/endanger life conditions. Societal stigmatization, age, sex, race, ethnicity and status resulting in alienation, anomie, oppression. Needs assessment and strategies for change.

#### 591 Seminar. (1-3)

F, S, Staff  
Courses offered in specialized areas.

#### 610, 611 Advanced Practicum I and II. (4,4)

F, S, Cartson  
Appropriate 612 and 613 must be taken concurrently or prior to registering for 610, 611. Two consecutive semesters in social work practice in an approved placement related to student's specialization.

#### 612 Coordinating Seminar I. (2)

F, Staff  
Major professional practice concerns, issues, socio-cultural, ethnic, cultural and professional values regarding student's specialization. Social work, social welfare institutions, philosophical assumptions, objectives and practice.

#### 613 Coordinating Seminar II. (2)

S, Staff  
Individualized integration of theories for social work practice, particularly related to student's specialization. Prerequisite: SWG 612.

#### 620, 621 Field Research I and II. (2,2)

F, S, Means, Montie  
One of four options: A) Policy Oriented Research, B) Knowledge Assessment for Practice, C) Knowledge Building Empirical Research on a Human Services Problem, D) Program Evaluation.

#### 650, 651 Social Work Practice with Families and Children—Micro I and II. (2,2)

F, S, Brand, Burrue, Farnam, Cartson, Engelhardt, Hi, Lenna, Mage, Nowak, Polenz  
Preventive/problem solving intervention with families and children. Specialized knowledge of content groups.

and service delivery systems. Policy analysis/resource development.

**652, 653 Social Work Practice in Family and Child Welfare-Macro I and II.** (2,2) F, S; Aldridge, Brooks, Brown, Daley, DeGraw

Policy/program development, planning, implementation and evaluation of family and child welfare services. Social welfare administration, consultation, resource development and utilization. Prerequisite: SWG 580, 581, 582.

**660, 661 Social Work Practice in Health and Mental Health-Micro I and II.** (2,2) F, S; Brand, Burruel-Farnam, Cartsonis, Engelhardt, Hill, Lenna, Magel, Nowak, Polenz

Preventive/rehabilitative strategies for working in health/mental health systems. Specialized knowledge of client groups/agencies. Analysis of policy/service delivery systems. Resource development. Prerequisite: SWG 580, 581, 582.

**662, 663 Social Work Practice in Health and Mental Health-Macro I and II.** (2,2) F, S; Aldridge, Brooks, Brown, Daley, DeGraw

Policy/program development, planning, implementation, and evaluation of health/mental health systems. Social welfare administration, consultation, resource development and utilization. Prerequisite: SWG 580, 581, 582.

**664 Community Mental Health.** (2) NR; Staff

The seminar examines theory development in community mental health practice with individuals, groups and communities as well as the linkages among these elements. Prerequisite: SWG 660 or 662 or equivalent.

**665 Substance Abuse.** (2) NR; Staff

Psychological and socio-cultural determinants of substance abuse. Overview of social policies and treatment approaches.

**670 Group Process in Social Work.** (2) NR; Hill, Magel

Application of small group theory/group dynamics knowledge to social work practice. Understanding and application of small group theory in worker/group member roles.

**671 Evaluation of Human Services Programs.** (2) NR; Staff

Alternate models for evaluating human services programs: corrections, education, health, manpower, and welfare. Prerequisite: SWG 620 or equivalent.

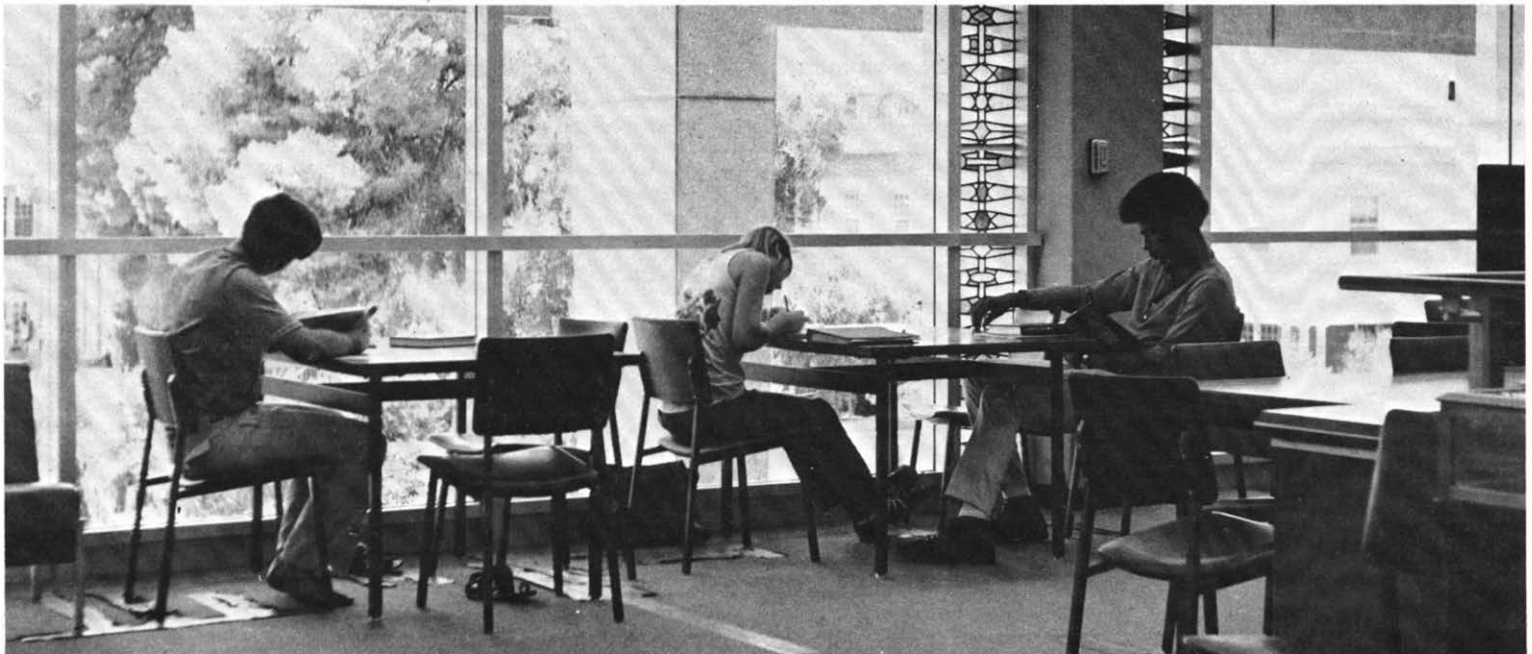
**672 Psychopathology.** (2) NR; Staff

Concepts of personality development stress/interferences with developmental process, possible outcomes. Human pathology/interpersonal/intrapersonal dynamics. Systems supporting mental health and/or contributing to mental illness. Prerequisite: SWG 501 or approval of instructor.

**673 Humanistic Concepts for Social Work Practice.** (2) NR; Staff

Application of perceptual/humanistic/existential concepts to social work practice. Third force psychological constructs their impact upon human services; the helping process. Prerequisite: SWG 612 or equivalent.

**Special Courses:** SWG 584, 590, 591, 594, 598, 690.



# Graduate College

Charles M. Woolf, Ph.D.  
*Dean*

The development and interpretation of new knowledge and creative work are important functions of the University and matters of specific concern to those involved in the programs available in the Graduate College. For students who have demonstrated a high level of ability and promise at the undergraduate level, graduate work offers an opportunity for further intellectual challenge in advanced and more specialized areas.

The primary purposes of the Graduate College are to provide the student with opportunities for advanced study, and to foster the spirit of scholarship and research. The critical analysis of information and the ability to arrive at a level of understanding beyond that already existing plays an integral role in graduate education.

Under the supervision of the Graduate Council and the Dean of the Graduate College, programs for graduate study are offered by the various departments, schools, centers and colleges. The Graduate Council is responsible for the development and formulation of general policies and the approval of procedures essential to the organization and administration of graduate programs. The Appeals Board of the Graduate Council acts as the appeals body for graduate students seeking redress on academic decisions regarding their graduate programs. The Dean of the Graduate College is directly responsible for the administration of policies and graduate programs.

## Graduate Programs Offered

Master of Arts  
Master of Science  
Master of Accountancy  
Master of Business Administration  
Master of Counseling  
Master of Education

Master of Environmental Planning  
Master of Fine Arts  
Master of Health Services Administration  
Master of Music  
Master of Natural Sciences  
Master of Public Administration  
Master of Science in Engineering  
Master of Technology  
Education Specialist  
Doctor of Business Administration  
Doctor of Education  
Doctor of Philosophy

Consult the appropriate section of the Graduate Catalog for information on programs offered by a specific academic unit.

## Admission to Graduate College

A student who has earned a baccalaureate or graduate degree granted by a college or university recognized by Arizona State University may apply for admission to the Graduate College. All decisions on admissions are made without regard to sex, creed or ethnic origin. Application forms may be obtained by writing to the Admissions Office, Graduate College.

At least two months before the first enrollment, the Graduate College should have received the application for admission and two transcripts of all undergraduate and graduate work. In addition, all applicants are required to submit a score received on an academic aptitude test. The student should contact the department involved to determine which test is required.

The application for admission, the applicable test scores, and the transcripts are all to be sent directly to the Admissions Office, Graduate College. The transcripts are to be sent to the Admissions Office by the registrar of each college or university which the applicant previously attended. The applicant should write to

the registrars concerned and then allow them time to process and mail the transcripts. A qualified applicant whose application has been filed later than the deadline may be permitted to enroll in graduate classes as a nondegree student. That status will be maintained until all required forms and transcripts have been received and a decision regarding admission to a program has been reached by the college or department concerned and by the Graduate College.

Students' official status for a semester is determined by their status at the end of that semester.

All documents received by the University in connection with such applications for admission become the property of Arizona State University. Under no circumstances will they be duplicated, returned to the applicant, or forwarded to any agency or other college or university. Admission documents of applicants who do not enroll in the University may be destroyed after one year.

**Departmental Requirements.** Many departments have earlier application deadlines than the Graduate College and additional admission requirements. Applicants are advised to check with individual departments regarding application deadlines and admission requirements. Letters of recommendation should be sent directly to the department. In all instances, the college or department in which the student wishes to study must indicate its willingness to admit the student. All applications for admission must be approved by the Dean of the Graduate College. When faculty or facilities are limited, a department may set standards higher than those established by the Graduate College and may recommend denial of a student whose academic record is superior to the minimum requirements described below.

**Applicants may be admitted to a graduate program under two classifications:**

**Regular Admission.** Applicants must be acceptable to both the Graduate College and the academic unit in which the applicant plans to study. Among other considerations for acceptance by the Graduate College, the applicant must have a grade point average of 3.0 (4 point scale) in the last two years of work leading to the bachelor's degree. The applicant's score on an aptitude examination such as the Graduate Record Examination, Miller Analogies Test, or the Graduate Management Admission Test will also be considered in making decisions regarding admissions. Applicants should check with the academic unit of their intended study to determine specific requirements. Applicants should be aware that a particular department may hold standards substantially above the Graduate College minimums. Inquiries should be directed to the department concerning its standards and whether letters of recommendation and/or other materials are required.

**Provisional Admission.** Applicants may be granted provisional admission to the Graduate College if the Graduate College or academic unit in which they plan to study requires additional evidence of their qualifications for admission with regular status. No student may maintain provisional status indefinitely. Normally, final determination of status will be made by the time the student has completed 12 hours of approved graduate study. If applicants have extensive deficiencies requiring an additional year or more of preparatory study, they may be advised to enroll in an undergraduate program.

**Nondegree Status.** An applicant with an undergraduate degree who is not pursuing a graduate degree program may be registered in the Graduate College in a nondegree status.

**International Student Admission.** Applicants from foreign countries should write to the Admissions Office, Graduate College at

least one year prior to the date they plan to begin study. They will receive the necessary instructions and application blanks which are to be completed and returned to that office. Applicants should make sure that other documents are sent at about the same time, especially transcripts from colleges and universities attended, letters of recommendation, and results of the Test of English as a Foreign Language (TOEFL).

Prospective foreign students should not make plans to leave their country until they have received notification of admission. Ordinarily such a statement regarding admission is required before the student can be issued a passport or visa.

**Re-entry to the Graduate College.** Any former graduate student who has not been in attendance at Arizona State University for one or more regular semesters must obtain an application for re-entry from the Admissions Office, Graduate College. This application should be submitted at least one month prior to the beginning of the semester in which the student plans to re-enter. Official transcripts of any additional work taken elsewhere must be sent directly to the Admissions Office, Graduate College at Arizona State University from the Office of the Registrar at the institution where such credit was earned.

**Student Responsibility.** It is the responsibility of the graduate student to become conversant with and observe all procedures and requirements of the Graduate College as defined in the *Graduate Catalog*, and to be familiar with the University's policy regarding student conduct as described in the section, "Student Membership in the University," of the *General Catalog*. The student should be particularly informed about the general regulations concerning the degree desired and any special requirements within the department or academic unit.

**Graduate Course Enrollment by Undergraduates.** Undergraduate students at Arizona State University may enroll in graduate courses with the approval of their advisor, the course instructor, the chair of the department, and the Dean of the College offering the course. If the course is not used to meet an undergraduate graduation requirement, it may be eligible for use in a future graduate program on the same basis as work taken by a nondegree graduate student.

**Course Load.** The course load is determined by the supervisory committee but is not to exceed 15 semester hours of graduate credit. At the graduate level, course work, whether or not formal in nature, serves mainly as a guide for independent study. Students are expected to exceed minimum requirements and to master subjects rather than simply to pass courses. All graduate students doing research or working on theses or dissertations, or who are using university facilities or faculty time, must be registered for a minimum of one hour of appropriate graduate level credit in the department in which they are pursuing their degree program.

**Scholarship.** Academic excellence is expected of students doing graduate work. A student who is not doing satisfactory work may be withdrawn from the degree program by the Dean of the Graduate College upon the recommendation of the department or academic unit concerned.

The grading system applicable to graduate courses is as follows:

|   |                           |    |              |
|---|---------------------------|----|--------------|
| A | Excellent (4.0)           | CR | Credit       |
| B | Good (3.0)                | Y  | Satisfactory |
| C | Passing (2.0)             | NC | No Credit    |
| D | No Graduate Credit (1.0)* | W  | Withdrawal   |
|   |                           | I  | Incomplete   |
| E | Failure                   | X  | Audit        |

\*Cannot be applied toward a graduate degree but is included in calculation of grade point average.

To be eligible for a degree in the Graduate College, a student must achieve a grade point average of "B" (3.0) or better in all work taken for graduate credit, exclusive of deficiencies, and in all work specifically included in the program of study. Grades below "C" cannot be used to meet the requirements for a graduate degree. Grades on transfer work will not be included in computing grade point averages. Graduate course work, other than research or thesis, reported "Incomplete" must be completed within one year of the official ending of the course. If a grade of "Incomplete" ("I") is not removed within one year, it becomes part of the student's permanent record.

Students receiving a grade of "D" or "E" must repeat the course in regular class if they wish to include it in their program of study.

The mark of "W" is given in a course whenever a student (1) officially drops from a course or officially withdraws from the University during the first six weeks of the semester; (2) officially drops a course or officially withdraws from the University after the first six weeks only if passing at the time of withdrawal. No one will be permitted to withdraw officially from the University or conduct any registration transaction in the last two weeks of the semester.

**Graduate Credit Courses.** Courses at the 400, 500, 600, and 700 level will apply to graduate degree requirements when appearing on an approved program of study.

**Transfer Credit.** A maximum of six semester hours of resident graduate credit taken at other institutions may be transferred for credit toward a master's degree, provided that the courses are included in the approved program of study.

In the Education Specialist and doctoral programs, credits from recognized institutions

may be transferred provided they are recommended by the supervisory committee and approved by the Dean of the Graduate College.

Transferred courses must be acceptable toward graduate degrees at the institution where the courses were completed. No courses taken for extension credit may be transferred.

Only courses with an A or B grade may be transferred. Transfer credit will not be given for courses in which a grade of Pass, Credit, or Satisfactory was received. Grades on transferred credit cannot be included in the grade point average.

**Foreign Language Requirement.** Language requirements for graduate degrees are determined by the departments concerned. If a foreign language is required, students must demonstrate at least a reading knowledge in their area of study of a language which is recommended by their supervisory committee and consistent with departmental requirements. Normally these will be selected from French, German, Russian, or Spanish, although other languages may be recommended when there is adequate justification.

Language competency is certified by the Department of Foreign Languages only upon satisfactory performance on a foreign language examination specific to the particular graduate program in which the student is enrolled. The examinations are administered three times each year by the Department of Foreign Languages. Students planning to take the examination must register at least one month in advance of the examination date in the Graduate College. The student must pass the examination in no more than three attempts.

The Department of Foreign Languages offers no credit elementary courses (as justified by enrollment) to assist graduate students in acquiring the language skills necessary to pass

these examinations. The student should consult the Department of Foreign Languages for information on these courses.

**Graduation.** Students should apply for graduation no later than the date specified in the *Graduate Catalog* calendar. All fees are payable at that time. Students applying for graduation after the deadline listed in the *Graduate Catalog* calendar will be required to pay a late fee. At the end of the semester in which they apply for graduation, students will be officially notified of any requirements for their degree which they have not yet completed. Students who do not complete by their anticipated graduation date will be required to pay a refiling fee.

### Master's Degree

In conformance with the policy statement of the Council of Graduate Schools in the United States concerning master's level programs, Arizona State University offers two types of master's degrees: (1) the Master of Arts (M.A.) or Master of Science (M.S.) and (2) the professional master's degree (Master of Professional Field). The M.A. and M.S. programs serve primarily as an introduction to research, the professional master's programs are intended primarily as a preparation for a career in professional practice. The student should consult the individual department or academic unit, as well as the sections below on "Comprehensive Examinations" and "Thesis and Thesis Substitute Requirements," for information on the special requirements for these degrees.

**Admission to the Master's Program.** Students wishing to enroll in a master's program at Arizona State University are admitted according to the procedure described on page 299. Since graduate work presupposes adequate preparation in a selected field at the undergraduate level, deficiencies will be speci-

fied at the time of admission by the department or academic unit involved.

**Credit Requirements.** A minimum of 30 semester hours of graduate work approved by a student's supervisory committee and the Graduate College is required. More than 30 semester hours may be required in certain programs.

**Supervisory Committee.** Upon admission of the applicant with regular or provisional status, a supervisory committee will be appointed by the Dean of the Graduate College upon the recommendation of the head of the student's department or academic unit. This committee is responsible for the guidance and direction of the student's graduate program.

**Program of Study.** It is in the student's best interest to have an official program of study filed with the Graduate College at the earliest possible date. Changes in the planned program may be made by the student's supervisory committee, with the approval of the head of the department or academic unit and the Dean of the Graduate College. Forms for the submission of the program of study are available in the Graduate College and in the Graduation section of the Office of the Registrar, Moore Administration Building.

With the approval of the student's supervisory committee, the head of the academic unit, and the Dean of the Graduate College, a maximum of six semester hours of course work completed while on non-degree status may be included in the program of study for a 30-hour master's degree.

**Foreign Language Requirement.** Language requirements are determined by the department concerned. For certification of proficiency, see page 81. This requirement must be fulfilled before the student is eligible to apply for the final written comprehensive examination or the defense of thesis substitute.

**Comprehensive Examinations.** A comprehensive examination, written, oral, or both, administered by the department or academic unit, is required in all professional master's programs that do not have a thesis or thesis substitute requirement. It is optional in other programs. Students are not eligible to apply for the comprehensives or for the oral defense of the thesis or thesis substitute until they have filed a program of study, fulfilled any language requirement or deficiencies, and applied for graduation. Failure in the comprehensive examination will be considered final unless the supervisory committee recommends, and the Dean of the Graduate College approves, a re-examination. Only one re-examination is permitted. A re-examination may be administered no sooner than three months and no later than one year from the date of the original examination.

**Thesis and Thesis Substitute Requirements.** To satisfy the research requirement for the M.A. or M.S. degree a student is expected to present a thesis or a thesis substitute which is defended in an oral examination. Some professional master's programs may also require a thesis, research project, or exhibit. Students should check with the individual department for the specific requirement. Each student writing a thesis must register for a minimum of six semester hours' credit for the thesis, or a combination of research and thesis totaling six hours which are directed toward a common research problem. These hours must appear on the program of study. The final copy of the thesis or thesis substitute must be reviewed by the student's supervisory committee and submitted to the Dean of the Graduate College at least three weeks before the degree conferral date. The final oral examination in defense of the thesis or thesis substitute must be conducted at least one week before the degree conferral date. The exami-

nation will be conducted by the supervisory committee and others appointed by the Dean of the Graduate College.

Applications for the examination and copies of the *Guide to Preparation of the Master's Thesis, Applied Project or Doctoral Dissertation* are available in the Graduate College.

**Graduation.** The student is eligible for graduation when any required comprehensive examinations have been passed and the thesis or thesis substitute, if applicable, has been approved by the supervisory committee, the head of the academic unit, and the Dean of the Graduate College.

**Maximum Time Limit.** All work offered toward a master's degree must be completed within six consecutive years. The six years begin with the first course included on a student's approved program of study. For example, if the first course listed was taken Fall Semester, 1975, the student must complete all requirements by August, 1981.

### Education Specialist Degree

The Education Specialist degree is designed to provide opportunity for professional persons in the field of education to develop skills as highly competent practitioners in the various areas of education.

Applicants should refer to the departments in the College of Education for information concerning the majors offered.

**Admission to the Education Specialist Program.** At least one year of successful teaching experiences is required in all programs. Normally the student will have a master's degree when entering. The general requirements for admission to the Graduate College are given on page 299.

**Supervisory Committee.** The Dean of the Graduate College, upon recommendation of the department chair, appoints the supervisory

committee. Each area of study included in the degree program will be represented on the committee. This committee is responsible for the guidance and direction of the student's graduate program.

**Program of Study.** A minimum of 60 semester hours are required beyond the bachelor's degree. This may include no more than 30 semester hours in a master's program. At least 48 hours of course work in the program must be earned in courses at the 500-level or above.

A student should have an official program of study approved by the Graduate College at the earliest possible date. Forms for the submission of the program of study are available in the Graduate College and in the Graduation Section of the Office of the Registrar.

A minimum of 24 semester hours in the approved program of study shall be taken at Arizona State University, following admission to the program.

**Residence.** Normally the candidate must expect to spend the equivalent of two full academic years in graduate study, which may include one year spent in attaining the master's degree. One academic semester or a ten week summer session must be spent in full time residence at the University before admission to candidacy for the Education Specialist degree. Additional residence may be required by certain departments in order to meet special needs. Full time graduate students shall not be employed more than a maximum of one half time as either a graduate assistant, a graduate associate or in other employment. Individual departments may, with the approval of the Dean of the College of Education and the Dean of the Graduate College, modify this definition in particular cases. At least 30 semester hours of approved graduate work must be completed at Arizona State University.

**Comprehensive Examinations.** When students have essentially completed the program of study, they will apply to the Graduate College through their supervisory committee for permission to take the oral and written comprehensive examinations. Failure in the comprehensive examinations will be considered final unless the supervisory committee recommends, and the Dean of the Graduate College approves, a re-examination. Only one re-examination is permitted. A re-examination may be administered no sooner than three months and no later than one year from the date of the original examination.

**Admission to Candidacy.** Students should apply for admission to candidacy and graduation promptly after they have completed 45 hours of course work, passed the written and oral comprehensive examinations, and have had the problem and title of the applied project approved by the supervisory committee.

**Applied Project.** Upon recommendation of the supervisory committee, students may enroll for the applied project after completion of 12 hours of approved course work in the degree program.

**Final Examination.** The final oral examination for the Education Specialist degree program in defense of the applied project report is administered by the supervisory committee and others appointed by the department. This examination is scheduled through the chair of the supervisory committee and department chair and must be held at least one week before the degree conferral date as listed on the *Graduate Catalog* calendar.

**Graduation.** The student is eligible for graduation when the final oral examination has been passed and the applied project has been approved by the committee and by the head of the academic unit.

**Maximum Time Limit.** The Education Specialist degree requirements must be completed within three years after the comprehensive examinations have been passed.

### **Doctor of Philosophy Degree**

The Doctor of Philosophy degree is granted upon evidence of excellence in research and the demonstration of independent, creative scholarship culminating in a dissertation. The degree is never conferred solely on the basis of courses completed or formal study extending over a prescribed period of time.

**Admission to the Ph.D. Program.** The general requirements for admission to the Graduate College are given on page 299. Graduate students may apply for admission to the Ph.D. program by filing a written application with the Admissions Office, Graduate College.

**Supervisory Committee.** Upon recommendation of the department chair or head of the academic unit, the Dean of the Graduate College appoints the student's supervisory committee, consisting of a chair and at least four other members.

**Program of Study.** The program of study should be submitted as early as possible and must have the approval of the student's supervisory committee, the department chair, and the Dean of the Graduate College. The courses may be taken entirely within one department or they may be taken in a combination of departments.

**Residence.** In general, Ph.D. degree students should expect to devote to their program of study the equivalent of at least three academic years (84 semester hours) beyond the bachelor's degree. At least two semesters subsequent to the first year (30 semester hours) of graduate study must be spent in continuous full-time residence at Arizona State University, and at least 30 hours of approved graduate study, exclusive of dissertation and research

hours, must be completed at this institution.

It is expected that during the period spent in residence, students will devote full time to graduate studies. This period is designed to provide an opportunity for students to avail themselves of university resources and to interact fully with faculty and fellow graduate students. Ideally, this time is one of total involvement in the academic program being pursued by the student.

**Foreign Language Requirements for the Ph.D. Degree.** Language requirements are determined by the department concerned. For certification of proficiency see page 81.

**Comprehensive Examinations.** When students have essentially completed the course work in an approved program of study they should request permission from the Graduate College to take their comprehensive examinations. Some departments may require that the departmental foreign language requirement be fulfilled prior to taking the comprehensive examinations. These written and oral examinations are designed to test the students' mastery of their field of specialization. Failure in the comprehensive examinations will be considered final unless the supervisory committee recommends, and the Dean of the Graduate College approves, a re-examination. A re-examination may be administered no sooner than three months and no later than one year from the date of the original examination. Only one re-examination is permitted.

**Admission to Candidacy.** Students should apply promptly for admission to candidacy and for graduation after they have passed the comprehensive examinations and have had the subject and title of their dissertation approved by the supervisory committee.

**Research and Dissertation.** Each candidate must register for a minimum of 24 semester hours credit for research and dissertation. The

final copy of the dissertation must be reviewed by the supervisory committee and the Dean of the Graduate College at least three weeks before the degree conferral date. Copies of *Guide to Preparation of the Master's Thesis Applied Project, or Doctoral Dissertation* are available in the Graduate College Office.

**Final Examination.** The final oral examination in defense of the dissertation will be scheduled by the Dean of the Graduate College. This examination may not be scheduled earlier than two weeks after the completed dissertation has been reviewed by the supervisory committee and the Dean of the Graduate College. The examination will be conducted by the supervisory committee and others appointed by the Dean of the Graduate College. All final oral examinations must be conducted at least one week before the degree conferral date.

**Graduation.** The student is eligible for graduation when the final oral examination has been passed and the dissertation has been approved by the supervisory committee, the head of the academic unit, and the Dean of the Graduate College.

**Maximum Time Limit.** The candidate must take the final oral examination in defense of the dissertation within five years after passing the comprehensive examinations. Any exception must be approved by the supervisory committee and the Dean of the Graduate College and ordinarily will involve repetition of the comprehensive examinations.

### **Doctor of Education Degree**

The basic purpose of the Doctor of Education degree is to provide opportunity for those interested in the field of education to do advanced scholarly study and research in preparation for professional practice. A dissertation based upon this research is required. The degree is never conferred solely as

a result of study extending over any prescribed period of time or the completion of a given number of courses. The program for the Doctor of Education degree requires at least the equivalent of three academic years of full-time study beyond the bachelor's degree or two

academic years of full-time study beyond the master's degree.

**Admission to the Doctor of Education Program.** A student who seeks admission is expected to have acquired a minimum of one year post-baccalaureate teaching or equally

relevant experience. An applicant may be required to take special qualifying examinations prepared and evaluated by the graduate committee of the department to which he applies. The general requirements for admission to the Graduate College are given on page 299. In



addition, a variety of criteria are employed to determine admission. Specific information may be received by consulting the appropriate department chair.

**Supervisory Committee.** The Dean of the Graduate College upon recommendation of the department chair appoints the supervisory committee. Each area of study included in the program will be represented on the committee.

**Program of Study.** A minimum of 90 semester hours of work taken beyond the bachelor's degree is required. At least 27 semester hours of course work must be taken in Education, exclusive of the dissertation. The student is expected to complete three semester hours in statistics and design, 12 semester hours of psychological foundations, and six semester hours of practicum/internship. The practicum/internship credit must be passed subsequent to admission to doctoral study and be at the 780, 783, 784 level. At least 60 semester hours of the learning experiences should be at the 500 level or higher.

Upon approval of the supervisory committee, the student may start research activity in connection with the dissertation after completing 15 hours of work in the program beyond the master's level.

Reading knowledge of a foreign language is not required for the Ed.D. degree.

**Residence.** The candidate should expect to spend the equivalent of three full academic years in graduate study, which may include one year spent in attaining the master's degree. The amount of time that a student must spend in official residence on the campus depends to some extent on the individual program of study.

The minimum residence requirement for the Ed.D. degree is 30 semester hours completed within a period of 18 consecutive months. Additional residence may be required by certain departments. There is much benefit to the

student if at least one academic year of the residence period is spent in full-time graduate study without employment outside the university. This provides an opportunity for students to avail themselves of university resources and to interact fully with faculty and fellow graduate students.

During the Ed.D. residency period, a student enrolled for 10 or more credit hours in a given semester may not be employed for more than 20 hours per week. Not more than 10 semester hours of dissertation credit may be included in the course work used to meet the 30-hour residence requirement.

**Graduation.** The student is eligible for graduation when the final oral examination has been passed and the dissertation has been approved by the supervisory committee, the head of the academic unit, and the Dean of the Graduate College.

**General Regulations.** In all matters not specified above, the standard procedures established by the Graduate College for the Ph.D. degree will apply.

**Maximum Time Limit.** Ed.D. candidates must complete all requirements within five years after the comprehensives have been passed.

### **Doctor of Business Administration Degree**

The objectives of the Doctor of Business Administration (D.B.A.) program are to prepare individuals for faculty positions in university or collegiate schools of business, and to prepare individuals for positions in business or government where the required educational background is doctoral level study. The D.B.A. program is designed to provide a broad study of the interrelated areas of business administration and a high degree of professional competence in three fields of concentration.

The degree is granted upon the completion of an approved program of graduate study, successful completion of comprehensive written and oral examinations, and submission of an acceptable original research project presented in a dissertation.

**Admission to the D.B.A. Program.** Students apply for admission to the D.B.A. program by filing a written application with the Admissions Office, Graduate College. The application is considered by the Graduate Committee of the College of Business Administration in consultation with the academic department of the applicant's primary field of concentration and a recommendation is then made to the Dean of the Graduate College. Admission is based on the applicant's entire record. The Graduate Management Admission Test (GMAT) is required, as well as three letters of recommendation.

Students normally complete a master's degree or equivalent before entering the D.B.A. program. In an exceptional case, candidates with a bachelor's degree may be admitted, in which case they shall complete the requirements of the master's degree before pursuing the doctoral core and fields of concentration.

A student who applies for admission to the program without all the business core courses required by the American Assembly of Collegiate Schools of Business for admission to graduate study in business may be admitted provisionally until all business core courses are satisfactorily completed. Currently, core courses include basic work in each of the following seven areas: accounting, economics, finance, management, marketing, statistics and business law. A student with no previous course work in basic calculus is to take a course incorporating such coverage after admission to the D.B.A. program.

**Supervisory Committee.** The Dean of the Graduate College, upon recommendation of

the Dean of the College of Business Administration, appoints a supervisory committee of five faculty members. The chair is selected from the student's field of concentration, two members are selected from the student's supplementary fields, and two members are selected at large from the faculty of the College of Business Administration. The supervisory committee approves the program of study, guides the student through his entire period of study, and serves on the examining committee for the general oral examination. A dissertation committee will be appointed after completion of the general oral examination.

**Program of Study.** The program is planned to fit the student's background and objectives. The degree is granted upon evidence of demonstrated competency and scholarly achievement, rather than upon the accumulation of hours in a series of prescribed courses. A minimum of 30 semester hours of credit beyond the master's degree is required of all doctoral students, exclusive of the dissertation and the prerequisite business courses generally required by the American Assembly of Collegiate Schools of Business for admission to graduate study in business. For most students, the program will consist of 36 to 54 semester hours of course work beyond the master's degree, depending on the student's academic background.

Reading knowledge of a foreign language is not required for the D.B.A. degree.

**Residence.** The entire program, including course work and dissertation, normally requires at least the equivalent of two academic years of work beyond a master's degree. Students must spend at least one academic year of the last two years (summer sessions excluded) in full-time course work in residence. The dissertation may be completed in absentia with permission of the student's dissertation

committee and the Dean of the College of Business Administration.

**Comprehensive Examinations.** During the final semester of course work, students must apply to the Graduate College through the supervisory committee and the Dean of the College of Business Administration for permission to take the comprehensive written examinations. Examinations are required in the field of concentration and each supplementary field and are designed to test the student's comprehensive knowledge of the fields rather than the subject matter of the specific courses taken. Comprehensive examinations will be scheduled three times during each academic year. All written comprehensive examinations must be completed within ten months after the first examination is taken. If students do not pass a written comprehensive examination, they must file a revised program of study which normally reflects prescribed additional formal course work. They must also complete the course work before permission for a second examination will be granted by the Dean of the Graduate College. Upon satisfactory completion of all course work and comprehensive written examinations, students must complete a general oral examination which covers the entire doctoral program, except the dissertation. For either written or oral examinations, only one re-examination is permitted. A re-examination may be administered no sooner than three months and no later than one year from the date of the original examination.

**Admission to Candidacy.** Students apply for candidacy when they have completed the general oral examination and have a dissertation subject submitted to and approved by their dissertation committee. If candidates fail to complete the dissertation oral examination within five years after completing the comprehensive examinations, it will be necessary for them to be re-admitted to candidacy

**Dissertation.** The dissertation requires major research of an original and creative nature. After a subject has been selected for the dissertation, each candidate is expected to present the dissertation topic in a special seminar open to all faculty and doctoral students in the College of Business Administration.

The final copy of the dissertation must be reviewed by the committee appointed to direct the dissertation research and also by the Dean of the Graduate College at least three weeks before the degree conferral date. General rules of the Graduate College for dissertation procedures, format, and microfilming will be followed. Copies of *Guide to Preparation of the Master's Thesis, Applied Project, or Doctoral Dissertation* are available in the Graduate College office.

**Dissertation Oral Examination.** The final oral examination in defense of the dissertation will be scheduled by the Dean of the Graduate College. All final oral examinations must be conducted at least one week before the degree conferral date. Candidates will present and defend their dissertation before members of their dissertation committee and others appointed by the Dean of the Graduate College at a meeting open to all faculty members.

**Graduation.** The student is eligible for graduation when the final oral examination has been passed and the dissertation has been approved by the supervisory committee, the head of the academic unit, and the Dean of the Graduate College.

**General Regulations.** In all matters not specified above, the standard procedures established by the Graduate College for the Ph.D. degree will apply.

**Maximum Time Limit.** D.B.A. candidates must complete all requirements within five years after the first comprehensive examinations have been passed.

# University Continuing Education and Summer Sessions

Denis J. Kigin, Ed.D.  
*Dean and Director*

## University Continuing Education

The office of University Continuing Education serves as the academic service arm of the University in providing the opportunity for off campus continuing education. The following services are available: off campus courses for academic credit, correspondence study, community services, non credit courses, instructional television, international education, special programs and assistance in the development and administration of conferences.

**Off-Campus Courses.** Off campus courses are organized as a convenience to students and scheduled in locations conducive to enrollment. The quality of instruction for credit courses offered off campus will be maintained at the same level governing credit courses offered on campus and will be equivalent in all academic considerations. Credits earned off campus will be recorded on a student's permanent record in the same manner as credits earned on campus and both will be equivalent in all academic considerations. Admission to and prerequisite requirements for a credit course must be the same whether the course is taught on or off the University campus. Identification of course content, method of instruction and evaluation, and selection and appointment of instructors for off campus courses remain the prerogative of the appropriate academic department with subsequent approval of the Dean of the College.

The fee for off campus courses is \$30.00 per semester hour. Full time students (students registered for 7 or more hours through on campus registration) may register for *off-campus resident credit* courses without the payment of additional fees. Any combination of *on campus* and *off campus resident credit courses* resulting in a combined registration of 7 or more semester hours requires that the student pay full time, in state registration fees, or full time out of-state registration fees and

the appropriate tuition (see pages 23-25).

Full-time students who have paid registration fees and tuition (7 or more semester hours) *must also pay additional fees* if they enroll in off campus credit courses that commence after the 21st calendar day of the start of each semester.

**Correspondence Study.** College credit correspondence courses offered by Arizona State University are specifically designed for the student who cannot attend classes. They are offered for those who are seeking to fulfill degree objectives as well as for those who wish to increase their occupational, professional and intellectual skills.

A correspondence course generally consists of eight lesson assignments for each semester hour of credit and usually requires the same amount of work as a class course. Eight to ten hours are normally required in preparing each assignment.

Students who have received a failing grade *may not use correspondence study* to make up the deficiency. Students taking six hours or more in residence may not register for a correspondence course without first obtaining approval of the Dean of the college in which they are enrolled.

Initial enrollment is limited to one correspondence study course. However, when one-half the lessons are completed, enrollment in a second course is possible. Students are limited to a maximum of two courses at any one time. Students are expected to complete a course within a calendar year.

A maximum of 30 semester hours of credit earned in correspondence and/or by comprehensive examination may be applied toward the baccalaureate degree at Arizona State University. (See pages 23 and 41.) *Correspondence courses are not applicable as graduate credit toward advanced degrees.*

The fee for correspondence courses is

\$18.00 per semester hour of credit and is payable at the time of registration. This is an additional fee required of full time students who have paid registration fees and tuition. Cooperating teacher credit bank hours and faculty staff permits are not applicable to correspondence study fees. Persons desiring to enroll in correspondence study should write to the Correspondence Study Office, University Continuing Education, for an enrollment form and a brochure listing the courses available.

**Admission to Off-Campus and Correspondence Courses Programs.** A student may enroll in an off campus or correspondence course without making formal application for admittance to the University or to degree candidacy. High school seniors may enroll in off campus or correspondence courses under the provisions as stated for Conditional Admission Prior to Graduation from High School (See page 16.)

**Community Services.** The Community Services Program is designed to bring the resources of the University—its faculty, staff, students, and facilities—to bear on the problems of the disadvantaged and the community. Administered through University Continuing Education, the program is designed to assist other community agencies and individuals in developing and coordinating programs.

**Instructional Television Services.** Television is a convenient, effective and available educational delivery system. Through television, it is possible to deliver educational opportunities to all the adult population of Arizona in the places where they live, work, and play. Instructional Television Services uses television as an educational delivery system capable of turning homes, businesses and schools in rural and urban communities into learning environments.

**Non-Credit Continuing Education.** Arizona State University recognizes the responsibility

of providing effective continuing education activities. These activities, coordinated through the Office of University Continuing Education, are educational in nature and in conformance with established University regulations and policies. All non credit continuing education activities are sponsored by an academic department, college, or other approved agency of the University. Activities may be co sponsored or conducted in cooperation with outside agencies or groups when there is internal University involvement and control and the purpose of the activity is educational.

The Office of University Continuing Education provides operating assistance, encourages program development, and coordinates all continuing education activities sponsored by University administrative units and departments.

**Special Programs.** University Continuing Education offers professional services to departments and colleges, individuals, agencies, organizations, institutions, and target groups by designing and coordinating special programs for immediate and long range educational goals. This outreach attempts to meet the varied needs of all the citizens of Arizona.

**English Skills.** The English Skills Program is co sponsored by the Department of English in the College of Liberal Arts and University Continuing Education. Enrollment is open to international students who seek to improve their language proficiency. Applicants for admission must be at least 18 years of age and have a high school diploma or the equivalent. Admission to the program does not constitute regular admission to Arizona State University. Courses completed in the program do not carry university credits but certificates of attendance or proficiency may be awarded at the completion of study. Applicants must meet all conditions of immigration as stipulated in

the immigration laws of the United States.

Instruction in the English Skills Program concentrates on the development of techniques of listening, reading, speaking and writing in English. The program is structured on four levels: basic, intermediate I, intermediate II, and advanced, and is programmed into two seven and one half week cycles. This allows flexibility for enrollment and frequent evaluation of student and teacher performance. The TOEFL (the Test of English as a Foreign Language) is given at the completion of study (see pages 18-19).

**University Conference Services.** The Office of University Continuing Education, through its University Conference Services, coordinates on and off campus conferences, seminars and workshops sponsored by any administrative unit or academic department. Working closely with each of the University's colleges, complete conference services and assistance to any campus group desirous of conducting an educational program or professional meeting are offered. Services include general conference planning, budgeting, site selection, promotion and publicity, hotel/motel liaison, and overall logistical support for any and all phases of the conference. The office also aids in the development of guidelines, checklists, and general operating procedures which serve to ensure coordination and smooth operation of continuing education activities sponsored by the various campus departments.

### Summer Sessions

The Summer Sessions provide an opportunity for students to pursue academic work on a year-round basis. Course offerings are much the same as those of the academic year. Degree candidates, both graduate and undergraduate, as well as those seeking to enhance or to refresh their subject matter interests, will find a broad selection of courses

available. All campus classes are held in air-conditioned classrooms and laboratories. Limited offerings are available in off-campus locations during the summer sessions.

The opportunity for international travel and study is available during the summer through selected study tours. These programs are directed by regular faculty members and allow students to earn graduate or undergraduate credit. The international study programs carry University credit with the approval of the academic department and college involved.

All summer programs are available to in-state residents as well as those from out of state. Professional conferences, institutes, workshops and seminars are also offered on campus during the summer.

**Terms.** There are three Summer Sessions; one of eight weeks and two of five weeks. The eight-week session and the first five-week session run concurrently.

**Credit and Residence Requirements.**

Students are permitted to earn a maximum of 6 semester hours of credit each five-week session and 9 semester hours of credit each eight-week session. With prior approval of the college, it is possible for a student to satisfy the University residence requirement by attending Summer Sessions. Students entering the University as freshmen are invited to begin their university work in the summer. They should, however, seek academic advisement before registering (see page 39).

**Undergraduate Enrollment.** In general, applicants for admission are expected to present evidence of graduation from an approved four-year high school, or evidence of good standing in an accredited college. Students, 19 years of age or over, may be admitted as unclassified students without the above qualifications, but with the understanding that all University admission requirements must be satisfied be-

fore they can be admitted for a degree program (see page 17).

**Graduate Study.** Summer Sessions offer an excellent opportunity for baccalaureate degree holders to continue their professional development. Candidates for graduate degrees should pay particular attention to the requirements for graduate admission and study (see page 299 and the *Graduate Catalog*).

**Fees and Expenses.** The Summer Sessions fee is \$30.00 per credit hour, which includes

the student activity fee. Textbooks and supplies are available for purchase at the University Bookstore in the Memorial Union on campus. Room and board for the summer are available on campus at the prevailing rates.

**Information.** Requests for the Summer Sessions *Schedule of Courses* or for other information should be addressed to the Office of Summer Sessions at Arizona State University, Tempe, Arizona 85281.



# Faculty, University Offices and Services

The faculty listed are involved in both graduate and undergraduate instruction

## Arizona Board of Regents

### Ex Officio

Bruce E. Babbitt, B.A., M.S., J.D. . . . . *Governor of Arizona*  
Carolyn Warner . . . . . *Superintendent of Public Instruction*

### Appointed

|                        |                   |                             |
|------------------------|-------------------|-----------------------------|
| Sidney S. Woods, B.S.  | Thomas Chandler,  | Esther N. Capin, B.A.       |
| Dwight Patterson, B.A. | B.A., LL.B.       | Earl H. Carrol, B.S., LL.B. |
| Ralph M. Bilby         | William G. Payne, | Andrew M. Federhar, B.A.,   |
| Rudy E. Campbell       | B.A., M.A., M.D.  | Student Regent              |

Blair D. Benjamin, B.A., LL.B. . . . . *Advisor to the Board*  
Robert A. Huff, B.S., M.A., Ed.D. . . . . *Executive Coordinator*

## General Administration

John W. Schwada . . . . . *President of the University,*  
B.S., Northeast Missouri State College, *Professor of Political Science*  
M.A., University of Missouri, Ph.D., University of Texas

Paige E. Mulholland . . . . . *Provost and Academic Vice President,*  
B.S., B.A., M.A., University of Arkansas, *Professor of History*  
Ph.D., University of Texas Austin

George F. Hamm . . . . . *Vice President Student Affairs; Professor of Education*  
B.S., South Dakota State College, M.A., Ph.D., University of Wyoming

Charles M. Woolf . . . . . *Vice President Graduate Studies and Research;*  
B.S., M.S., University of Utah, *Dean, Graduate College; Professor of Zoology*  
Ph.D., University of California, Berkeley

Jack G. Penck . . . . . *Vice President Business Affairs*  
B.S., University of Maryland, M.B.A., University of Alabama

V. Alonzo Metcalf . . . . . *Vice President for Administration;*  
B.S., M.S., University of Arkansas, *Professor of Economics*  
Ph.D., University of Missouri

Troy F. Crowder . . . . . *Assistant to the President, Director, University Relations*  
B.A., University of South Dakota, *Associate Professor of Mass Communications*  
M.A., University of Iowa

Guido G. Weigend . . . . . *Dean, College of Liberal Arts*  
B.S., M.S., Ph.D., University of Chicago *Professor of Geography*

Hugh Burgess . . . . . *Dean, College of Architecture; Professor of Architecture*  
B.S., University of Idaho, M.S., Columbia University

Glenn D. Overman . . . . . *Dean, College of Business Administration*  
B.S., Central State College, *Professor of Marketing*  
M.S., Oklahoma State University, D.B.A., Indiana University

Robert T. Stout . . . . . *Dean, College of Education; Professor of Education*  
B.A., California College; Ph.D., University of Chicago

C. R. Haden . . . . . *Dean, College of Engineering and Applied Sciences;*  
*Director, School of Engineering, Director, Engineering Research Center,*  
B.S., Arlington State College, *Professor of Engineering*  
M.S., California Institute of Technology, Ph.D., University of Texas

Jules Heller . . . . . *Dean, College of Fine Arts; Professor of Art*  
B.A., Arizona State University, M.A., Columbia University  
Ph.D., University of Southern California

Juanita F. Murphy . . . . . *Dean, College of Nursing; Professor of Nursing*  
A.B., Oklahoma Baptist University, M.S., Ph.D., Case Western Reserve University

Alan A. Matheson . . . . . *Dean, College of Law; Professor of Law*  
B.A., M.S., J.D., University of Utah

Ismael Dieppa . . . . . *Dean, School of Social Work, Professor of Social Work*  
B.A., Sul Ross State College; M.S.S.W., Boston University,  
D.S.W., University of Southern California

Denis J. Kigin . . . . . *Dean, University Continuing Education;*  
B.S., Mankato State Teachers College, *Director, Summer Sessions*  
M.S., The State Institute;  
Ed.D., University of Missouri *Professor of Industrial Technology*

## Resident Faculty

Aannestad, Per (1975) . . . . . *Assistant Professor of Physics*  
B.S., University of Oslo, Ph.D., University of California, Berkeley

Abbott, Nancy C. (1971) . . . . . *Assistant Professor of Nursing*  
B.S.N., Arizona State University, M.S., University of California San Francisco

Abdow, Miriam J. (1965) . . . . . *Instructor of French*  
Licence-ès Lettres, University of Paris, France,  
M.A. (French), Spanish, Arizona State University

Abraham, Willard (1953) . . . . . *Professor of Education*  
B.S., Illinois Institute of Technology, M.Ed., Chicago Teachers College  
Ph.D., Northwestern University

Abrams, Barbara A. (1977) . . . . . *Instructor of Recreation*  
B.S., M.Ed., Memphis State University

- Acevedo, Roberto M. (1964) . . . . . *Assistant Professor of Spanish*  
B.A., University of California, Berkeley, M.A., Ph.D., University of Arizona
- Acharya, Raghunath (1976) . . . . . *Assistant Professor of Physics*  
M.Sc., University of Delhi, Ph.D., University of Rochester
- Acker, William J. (1970) . . . . . *Associate Professor of Geography*  
B.S., Purdue University, M.S., University of Kansas, M.A., Ph.D., Syracuse University
- Adams, Vaughn P. (1968) . . . . . *Associate Professor of Design Sciences*  
B.S., M.S., Arizona State University *Chair, Department of Design Sciences*  
Ph.D., Texas A & M University
- Adams, Wallace E. (1958) . . . . . *Professor of History*  
B.S., M.A., University of Oregon, Ph.D., Stanford University
- Adelson, Roger D. (1974) . . . . . *Associate Professor of History*  
B.A., George Washington University, M.A., Washington University,  
B.Litt., Oxford University, Ph.D., Washington University
- Aguilar, John L. (1976) . . . . . *Assistant Professor of Anthropology*  
B.A., University of California at Los Angeles, M.A., California State University at Los Angeles, Ph.D., University of California, San Diego
- Ahern, Maureen V. (1972) . . . . . *Associate Professor of Spanish*  
B.A., University of New Hampshire,  
Bachiller, Doctor en Letras, Universidad Nacional Mayor de San Marcos, Peru
- Ahmadzadeh, Akbar (1966) . . . . . *Associate Professor of Physics*  
B.A., Ph.D., University of California, Berkeley
- Aickin, Mikel G. (1976) . . . . . *Assistant Professor of Mathematics*  
B.Sc., Ph.C., Ph.D., University of Washington
- Akins, William H. (1975) . . . . . *Associate Professor of Theatre;*  
*Chair, Department of Theatre*  
B.A., Duke University,  
M.A., Ph.D., University of Denver
- Alarcón, Justo S. (1968) . . . . . *Assistant Professor of Spanish*  
B.A., M.A. (Theol.), Seafca (Spain), M.A. (Sociology), Lava University (Canada),  
M.A. (Spanish), Arizona State University, Ph.D., University of Arizona
- Albert, William (1978) . . . . . *Associate Professor of Social Work*  
B.A., Eastern Washington State College; M.S.W., University of Washington,  
D.S.W., University of Southern California
- Alcock, John (1972) . . . . . *Associate Professor of Zoology*  
B.A., Amherst College, Ph.D., Harvard University
- Aldini, Charles L. (1975) . . . . . *Assistant Professor of Recreation*  
B.A., Chico State University;  
M.A., Fresno State University, Ph.D., Michigan State University
- Aldrich, Frank T. (1969) . . . . . *Assistant Professor of Geography*  
B.A., University of Texas, M.S., Ph.D., Oregon State University
- Aldridge, Gordon (1978) . . . . . *Professor of Social Work*  
B.A., M.A., M.S.W., University of Toronto, Ph.D., University of Michigan
- Alexander, Robert J. (1975) . . . . . *Assistant Professor of German*  
B.A., Macaester College, M.A., Ph.D., University of Wisconsin, Madison
- Alisky, Marvin (1957) . . . . . *Professor of Political Science*  
B.A., M.J., Ph.D., University of Texas
- Allen, Theodore Jr. (1959) . . . . . *Professor of Engineering*  
B.S.M.E., M.S.M.E., Texas A & M University
- Altheide, David L. (1973) . . . . . *Assistant Professor of Sociology*  
B.A., Central Washington State College, M.A., University of Washington,  
Ph.D., University of California, San Diego
- Altman, Michael L. (1972) . . . . . *Professor of Law*  
A.B., Bowdoin College; LL.B., Boston College  
LL.M., Harvard University
- Alvarado, Ronald H. (1974) . . . . . *Professor of Zoology, Chair,*  
*Department of Zoology*  
B.A., University of California, Riverside  
M.S., Ph.D., Washington State University
- Amacher, Ryan C. (1975) . . . . . *Associate Professor of Economics;*  
*Chair, Department of Economics*  
A.B., Ripon College,  
Ph.D., University of Virginia
- Ames, Richard P. (1977) . . . . . *Instructor in English*  
B.A., Eastern Connecticut State College, M.A., University of Wyoming
- Ander, Henry F. (1977) . . . . . *Assistant Professor of*  
*Quantitative Systems*  
B.S., University of Houston  
M.S., University of California, Berkeley, Ph.D., Texas A&M University
- Anderson, Bruce A. (1966) . . . . . *Professor of Mathematics*  
B.A., M.S., Ph.D., University of Iowa
- Anderson, Dwight C. (1974) . . . . . *Assistant Professor of Finance*  
B.S., M.B.A., Louisiana Polytechnic Institute, Ph.D., University of Alabama
- Anderson, Gary (1975) . . . . . *Associate Professor of Education*  
B.S., M.Ed., Edinboro State College, Ph.D., University of Pittsburgh
- Anderson, Mary R. (1974) . . . . . *Assistant Professor of Engineering*  
B.A., Hope College, M.S., Ph.D., University of Iowa
- Anderson, Melvin S. (1967) . . . . . *Associate Professor Emeritus of Real Estate*  
B.S., M.S., Oklahoma State University, Ed.D., University of Arkansas
- Anderson, William A. (1969) . . . . . *Professor of Sociology*  
B.A., University of Akron, M.A., Kent State University, Ph.D., Ohio State University
- Andress, Barbara L. (1972) . . . . . *Associate Professor of Music*  
B.A., M.A., Arizona State University
- Antonie, James S. (1973) . . . . . *Assistant Professor of Art*  
B.F.A., Layton School of Art, M.J.A., University of Illinois
- Apilado, Vincent P. (1969) . . . . . *Professor of Finance*  
B.S., University of Portland, M.B.A., University of Oregon,  
Ph.D., University of Michigan
- Appleton, Nicholas R. (1972) . . . . . *Assistant Professor of Education*  
B.A., San Francisco State College, M.A., San Fernando Valley State College,  
Ed.D., University of Massachusetts

- Aranda, Luis (1975) ..... *Assistant Professor of Administrative Services*  
B.M., M.Ed., University of Arizona, *Director, Small Business Institute*  
J.D., Arizona State University
- Archer, Jerome W. (1963) ..... *Professor Emeritus of English*  
B.A., M.A., Marquette University; Ph.D., Northwestern University
- Archer, Stanley J. (1974) ..... *Assistant Professor of Microbiology*  
B.S., M.S., Abilene Christian College; Ph.D., University of Tennessee
- Armstrong, Robert L. (1967) .. . . . *Professor of Education*  
B.A. State Teachers College of Iowa, M.S. University of Iowa;  
Ed.D. University of Arizona
- Arner, Douglas G. (1959) ..... *Professor of Philosophy*  
B.S., Creighton University; M.A., Ph.D., University of Michigan
- Arnold, William E. (1973) ..... *Professor of Communication,*  
B.S., M.A. Northern Illinois University, *Chair Department of Communication*  
Ph.D., Pennsylvania State University
- Aronson, Jerome M. (1966) . . . . . *Professor of Botany*  
B.A., Ph.D., University of California, Berkeley
- Ashe, Robert W. (1955) . . . . . *Professor Emeritus of Education*  
A.B., M.A. in Ed., Arizona State University; Ed.D., University of Southern California
- Atsumi, Takayori P. (1968) .... *Associate Professor of Music*  
B.F.A., Kunichi Music College (Japan); M.M. New England Conservatory of Music
- Autenrieth, Bertha (1946) . . . . . *Professor Emeritus of Music*  
B.M., New England Conservatory, M.M. University of Michigan
- Autore, Donald D. (1959) . . . . . *Associate Professor of Engineering*  
B.S.E., University of Michigan, M.S.E., Arizona State University
- Avery, James P. (1960) . . . . . *Professor of Engineering*  
B.S.M.E., M.S.E.M., University of Michigan, Ph.D., Purdue University
- Ax, Leland S. (1959) . . . . . *Associate Professor Emeritus of Engineering*  
B.S.E., B.S.R.E., Tri State College; M.S., Kansas State College
- Axelrod, Morris (1972) ..... *Professor of Sociology*  
B.A., Ph.D., University of Michigan
- Axford, Roger W. (1975) ..... *Associate Professor of Education*  
B.A., Nebraska Wesleyan University, M.A., Ph.D., University of Chicago
- Baca, H. Rene (1974) ..... *Assistant Professor of Quantitative Systems*  
A.B. University of Southern California,  
M.S., Ph.D., University of California, Los Angeles
- Bachenko, Joan C. (1978) ..... *Assistant Professor of Linguistics*  
B.A., University of Minnesota, M.A., Ph.D. New York University
- Backhaus, Ralph A. (1977) ..... *Assistant Professor of Agriculture*  
B.S., Rutgers University, M.S., Ph.D. University of California
- Backus, Charles E. (1968) .. . . . *Professor of Engineering; Assistant Dean,*  
B.S.M.E. Ohio University, *College of Engineering and Applied Sciences*  
M.S. Ph.D., University of Arizona
- Bagwell, Marilyn (1972) .. . . . *Assistant Professor of Nursing*  
B.S.N., University of California, Los Angeles; M.A., Arizona State University;  
M.C.H., University of California
- Bahr, Donald M. (1967) ..... *Associate Professor of Anthropology*  
A.B. M.A. Ph.D., Harvard University
- Bailey, James E. (1974) . . . . . *Associate Professor of Engineering*  
B.S.I.E., M.S.I.E., Ph.D., Wayne State University
- Baker, Georgianne R. (1971) . . . . . *Associate Professor of Home Economics*  
B.S., Marygrove College; M.S., Ohio State University,  
Ph.D., Michigan State University
- Baker, Homer O. (1978) .. . . . *Instructor of Elementary Education*  
B.S.Ed., Abilene Christian College, M.A. Ed., Ed.D., Arizona State University
- Baker, Virgil R. (1966) . . . . . *Professor Emeritus of Geography*  
B.S., M.S., University of Nebraska, Ph.D., University of Utah
- Baldini, Pier Raimondo (1978) . . . . . *Assistant Professor of Italian*  
B.A., San Francisco State University, M.A., University of British Columbia,  
Ph.D., University of California, Los Angeles
- Bal, Rachel S. (1947) . . . . . *Professor Emeritus of Psychology*  
A.B., University of Missouri, Ph.D., University of Chicago
- Bardwyck, Loretta A. (1957) . . . . . *Professor Emeritus of Nursing*  
P.H.N., B.S. University of Minnesota, M.S., Cornell University
- Bardrick, Richard A. (1956) . . . . . *Associate Professor of Psychology*  
A.B. Ph.D., University of California, Los Angeles
- Barkin, Florence (1976) . . . . . *Assistant Professor of Spanish*  
B.A., State University of New York, Albany,  
M.A., Ph.D., State University of New York, Buffalo
- Barkley, Margaret V. (1963) . . . . . *Professor of Home Economics*  
B.S., M.I.K.N. University, M.S., Ed.D., University of Illinois
- Barkson, Joseph A. (1958) . . . . . *Professor Emeritus of Engineering*  
B.S.E.E., University of Michigan, M.S., Ph.D., University of Illinois
- Barlow, Richard B. (1964) .. . . . *Professor of History*  
B.A. M.A., Ph.D., University of Pennsylvania
- Barnett, Andrew H. (1974) ..... *Assistant Professor of Accounting*  
B.B.A., M.B.A., Baylor University, D.B.A., Texas Tech University
- Baron, C. David (1971) ..... *Associate Professor of Accounting*  
B.S. Southwest Missouri State University,  
M.A. University of Missouri, Columbia;  
Ph.D., University of Illinois, Urbana,  
C.P.A., Kansas and Arizona
- Baroody, Wilson G. (1957) .. . . . *Assistant Professor of English*  
B.A., Grand Canyon College, M.A. University of Arizona

- Barrera, Manuel (1977) ... *Assistant Professor of Psychology*  
B.S., Wisconsin State University, M.A. Ph.D., University of Oregon
- Barrett, Thomas W (1950) ... *Professor of Agriculture*  
B.S., Brigham Young University M.S. Ph.D., Cornell University
- Bartel, Carl R (1968) ... *Professor of Technology*  
B.S., M.S., Kansas State College of Pittsburg, Ed.D., University of Missouri, Columbia
- Bartz, Donna R (1968) ... *Assistant Professor of Theatre*  
B.F.A., M.A. University of Colorado
- Bassford, Gerald (1969) ... *Associate Professor of Management*  
B.S., M.S., University of Wyoming D.B.A., Indiana University
- Bata den, Stephen K (1976) ... *Assistant Professor of History*  
B.A. Augsburg College, M.A., Ph.D. University of Minnesota
- Batchelor, Harold W (1943) ... *Professor Emeritus of Library Science*  
B.A. University of Oregon, B.S. in L.S. M.S., University of Illinois
- Baty, Wayne M (1962) ... *Professor of Administrative Services*  
B.S. in Ed. Southwest Missouri State College, M.A., Northwestern University,  
Ph.D., University of Southern California
- Baumann, Victor H. (1964) ... *Professor of Education*  
B.A., Grinnell College, M.A. Northwestern University,  
Ed.D. University of Southern California
- Baur, Patricia Ann (1972) ... *Field Instructor of Social Work*  
B.A., University of Arizona, M.S.W., Washington University, St. Louis,  
M.Ed., Arizona State University
- Beakley, George C. Jr (1956) ... *Professor of Engineering, Associate Dean,*  
B.S.M.E. Texas Tech University, *College of Engineering and Applied Sciences*  
M.S.M.E. University of Texas  
Ph.D., Oklahoma State University, P.E.
- Becker, R. James (1965) ... *Professor of Public Affairs*  
B.S., M.A., Bradley University, Ph.D., University of Illinois
- Becker, Walter G (1955) ... *Associate Professor Emeritus of Finance*  
A.B., M.A., Loyola University, Ph.D., State University of Iowa, C.F.A.
- Bedient, Jack D. (1963) ... *Associate Professor of Mathematics*  
A.B., Albion College M.B.S., Ed.D., University of Colorado
- Bedworth, David D. (1963) ... *Professor of Engineering, Chair, Department*  
B.S.I.E., Lamar College of Technology *of Industrial and Management*  
M.S.I.F., Ph.D., Purdue University *Systems Engineering*
- Beiswanger, Christine M. (1976) ... *Assistant Professor of Zoology*  
A.B. Mt. Holyoke College Ph.D., State University of New York, Albany
- Bell, James W (1966) ... *Professor of Education*  
A.B., Washburn University M.Ed., Ed.D. University of Kansas
- Bell, John E (1965) ... *Professor of Education Chair,*  
B.S., University of Nebraska *Department of Secondary Education*  
M.A. Ed.D., University of Wyoming
- Bell, Mary E (1970) ... *Associate Professor Emeritus of Education*  
B.S., Indiana State Teachers College, M.S., Butler University,  
Ed.D., Indiana University
- Bell, Mary K. (1978) ... *Instructor of Nursing*  
B.S.N., University of Maryland M.S.N. Ohio State University
- Bellamy, Lynn (1976) ... *Associate Professor of Engineering;*  
B.S., Texas A & M, *Assistant Vice President Computer Sciences*  
M.S., Ph.D., Tulane University
- Belok, Michael V. (1959) ... *Professor of Education*  
B.S. Indiana University, M.A., Arizona State University,  
Ph.D., University of Southern California
- Bender, Bert A (1971) ... *Assistant Professor of English*  
B.A., University of Washington Ph.D., University of California Irvine
- Bender, Gordon L. (1953) ... *Professor of Zoology*  
B.S., Iowa State College M.S., University of Wisconsin, Ph.D. University of Illinois
- Benedict, Joel A (1946) ... *Professor Emeritus of Education*  
B.A. M.A. Arizona State University, Ed.D., Stanford University
- Benin, David B (1970) ... *Associate Professor of Physics*  
A.B., Cornell University, M.A., Ph.D., University of Rochester
- Bennett, ElDean (1970) ... *Associate Professor of Mass Communications,*  
B.A., Brigham Young University, *Chair Department of Mass Communications,*  
M.A., Ph.D. Michigan State University
- Benzinger, Robert P. (1970) ... *Associate Professor of Design Sciences*  
B.S.M.F., University of Wisconsin, M.A.E., Chrysler Institute of Engineering
- Berch, Michael A. (1969) ... *Professor of Law*  
B.A., J.D., Columbia University
- Berman, David R (1966) ... *Associate Professor of Political Science*  
B.A. Rockford College, M.A., Ph.D. American University
- Berman, Neil S (1964) ... *Professor of Engineering*  
B.S. University of Wisconsin M.S., M.A. Ph.D., University of Texas
- Bertelsen, Wendle R. (1964) ... *Assistant Professor of Architecture*  
B.Arch., University of Michigan
- Bertke, Eldridge M (1958) ... *Professor of Zoology*  
B.S., M.S., Ph.D. University of Wisconsin
- Bessom, Richard M (1968) ... *Associate Professor of Marketing*  
A.B. Cornell University M.B.A., Stanford University, Ph.D., University of Washington
- Betz, M. Austin (1974) ... *Assistant Professor of Education*  
B.S., Lock Haven State College, M.Ed., Pennsylvania State University,  
M.A.T., Brown University, M.A. Ph.D. University of Illinois
- Betz, Mathew J. III (1961) ... *Professor of Engineering, Assistant*  
B.S., M.S., Ph.D., Northwestern University *Academic Vice President*
- Bickford, William B (1966) ... *Professor of Engineering*  
B.S., M.S. Kansas State University, Ph.D. University of Illinois

## RESIDENT FACULTY

- Bieber, Allan L. (1963) . . . . . *Professor of Chemistry*  
 B.S., M.S., North Dakota State University, Ph.D., Oregon State University
- Bininger, Robert J. (1962) . . . . . *Professor of Spanish; Associate Dean*  
 B.A., M.A., Ph.D., Ohio State University  
*College of Liberal Arts*
- Birge, Edward A. (1972) . . . . . *Assistant Professor of Microbiology*  
 B.A., Ph.D., University of Wisconsin, Madison
- Birk, James P. (1973) . . . . . *Associate Professor of Chemistry*  
 B.A., St. John's University, Ph.D., Iowa State University
- Bitter, Gary G. (1970) . . . . . *Professor of Education*  
 B.S., Kansas State University, M.A., Kansas State Teachers College,  
 Ph.D., University of Denver
- Blackburn, Jack B. (1972) . . . . . *Professor of Engineering*  
 B.S.C.E., Oklahoma University, M.S.C.E., Ph.D., Purdue University
- Blackham, Garth J. (1962) . . . . . *Professor of Education*  
 B.S., M.S., Utah State University, Ph.D., Cornell University
- Blackledge, Vernon O. (1969) . . . . . *Professor of Engineering*  
 B.S.E.E., University of Illinois, M.S.E.E., University of Santa Clara,  
 Ph.D., Arizona State University
- Blaesser, Willard W. (1968) . . . . . *Professor of Education*  
 B.S., M.A., University of Wisconsin, Madison, Ed.D., George Washington University
- Blanchard, Jack W. (1973) . . . . . *Associate Professor of Technology*  
 B.S.R.E., T. State College, M.S.E.E., University of Arizona
- Blewett, Laura J. (1964) . . . . . *Assistant Professor of Nursing*  
 B.S., University of Minnesota, M.S.N., Case Western Reserve University
- Bloemendaal, Nancy L. (1970) . . . . . *Assistant Professor of Music*  
 B.A., Arizona State University, M.F.A., Temple University
- Boetto, Laurel B. (1956) . . . . . *Assistant Professor Emeritus of Education*  
 B.A. in Ed., M.A. in Ed., Arizona State University
- Bogart, Quentin J. (1970) . . . . . *Associate Professor of Education*  
 B.A., M.S., Fort Hay State College, Ph.D., University of Texas, Austin
- Boggs, Lohnie J. (1959-65; 1966) . . . . . *Professor of Administrative Services,*  
 B.S., M.A., Ph.D., Ohio State University  
*Chair, Department of Administrative Services*
- Bohlender, George W. (1977) . . . . . *Assistant Professor of Management*  
 B.A., San Francisco State College, M.B.A., University of Southern California,  
 Ph.D., University of California, Los Angeles
- Bohlman, Herbert M. (1964) . . . . . *Associate Professor of Administrative Services*  
 B.S. in B.A., Drake University, M.B.A., J.D., Indiana University
- Bond, M.E. (1967) . . . . . *Professor of Economics, Director Bureau*  
 B.B.A., M.A., Ph.D., University of Washington  
*of Business and Economic Research*
- Bontrager, O. R. (1962) . . . . . *Professor Emeritus of Education*  
 B.S., M.A., Ph.D., State University of Iowa
- Borgo, Philip E. (1967) . . . . . *Associate Professor of Engineering*  
 B.S.C.E., University of Cincinnati, M.S., Ohio State University
- Boster, Franklin (1977) . . . . . *Assistant Professor of Communication*  
 B.A., M.A., Southern Illinois University, Ph.D., Michigan State University
- Bostwick, Robert E., Major (1977) . . . . . *Assistant Professor*  
 B.S., University of New York; B.S., University of Florida,  
 M.S., Air Force Institute of Technology  
*of Aerospace Studies*
- Boutilier, Mary (1978) . . . . . *Instructor of Social Work*  
 B.A., Lindenwood College, M.A., University of Illinois,  
 M.S.W., Arizona State University
- Bowen, Bruce D. (1975) . . . . . *Assistant Professor of Political Science*  
 A.B., Bradley University, Ph.D., University of Kentucky
- Bowers, Charles O. (1948) . . . . . *Associate Professor of Music*  
 B.S. in Ed., Southeast Missouri State College,  
 M.M., DMA, Eastern School of Music
- Bowman, Russell K. (1956) . . . . . *Professor Emeritus of Romance Languages*  
 A.B., M.A., Ph.D., University of California
- Boyd, Gertrude A. (1958) . . . . . *Professor Emeritus of Education*  
 A.B., M.S., Florida State University, Ed.D., Colorado State College
- Boyd, James H. (1976) . . . . . *Assistant Professor of Accounting*  
 B.B.A., Texas Christian University, M.S., Northeastern University,  
 Ph.D., University of Texas, Austin, C.P.A., Texas
- Boyer, Jay M. (1976) . . . . . *Assistant Professor of English*  
 B.A., State University, M.A., Ph.D., State University of New York, Buffalo
- Boyes, William J. (1974) . . . . . *Associate Professor of Economics*  
 B.S., Idaho State University; Ph.D., Creighton Graduate School
- Bovle, Bernard M. (1969) . . . . . *Professor of Planning,*  
 B.Arch., University of Sydney (Australia),  
 M.Arch., M.A., Ph.D., Yale University  
*Chair, Department of Planning*
- Brack, Gae A. (1977) . . . . . *Instructor in English*  
 B.A., M.A., University of Nevada, Las Vegas
- Brack, O.M., Jr. (1973) . . . . . *Professor of English*  
 B.A., M.A., Baylor University, Ph.D., University of Texas, Austin
- Brada, Josef C. (1978) . . . . . *Associate Professor of Economics*  
 B.S., M.A., Tufts University, Ph.D., University of Minnesota
- Brady, Ward W. (1973) . . . . . *Associate Professor of Agriculture*  
 B.S., M.S., Ph.D., Colorado State University
- Branoweth, Ellen (1975) . . . . . *Instructor of Nursing*  
 B.S., University of Arizona; M.S., Texas Woman's University
- Brand, Mark (1968) . . . . . *Associate Professor of Social Work*  
 B.A., M.A., University of Arizona; M.S.W., University of California, Berkeley
- Brandt, Elizabeth A. (1974) . . . . . *Associate Professor of Anthropology*  
 B.A., Florida State University, M.A., Ph.D., Southern Methodist University

- Branstetter, Ellamae (1967) . . . . . *Professor of Nursing*  
B.S., St. Louis University, M.P.H., University of Minnesota,  
Ph.D., University of Chicago
- Braun, Joseph J. (1973) . . . . . *Professor of Psychology*  
B.A., University of Oregon; M.A., Ph.D., Ohio State University
- Braver, Sanford L. (1970) . . . . . *Associate Professor of Psychology*  
B.A., Wayne State University, Ph.D., University of Michigan
- Brazel, Anthony J. (1974) . . . . . *Associate Professor of Geography*  
B.A., M.A., Rutgers, The State University; Ph.D., University of Michigan
- Breckenridge, Jack D. (1962) . . . . . *Professor of Art*  
B.S., Wisconsin State College, M.F.A., University of Iowa
- Brenenstuhl, Daniel C. (1978) . . . . . *Assistant Professor of Management*  
B.S., M.B.A., Ohio University; M.S., St. Bonaventure University  
D.B.A., Indiana University
- Bresina, Bertha M. (1960) . . . . . *Professor Emeritus of Home Economics*  
B.S., M.S., Stout State University; Ph.D., Iowa State University
- Brink, Daniel T. (1976) . . . . . *Assistant Professor of English*  
B.A., Lawrence University, M.A., Ph.D., University of Wisconsin
- Brink, Jeanie R. (1974) . . . . . *Assistant Professor of English*  
B.A., Northwestern University, M.A., Harvard University,  
Ph.D., University of Wisconsin, Madison
- Britton, Daniel (1976) . . . . . *Instructor of Art*  
B.F.A., M.F.A. University of Colorado
- Britton, Mervin W. (1956) . . . . . *Professor of Music*  
B.S., M.S., University of Illinois
- Broadley, Hugh T. (1969) . . . . . *Professor of Art*  
A.B., Park College, M.A., Yale University, Ph.D., New York University
- Brock, John H. (1977) . . . . . *Assistant Professor of Agriculture*  
B.S., M.S., Fort Hays State University, Ph.D., Texas A&M University
- Brook, Weston L. (1966) . . . . . *Associate Professor of Education; Director*  
B.A., M.A., Ed.D., University of Wyoming  
*Professional Field Experiences*
- Brooks, Daniel G. (1977) . . . . . *Assistant Professor of Quantitative Systems*  
B.S., M.S. Colorado School of Mines, M.B.A., D.B.A., Indiana University
- Brooks, Theodore (1978) . . . . . *Associate Professor of Social Work*  
B.A., Calvin College, M.S.W. University of Washington;  
Ph.D., Michigan State University
- Brose, Marianna F. (1963) . . . . . *Assistant Professor of English*  
B.A., College of William and Mary, M.A., Arizona State University
- Brougham, William J. (1977) . . . . . *Assistant Professor of Military Science*  
B.A., Washington State University; M.P.A. University of Puget Sound
- Brown, Alan R. (1968) . . . . . *Associate Professor of Education*  
B.A., M.A., Los Angeles State College, Ph.D., University of Texas at Austin
- Brown, Brent W. (1972) . . . . . *Assistant Professor of Public Affairs*  
B.A., Brigham Young University, M.A. Arizona State University;  
Ph.D., University of Illinois
- Brown, Delwin (1975) . . . . . *Professor of Humanities and*  
B.A. Anderson College, B.D. Union Theological Seminary, *Religious Studies*  
Ph.D., Claremont Graduate School
- Brown, Donald E. (1963) . . . . . *Professor of Mass Communications*  
B.A., M.A., University of Iowa
- Brown, Duane (1950) . . . . . *Professor of Chemistry*  
B.S. Brigham Young University; Ph.D., Cornell University
- Brown, Eddie (1975) . . . . . *Associate Professor of Social Work*  
B.S. Brigham Young University; M.S.W., D.S.W. University of Utah
- Brown, Peter (1967) . . . . . *Professor of Chemistry*  
B.S., Ph.D., University of Southampton (England)
- Brown, Stephen W. (1974) . . . . . *Professor of Marketing*  
B.S., M.B.A., D.B.A., Arizona State University
- Brown, Theodore M. (1963) . . . . . *Professor of Chemistry*  
B.S., M.S., University of Toledo, Ph.D., Iowa State University
- Brown, Walter C. (1966) . . . . . *Professor of Technology*  
B.S. Northwest Missouri State University,  
M.Ed., Ed.D., University of Missouri-Columbia
- Bruff, Harold H. (1971) . . . . . *Professor of Law*  
B.A. Williams College, LL.B. Harvard University
- Bruner, May I. (1961) . . . . . *Associate Professor of Nursing*  
B.S., University of Hawaii; M.S., University of Colorado
- Bruns, Gilbert H. (1974) . . . . . *Associate Professor of Criminal Justice*  
B.S., M.Ed., South Dakota State University, Ed.D. Arizona State University
- Brush, Ruth (1975) . . . . . *Assistant Professor of Nursing*  
B.S., Sterling College, M.A., New York University, M.A.,  
Ph.D., University of Colorado
- Bryant, Fred O. (1950) . . . . . *Associate Professor of Physical Education*  
B.S., Springfield College,  
M.S., University of Illinois, Ed.D., Arizona State University
- Buckingham, Willis J. (1969) . . . . . *Associate Professor of English*  
A.B. Harvard University; M.S., University of Wisconsin, Madison,  
Ph.D., Indiana University
- Buffington, Albert F. (1965) . . . . . *Professor Emeritus of German*  
A.B., Buckle University, A.M., Ph.D., Harvard University
- Buley, Jerry L. (1973) . . . . . *Associate Professor of Communication*  
B.A., University of Colorado, M.A., Michigan State University,  
Ph.D., Florida State University
- Bullock, Arnold H. (1941) . . . . . *Professor of Music*  
B.M., Yale University; M.A. in Ed., Arizona State University

## RESIDENT FACULTY

- Bunt, Lucas N. H. (1968) . . . . . *Professor Emeritus of Mathematics*  
 B.S. Drs., University of Amsterdam, Ph.D., University of Groningen (Netherlands)
- Burdette, Walter E. (1956) . . . . . *Professor of Technology*  
 B.S., M.S., Kansas State College of Pittsburg,  
 Ed.D., University of Missouri-Columbia
- Burdick, Richard K. (1976) . . . . . *Assistant Professor of Quantitative Systems*  
 B.S., University of Wyoming; M.S., Texas A&M University
- Burg, B. Richard (1967) . . . . . *Professor of History*  
 B.A., University of Colorado; M.A., Western State College of Colorado,  
 Ph.D., University of Colorado
- Burgess, Hugh (1974) . . . . . *Professor of Architecture, Dean*  
 B.S., University of Idaho; M.S. Arch., Columbia University College of Architecture
- Burgess, Paul L. (1969) . . . . . *Associate Professor of Economics*  
 B.A., Ph.D., University of Colorado
- Burgoyne, Edward E. (1951) . . . . . *Professor of Chemistry*  
 B.S., Utah State University; M.S., Ph.D., University of Wisconsin-Madison
- Burk, Karl W. (1949) . . . . . *Associate Professor Emeritus of Technology*  
 B.A., M.Ed., M.A., San Diego State University; Ed.D., Bridgely University
- Burke, William F. Jr. (1977) . . . . . *Assistant Professor of Botany and*  
 B.A., University of Dallas, Irving, *Microbiology*  
 M.A., North Texas State University; Ph.D., Arizona State University
- Burke, William J. (1962) . . . . . *Professor of Chemistry*  
 A.B., Ohio University; Ph.D., Ohio State University
- Burkett, Lee N. (1974) . . . . . *Associate Professor of Physical Education*  
 B.A., M.A., San Diego State University; Ph.D., Washington State University
- Buruel Farnam, Grace (1978) . . . . . *Associate Professor of Social Work*  
 B.S., University of Arizona; M.S.W., University of California-Los Angeles,  
 D.S.W., University of Denver
- Burt, Donald M. (1974) . . . . . *Assistant Professor of Geology*  
 A.B., Princeton University; A.M., Ph.D., Harvard University
- Burton, Arleigh R. (1941) . . . . . *Professor Emeritus of Accounting*  
 A.B., M.S., Emporia State Teachers College,  
 Ph.D., University of Nebraska, Lincoln; CPA, Arizona
- Burton, Dora (1976) . . . . . *Assistant Professor of Russian*  
 M.D., First Leningrad Medical Institute, Russia,  
 M.A., Ph.D., University of Washington
- Burton, Foster M. (1969) . . . . . *Associate Professor of Construction*  
 B.S.C.E., B.S., Industrial Management, Carnegie Institute of Technology,  
 M.B.A., New York University; Ph.D., University of Pittsburgh
- Buseck, Peter R. (1963) . . . . . *Professor of Chemistry and Geology*  
 B.A., Antioch College; M.A., Ph.D., Columbia University
- Bush, Donald J. (1975) . . . . . *Associate Professor of Humanities*  
 B.S., Arizona State University, *and Religious Studies*  
 M.A., University of Notre Dame; Ph.D., University of New Mexico
- Bustoz, Joaquin (1975) . . . . . *Professor of Mathematics*  
 B.A., M.A., Ph.D., Arizona State University
- Butler, Jay Q. (1972) . . . . . *Assistant Professor of Real Estate*  
 B.B.A., M.B.A., University of New Mexico; Ph.D., University of Washington
- Cabanca, William A. (1967) . . . . . *Associate Professor of Education*  
 B.Ed., Central University; M.Ed., Ph.D., Washington State University
- Cainby, William C. Jr. (1967) . . . . . *Professor of Law*  
 A.B., Yale University; LL.B., University of Michigan
- Cannight, James F. (1964) . . . . . *Professor of Botany*  
 B.A., Michigan University; A.M., Ph.D., Harvard University
- Carey, James O. (1977) . . . . . *Assistant Professor of Education*  
 B.A., Westminster College; M.A., Kent State University,  
 Ph.D., Florida State University
- Carlsen, Paul A. (1978) . . . . . *Assistant Professor of Technology*  
 B.A.I., M.N.S., Ed.D., Arizona State University
- Carlson, Ingeborg I. (1965) . . . . . *Professor of German*  
 Abt. II der Kirche Heideberg, A. West., University of Leoben,  
 and Prof., University of Heideberg; Dr. Phil., University of Cologne; Nürnberg
- Carney, James D. (1967) . . . . . *Professor of Philosophy*  
 M.A., Roosevelt University; Ph.D., University of Nebraska-Lincoln
- Carr, Alice Rose (1955) . . . . . *Associate Professor Emeritus of Mathematics*  
 A.B., St. Mary's College; M.A., Ohio University
- Carrel, Christina (1966) . . . . . *Professor of Music*
- Carro, James L. (1976) . . . . . *Assistant Professor of Education*  
 B.A., Bethel College; Ph.D., University of Missouri
- Carro, Kevin K. (1975) . . . . . *Assistant Professor of History*  
 B.A., Cinnus College; M.A., Ph.D., Harvard University
- Carson, Shirley M. (1978) . . . . . *Instructor in English*  
 B.A., St. Andrews College; M.A., Arizona State University
- Cartsonis, Sylvia (1973) . . . . . *Assistant Professor of Social Work*  
 B.A., University of Michigan; M.S.S., Bryn Mawr College
- Carver, George L. (1965) . . . . . *Associate Professor of Classical Languages*  
 B.A., M.A., University of Texas; S.T.B., St. Mary's Seminary, Baltimore,  
 Ph.D., St. Louis University
- Cary, Richard T. (1976) . . . . . *Assistant Professor of Home Economics*  
 B.S., M.T.T., North Carolina State University; Ph.D., Purdue University
- Case, James I. (1969) . . . . . *Associate Professor of Communication*  
 B.S., Weber State College; M.S., Ph.D., University of Iowa
- Castle, Gordon B. (1962) . . . . . *Professor Emeritus of Zoology*  
 B.A., Washburn College; M.A., Ph.D., University of California-Berkeley

- Castle, Peggy (1971) ..... *Associate Professor of Music*  
M.A., A.R.M.C.M., Royal Manchester College of Music, U.K.
- Cauble, Ann M. (1975) ..... *Assistant Professor of Home Economics*  
B.S., M.S., Ph.D., Arizona State University
- Cavalliere, William A. (1946) ..... *Assistant Professor Emeritus of Technology*  
B.A., Ed., M.A. in Ed., Arizona State University
- Cavender, Gray (1977) ..... *Assistant Professor of Criminal Justice*  
B.S., J.D., University of Tennessee, M.S., Middle Tennessee State University;  
Ph.D., Florida State University
- Cazier, Mont A. (1962) ..... *Professor of Zoology*  
B.S., Ph.D., University of California, Berkeley
- Cesta, John R. (1975) ..... *Assistant Professor of Finance*  
B.S., Capital University, Columbus, Ohio, M.B.A., Ph.D., Florida State University
- Chalmers, James A. (1972) ..... *Associate Professor of Economics*  
B.A., University of Wyoming, Ph.D., University of Michigan
- Chalquest, Richard R. (1971) ..... *Professor of Agriculture, Director,*  
B.S., D.V.M., Washington State University, *Division of Agriculture*  
M.S., Ph.D., Cornell University
- Chan, James L. (1978) ..... *Assistant Professor of Accounting*  
B.S., M.A.S., Ph.D., University of Illinois
- Chartier, George M. (1970) ..... *Associate Professor of Psychology*  
B.S., University of Illinois, M.A., Ph.D., University of Oregon
- Chasey, Eugene F. (1965) ..... *Associate Professor of Education*  
B.S., Northwestern State College, M.A., Colorado State College  
Ed.D., University of Wyoming
- Cheatham, Glenn W. (1975) ..... *Associate Professor of Recreation, Chair*  
B.A., M.S., San Francisco State University, *Department of Health Physical*  
Ph.D., University of Minnesota *Education, Recreation and Dance*
- Chen, Stanley S. (1967) ..... *Professor of Engineering*  
Diploma Taipei Institute of Technology, China, M.S., Ohio University  
Ph.D., University of Wisconsin, Madison
- Childers, Bruce K. (1974) ..... *Assistant Professor of Administrative Services*  
B.B.A., North Texas State University, M.B.A., J.D., Texas Tech University
- Chou, Ju Hsi (1975) ..... *Associate Professor of Art*  
B.A., University of Kentucky, M.A., Ph.D., Princeton University
- Christensen, George (1975) ..... *Assistant Professor of Architecture*  
B.Arch., Illinois Institute of Technology
- Christiansen, Kent M. (1966) ..... *Associate Professor of Education*  
B.S., M.S., Brigham Young University, *Director of Student Services*  
Ph.D., Michigan State University
- Christine, Ray O. (1958) ..... *Associate Professor of Education*  
A.B., A.M., Northern Colorado University, Ed.D., Arizona State University
- Chubrich, Robert E. (1971) ..... *Associate Professor of Communication*  
B.A., Grinnell College; M.A., Indiana University;  
Ph.D., State University of New York, Buffalo
- Church, Kathleen K. (1969) ..... *Associate Professor of Zoology*  
B.S., M.A., University of Utah, Ph.D., University of California, Berkeley
- Churchill, William D. (1966) ..... *Associate Professor of Education,*  
A.B., Coe College; *Counselor, University Counseling Service*  
M.Ed., Alfred University, Ed.D., University of Rochester
- Cialdini, Robert B. (1971) ..... *Associate Professor of Psychology*  
B.S., University of Wisconsin, M.A., Ph.D., University of North Carolina
- Clark, Geoffrey A. (1971) ..... *Associate Professor of Anthropology*  
B.A., M.A., University of Arizona; Ph.D., University of Chicago
- Clark, Wilburn O. (1967) ..... *Professor of Engineering*  
B.S.E.E., M.S.E.E., Ph.D.E.E., University of Kansas
- Clark, William Dennis (1976) ..... *Assistant Professor of Botany*  
B.A., Sacramento State College; Ph.D., University of Texas
- Cleary, Edward W. (1967) ..... *Professor Emeritus of Law*  
A.B., Illinois College, J.D., University of Illinois, J.S.D., Yale University
- Clement, Ronald W. (1977) ..... *Assistant Professor of Management*  
B.S. General Motors Institute; M.B.A., Ph.D., Michigan State University
- Clothier, Ronald R. (1955) ..... *Associate Professor of Zoology*  
A.B., Fresno State College; M.A., Montana State University  
Ph.D., University of New Mexico
- Cluff, Gordon L. (1963) ..... *Professor of Communication*  
B.A., Arizona State University; M.S., Ph.D., Southern Illinois University
- Coate, Roger A. (1976) ..... *Assistant Professor of Political Science*  
B.A., Bowling Green University; M.A., Johns Hopkins University,  
Ph.D., Ohio State University
- Cobas, José A. (1975) ..... *Assistant Professor of Sociology*  
B.A., Marquette College; M.A., University of Tennessee, Knoxville,  
Ph.D., University of Texas, Austin
- Cochran, Douglas L. (1968) ..... *Associate Professor of Management*  
B.S., Ohio State University, M.B.A., Harvard University,  
Ph.D., University of Oregon
- Cochran, John A. (1962) ..... *Professor of Economics*  
A.B., Drake University; A.M., Ph.D., Harvard University
- Cohen, David (1967) ..... *Professor of Music*  
B.S., M.S., Juillard School of Music, D.M.A., University of Southern California
- Cohen, Herbert G. (1977) ..... *Assistant Professor of Education*  
B.S., Muhlenberg College, M.A., Hofstra University, Ph.D., University of Iowa
- Colby, Arthur L. (1965) ..... *Assistant Professor of English*  
B.A., University of Massachusetts,  
M.A., Ph.D., University of North Carolina

## RESIDENT FACULTY

- Cole, Gerald A. (1958) ..... *Professor of Zoology*  
 A.B., Middlebury College, M.S., St. Lawrence University,  
 Ph.D., University of Minnesota
- Collins, James P. (1975) . . . . . *Assistant Professor of Zoology*  
 B.S., Manhattan College, M.S. Ph.D. University of Michigan
- Comeaux, Malcolm L. (1969) . . . . . *Associate Professor of Geography*  
 B.A., University of Southwestern Louisiana, M.A. Southern Illinois University,  
 Ph.D., Louisiana State University
- Coney, Kenneth A. (1973) . . . . . *Assistant Professor of Marketing*  
 B.A. M.B.A. Washington State University, Ph.D., University of Oregon
- Conlin, David A. (1948) . . . . . *Professor Emeritus of English*  
 A.B., Syracuse University, Ph.D. Yale University
- Connell, Constance C. (1975) . . . . . *Assistant Professor of Nursing*  
 B.S.N. Boston College, M.S. University of Nevada
- Cook, Jeffrey (1961) . . . . . *Professor of Planning*  
 B.Arch., University of Manitoba (Canada), M.Arch., Pratt Institute
- Cook, Phil A. (1963) . . . . . *Professor of Education*  
 B.A. Southwestern State College, M.A., Colorado State College of Education,  
 Ed.D., University of Kansas
- Cook, Suzanne M. (1974) . . . . . *Associate Professor of Management*  
 B.B.A., M.B.A., D.B.A., Texas Tech University
- Cooperrider, Neil K. (1973) . . . . . *Professor of Engineering*  
 B.S.M.E., M.S.M.E., Ph.D., Stanford University
- Copeland, Sally A. (1976) . . . . . *Instructor of Nursing*  
 B.S.N., M.S.N., Ohio State University
- Corder, Brice W. (1971) . . . . . *Associate Professor of Health Science,*  
*Assistant Dean College of Liberal Arts*  
 B.A., Lynchburg College, M.Ed., Ed.D., Temple University
- Corey, Dorothy M. (1975) . . . . . *Assistant Professor of Nursing*  
 B.S.N., Columbia University, M.A. University of Chicago
- Cosand, Walter A. (1976) . . . . . *Instructor of Music*  
 B.M., M.M., University of Rochester
- Couch, Sanford C. (1962) . . . . . *Professor of Russian*  
 B.A., M.A., Ph.D., University of Wisconsin, Madison
- Coudroglou, Alike (1971) . . . . . *Associate Professor of Social Work*  
 B.A., College of St. Benedict, M.S.W., University of Minnesota,  
 D.S.W., Columbia University
- Cowley, John M. (1969) . . . . . *Galvin Professor of Physics*  
 B.S., M.S., D.S., University of Adelaide (Australia),  
 Ph.D., Massachusetts Institute of Technology
- Cox, Frank E. (1972) . . . . . *Associate Professor of Technology*  
 B.S.M.E. Purdue University, M.S.I.E., Arizona State University
- Cox, Steven R. (1970) . . . . . *Associate Professor of Economics*  
 B.S., University of Wisconsin, Madison, M.A. Ph.D., University of Michigan
- Craft, John E. (1973) . . . . . *Associate Professor of Mass Communications*  
 B.F.A., M.A., Ph.D. Ohio University
- Cranmer, William H. (1963) . . . . . *Professor of Social Work*  
 B.A., University of Akron, M.S., Case Western Reserve University
- Creath, J. Richard (1974) . . . . . *Assistant Professor of Philosophy*  
 B.A., Knox College, M.A. (Phil.), M.A. (Hist. Phil. Sci.),  
 Ph.D., University of Pittsburgh
- Creighton, Judith M. (1967) . . . . . *Assistant Professor of Home Economics*  
 B.S., University of Arizona, M.S., M.C., Arizona State University
- Croft, Lee B. (1973) . . . . . *Associate Professor of Russian*  
 B.S., Arizona State University, M.A., University of Arizona,  
 Ph.D. Cornell University
- Cronin, John R. (1966) . . . . . *Professor of Chemistry*  
 B.A. College of Wooster; Ph.D., University of Colorado
- Crouch, Beulah (1953) . . . . . *Assistant Professor Emeritus of Education*  
 B.A. n.Ed., M.A. n.Ed., Arizona State University
- Crowder, Troy F. (1970) . . . . . *Associate Professor of Mass Communications;*  
*Assistant to the President; Director,*  
*University Relations*  
 B.A., University of South Dakota, M.A., University of Iowa
- Cummings, Lawrence T. (1970) . . . . . *Associate Professor of Education; Director,*  
*University Counseling Service*  
 B.A., M.A., Arizona State University; Ed.D. University of California, Los Angeles
- Cummings, Susan N. (1964) . . . . . *Associate Professor of Education*  
 B.S., University of Chicago, M.A. n.Ed., Ph.D., Arizona State University
- Curran, Mark J. (1968) . . . . . *Associate Professor of Spanish*  
 B.S., Rockhurst College; Ph.D., St. Louis University
- Daane, Calvin J. (1963) . . . . . *Professor of Education*  
 B.S., University of Wisconsin, M.A. Columbia University, Ed.D. Indiana University
- Dagger, Richard K. (1976) . . . . . *Assistant Professor of Political Science*  
 B.A., University of Missouri; Ph.D., University of Minnesota
- Dahl, Richard C. (1966) . . . . . *Professor of Law; Director Law Library*  
 B.A. B.L.S., University of California; J.B., Catholic University
- Daley, Michael (1978) . . . . . *Professor of Social Work*  
 B.S., Spring Hill College, M.S.W. St. Louis University; M.S. University of Pittsburgh,  
 D.S.W., Tulane University
- Dalgleish, Donald D. (1962) . . . . . *Associate Professor of Political Science*  
 B.A. Carleton College, A.M., Columbia University; Ph.D., University of Colorado
- D'Alonzo, Bruno J. (1976) . . . . . *Associate Professor of Education*  
 B.S. Ohio State University; M.S., West Virginia University,  
 Ph.D., Bowling Green State University

- D'Andrea, Frank L. (1972) . . . . . *Associate Professor of Music*  
B.A., M.A., Ed.D., Columbia University
- D'Angelo, Frank J. (1970) . . . . . *Professor of English*,  
B.A., Loyola University, New Orleans; *Director, Freshman English*  
M.A., Tuane University, Ph.D., University of Nebraska, Lincoln
- Daniel, Norman E. (1970) . . . . . *Associate Professor of Transportation*  
B.S., M.S., University of Tennessee, Knoxville, Ph.D., Indiana University
- Dannenfeldt, Karl H. (1956) . . . . . *Professor of History*  
A.B., Valparaiso University, M.A., Indiana University,  
Ph.D., University of Chicago
- D'Antonio, Irma J. (1976) . . . . . *Associate Professor of Nursing*  
B.S.N., M.N., University of Pittsburgh, M.S.N., Boston University,  
Ph.D., University of Pittsburgh
- Darst, Paul W. (1976) . . . . . *Assistant Professor of Physical Education*  
B.S., M.S., Akron University, Ph.D., Ohio State University
- Dauten, Joel J. (1960) . . . . . *Professor of Finance*  
B.S., M.S., Washington University, Ph.D., University of Iowa
- Davey, William G. (1976) . . . . . *Assistant Professor of Communication*  
B.A., Pennsylvania State University  
M.A., Columbia University, Ph.D., Indiana University
- Davidson, Joseph K. (1973) . . . . . *Professor of Engineering*  
B.M.E., M.Sc., Ph.D., Ohio State University
- Davis, Edward (1977) . . . . . *Assistant Professor of Social Work*  
B.A., University of Michigan, M.S.W., Loyola University,  
D.S.W., Ohio State University
- Davis, Joseph M. (1975) . . . . . *Assistant Professor of Real Estate*  
B.S., University of South Carolina, M.B.A., Texas A & I University;  
Ph.D., University of Georgia
- Davis, Keith (1958) . . . . . *Professor of Management*  
B.B.A., M.B.A., University of Texas, Ph.D., Ohio State University
- Davis, Robert E. (1959) . . . . . *Professor of Communication*  
B.A., M.A., Ph.D., University of Illinois
- Davis, Sanford S. (1953) . . . . . *Professor Emeritus of Education*  
A.B., B.S., Central Missouri State College, A.M., University of Missouri, Kansas City,  
Ed.D., University of Colorado
- Davison, Dale Lee (1976) . . . . . *Associate Professor of Accounting*  
B.S., Northeast Louisiana University, M.B.A., Ph.D., University of Georgia
- Deich, Dorothy F. (1967) . . . . . *Professor Emeritus of Physical Education*  
B.S., M.S., University of Illinois, Ph.D., University of Michigan
- Dean, Arthur G. (1971) . . . . . *Associate Professor of Engineering*  
B.A., M.S., Texas Tech University, Ph.D., Texas A & M University
- Debenport, Sylvia (1978) . . . . . *Assistant Professor of Music*  
B.M.E., B.M., M.M., Indiana University
- Decker, John P. (1963) . . . . . *Professor of Engineering*  
B.S., University of Idaho, M.A., Ph.D., Duke University
- Decker, Patrick G. (1974) . . . . . *Assistant Professor of Management*  
B.S.I.M., M.B.A., Ph.D., University of Cincinnati
- Deever, R. Merwin (1959) . . . . . *Professor of Education Associate Dean*,  
A.B., Southwestern College, *College of Education*  
Ed.M., Ed.D., University of Oklahoma, L.H.D., Huron College
- DeGraw, Bette (1978) . . . . . *Assistant Professor of Social Work*  
B.A., The College, M.S.W., Rutgers University
- DeGraw, Richard (1977) . . . . . *Assistant Professor of Social Work*  
B.A., Westminster College, M.Div., Princeton Theological Seminary,  
M.S.W., Rutgers University
- Demassa, Thomas A. (1966) . . . . . *Professor of Engineering*  
B.S.E.E., M.S.E.E., Ph.D., University of Michigan
- de Matties, Nicholas (1974) . . . . . *Assistant Professor of Art*  
B.A., Long Beach State University, M.S., Illinois Institute of Technology
- Demeke, Howard J. (1962) . . . . . *Associate Professor Emeritus of Education*  
A.B., San Francisco State College, M.S., Ed.D., University of Southern California
- DeSerpa, Allan C. (1975) . . . . . *Associate Professor of Economics*  
B.A., University of Santa Clara, Ph.D., University of California, Santa Barbara
- Dezelsky, Thomas L. (1968) . . . . . *Associate Professor of Health Science*  
B.S., Central Michigan University; M.A., University of Michigan  
H.S.D., Indiana University
- Dibbern, John D., (1978) . . . . . *Instructor in History*  
B.A., University of North Dakota, M.A., Stanford University
- Dieppa, Ismael (1976) . . . . . *Professor of Social Work*  
B.A., Southern State College, *Dean, School of Social Work*  
M.S.W., Boston University, M.P.H., University of California  
D.S.W., University of Southern California
- Dietz, Robert (1977) . . . . . *Professor of Geology*  
B.S., M.S., Ph.D., University of Illinois
- Dillon, Cyrus I. (1978) . . . . . *Instructor in English*  
B.A., Washington and Lee University, M.A., Arizona State University
- Ditsworth, Richard L. (1959) . . . . . *Professor of Engineering*  
B.S., M.S., Iowa State College, Ph.D., Michigan State University
- Dittert, Alfred E. Jr. (1967) . . . . . *Professor of Anthropology*  
B.A., M.A., University of New Mexico, Ph.D., University of Arizona
- Doane, Winifred W. (1977) . . . . . *Professor of Zoology*  
B.A., Hunter College of the City of New York, M.S., University of Wisconsin,  
Ph.D., Yale University
- Dobkin, William E. (1970) . . . . . *Associate Professor of Theatre*  
A.B., Eastern Michigan University, M.A., University of Colorado,  
Ph.D., Indiana University

## RESIDENT FACULTY

- Doebler, Bettie Anne (1971) . . . . . *Professor of Humanities and Religious Studies, Chair Department of Humanities and Religious Studies*  
 B.A., M.A., Duke University; Ph.D., University of Wisconsin, Madison
- Doebler, John W. (1970) . . . . . *Professor of English*  
 B.A., Duke University; M.A., Ph.D., University of Wisconsin-Madison
- Donegan, Kenneth L. (1965) . . . . . *Professor of English*  
 B.A., M.A., Ph.D., University of Iowa
- Donnelly, Aaron V. (1962) . . . . . *Professor of Engineering*  
 B.S.E.E., M.S., University of Iowa; M.A., Columbia University; Ph.D., University of Iowa
- Dorman, Michael F. (1976) . . . . . *Associate Professor of Communication*  
 B.S., University of Washington; M.A., Hines College; Ph.D., University of Connecticut
- Dorson, William J. (1966) . . . . . *Professor of Engineering*  
 B.Ch.E., M.Ch.E., Rensselaer Polytechnic Institute; Ph.D., University of Cincinnati
- Downing, George D. Jr. (1964) . . . . . *Professor Emeritus of Marketing*  
 B.S.E.E., Iowa State University; D.B.A., Michigan State University
- Downs, Charles E. (1975) . . . . . *Associate Professor of Engineering*  
 B.S., University of Arizona; M.S.C.E., Ph.D., Stanford University
- Doyle, Donald P. (1962) . . . . . *Professor of Theatre, Assistant Dean, College of Fine Arts*  
 B.A., Arizona State University; M.A., Northwestern University; Ph.D., University of Minnesota
- Doyle, Roy P. (1959) . . . . . *Professor of Education*  
 B.A., Indiana State University; M.A., Ed.D., Columbia University
- Drake, Jackson M. (1974) . . . . . *Assistant Professor of Education; Director Arizona Educational Information System; Director of Consultant Service BERS*  
 B.S., M.S., Southern Illinois University; Ed.D., Columbia University
- Dresskell, Nadine (1946) . . . . . *Professor of Music*  
 B.S., Bowling Green State University; M.A., Columbia University
- Driscoll, Michael F. (1971) . . . . . *Associate Professor of Mathematics*  
 B.A., St. John's University; M.S., Ph.D., University of Arizona
- Dubie, Norman (1978) . . . . . *Associate Professor of English*  
 B.A.,illard College; M.F.A., University of Iowa
- Dudek, Leona M. (1960) . . . . . *Assistant Professor Emeritus of Education*  
 B.Ed., National College of Education; M.A., Ed.D., Arizona State University
- Duffy, Dennis M. (1977) . . . . . *Assistant Professor of Engineering*  
 B.S., M.S., Ph.D., University of Arizona
- Duffy, Michael K. (1976) . . . . . *Assistant Professor of Economics*  
 B.A., University of Oregon
- Dundas, Mary Jane (1975) . . . . . *Assistant Professor of Administrative Services*  
 B.A., California State University-Long Beach; D.Loyola University, Los Angeles
- Dunlap, Glenn C. (1970) . . . . . *Associate Professor of Technology*  
 B.S., M.S., Ph.D., Arizona State University
- Dunnoch, Joanne M. (1974) . . . . . *Assistant Professor of Physical Education, Athletic Trainer*  
 B.S., Tyson State College; M.S., Ph.D., Indiana University
- Dunwell, Jeannine (1977) . . . . . *Assistant Professor of Nursing*  
 B.S.N., University of Kansas; M.A., Ed.D., University of North Carolina
- Durrenberger, Robert W. (1971) . . . . . *Professor of Geography, Director, Laboratory of Climatology*  
 B.S., Morhead State College; B.S., California Institute of Technology; M.S., University of Wisconsin-Madison; Ph.D., University of California-Los Angeles
- Dworkin, Steven (1975) . . . . . *Assistant Professor of Spanish*  
 B.A., Connecticut University; M.A., University of Illinois; Ph.D., University of California-Berkeley
- Dycus, Augustus M. (1959) . . . . . *Associate Professor of Botany*  
 B.S., Akron University; Ph.D., Cornell University
- Eakin, David B. (1978) . . . . . *Instructor in English*  
 B.A., M.A., Arizona State University
- Eck, Roger D. (1970) . . . . . *Associate Professor of Quantitative Systems*  
 B.S., Ch.E., Clarkson College of Technology; M.B.A., University of New Mexico; Ph.D., Tufts University
- Eckert, Thomas W. (1971) . . . . . *Assistant Professor of Art*  
 B.A., M.F.A., Arizona State University
- Ede sky, Carole (1976) . . . . . *Assistant Professor of Education*  
 B.S., University of Cincinnati; Ph.D., University of New Mexico
- Eder, James F. Jr. (1975) . . . . . *Assistant Professor of Anthropology*  
 B.S., California Institute of Technology; M.A., Ph.D., University of California, Santa Barbara
- Edwards, John (1964) . . . . . *Professor of Education*  
 B.S., Ball State University; Assistant Dean, University Continuing Education; M.A., Ed.D., Arizona State University
- Edwards, Mark R. (1978) . . . . . *Assistant Professor of Agriculture*  
 B.S., M.F.A.S., Navajo Academy; M.B.A., D.B.A., Arizona State University
- Fdwtrds, Marvin J. (1959) . . . . . *Assistant Professor of Technology*  
 B.S., M.A., Indiana State University
- Effland, Richard W. (1967) . . . . . *Professor of Law*  
 A.B., Illinois University of Wisconsin; LL.M., Columbia University
- Eisenberg, Nancy H. (1976) . . . . . *Assistant Professor of Psychology*  
 B.A., University of Michigan; M.A., Ph.D., University of California, Berkeley
- Ekmanis, Rolf (1963) . . . . . *Professor of Russian*  
 B.A., M.A., University of Wisconsin, Madison; Ph.D., Indiana University

- Ellis, John C. (1957) . . . . . *Associate Professor of English*  
B.A., M.A., Ph.D. University of Oregon
- Ellis, Robert H. (1962) . . . . . *Associate Professor of Mass Communications*  
B.A., Arizona State University; M.A., Case Western Reserve University
- Ellman, Ira M. (1978) . . . . . *Associate Professor of Law*  
B.A., Reed College, M.A., University of Illinois  
J.D., Boyd Hall School of Law, University of California, Berkeley
- Ellner, Anthony Jr. (1960) . . . . . *Professor of Architecture*  
B.A., City University of New York; M.A., Columbia University,  
M.Arch., Yale University
- Ellsworth, Lola M. (1938) . . . . . *Professor Emeritus of Home Economics*  
B.S., Brigham Young University; M.A., Columbia University
- Elmore, James W. (1949) . . . . . *Professor of Planning*  
A.B., University of Nebraska; M.S. in Arch., Columbia University
- Elsa, Janet G. (1970) . . . . . *Associate Professor of Communication*  
B.A., M.A., University of California, Davis; Ph.D., University of Iowa
- Emery, Raymond C. (1962) . . . . . *Associate Professor Emeritus of English*  
B.A., M.A., University of Wyoming; Ed.D., Stanford University
- Engelhardt, Florence P. (1965) . . . . . *Associate Professor of Social Work*  
B.A., College of Mount Saint Vincent; M.S.S., Fordham University
- Engelhardt, Jon M. (1972) . . . . . *Associate Professor of Education*  
B.A., M.A., Arizona State University; Ph.D., University of Texas, Austin
- Engish, William S. (1962) . . . . . *Professor of Music*  
B.M., Washburn University; M.A., Ph.D., George Peabody College
- Erbes, Richard A. (1976) . . . . . *Assistant Professor of Public Affairs*  
B.A., M.A., Ph.D., University of Southern California
- Erno, Richard B. (1957-62, 1963) . . . . . *Professor of English*  
B.A., Michigan State University; M.A., University of Denver,  
Ph.D., University of Minnesota
- Escudero, Mary J. (1948) . . . . . *Professor Emeritus of Spanish*  
A.B., San Diego State College; M.A., Claremont College  
Diplôme, Institut de Philologie, University of Paris; Ph.D., Cornell University
- Eubanks, Elizabeth R. (1975) . . . . . *Assistant Professor of Microbiology*  
B.A., M.A., North Texas State University; Ph.D., Louisiana State University
- Evaneshko, Veronica (1977) . . . . . *Assistant Professor of Nursing*  
B.S.N., M.A., Ph.D., University of Arizona
- Evans, Donovan L. (1966) . . . . . *Professor of Engineering*  
B.S.M.E., University of Cincinnati; Ph.D., Northwestern University
- Evans, John X. (1964) . . . . . *Professor of English*  
B.A., Holy Cross College; M.A., Ph.D., Yale University
- Eveland, Charles L. (1974) . . . . . *Professor of Health Services Administration,  
Director, Center for Health Services Administration*  
B.S., University of Maryland; M.H.A., Baylor University; Ph.D., University of Michigan
- Eyring, LeRoy (1961) . . . . . *Professor of Chemistry*  
B.S., University of Arizona; Ph.D., University of California, Berkeley
- Faas, Larry A. (1967) . . . . . *Professor of Education*  
B.S., Iowa State University; M.A., Colorado State College  
Ed.D., Utah State University
- Fairburn, Sandra J. (1976) . . . . . *Instructor of Nursing*  
B.S.N., University of Alabama; M.N., University of Washington
- Fancher, Joanna E. (1976) . . . . . *Assistant Professor of Nursing*  
A.B., Houghton College; M.N., Case Western Reserve University,  
M.A., Columbia University
- Farber, Bernard (1971) . . . . . *Professor of Sociology*  
A.B., Roosevelt University; A.M., Ph.D., University of Chicago
- Farmer, Frank D. (1970) . . . . . *Assistant Professor of Mathematics*  
B.A., M.A., University of California, Riverside; Ph.D., University of Washington
- Farness, Sherly F. (1969) . . . . . *Assistant Professor of Art*  
B.A., M.A., Michigan State University
- Farrar, Roger D. (1974) . . . . . *Associate Professor of Education*  
B.A., M.S., Kearney State College; Ed.D., University of Nebraska
- Farris, Martin T. (1957) . . . . . *Professor of Transportation*  
B.A., M.A., University of Montana; Ph.D., Ohio State University
- Fausel, Donald F. (1969) . . . . . *Associate Professor of Social Work,  
Director, Undergraduate Program*  
M.S.W., Fordham University; D.S.W., Columbia University
- Fazzi, Charles (1977) . . . . . *Assistant Professor of Accounting*  
B.S., M.B.A., Ph.D., Pennsylvania State University
- Fearon, Harold E. (1961) . . . . . *Professor of Management, Chair  
Department of Management*  
B.S., M.B.A., Indiana University  
Ph.D., Michigan State University
- Fehr, Fred S. (1971) . . . . . *Associate Professor of Psychology*  
B.S., University of Wisconsin; M.A., Ph.D., Washington University
- Feldstein, Alan (1970) . . . . . *Professor of Mathematics*  
B.A., Arizona State University; Ph.D., University of California, Los Angeles
- Feller, Carolyn M. (1972) . . . . . *Assistant Professor of Nursing*  
B.S.N., M.S., Arizona State University
- Fellows, Rushtia G. (1977) . . . . . *Assistant Professor of Architecture*  
B.S., Arizona State University
- Fenske, Robert H. (1974) . . . . . *Professor of Education*  
B.S., M.S., Ph.D., University of Wisconsin
- Ferguson, Thomas C. (1977) . . . . . *Professor of Music*  
B.M., Murray State University,  
M.M., Ph.D., Eastman School, University of Rochester

- Ferrell, Wilfred A. (1959) ..... *Professor of English*  
B.A., M.A., Ph.D. University of Texas
- Ferry, John M. (1977) ..... *Assistant Professor of Geology*  
B.S., M.S. Stanford University; Ph.D., Harvard University
- Filsinger, Erik E. (1978) ..... *Assistant Professor of Home Economics*  
B.S., University of Massachusetts; M.T.S. Drew University;  
M.A. Ph.D., Pennsylvania State University
- Finch, A. Joyce (1965) ..... *Assistant Professor of Nursing*  
B.S.N., Augusta College; M.S., University of Colorado
- Finer, Neal (1977) ..... *Assistant Professor of Education*  
B.A., University of Houston; M.A., Mexico City College (University of the Americas),  
Ph.D., University of Texas, Austin
- Fink, Raymond R. (1958) ..... *Professor of Art*  
B.A.E., School of the Art Institute of Chicago,  
M.S.A.E. Illinois Institute of Technology
- Firestone, Melvin M. (1968) ..... *Associate Professor of Anthropology*  
B.A., University of New Mexico; M.A., Ph.D., University of Washington
- Fisher, Marvin M. (1958) ..... *Professor of English; Chair, Department*  
A.B., A.M., Wayne University; Ph.D., University of Minnesota *of English*
- Fisher, Stuart G. (1976) ..... *Assistant Professor of Zoology*  
B.S., M.A., Wake Forest College; Ph.D., Dartmouth College
- Fitch, Gregory W. (1974) ..... *Assistant Professor of Philosophy*  
B.A., Western Washington State College,  
M.A., Ph.D., University of Massachusetts, Amherst
- Flaherty, Richard E. (1978) ..... *Associate Professor of Accounting*  
B.A., M.S., Ph.D., University of Kansas
- Fleming, Robert C. (1974) ..... *Associate Professor of Music, Assistant*  
B.S., Indiana University of Pennsylvania, *Director of Bands*  
M.F.A., Carnegie Mellon University; Ph.D., Southern Illinois University
- Fletcher, Grant (1956) ..... *Professor Emeritus of Music*  
B.M., Illinois Wesleyan University; M.M., University of Michigan,  
Ph.D., Eastman School, University of Rochester
- Florschuetz, Leon W. (1964) ..... *Professor of Engineering*  
B.S., M.S., Ph.D., University of Illinois
- Flynn, James T. (1964) ..... *Associate Professor of Architecture*  
B.Arch., Carnegie Institute of Technology; M.Arch., Harvard University
- Flys, Michael J. (1975) ..... *Professor of Spanish; Chair, Department of*  
Licenciado en Filosofía y Letras, *Foreign Languages*  
Doctor en Filosofía y Letras, Universidad de Madrid (Spain)
- Foard, James H. (1977) ..... *Assistant Professor of Humanities and*  
B.A., College of Wooster; A.M., Ph.D., Stanford University *Religious Studies*
- Foote, Jean A. (1972) ..... *Assistant Professor of Nursing*  
B.S.N., M.S., University of Minnesota
- Ford, Gary (1977) ..... *Assistant Professor of Mathematics*  
B.S., Massachusetts Institute of Technology; M.S., Ph.D., University of Maryland
- Foster, David W. (1966) ..... *Professor of Spanish*  
B.A., M.A., Ph.D., University of Washington
- Foster, James C. (1974) ..... *Associate Professor of History*  
B.S., University of Wisconsin; Ph.D., Cornell University
- Fouquette, Martin J. Jr. (1965) ..... *Associate Professor of Zoology*  
B.A., M.A., Ph.D., University of Texas
- Fox, Lynn S. (1977) ..... *Instructor of Nursing*  
B.A., Gustavus Adolphus College; M.S., Boston University
- Franks, John R. (1976) ..... *Assistant Professor of Communication*  
B.A., University of Missouri; M.A.,  
Central Institute for the Deaf; Ph.D., Purdue University
- Frasier, James E. (1963) ..... *Professor of Education*  
B.A., University of Northern Colorado; M.A., University of Michigan,  
Ed.D., University of Northern Colorado
- Frazier, Robert C. (1971) ..... *Associate Professor of Humanities*  
B.M.E., Kansas City Conservatory of Music; *and Religious Studies*  
M.M., University of Denver; Ph.D., Arizona State University
- Freund, John E. (1957) ..... *Professor Emeritus of Mathematics*  
B.A., M.A., University of California, Los Angeles; Ph.D., University of Pittsburgh
- Friedman, Edward (1977) ..... *Assistant Professor of Spanish*  
B.A., University of Virginia; M.A., Ph.D., Johns Hopkins University
- Friedman, Moshe (1975) ..... *Associate Professor of Mathematics*  
B.A., M.A., Ph.D., Hebrew University of Jerusalem
- Fritzemeyer, Joe R. (1973) ..... *Professor of Accounting*  
B.B.A., Baylor University; M.B.A., D.B.A., Indiana University; C.P.A., Texas
- Frost, Melvin J. (1965) ..... *Assistant Professor of Geography*  
B.S., Arizona State University; M.S., Brigham Young University  
Ph.D., University of Florida
- Fry, Harold (1958) ..... *Associate Professor of Engineering*  
B.S., Colorado State University; M.E., University of Wyoming  
M.S., University of Colorado
- Fry, Maurine A. (1967) ..... *Professor of Education; Chair*  
B.S., M.A., University of South Dakota, *Department of Educational Psychology*  
Ph.D., University of Iowa
- Fuchs, Jacob (1951) ..... *Professor of Chemistry;*  
B.A., New York University, *Director Instruments Laboratory*  
M.S., Ph.D., University of Illinois
- Fulerton, Bill J. (1958) ..... *Professor of Education,*  
B.S., Northwestern State College; *Associate Dean College of Education*  
Ed.M., D.Ed., University of Oklahoma
- Fullinwider, S. Pendleton (1967) ..... *Associate Professor of History*  
B.S., U.S. Naval Academy; M.S., Ph.D., University of Wisconsin-Madison

- Furnish, Dale B. (1970) . . . . . *Professor of Law*  
 B.A., Grinnell College; J.D., University of Iowa  
 LL.M., University of Michigan
- Furnish, Hannah Arterian (1979) . . . . . *Associate Professor of Law*  
 B.A., Emory College; J.D., University of Iowa
- Gaffney, Philip D. (1957) . . . . . *Professor of Education*  
 B.S., Northern Illinois State University; M.A., Ph.D., State University of Iowa
- Gage, John T. (1976) . . . . . *Assistant Professor of English,*  
*Assistant Director of Freshman English*  
 B.A., M.A., Ph.D., University of California, Berkeley
- Gaines, Sylvia W. (1972) . . . . . *Assistant Professor of Anthropology*  
 B.A., M.A., Ph.D., Arizona State University
- Gallinger, George W. (1977) . . . . . *Assistant Professor of Finance*  
 B.A., Waterloo Lutheran College; M.B.A., York University; Ph.D., Purdue University
- Gambone, David P., Capt. (1971) . . . . . *Assistant Professor of Aerospace Studies*  
 B.S., Miami University; M.S., Florida Institute of Technology
- Garner, Maria (1974) . . . . . *Assistant Professor of Social Work*  
 B.A., Our Lady of the Lake College, San Antonio; M.S.W., Arizona State University
- Garrity, Marjorie L. (1975) . . . . . *Assistant Professor of Nursing*  
 B.S., University of Bridgeport; M.S., Case Western Reserve University
- Gasowski, Raymond E. (1971) . . . . . *Associate Professor of Art*  
 B.S.D., University of Michigan; M.F.A., University of Washington
- Gehrlein, Norman J. (1977) . . . . . *Instructor in English*  
 B.A., M.A., Gannon College
- Geopulos, Demos P. (1968) . . . . . *Professor of Engineering*  
 B.S.E.E., Valparaiso University; M.S.E.E., University of Notre Dame  
 Ph.D., University of Arizona
- Gerber, Helmut E. (1971) . . . . . *Professor of English*  
 B.S. in Ed., Rutgers, The State University; M.A., New York University,  
 Ph.D., University of Pennsylvania
- Gereboff, Joel (1978) . . . . . *Assistant Professor of Humanities*  
*and Religious Studies*  
 B.A., New York University,  
 Ph.D., Brown University
- Gerking, Shelby D. (1967) . . . . . *Professor of Zoology*  
 A.B., DePaul University; Ph.D., Indiana University
- Gerlach, Vernon S. (1963) . . . . . *Professor of Education*  
 B.A., Wayne State University; M.A., University of Minnesota  
 Ed.D., Arizona State University
- Gevin, Frederick H. Maj. (1979) . . . . . *Assistant Professor of Military Science*  
 B.A., Northeast Oklahoma State University; M.S., Oklahoma State University
- Geschen, Donald W. (1959) . . . . . *Associate Professor of Philosophy*  
 B.S., Northwestern University; M.A., Ph.D., University of Minnesota
- Giffen, Frederick C. (1967) . . . . . *Professor of History*  
 B.A., Denison University; M.A., Ph.D., Emory University
- Gilbertson, Michael K. (1978) . . . . . *Instructor in English*  
 A.A., Northeastern Junior College; B.A., M.A., Colorado State University
- Gill, George A. (1966) . . . . . *Assistant Professor of Education*  
 B.S., M.A., Arizona State University
- Gill, Sandra (1975) . . . . . *Assistant Professor of Humanities*  
*and Religious Studies*  
 B.S., M.S., Wichita State University  
 M.A., Ph.D., University of Chicago
- Gillingwater, Denis (1973) . . . . . *Associate Professor of Art*  
 B.F.A., M.F.A., University of Cincinnati
- Gipp, Wayne F. (1976) . . . . . *Assistant Professor of Agriculture*  
 B.S., Cornell University; M.S., Purdue University,  
 Ph.D., Cornell University
- Giso, Margaret (1964) . . . . . *Professor of Dance*  
 B.S., Indiana State Teachers College; M.A., New York University
- Glanzman, Dennis L. (1977) . . . . . *Assistant Professor of Psychology*  
 B.A., M.A., Ph.D., University of California, Irvine
- Glaunsinger, William S. (1972) . . . . . *Associate Professor of Chemistry*  
 B.S., Miami University; Ph.D., Cornell University
- Gober Meyers, Patricia A. (1975) . . . . . *Assistant Professor of Geography*  
 B.S., University of Wisconsin, Wausau,  
 M.S., Ph.D., Ohio State University
- Gogel, Robert M. (1976) . . . . . *Assistant Professor of Sociology*  
 B.S., City University of New York,  
 M.A., Ph.D., University of California, Santa Barbara
- Goggan, Mary (1978) . . . . . *Assistant Professor of Social Work*  
 B.A., Franklin College; M.S.W., Boston College
- Goheen, Douglas Scott (1965) . . . . . *Associate Professor of Theatre*  
 B.A., College of William and Mary; M.F.A., Yale University,  
 Ph.D., University of Denver
- Goedstein, Elliott S. (1974) . . . . . *Associate Professor of Zoology*  
 B.S., University of Hartford; M.S., Ph.D., University of Minnesota
- Goldstein, Myron (1963) . . . . . *Professor of Mathematics*  
 B.S., M.A., Ph.D., University of California, Los Angeles
- Goo, Benjamin (1955) . . . . . *Professor of Art*  
 B.F.A., University of Iowa; M.F.A., Cranbrook Academy of Art
- Gooding, Elmer R. (1967) . . . . . *Professor of Economics*  
 B.S., McPherson College; *Associate Dean, College of Business Administration*  
 M.A., Ph.D., University of Kansas
- Goedstein, Leonard D. (1974) . . . . . *Professor of Psychology*  
 B.S., City University of New York City College,  
 M.A., Ph.D., Columbia University

## RESIDENT FACULTY

- Gordon, Leonard (1967) . . . . . *Professor of Sociology;*  
 B.A., Wayne State University, *Associate Chair, Department of Sociology*  
 A.M., University of Michigan, Ph.D., Wayne State University
- Gourley, David R. (1967) . . . . . *Associate Professor of Marketing*  
 B.S., Miami University, M.B.A., University of Toledo, D.B.A., Indiana University
- Grace, Edward E. (1963) . . . . . *Professor of Mathematics*  
 B.S., Ph.D., University of North Carolina
- Grady, Thomas K. (1978) . . . . . *Associate Professor of Technology*  
 B.A., B.S., M.S.T.E., University of Colorado
- Graf, William I. (1978) . . . . . *Assistant Professor of Geography*  
 B.A., M.S., Ph.D., University of Wisconsin, Madison
- Graham, Denny I. (1974) . . . . . *Associate Professor of Technology*  
 B.S., Ohio State University, M.S., Denver University, Ph.D., Purdue University
- Greathouse, Betty M. (1972) . . . . . *Associate Professor of Education*  
 B.A., M.A., Ph.D., Arizona State University
- Greeley, Ronald (1977) . . . . . *Professor of Geology*  
 B.S., M.S., Mississippi State University, Ph.D., University of Missouri, Rolla
- Green, James I. (1967) . . . . . *Associate Professor of English*  
 B.A., M.A., University of Kansas, Ph.D., University of Nevada
- Green, Mary E. (1967) . . . . . *Associate Professor of English*  
 B.A., Queens College, New York, M.A., St. John's University, New York,  
 Ph.D., University of Chicago
- Greene, Mildred S. (1966) . . . . . *Associate Professor of English*  
 A.B., Wellesley College, M.A.T., Radcliffe College;  
 M.A., University of Massachusetts, Ph.D., University of New Mexico
- Greenwood, Michael J. (1973) . . . . . *Professor of Economics*  
 B.S., DePauw University, M.A., Ph.D., Northwestern University
- Greey, George W. (1969) . . . . . *Professor of Recreation*  
 B.A., M.A., Purdue University, Ph.D., University of Michigan
- Gregory, Donna (1976) . . . . . *Assistant Professor of Humanities*  
 B.A., University of Washington, *and Religious Studies*  
 M.A., Boston University, Ph.D., University of Utah
- Grier, Marvin (1957) . . . . . *Assistant Professor of Physical Education*  
 B.S., Wisconsin State College, La Crosse, *Supervisor, Swimming Pool*  
 M.A., New York University
- Griffith, LeRoy H. (1958) . . . . . *Professor of Education*  
 B.S., Ed.M.S., Ed.D., Drake University, Ph.D., University of Iowa
- Grigsby, J. Eugene (1966) . . . . . *Professor of Art*  
 A.B., Morehouse College, M.A., Ohio State University, Ph.D., New York University
- Grunder, Robert E. (1973) . . . . . *Professor of Education*  
 B.S., University of California, Ed.D., Harvard University
- Grobe, Edwin P. (1957) . . . . . *Professor of French*  
 A.B., William Jewell College, M.A., Ph.D., Indiana University
- Gross, Douglas R. (1968) . . . . . *Associate Professor of Education*  
 B.A., M.A., Western Michigan University, Ph.D., University of Wisconsin, Madison
- Grossman, Louis H. (1966) . . . . . *Professor of Marketing*  
 A.B., University of Michigan, M.B.A., Ph.D., Michigan State University
- Gruzinska, Aleksandra (1973) . . . . . *Assistant Professor of French*  
 Lycee Francaise Barceona Spain  
 B.A., M.A., State University of New York, Buffalo,  
 Ph.D., Pennsylvania State University
- Gryder, Robert (1959-63; 1964) . . . . . *Professor of Administrative Services*  
 B.A., Northwestern State College, M.Ed., Louisiana State University  
 Ed.D., University of North Dakota
- Guilbeau, Eric J. (1977) . . . . . *Associate Professor in Engineering*  
 B.S. in Ch.E., M.S. in Ch.E., Ph.D. in Ch.E., Louisiana Tech. University
- Gullot, Elizabeth E. (1964) . . . . . *Professor Emeritus of Sociology*  
 B.S., St. Louis College, M.A., Ph.D., University of Pennsylvania
- Guinouard, Donald E. (1966) . . . . . *Professor of Education, Counselor,*  
*University Counseling Service*  
 B.S., M.S., Montana State College, Ed.D., Washington State University
- Guesserian, Theodore (1971) . . . . . *Associate Professor of Philosophy*  
 B.A., University of California, Riverside, Ph.D., Yale University
- Guluy, Anthony Lacy (1972) . . . . . *Associate Professor of Art*  
 B.A., University of California, Riverside, M.A., University of California, Berkeley,  
 Ph.D., Stanford University
- Gunternann, Gail (1977) . . . . . *Assistant Professor of Spanish*  
 B.S., University of Montana, M.A., University of New Mexico,  
 Ph.D., Ohio State University
- Gurnee, Herbert (1943) . . . . . *Professor Emeritus of Psychology*  
 A.B., M.A., Wesleyan University, Ph.D., Harvard University
- Gust, J. Devans (1975) . . . . . *Assistant Professor of Chemistry*  
 B.S., Stanford University, M.S., Ph.D., Princeton University
- Gwinner, Robert F. (1970) . . . . . *Professor of Marketing*  
 B.S., University of Southern Mississippi, M.B.A., Ph.D., University of Arkansas
- Haberman, Donald C. (1967) . . . . . *Associate Professor of English*  
 B.A., Rutgers-The State University, M.A., Ph.D., Yale University
- Haberman, Lidia W. (1967) . . . . . *Instructor in Latin and Italian*  
 B.A., Bryn Mawr College, M.A., Yale University
- Hackbarth, Glen A. (1976) . . . . . *Instructor of Music*  
 B.M., University of Wisconsin, Madison, M.M., D.M.A., University of Illinois
- Haddock, Maryann (1975) . . . . . *Assistant Professor of Education*  
 B.A., California State University, Sacramento, Ph.D., University of Oregon

- Haden, Clovis R. (1978) . . . . . *Professor of Engineering, Dean, College of Engineering and Applied Sciences,*  
B.S., Arlington State College; *Engineering and Applied Sciences,*  
M.S., California Institute of Technology *Director, School of Engineering*  
Ph.D., University of Texas
- Hadley, Neil F. (1966) . . . . . *Professor of Zoology*  
B.A. Eastern Michigan University, Ph.D., University of Colorado
- Haefler, J. Richard (1976) . . . . . *Assistant Professor of Music*  
B.M., Ohio State University, M.M., University of Arizona
- Haggerson, Nelson L. (1961-63; 1964) . . . . . *Professor of Education*  
B.A., Vanderbilt University, M.S. in Ed., New Mexico Western College  
Ph.D., Claremont Graduate School
- Hahn, Arthur W. (1962) . . . . . *Associate Professor of Art*  
B.F.A., California School of Fine Arts, M.A., San Francisco State University
- Hai, Dorothy M. (1975) . . . . . *Assistant Professor of Health Services Administration*  
B.A., University of Wisconsin; M.Ed., University of Massachusetts; M.P.H., University of Pittsburgh, Ed.D., University of Massachusetts
- Hajcek, James (1976) . . . . . *Instructor of Art*  
B.F.A., Kansas City Art Institute, M.F.A., University of New Mexico
- Hakac, John (1966) . . . . . *Associate Professor of English*  
A.B. Centre College, M.A., Ph.D., University of Texas
- Hakim, Ramzi S. (1978) . . . . . *Assistant Professor of Quantitative Systems*  
B.S.E.E., American University of Beirut, M.S., M.B.A., University of Houston
- Hale, John Douglas (1956) . . . . . *Professor of Art*  
B.F.A., M.F.A., University of Southern California  
Ph.D., Ohio State University
- Haley, Arthur J. (1976) . . . . . *Assistant Professor of Recreation*  
B.A., Stonehill College; M.Ed., Springfield College; Ph.D., Ohio State University
- Hall, George A. (1978) . . . . . *Assistant Professor of Social Work*  
B.S. Columbia University, M.P.H., Ph.D., University of Michigan
- Hall, John S. (1973) . . . . . *Assistant Professor of Public Affairs*  
B.A., M.A. St. Diego State University; Ph.D., University of Oregon
- Hall, Thomas E. (1975) . . . . . *Professor of Art*  
B.F.A. Kansas City Art Institute, M.F.A., Drake University
- Hamm, George F. (1962) . . . . . *Professor of Education,*  
B.S., South Dakota State College; *Vice President, Student Affairs*  
M.A., Ph.D., University of Wyoming
- Hammock, Paul R., Colonel (1977) . . . . . *Professor of Aerospace Studies,*  
B.A., San Diego State University, *Chair, Department of Aerospace Studies*  
M.S. Shippensburg State College
- Hanna, Albert L. (1967) . . . . . *Associate Professor of Music*  
B.M., College of Music of Cincinnati, Ph.D., Indiana University
- Hansche, Brian A. (1978) . . . . . *Assistant Professor of Mathematics*  
B.S., University of New Mexico, M.S., Ph.D., University of Illinois
- Hansen, Lawrence A. (1979) . . . . . *Assistant Professor in Engineering*  
B.S.C.E., Portland State University, M.S.C.E., Oregon State University
- Hansen, Lynn M. (1977) . . . . . *Instructor of Nursing*  
B.S., University of Maryland, M.A., University of Washington
- Hanson, Hugh (1948) . . . . . *Professor Emeritus of Zoology*  
B.S., Kansas State Teachers College, M.S., Ph.D., University of Illinois
- Hanson, Ronald C. (1966) . . . . . *Associate Professor of Physics*  
B.S. Michigan College of Mining and Technology;  
M.S. Ph.D., University of Illinois
- Happel, Stephen K. (1975) . . . . . *Assistant Professor of Economics*  
B.A. University of Missouri, M.A., Ph.D. Duke University
- Hardert, Ronald A. (1966) . . . . . *Associate Professor of Sociology*  
A.B., M.A., University of Cincinnati, Ph.D. Indiana University
- Hardt, Annabelle (1968) . . . . . *Associate Professor of Education*  
B.A., Southwestern University; A.M., Cornell University,  
Ph.D., University of Texas
- Haried, Andrew A. (1969) . . . . . *Associate Professor of Accounting*  
B.A. Hastings College, M.A.S., Ph.D., University of Illinois  
C.P.A., Illinois North Carolina and Arizona
- Haring, L. Lloyd (1959) . . . . . *Professor of Geography*  
B.S. in Ed. M.S., Kansas State Teachers College; Ph.D., University of Iowa
- Harkins, Jeffrey L. (1978) . . . . . *Assistant Professor of Accounting*  
B.B.A., M.P.A. University of Texas, Arlington
- Harris, Bruce (1962) . . . . . *Professor Emeritus of English*  
M.A., Vanderbilt University; Ph.D., Harvard University
- Harris, Jerry D. (1972) . . . . . *Assistant Professor of Education*  
B.S., Illinois State University, Ph.D., University of Minnesota
- Harriss, Joseph (1963) . . . . . *Professor of Chemistry, Associate Chair*  
B.S., University of Maryland, *Department of Chemistry*  
M.A., Ph.D., Johns Hopkins University
- Harris, Kathryn M. (1966) . . . . . *Instructor in English*  
B.A., M.A., Arizona State University
- Harris, Olita (1978) . . . . . *Assistant Professor of Social Work*  
B.S., Rocky Mountain College, M.S.W., D.S.W., University of Denver
- Harris, William H. (1960) . . . . . *Professor of Marketing*  
B.S. University of Denver, M.B.A., Ph.D., Ohio State University
- Harter, Tom J. (1937) . . . . . *Professor Emeritus of Art*  
B.A. in Ed., Arizona State University, M.F.A., University of Oregon
- Hartwell, L. Kay (1975) . . . . . *Assistant Professor of Education*  
B.S. M.A., Murray State University, Ph.D., Southern Illinois University
- Harward, Naomi (1956) . . . . . *Professor Emeritus of Sociology*  
B.D. Garrett Biblical Institute; B.A., Northwestern University,  
M.A. (Re-Ed.), M.A. (Social Welfare), University of Chicago

## RESIDENT FACULTY

- Hasbrouck, Frank F. (1962) . . . . . *Associate Professor of Zoology*  
B.A., Ph.D., University of Illinois
- Hassett, Matthew J. (1966) . . . . . *Associate Professor of Mathematics*  
B.A., Fordham University, M.S., Ph.D., Rutgers, The State University
- Hastings, Vernon L. (1973) . . . . . *Professor of Construction Director*  
B.S.M.E., University of Nebraska, Division of Construction  
M.S.I.E., Oklahoma A & M University
- Hawley, John B. (1957) . . . . . *Assistant Professor Emeritus of Engineering*  
B.S., E.M.E.T., Colorado School of Mines
- Haygood, Robert C. (1970) . . . . . *Professor of Psychology*  
B.S., University of Illinois Urbana, M.S., Ph.D., University of Utah
- Haynes, Peter (1975) . . . . . *Professor of Criminal Justice*  
B.S., University of Southampton, England; M.A., Ph.D., University of Toronto
- Hazel, Jeffrey R. (1975) . . . . . *Associate Professor of Zoology*  
B.A., College of Wooster, M.S., Ph.D., University of Illinois
- Heid, Donald J. (1977) . . . . . *Assistant Professor of Management*  
B.S.E.E., University of Illinois
- Heier, William D. (1966) . . . . . *Professor of Management*  
B.S., University of Maryland; M.A., George Washington University,  
Ph.D., American University
- Heimann, Robert A. (1952) . . . . . *Professor of Education*  
B.S., Wisconsin State College, M.S., Ph.D., University of Wisconsin, Madison
- Heller, Jules (1976) . . . . . *Professor of Art Dean College of Fine Arts*  
B.A., Arizona State University, M.A., Columbia University  
Ph.D., University of Southern California
- Heller, Robert C. (1978) . . . . . *Assistant Professor of Theatre*  
B.A., M.A., Villanova University, M.F.A., Yale University
- Helms, Loyce Randel (1976) . . . . . *Assistant Professor of English*  
B.A., University of California Riverside, Ph.D., University of Washington
- Helmstadter, G. C. (1959) . . . . . *Professor of Education*  
B.S., M.S., Iowa State University; Ph.D., University of Missouri
- Helton, Jon C. (1973) . . . . . *Associate Professor of Mathematics*  
B.S., Southwest Texas State College; M.A., Ph.D., University of Texas, Austin
- Hendrickson, Lester E. (1968) . . . . . *Associate Professor of Engineering*  
B.S., M.S., Michigan Technological University, Ph.D., University of Illinois
- Hendrickson, William L. (1976) . . . . . *Associate Professor of French*  
B.A., Arizona State University, M.A., University of Kansas,  
Ph.D., Princeton University
- Henkel, Ray (1966) . . . . . *Assistant Professor of Geography*  
B.S., Arizona State University, M.S., Ph.D., University of Wisconsin, Madison
- Henington, Jo Ann (1975) . . . . . *Associate Professor of Administrative Services,*  
B.A., M.B.A., Ed.D., Director, Student Advisement,  
Arizona State University College of Business Administration
- Henry, Nicholas L. (1975) . . . . . *Associate Professor of Public Affairs*  
B.A., Centre College; Director, Center for Public Affairs  
M.A., Pennsylvania State University, M.P.A., Ph.D., Indiana University
- Henson, Doris A. (1975) . . . . . *Instructor of Nursing*  
B.S.N., South Dakota State University, M.S.N., University of Colorado
- Henson, Dorothy A. (1974) . . . . . *Instructor of Nursing*  
B.S., Whitworth College, M.A., West Virginia College of Graduate Studies
- Henze, Lura F. (1966) . . . . . *Professor Emeritus of Sociology*  
B.A., M.A., Arizona State University
- Herman, George R. (1956) . . . . . *Associate Professor of English*  
B.S., M.A., University of Kansas
- Hernandez, Armand P. (1974) . . . . . *Associate Professor of Criminal Justice*  
B.A., M.A., San Jose State University; Ed.D., University of Southern California
- Hershauer, James C. (1969) . . . . . *Professor of Quantitative Systems*  
B.S., Purdue University, M.B.A., D.B.A., Indiana University
- Hershberger, Robert G. (1969) . . . . . *Professor of Planning*  
A.B., Stanford University, B.Arch., University of Illinois,  
M.Arch., Ph.D., University of Pennsylvania
- Hestenes, David O. (1966) . . . . . *Professor of Physics*  
B.A., Pacific Lutheran College, M.A., Ph.D., University of California, Los Angeles
- Hicks, Dorothy J. (1975) . . . . . *Associate Professor of Nursing*  
B.S.N.E., University of Texas, M.N., University of Washington
- Higgins, Norman C. (1968) . . . . . *Professor of Education Chair, Department*  
B.S., Central Missouri State College of Educational Technology  
M.S., Ph.D., Syracuse University and Library Science
- Higgins, Thomas Ernest (1977) . . . . . *Assistant Professor of Engineering*  
B.S.C.E., M.S.E.H.F., Ph.D., University of Notre Dame
- Higgins, Walter T. Jr. (1967) . . . . . *Professor of Engineering*  
B.F.E., Manhattan College, M.S., Ph.D., University of Arizona
- Hill, Bernard (1966) . . . . . *Associate Professor of Social Work*  
B.S.S., City College of New York, M.S.W., Tuane University
- Hill, John Kent (1978) . . . . . *Assistant Professor of Economics*  
B.A., Wake Forest University, Ph.D., Rice University
- Hill, Louis A. Jr. (1958) . . . . . *Professor of Engineering, Chair, Department*  
B.A., B.S.C.E., M.S.C.E., Oklahoma State University of Civil Engineering  
Ph.D., Case Western Reserve University
- Hines, Harold C. (1952) . . . . . *Associate Professor of Music*  
B.S., M.S., University of Illinois
- Hink, Heinz R. (1958) . . . . . *Professor of Political Science*  
L.B., University of Berlin (Germany);  
M.A., Ph.D., University of Washington
- Hinshaw, Donald A. (1966) . . . . . *Associate Professor of Architecture*  
B.Arch., University of Notre Dame

- Hirata, Ernest T (1974) . . . . . *Assistant Professor of Technology*  
B.A., San Diego State College, Ed.D., Arizona State University
- Hirleman, Edwin D. Jr (1977) . . . . . *Assistant Professor of Engineering*  
B.S.M.E., M.S.M.E., Ph.D., Purdue University
- Hirsch, Robert (1974) . . . . . *Associate Professor of Communication*  
B.S., Portland State University, M.S., Ph.D., Southern Illinois University
- Hoffler, Warren W (1972) . . . . . *Assistant Professor of Music*  
B.M., M.M., University of Wisconsin, Madison
- Hogan, Jerry B (1978) . . . . . *Instructor in English*  
B.A., Central Missouri State University, M.A., University of Puerto Rico
- Hogan, Timothy D. (1970) . . . . . *Associate Professor of Economics*  
A.B., University of California, Berkeley, M.A., University of California, Div. 5  
Ph.D., Virginia Polytechnic Institute
- Hojo, Michio (1975) . . . . . *Assistant Professor of Japanese*  
B.A., Tokyo Kyōrik University, M.A., Ph.D., University of Southern California
- Holbrook, Anthony K. (1975) . . . . . *Assistant Professor of Music*  
B.A., M.A., Music College, Catholic University of Washington
- Holloway, John R. (1969) . . . . . *Associate Professor of Chemistry and Geology*  
B.S., University of Oregon, Ph.D., Pennsylvania State University
- Holmes, Jack E. (1972) . . . . . *Professor of Political Science*  
A.B., M.A., University of Wyoming, Ph.D., University of Chicago
- Honora, Donald L. (1975) . . . . . *Assistant Professor of Psychology*  
B.S., University of Iowa, M.S., Ph.D., University of Wisconsin
- Hoover, Eric John (1977) . . . . . *Associate Professor of Music*  
B.S., Duquesne University, M.M., Catholic University of America
- Hoover, Helene M. (1957) . . . . . *Professor of Home Economics; Chair*  
B.S., M.S., Louisiana State University, *Department of Home Economics*  
Ed.D., Oklahoma State University
- Hoover, Kenneth H. (1956) . . . . . *Professor of Education*  
B.S., M.A., Louisiana State University, Ed.D., University of Washington
- Horacek, Louise A. (1977) . . . . . *Instructor of Nursing*  
B.S.N., St. Louis University, M.S., Akron University
- Hornof, Mary Clare (1977) . . . . . *Professor of Nursing*  
B.A., DePaul University, M.N., University of Washington  
Ph.D., University of California, Berkeley
- Horwath, Peter (1973) . . . . . *Professor of German*  
Abitur, Regensburg, Landshut, B.A., M.A., Indiana University,  
Ph.D., University of Michigan
- Hoult, Thomas Ford (1964) . . . . . *Professor of Sociology*  
A.B., University of Illinois, M.A., Worcester College,  
Ph.D., University of Southern California
- Howell, Kenneth W. (1976) . . . . . *Assistant Professor of Education*  
B.A., M.A., Arizona State University, Ph.D., University of Oregon
- Howells, Edmund G. (1960) . . . . . *Assistant Professor of Philosophy*  
B.A., University of Utah; M.A. (Phil.), University of Michigan  
M.A. (English), Middlebury College, Ph.D., Stanford University
- Howery, Betty I. (1975) . . . . . *Associate Professor of Music*  
B.S., Ed.M., Music Education, Eastern University of Kentucky
- Hoy, Frank P. (1978) . . . . . *Associate Professor of Mass Communications*  
B.A., Georgetown University, M.A., American University
- Hoyt, Charles D. Jr. (1962) . . . . . *Professor Emeritus of Engineering*  
B.S., M.S., Ph.D., Purdue University
- Hubbard, Paul G. (1950) . . . . . *Professor of History, Associate Dean*  
A.B., Wabash College, M.A., Ph.D., University of Illinois, *College of Liberal Arts*
- Hudelson, Sarah (1975) . . . . . *Assistant Professor of Education*  
B.A., College of Western Michigan, Ph.D., University of Texas, Austin
- Hudson, John W. (1964) . . . . . *Professor of Sociology*  
B.S., M.A., Ph.D., Ohio State University
- Hudson, Laure (1978) . . . . . *Instructor of Nursing*  
B.S.N., University of Minnesota, M.N., University of Washington
- Huff, Nelda F. (1978) . . . . . *Instructor of Nursing*  
B.S.N., Murray State University, M.S.N., University of Virginia, *Chattanooga*
- Huzyng, William (1959) . . . . . *Professor of Accounting, Associate Dean*  
B.S.B.A., M.B.A., University of Denver, *College of Business Administration*  
Ph.D., University of Michigan, C.P.A., Arizona and Colorado
- Humphrey, Ted (1966) . . . . . *Associate Professor of Philosophy, Chair*  
A.B., M.A., University of California, Riverside; *Department of Philosophy*  
Ph.D., University of California, San Diego
- Hunnicutt, Harold B. (1962) . . . . . *Professor of Education, Assistant Vice*  
B.S., Ed.M., Ed.D., University of Oklahoma, *President, Director, Research Grants*  
*and Contracts, Graduate College*
- Hunter, Betty A. (1966) . . . . . *Assistant Professor of Home Economics*  
B.S., M.Ed., University of North Carolina, Greensboro
- Huntington, Virginia R. (1962) . . . . . *Associate Professor of Accounting*  
B.A., M.B.A., University of Kansas, Ph.D., University of Texas  
C.P.A., Missouri and Arizona
- Hurston, Clifford J. (1975) . . . . . *Assistant Professor of Administrative Services*  
B.S., M.S., Tennessee State University, Ed.D., Arizona State University
- Huston, Gerald D. (1962) . . . . . *Associate Professor of Quantitative Systems*  
B.S.C., M.A., Ph.D., University of Iowa
- Hutt, Roger W. (1975) . . . . . *Assistant Professor of Administrative Services*  
B.S., M.B.A., Ohio State University, Ph.D., Michigan State University
- Imdieke, Jack H. (1977) . . . . . *Assistant Professor of Administrative Services*  
B.S., Valley City State College, M.S., University of North Dakota

## RESIDENT FACULTY

- Imdieke, Leroy F. (1968) . . . . . *Professor of Accounting*  
 B.S., Valley City State College, M.A., University of North Dakota,  
 Ph.D., University of Illinois, C.P.A. Illinois
- Inman, Thomas H. (1975) . . . . . *Professor of Administrative Services Director,*  
*Center for Executive Development*  
 B.S., M.A., George Peabody College  
 Ed.D., Northern Illinois University
- Inskip, Gordon C. (1968) . . . . . *Professor of Management*  
 B.C.E. Ohio State University, Ph.D. Columbia University
- Ismail, Mourad E. (1979) . . . . . *Assistant Professor of Mathematics*  
 B.S., Cairo University, M.S., Ph.D., University of Alberta
- Itule, Bruce D. (1975) . . . . . *Assistant Professor of Mass Communications*  
 B.A., University of Arizona, M.A., University of Colorado
- Jacks, Mary L. (1955) . . . . . *Associate Professor of Administrative Services*  
 B.A., M.A., Arizona State University, C.P.S., Arizona
- Jackson, Donald W. Jr. (1972) . . . . . *Associate Professor of Marketing*  
 B.A., Abilene College, M.B.A. Ph.D., Michigan State University
- Jackson, Marvin R. Jr. (1962) . . . . . *Associate Professor of Economics*  
 B.S., M.A., University of Colorado, Ph.D., University of California Berkeley
- Jacob, Mary (1978) . . . . . *Assistant Professor of Home Economics*  
 B.S., M.S. University of Madras, M.S. University of Indiana,  
 Ph.D. University of Illinois, Urbana
- Jacob, Richard J. (1963) . . . . . *Professor of Physics*  
 B.S., Ph.D., University of Utah
- Jacobowitz, Ronald (1970) . . . . . *Professor of Mathematics*  
 B.A., City College of New York, M.S., University of Chicago,  
 Ph.D., Princeton University
- Jacobs, H. Donald (1972) . . . . . *Associate Professor of Education*  
 B.A. Ed., M.A. Ed., Central Washington State College, D.Ed., University of Oregon
- Jacobson, Arthur (1956) . . . . . *Professor of Art*  
 B.S., M.S., University of Wisconsin Madison
- Jacobson, Dean L. (1974) . . . . . *Professor of Engineering*  
 B.S., M.S., University of Notre Dame, Ph.D., University of California Los Angeles
- Jain, Nemi C. (1976) . . . . . *Associate Professor of Communication*  
 B.S., M.S., Agra University Ph.D. Michigan State University
- Jakob, John H. (1960) . . . . . *Associate Professor of Architecture*  
 B.Arch., Ohio State University M.S. Arch., Columbia University
- Jankowski, Daniel F. (1964) . . . . . *Professor of Engineering*  
 B.S.E., M.S.E., Ph.D., University of Michigan
- Janssen, James G. (1968) . . . . . *Associate Professor of English*  
 B.A. M.A. Marquette University Ph.D. University of Wisconsin, Madison
- Jasper, Marcia A. (1976) . . . . . *Instructor of Nursing*  
 B.S.N., St. Olaf College M.S. Arizona State University
- Jay, Bill (1974) . . . . . *Assistant Professor of Art*  
 B.A., Berkshire College of Art, England, M.A. University of New Mexico
- Jeffery, Donna (1977) . . . . . *Assistant Professor in Home Economics*  
 B.A., S. Jose State University M.S., University of Missouri,  
 Ph.D., University of California Berkeley
- Jelinek, James J. (1953) . . . . . *Professor Emeritus of Education*  
 B.S., University of Illinois, M.A., Northwestern University  
 Ed.D., Indiana University
- Jelsma, Lawrence F. (1967) . . . . . *Professor of Engineering*  
 B.S.I.E. Oklahoma State University, M.S., Northwest State University,  
 Ph.D. University of Delaware
- Jennings, Marianne G. (1977) . . . . . *Assistant Professor of Administrative Services*  
 B.S., I.D., Brigham Young University
- Jo, Yung-Hwun (1966) . . . . . *Professor of Political Science, Director*  
*Center for Asian Studies*  
 B.A. Lincoln Memorial University,  
 M.A., University of Tennessee, Knoxville Ph.D., Appalachian University
- Johnson, Alan P. (1967) . . . . . *Associate Professor of English*  
 B.A., Aherst College; M.A., University of Michigan Ph.D., University of Minnesota
- Johnson, David N. (1969) . . . . . *Professor of Music*  
 B.M. Trinity University, M.M., Ph.D., Syracuse University
- Johnson, Douglas A. (1974) . . . . . *Assistant Professor of Accounting*  
 B.B.A., Ph.D., University of Texas C.P.A., Texas
- Johnson, John M. (1972) . . . . . *Associate Professor of Sociology*  
 B.A. Indiana University, M.A. San Diego State College,  
 Ph.D. University of California, San Diego
- Johnson, Lois (1978) . . . . . *Assistant Professor of Social Work*  
 B.A. San Francisco State University, M.S.W., University of Illinois,  
 Ph.D., St. Louis University
- Johnson, Rosemary (1959) . . . . . *Professor of Nursing*  
 B.S. M.P.H., University of Minnesota
- Johnson, Roy M. (1952-53, 1955) . . . . . *Professor of Microbiology*  
 A.B., M.S., University of Chicago, Ph.D., University of New Mexico
- Jones, Austin E. (1968) . . . . . *Professor of Psychology*  
 A.B., University of Illinois, M.S. Purdue University,  
 Ph.D., University of Rochester
- Jones, Barbara (1978) . . . . . *Assistant Professor of Social Work*  
 B.S., M.S.W., University of Alabama
- Jones, Daisy M. (1963) . . . . . *Professor Emeritus of Education*  
 B.S., M.S., Indiana State University, Ed.D. Indiana University
- Jones, Marion K. (1970) . . . . . *Assistant Professor of Dance*  
 B.A., Wayne State University; M.A., Arizona State University
- Judd, B. Ira (1937) . . . . . *Professor Emeritus of Agriculture*  
 B.S., M.S., Utah State University Ph.D., University of Nebraska, Lincoln

- Justus, Jerry T. (1968) . . . . . *Associate Professor of Zoology*  
B.A. Franklin College, M.A., Ph.D., Indiana University
- Juvet, Richard S. Jr. (1970) . . . . . *Professor of Chemistry*  
B.S., Ph.D. University of California, Los Angeles
- Kagy, Virginia L. (1947) . . . . . *Professor Emeritus of Home Economics*  
B.A. Drake University, M.S., Iowa State University, Ph.D., Hopkins University
- Kahn, B. Winston (1966) . . . . . *Associate Professor of History*  
B.A., N.Y. T. Univ. (China), M.A. University of Minnesota  
Ph.D. University of Pennsylvania
- Kajikawa, William M. (1937) . . . . . *Associate Professor Emeritus of Physical Education Freshman Football Coach*  
B.A., M.A., Arizona State University
- Kakar, Rajesh K. (1978) . . . . . *Assistant Professor of Quantitative Systems*  
M.S., B.S., University of Delaware, D.B.A., Texas Tech University
- Kamins, Martin P. (1970) . . . . . *Associate Professor of Education*  
B.Ed., University of Minnesota, M.S., Florida State University,  
Ed.D., Wayne State University
- Kaminsky, Eliah Ben-Zion (1962) . . . . . *Professor of Political Science*  
A.B., A.M., Ph.D., Harvard University
- Kannemrin, Thomas A. (1970) . . . . . *Professor of Technology*  
B.S.E.E., University of Wisconsin, M.S.E.L., University of New Mexico,  
Ph.D. University of Wisconsin, Madison
- Karjala, Dennis S. (1978) . . . . . *Associate Professor of Law*  
B.S.E., Princeton University, Ph.D., M.S., University of Illinois,  
J.D. University of Chicago
- Karada, Yoko (1978) . . . . . *Assistant Professor of Social Work*  
B.A., University of the Ryukyus, Naha, Okinawa, M.S.W., University of Connecticut
- Karnes, Thomas L. (1968) . . . . . *Professor of History, Chair, Department of History*  
A.B., Central University, A.M., Ph.D., Stanford University
- Karnig, Albert K. (1978) . . . . . *Associate Professor of Public Affairs*  
B.A., Augustina College, M.A., Ph.D., University of Illinois
- Katz, Myron B. (1976) . . . . . *Assistant Professor of Mathematics*  
B.S., Louisiana State University  
M.A., Ph.D., University of California, Berkeley
- Kaufman, Herbert M. (1973) . . . . . *Associate Professor of Economics*  
B.A., State University of New York, Binghamton,  
Ph.D., Pennsylvania State University
- Kaufman, Irving (1965) . . . . . *Professor of Engineering*  
B.F., Vanderbilt University, M.S., Ph.D., University of Illinois
- Kaufman, Lucie B. (1951) . . . . . *Assistant Professor Emeritus of Engineering*  
B.S.M.E., M.S., University of Florida
- Kaufmann, William B. (1968) . . . . . *Associate Professor of Physics*  
A.B., M.A., Ph.D. University of California, Berkeley
- Kaye, David (1976) . . . . . *Associate Professor of Law*  
B.S., Massachusetts Institute of Technology; M.A., Harvard University,  
D. Yale University
- Kazmier, Leonard J. (1965) . . . . . *Professor of Quantitative Systems*  
A.B., M.A., Wayne State University, Ph.D., Ohio State University
- Kearney, James R. III (1968) . . . . . *Associate Professor of History*  
B.A., Pomona College, M.A., Washington University,  
Ph.D., University of Wisconsin, Madison
- Keating, Thomas (1972) . . . . . *Assistant Professor of Political Science*  
B.A., M.A., California State University, Sacramento, M.P.A., Ph.D., Indiana University
- Kehl, DeMar G. (1965) . . . . . *Professor of English*  
B.A., Bob Jones University, M.S., University of Wisconsin, Madison  
Ph.D., University of Southern California
- Keith, Marlow F. (1946) . . . . . *Assistant Professor of Technology*  
B.A., B.Ed., M.A., B.Ed., Arizona State University
- Kelly, John B. (1963) . . . . . *Professor of Mathematics*  
B.A., Columbia University, Ph.D., Massachusetts Institute of Technology
- Kelly, Richard W. (1965) . . . . . *Professor of Engineering*  
B.S.E., M.S.E., Ph.D., University of Iowa
- Kennedy, Thomas D. (1974) . . . . . *Professor of Criminal Justice*  
B.A., Tulane University, M.A., Ph.D., Louisiana State University
- Kerr, Nancy J. (1968) . . . . . *Professor of Education*  
B.S., University of Illinois, M.A., Ph.D., University of Houston
- Kevane, Clement J. (1956) . . . . . *Professor of Physics*  
B.S., Ph.D., Iowa State University
- Kiesow, Milton A. (1957) . . . . . *Professor of Education*  
B.S., University of Wisconsin, M.A., Ph.D., University of Nebraska, Lincoln
- Kigin, Denis J. (1958-65, 1967) . . . . . *Professor of Technology, Dean, University Continuing Education, Director Summer Sessions*  
B.S., Marquette State College  
M.S., Stout State University,  
Ed.D., University of Missouri, Columbia
- Killeen, Peter R. (1969) . . . . . *Professor of Psychology, Chair, Department of Psychology*  
B.A., Michigan State University,  
Ph.D., Harvard University
- Kimbal, Wayne (1978) . . . . . *Associate Professor of Art*  
B.A., Southern Utah State College, M.F.A., University of Arizona
- Kimler, Stephen J. (1967) . . . . . *Associate Professor Emeritus of Education*  
B.Ed., Milwaukee State Teachers College, M.Ed., Marquette University  
Ed.D., Arizona State University
- King, James R. (1978) . . . . . *Mavtag Invitational Professor of Zoology*  
A.B., San Jose State University, M.S., Ph.D., Washington State University
- Kingsbury, Warren T. (1964) . . . . . *Professor Emeritus of Education*  
A.B., Central College, Fayette, Missouri; A.M., University of Missouri  
Ed.D., New York University

- Kingston, Jerry L. (1969) .. . . . *Associate Professor of Economics*  
B.A. Wayne State University, M.S., Colorado State University  
Ph.D., Pennsylvania State University
- Kisielewski, Robert V. (1978) .. . . . *Assistant Professor of Technology*  
B.S.M.E., M.S.M.E., University of Wisconsin
- Klann, Margaret L. (1945) .. . . . *Associate Professor Emeritus of  
Physical Education*  
B.S., University of Illinois  
M.A., University of Northern Colorado
- Kleinfeld, Gerald R. (1962) .. . . . *Professor of History*  
B.A., New York University; M.A., University of Michigan,  
Ph.D., New York University
- Kliwer, Darleen (1975) .. . . . *Assistant Professor of Music*  
B.M.E., Bethany College, M.M., Wichita State University
- Klock, John W. (1960) .. . . . *Professor of Engineering*  
B.E., University of Southern California, M.S., Ph.D., University of California, Berkeley
- Knaupp, Jonathan E. (1970) .. . . . *Associate Professor of Education*  
B.S., Ohio State University, M.A., Ph.D., University of Illinois
- Knjep, Ward M. (1975) .. . . . *Assistant Professor of Education*  
B.S., Concordia Teachers College, M.A., Ph.D., University of Minnesota
- Knight, Leland W. (1978) .. . . . *Associate Professor of Design Sciences*  
B.P.A., Art Center College of Design, M.F.A., Stanford University
- Knoer, Elsie M. (1977) .. . . . *Assistant Professor of Economics*  
B.S., Arizona State University, M.A., Ph.D., University of Kansas
- Knowlton, John F. (1964) .. . . . *Associate Professor of Spanish*  
B.A., Lewis and Clark College, M.A., Ph.D., University of Oregon
- Knox, Robert L. (1963) .. . . . *Professor of Economics*  
B.S., M.S., Oklahoma State University; Ph.D., University of North Carolina
- Koplin, Myra (1978) .. . . . *Assistant Professor of Social Work*  
A.B., University of Arizona, M.S.S., Smith College
- Kotrozo, Carol A. (1972) .. . . . *Associate Professor of Humanities  
and Religious Studies*  
B.A., Pomona College  
M.A., Ph.D., University of California at San Diego
- Kraemer, Richard A. (1978) .. . . . *Assistant Professor of Technology*  
B.S., Arizona State University; B.S., Massachusetts Institute of Technology
- Krahenbuhl, Gary S. (1973) .. . . . *Associate Professor of Physical Education*  
B.S., Montana State University, Ed.D., University of North Carolina
- Kreitner, Robert J. (1975) .. . . . *Associate Professor of Management*  
B.S., M.B.A., University of Nebraska-Omaha, Ph.D., University of Nebraska, Lincoln
- Krenkel, John H. (1947) .. . . . *Professor Emeritus of History*  
B.S. in Ed., University of Illinois, M.A., Carle Graduate School  
Ph.D., University of Illinois
- Krinsky, David (1976) .. . . . *Professor of Geology, Chair  
Department of Geology*  
Ph.B., S.B., S.M., Ph.D., University of Chicago
- Kronengold, Eric A. (1970) .. . . . *Assistant Professor of Art*  
B.A., M.A., San Francisco State University
- Krus, David J. (1975) .. . . . *Assistant Professor of Education, Director, University  
Testing Services*  
B.A., M.A., Charles University; Ph.D., University of Minnesota
- Kudla, Ronald J. (1977) .. . . . *Assistant Professor of Finance*  
B.S.M.E., Pennsylvania State University; M.B.A., Ph.D., University of Pittsburgh
- Kuester, James L. (1969) .. . . . *Professor of Engineering*  
B.S., University of Texas; M.I., Ph.D., Texas A & M University
- Kuiper, Hendrik J. (1971) .. . . . *Associate Professor of Mathematics*  
B.S., University of Wisconsin, Milwaukee, M.S. (Physics), M.A. (Math)  
Ph.D., University of Wisconsin, Madison
- Kulhavy, Raymond W. (197) .. . . . *Associate Professor of Education*  
A.B., M.A., California State College, San Diego, Ph.D., University of Illinois
- Kur, C. Edward (1978) .. . . . *Assistant Professor of Management*  
B.S., M.S., University of Missouri
- Kurth, Chestine L. (1974) .. . . . *Instructor of Nursing*  
B.S.N., University of Kansas; M.S.N., University of California, San Francisco
- Kurtz, Lynn C. (1967) .. . . . *Associate Professor of Mathematics*  
B.S., South Dakota School of Mines and Technology, M.S., Ph.D., University of Utah
- Kyrala, A. (1960-62, 1964) .. . . . *Professor of Physics*  
B.S., Massachusetts Institute of Technology, M.S., Stanford University  
S.M., Harvard University; D.S., Technische Hochschule Wien, Austria
- Lacy, William A. Lt. Col. (1976) .. . . . *Professor of Military Science*  
B.S., Southwestern State College, *Chair, Department of Military Science*  
M.A., University of Oklahoma
- Ladman, Jerry R. (1967) .. . . . *Associate Professor of Economics, Director,  
Center for Latin American Studies*  
B.S., Ph.D., Iowa State University
- Laetz, Hins G. (1964) .. . . . *Assistant Professor of German*  
A.B., University of California, Berkeley, A.M., Ph.D., Stanford University
- Lai, Richard T. (1973) .. . . . *Associate Professor of Planning*  
A.B., M.I.A., Northern Pacific University; Ph.D., University of Pennsylvania
- Lake, Robert L. (1958) .. . . . *Assistant Professor of Mathematics*  
B.S., South Dakota School of Mines and Technology  
M.A., Arizona State University
- Lamberts, Jacob J. (1960) .. . . . *Professor of English*  
B.A., Calvin College, M.A., Ph.D., University of Michigan
- Lamm, Robert C. (1959) .. . . . *Professor of Humanities and Religious Studies*  
B.M., University of Louisville, M.M., University of Arizona;  
Ph.D., Indiana University
- Lampert, Donald E. (1975) .. . . . *Assistant Professor of Political Science*  
B.A., University of Pittsburgh; M.A., University of Pennsylvania,  
Ph.D., Rutgers, The State University

- Lance, Robert E. (1960) . . . . . *Assistant Professor of Mass Communications*  
B.S., Kent State University; M.S., Northwestern University
- Landeira, Ricardo L. (1962) . . . . . *Professor of Spanish*  
Bachelor Universitario, Universidad de Santiago (Spain);  
Maestro Nacional, Escuela Normal de Santiago (Spain); Ph.D., University of Colorado
- Landers, E. James (1960) . . . . . *Professor of Zoology*  
B.A., M.S. University of Wyoming; Ph.D. New York University
- Laner, Mary R. (1976) . . . . . *Assistant Professor of Sociology*  
B.A. University of Chicago; M.A., University of New Mexico;  
Ph.D., Virginia Polytechnic Institute and State University
- Lange, Jane L. (1978) . . . . . *Instructor in Nursing*  
B.S.N., Viterbo College; M.P.H., University of North Carolina
- Lanyon, Richard I. (1975) . . . . . *Professor of Psychology*  
B.F., University of Adelaide (Australia); M.A., Ph.D., University of Iowa
- Larimer, John W. (1969) . . . . . *Professor of Geology*  
B.A., M.S., Ph.D., Lehigh University
- Larson, George W. (1972) . . . . . *Assistant Professor of Planning*  
B.S.I.A., Utah State University; M.S.L.A., University of Wisconsin
- Laub, Karen W. (1978) . . . . . *Assistant Professor of Home Economics*  
A.B. Muskogee College; M.A., Ph.D. University of Kansas
- Lavik, Rudolph H. (1933) . . . . . *Professor Emeritus of Physical Education*  
B.A., Concordia College; B.P.E., Springfield College;  
M.A., University of Southern California
- Lawler, Eugene D. (1967) *Associate Professor of Engineering Communications*  
B.S. Northern State College, South Dakota; M.A., Arizona State University
- Lawrence, Harry (1977) . . . . . *Associate Professor of Social Work*  
B.A., M.S.W., D.S.W. University of California, Berkeley
- Lawson, Anton E. (1977) . . . . . *Assistant Professor of Science Education*  
B.S., University of Arizona; M.A., University of Oregon;  
Ph.D. University of Oklahoma
- Layman, Thomas A. (1978) . . . . . *Assistant Professor of Economics*  
B.A., Vanderbilt University
- Leathers, Chester R. (1957) . . . . . *Associate Professor of Microbiology*  
B.S., Eastern Illinois University; M.S., Ph.D., University of Michigan
- LeBarron, Linda (1978) . . . . . *Assistant Professor of Dance*  
B.A., Humboldt State University; M.F.A., University of Utah
- Lee, Idelle B. (1967) . . . . . *Assistant Professor Emeritus of Education*  
B.A., University of Wisconsin; M.A., Arizona State University
- Lee, Stephen E. (1969) . . . . . *Professor of Law*  
B.A., LL.B., University of Minnesota
- Lehrer, Leonard (1977) . . . . . *Professor of Art, Chair, Department of Art*  
B.F.A., Philadelphia College of Art; M.F.A., University of Pennsylvania
- Lenna, Harry (1973) . . . . . *Assistant Professor of Social Work*  
A.B., Niagara University; M.S.W., State University of New York, Buffalo
- Leonard, Donald J. (1974) . . . . . *Assistant Professor of Administrative Services*  
B.S., M.B.A., Nichols State University
- Leonard, Philip A. (1968) . . . . . *Associate Professor of Mathematics*  
A.B., Boston College; M.A., Ph.D., Pennsylvania State University
- Leshowitz, Barry H. (1970) . . . . . *Associate Professor of Psychology*  
B.S., M.A., Brooklyn College; Ph.D., City University of New York
- Lessard, Elizabeth C. (1969) . . . . . *Associate Professor of Dance*  
B.S., Georgia College; M.A., Texas Woman's University
- Levan, Frederick D. (1965) . . . . . *Associate Professor of Education*  
B.S., M.Ed. Pennsylvania State University; Ed.D., Oklahoma State University
- Levine, Gustav (1967) . . . . . *Associate Professor of Psychology*  
B.A., M.A., City University of New York; Ph.D., Columbia University
- Levy, Leo B. (1959) . . . . . *Professor of English*  
A.B., M.A., Ph.D. University of California, Berkeley
- Lewis, Joseph Percy (1972) . . . . . *Assistant Professor of Administrative Services*  
B.A., University of Arizona; J.D., University of Colorado
- Lewis, Maurice S. (1954) . . . . . *Professor Emeritus of Education*  
B.S. in Ed., M.S. in Ed., Drake University; Ed.D., University of Northern Colorado
- Lewis, Robert A. (1977) . . . . . *Professor of Home Economics, Director, Center for Family Studies*  
B.A., University of Wisconsin; M.Div., M.A., Ph.D., University of Minnesota
- Lewis, William E. (1965) . . . . . *Associate Professor of Engineering*  
B.S.E., Johns Hopkins University; M.S., Ph.D. Northwestern University
- Levya, Raul L. (1970) . . . . . *Associate Professor of Social Work*  
B.A., New Mexico Western University; M.S.W. University of Denver
- Lightfoot, Marjorie J. (1964) . . . . . *Professor of English*  
B.A., Brown University; M.A., Ph.D., Northwestern University
- Limbirt, Douglas A. (1976) . . . . . *Assistant Professor of Engineering*  
S.B.S.M., Ph.D. Massachusetts Institute of Technology
- Lin, Sheng H. (1965) . . . . . *Professor of Chemistry*  
B.S., M.S. Nankai University (China); Ph.D. University of Utah
- Linder, Darwyn F. (1972) . . . . . *Professor of Psychology*  
B.A., Macalester College; Ph.D., University of Minnesota
- Linderman, Earl W. (1966) . . . . . *Professor of Art*  
B.S., New York State College for Teachers, Buffalo;  
M.Ed., Ed.D. Pennsylvania State University
- Lindholm, Ernest (1971) . . . . . *Associate Professor of Psychology*  
B.A., University of California, Berkeley; M.S., Ph.D. University of Wisconsin, Madison
- Lindsay, Stuart M. (1978) . . . . . *Assistant Professor of Physics*  
B.Sc., Ph.D., University of Manchester, England

- Lindstrom, Frederick B. (1953) . . . . . *Professor of Sociology; Chair,*  
A.B., M.A., Ph.D. University of Chicago *Department of Sociology*
- Liskovec, Richard F. (1958) . . . . . *Assistant Professor of Mathematics*  
B.S., M.A., Kent State University
- Littrell, Joseph J. (1958) . . . . . *Professor of Technology*  
A.B., Peru State Teachers College, Nebraska, M.A. University of Minnesota,  
Ed.D., University of Missouri-Columbia
- Liu, Chui H. (1965) . . . . . *Professor of Chemistry*  
B.A., Ph.D. University of Illinois
- Liu, Marjory Bong Ray (1973) . . . . . *Assistant Professor of Humanities*  
B.M., Alverno College *and Religious Studies*  
M.M., University of Southern California  
C.Phil., Ph.D., University of California, Los Angeles
- Lockwood, Ralph G. (1972) . . . . . *Associate Professor of Music*  
B.M., Baldwin Wallace College, M.M., New England Conservatory of Music
- Loehning, Lynn R. (1978) . . . . . *Assistant Professor of Nursing*  
B.S., University of Colorado, M.N., University of Washington
- Loewenberg, Robert J. (1972) . . . . . *Associate Professor of History*  
B.A., Columbia University; Ph.D., Yale University
- Logan, Earl Jr. (1963) . . . . . *Professor of Engineering*  
B.S., M.S., Texas A & M University, Ph.D., Purdue University
- Lombardi, Eugene P. (1957) . . . . . *Professor of Music*  
B.Mus.Ed., Westminster College, M.A., Columbia University,  
Ed.S., George Peabody College
- LoPresti, Ronald (1964) . . . . . *Professor of Music*  
B.M., M.M., Eastman School of Music
- Losse, Deborah N. (1973) . . . . . *Assistant Professor of French*  
B.A., Connecticut College;  
M.A., Ph.D., University of North Carolina, Chapel Hill
- Lounsbury, John F. (1969) . . . . . *Professor of Geography*  
B.S., M.S., University of Illinois, *Director, Center for Environmental Studies*  
Ph.D., Northwestern University
- Lovell, Robert E. (1972) . . . . . *Associate Professor of Engineering*  
B.S.E., University of Michigan, M.S., Ph.D., University of Arizona
- Lowe, John W. (1956) . . . . . *Associate Professor of Economics*  
B.S., Arizona State University, M.S., University of Wisconsin-Madison,  
Ph.D., University of Florida
- Lowe, Robert W. (1966) . . . . . *Professor Emeritus of Romance Languages*  
M.A., Columbia University, Doctoral, University of Paris
- Lowenstein, Milton D. (1959) . . . . . *Professor Emeritus of Architecture*  
B.A., M.A., Columbia University
- Lowenthal, Gary T. (1976) . . . . . *Associate Professor of Law*  
A.B., Harvard College, J.D., University of Chicago
- Lu, Pao (1964) . . . . . *Professor of Physics*  
B.S., National Taiwan University (China);  
M.S., National Tsing Hua University (China), Ph.D., Iowa State University
- Luchsinger, Wayne W. (1966) . . . . . *Professor of Chemistry*  
B.S., M.S., Ph.D., University of Minnesota
- Luckingham, Bradford F. (1971) . . . . . *Associate Professor of History*  
B.S., Northern Arizona University; M.A., University of Missouri-Columbia,  
Ph.D., University of California-Davis
- Ludlow, Elizabeth A. (1972) . . . . . *Assistant Professor of Nursing*  
B.S.N., University of New Mexico, M.S., Arizona State University
- Luenow, Paul F. Jr. (1958) . . . . . *Associate Professor of Spanish*  
B.A., M.A., University of Washington; Ph.D., University of New Mexico
- Lundberg, Horace W. (1962) . . . . . *Professor Emeritus of Social Work*  
B.S., M.S., University of Utah; M.S.W., University of California, Berkeley,  
Ph.D., University of Minnesota
- Lundgren, Harry R. (1962) . . . . . *Professor of Engineering*  
B.S.C.E., Purdue University, M.S., Arizona State University,  
Ph.D., Oklahoma State University
- Lundin, Robert F. (1962) . . . . . *Professor of Geology*  
B.A., Augustana College, M.S., Ph.D., University of Illinois
- Lyle, Mary G. (1959) . . . . . *Assistant Professor Emeritus of English*  
B.A., University of Iowa, M.A., University of South Dakota
- Lynch, David H. (1976) . . . . . *Assistant Professor of Administrative Services*  
A.A., Thonington College; B.S., University of Illinois  
M.S., Ed.D., Northern Illinois University
- Lytle, Robert G. (1972) . . . . . *Associate Professor of Agriculture*  
B.S., Western Kentucky University, M.S., Arizona State University
- Maciel, David R. (1975) . . . . . *Assistant Professor of History*  
B.A., San Diego State College, M.A., University of Arizona,  
Ph.D., University of California, Santa Barbara
- MacKinnon, Stephen R. (1971) . . . . . *Assistant Professor of History*  
B.A., M.A., Yale University, Ph.D., University of California, Davis
- Madril, Santiago (1978) . . . . . *Assistant Professor of Social Work*  
B.A., University of Arizona; M.S.W., California State University
- Magel, Donald (1978) . . . . . *Associate Professor of Social Work*  
A.B., Sacramento State College, M.S.W., University of California, Berkeley,  
Ph.D., University of Pittsburgh
- Magenta, Muriel (1968) . . . . . *Assistant Professor of Art*  
B.A., Queens College, New York, M.A., M.F.A., Ph.D., Arizona State University
- Magers, William D. (1971) . . . . . *Associate Professor of Music*  
B.A., Santa Barbara College, M.M., University of Southern California

- Malandro, Loretta (1976) . . . . . *Assistant Professor of Communication*  
B.A., Kent State University, Ph.D., Florida State University
- Malone, Charles F. (1966) . . . . . *Professor of Education*  
B.S., Kansas State Teachers College, M.Ed., Ed.D., University of Kansas
- Manera, Elizabeth S. (1967) . . . . . *Assistant Professor of Education*  
B.S., M.A., Towson State College, Ed.D., Arizona State University
- Mankin, Lawrence D. (1973) . . . . . *Assistant Professor of Public Affairs*  
B.B.A., City College of New York, Ph.D., University of Illinois
- Manning, Duane (1951) . . . . . *Professor of Education*  
B.A., M.A., Ball State University, Ed.D., Indiana University
- Mansell, Dorothy Moira (1975) . . . . . *Professor of Nursing*  
B.S.N.E., St. Mary College, M.S.N., University of Oregon,  
Ph.D., University of Washington
- Marcus, Melvin G. (1974) . . . . . *Professor of Geography, Chair*  
B.A., University of Miami, Florida, *Department of Geography*  
M.A., University of Colorado, Ph.D., University of Chicago
- Marquardt, Lewis R. (1973) . . . . . *Assistant Professor of Humanities*  
B.S., Mount State College, *and Religious Studies*  
M.A., University of Northern Colorado, Ph.D., Arizona State University
- Martin, John F. Jr. (1966) . . . . . *Associate Professor of Anthropology*  
B.A., Belmont College, M.A., Ph.D., University of Chicago
- Martin, Richard (1975) . . . . . *Assistant Professor of Humanities*  
B.A., University of Montana, B.D., University of Dubuque, *and Religious Studies*  
Th.M., Ph.D., Theological Seminary, Ph.D., New York University
- Martínez, Anthony (1975) . . . . . *Assistant Professor of Social Work*  
B.A., University of San Francisco; M.S.W., Arizona State University;  
J.D., University of California Berkeley
- Martínez, Quino E. (1957) . . . . . *Professor of Spanish*  
B.S., New Mexico Western College, M.A., George Peabody College,  
Ph.D., University of North Carolina
- Marzke, Robert F. (1969) . . . . . *Assistant Professor of Physics*  
A.B., Princeton University, Ph.D., Columbia University
- Mason, Bruce B. (1960) . . . . . *Professor of Political Science*  
B.S., North Texas State College, M.A., Texas Christian University,  
Ph.D., University of Texas
- Matheson, Alan A. (1967) . . . . . *Professor of Law, Dean, College of Law*  
B.A., M.S., J.D., University of Utah
- Matthias, Judson S. (1967) . . . . . *Associate Professor of Engineering*  
B.S., U.S. Military Academy, M.S., Oregon State University, Ph.D., Purdue University
- Mayer, Albert J. (1968) . . . . . *Professor of Sociology*  
A.B., A.M., Ph.D., University of Chicago
- Mayer, Michael (1978) . . . . . *Assistant Professor of Communication*  
B.A., M.A., University of Wyoming, Ph.D., University of Kansas
- Mazen, S. David (1970) . . . . . *Associate Professor of Education*  
B.A., Whitworth College, M.Ed., Eastern Washington State College;  
Ed.D., Washington State University
- McCarter, Joan H. (1961) . . . . . *Assistant Professor of Mathematics*  
B.S., M.A., University of Arizona
- McCleary, Richard D. (1978) . . . . . *Assistant Professor of Criminal Justice*  
B.S., University of Wisconsin, Milwaukee, M.A., Ph.D., Northwestern University
- McCoy, Kathleen M. (1976) . . . . . *Assistant Professor of Education*  
B.S., M.S., Portland State University, Ph.D., University of Oregon
- McCready, Richard R. (1960) . . . . . *Professor of Quantitative Systems*  
B.S., Valley City State Teachers College,  
M.A., Ed.D., University of Northern Colorado
- McCurdy, Lyle B. (1973) . . . . . *Assistant Professor of Technology*  
B.S., M.S., Arizona State University
- McDonald, John N. (1969) . . . . . *Associate Professor of Mathematics*  
A.B., Kings College, M.S., Ph.D., Rutgers The State University
- McDowell, John M. (1978) . . . . . *Assistant Professor of Economics*  
B.A., M.A., University of California, Los Angeles
- McEwen, Douglas R. (1969) . . . . . *Professor of Music, Director of Choirs*  
B.S., Bowling Green State University, M.M., Indiana University,  
Ed.D., University of Northern Colorado
- McFarland, Elaine H. (1973) . . . . . *Associate Professor Emeritus of Health Science*  
B.A., Marquette College, M.N., Case Western Reserve University
- McGaughy, Robert W. (1971) . . . . . *Associate Professor of Zoology*  
B.A., Augustana College, M.A., University of Colorado; Ph.D., Boston University
- McGaw, Dickinson L. (1968) . . . . . *Associate Professor of Political Science*  
A.B., A.M., Ph.D., Indiana University
- McGowan, Patrick J. (1979) . . . . . *Professor of Political Science;*  
B.A., University of the South, *Chair, Department of Political Science*  
M.A., Johns Hopkins University; Ph.D., Northwestern University
- McGrath, G.D. (1950) . . . . . *Professor of Education*  
A.B., Findlay College, M.A., University of Michigan; Ph.D., University of Colorado
- McKenzie, Patrick Bruce (1970) . . . . . *Associate Professor of Accounting*  
B.S., M.S., Kansas State University, Ph.D., Michigan State University, C.P.A., Kansas
- McKlveen, John W. (1974) . . . . . *Associate Professor of Engineering*  
B.S., United States Naval Academy, M.E.N.E., Ph.D., University of Virginia
- McLeod, Dorothy L. (1957; 1970) . . . . . *Professor of Nursing*  
B.S.N.E., St. Louis University; M.S., Columbia University;  
Ph.D., University of Washington
- McLeod, Lois L. (1976) . . . . . *Associate Professor of Music*  
A.A., Stephens College
- McMahon, Douglas (1978) . . . . . *Assistant Professor of Mathematics*  
B.S., M.S., Ph.D., Case Western Reserve University

## RESIDENT FACULTY

- McNeill, Barry W. (1976) . . . . . *Assistant Professor of Engineering*  
B.S., M.S., Ph.D., Stanford University
- McPheters, Lee R. (1976) . . . . . *Associate Professor of Economics*  
A.B., San Francisco State University;  
Ph.D., Virginia Polytechnic Institute
- McTaggart, W. Donald (1971) . . . . . *Professor of Geography*  
B.A., M.A., University of St. Andrews (Scotland),  
Ph.D., Australian National University
- McWhirter, J. Jeffries (1970) . . . . . *Professor of Education*  
B.A., St. Martin's College; M.Ed., Oregon State University,  
M.Ed., Ph.D., University of Oregon
- Means, Gary E. (1973) . . . . . *Associate Professor of Social Work*  
B.A., M.S.W., San Diego State College; D.S.W., University of Denver
- Meister, Arnold G. (1957) . . . . . *Professor Emeritus of Physics*  
B.S., Central YMCA College,  
Ph.D., Illinois Institute of Technology
- Melichar, Dudley W. (1974) . . . . . *Assistant Professor of Criminal Justice*  
B.S., M.S. in Ed., South Dakota State University;  
Ed.D., Arizona State University
- Melvin, Nancy (1975) . . . . . *Assistant Professor of Nursing*  
B.S., M.A., University of Nebraska
- Mendleson, Jack (1967) . . . . . *Associate Professor of Management*  
B.S., Butler University; M.B.A., Indiana University; D.B.A., Michigan State University
- Menke, Robert F. (1947) . . . . . *Professor of Education, Director, Career Services*  
B.S. Oshkosh State College, M.A. in Ed. Ph.D., Northwestern University
- Merbs, Charles F. (1973) . . . . . *Professor of Anthropology*  
B.S., M.S., Ph.D., University of Wisconsin, Madison
- Merrill, Bruce D. (1971) . . . . . *Assistant Professor of Political Science*  
B.A., Southern Oregon College, M.A., Brigham Young University;  
Ph.D., University of Michigan
- Metcalf, V. Alonzo (1971) . . . . . *Professor of Economics; Vice President  
for Administration*  
B.S., M.S., University of Arkansas,  
Ph.D. University of Missouri, Columbia
- Metha, Arlene (1973) . . . . . *Associate Professor of Education*  
B.A., Arizona State University, M.A., Ohio State University;  
Ph.D., University of Southern California
- Metos, Thomas H. (1965) . . . . . *Professor of Education*  
B.S., M.S., Ph.D., University of Utah
- Metzger, Darryl E. (1963) . . . . . *Professor of Engineering; Chair, Mechanical and  
Energy Systems Engineering*  
B.S.M.E., M.S.M.E., Ph.D., Stanford University
- Meyer, Bonnie J. F. (1976) . . . . . *Assistant Professor of Education*  
B.A., Washington State University; M.S., Ph.D., Cornell University
- Meyer, Janice Catherine (1977) . . . . . *Instructor of Music*  
B.M.E., M.M.E., University of Wisconsin; M.M., Western Michigan
- Meyerson, Lee (1962) . . . . . *Professor of Psychology*  
A.B., Lafayette College, A.M., University of California, Los Angeles;  
Ph.D., Stanford University
- Michels, LeMoyné F. (1963) . . . . . *Professor of Construction*  
B.S., U.S. Military Academy
- Miller, Barbara K. (1976) . . . . . *Instructor of Nursing*  
B.S.N., M.S.Ed., University of Akron
- Miller, Brian P. (1976) . . . . . *Assistant Professor of Education*  
B.S., M.A., Central Michigan University, *Coordinator Community Education*  
Ed.D., Western Michigan University
- Miller, Glenn A. (1969) . . . . . *Associate Professor of Psychology*  
B.A., M.A., University of Kentucky,  
Ph.D., Southern Illinois University
- Miller, Paul T. (1947) . . . . . *Professor Emeritus of Geology*  
B.A., Simpson College; M.S., Ph.D. University of Iowa
- Miller, Peter J. (1972) . . . . . *Associate Professor of Quantitative Systems*  
B.S.M.E., Stanford University, M.B.A., San Diego State University,  
D.B.A., University of Washington
- Miller, Robert W. (1969) . . . . . *Associate Professor of Music*  
B.A., M.A., Arizona State University
- Miller, Velvet G. (1976) . . . . . *Instructor of Nursing*  
B.S.N., Wagner College, M.Ed. Temple University
- Miller, Victor J. (1958) . . . . . *Professor of Agriculture*  
B.S. M.S., Ph.D., University of Illinois
- Miller, William Edgar (1966) . . . . . *Associate Professor of Education*  
B.M.E., Ed.D., University of Kansas *Counselor University Counseling Service*
- Milner, Joe W. (1967) . . . . . *Professor of Mass Communications*  
B.A., East Texas State University,  
M.A., University of Oklahoma; Ed.D., University of Wyoming
- Minkley, Wendell L. (1963) . . . . . *Professor of Zoology*  
B.S., Kansas State University; M.A., University of Kansas;  
Ph.D., University of Louisville
- Mings, Robert C. (1971) . . . . . *Associate Professor of Geography*  
B.S., M.A.T., Indiana University, Ph.D., Ohio State University
- Misner, Robert L. (1975) . . . . . *Professor of Law*  
B.A., University of San Francisco, J.D. University of Chicago
- Mitchell, Frederic F. (1961) . . . . . *Professor of Education*  
B.A., M.A., University of Arizona; Ph.D., Columbia University
- Moeller, Therald (1969) . . . . . *Professor of Chemistry*  
B.S., Oregon State College; Ph.D., University of Wisconsin, Madison

- Montiel, Miguel (1974) . . . . . *Professor of Social Work*  
B.S., University of Arizona; M.S.W., Arizona State University,  
D.S.W., University of California, Berkeley
- Monts, Elizabeth A. (1973) . . . . . *Professor of Home Economics*  
B.S., Eastern Illinois University; M.S., University of Wisconsin,  
Ph.D., Texas Woman's University
- Monty, Dewey E. Jr. (1969) . . . . . *Professor of Agriculture; Veterinarian*  
B.S., Colorado State University; M.S., University of California, Davis,  
D.V.M., Colorado State University; Ph.D., Utah State University
- Moody, E. Grant (1951) . . . . . *Professor of Agriculture*  
B.S., University of Arizona; M.S., Kansas State University; Ph.D., Purdue University
- Moor, William C. (1968) . . . . . *Associate Professor of Engineering*  
B.S., M.S., Washington University; Ph.D., Northwestern University
- Moore, Byron C. (1968) . . . . . *Professor of Education*  
A.B., Monmouth College; M.Ed., Ed.D., University of Arizona
- Moore, Carleton B. (1961) . . . . . *Professor of Chemistry and Geology*  
B.S., Alfred University, *Director, Center for Meteorite Studies*  
Ph.D., California Institute of Technology
- Moore, Charles (1976) . . . . . *Assistant Professor of Mass Communications*  
B.S., University of Utah; M.A., University of Denver
- Moore, J. Douglas (1969) . . . . . *Associate Professor of Mathematics*  
B.S., M.S., Idaho State University; Ph.D., Syracuse University
- Moore, Thomas A. (1976) . . . . . *Assistant Professor of Chemistry*  
B.A., Ph.D., Texas Tech University
- Moorhead, Gregory (1978) . . . . . *Assistant Professor of Management*  
B.S.I.E., M.B.A., University of Houston
- Morales, Ralph Jr. (1978) . . . . . *Assistant Professor of Home Economics*  
B.S., A.D.A., M.S., Loma Linda University; Ph.D., Kansas State University
- Moran, Dennis V. (1964) . . . . . *Associate Professor of English*  
A.B., University of Notre Dame; B.A., M.A., Oxford University  
Ph.D., Stanford University
- Morehart, Thomas B. (1975) . . . . . *Assistant Professor of Insurance*  
B.S., New Mexico State University; M.S., Colorado State University,  
Ph.D., Georgia State University
- Morgan, Owen W. (1968) . . . . . *Professor of Home Economics*  
B.A., Grinnell College; M.A., University of Nebraska, Omaha,  
Ph.D., University of Nebraska, Lincoln
- Morris, Donald H. (1962) . . . . . *Professor of Anthropology*  
B.A., Arizona State University; M.A., Ph.D., University of Arizona
- Morris, John P. (1968) . . . . . *Professor of Law*  
A.B., J.D., Northwestern University
- Morris, Mary Scott (1947) . . . . . *Assistant Professor Emeritus of Education*  
A.B., Western Kentucky State College; M.A., Northwestern University
- Mote, Nancy J. (1977) . . . . . *Instructor in English*  
B.A., Washington and Lee University; M.A., Arizona State University
- Moulton, Beatrice A. (1973) . . . . . *Professor of Law*  
B.A., Pomona College; J.D., Stanford University; LL.M., Harvard University
- Moulton, Gerald L. (1967) . . . . . *Professor of Education*  
B.A., Hamline University; M.Ed., Ed.D., University of Oregon
- Mowrer, Donald E. (1965) . . . . . *Professor of Communication*  
B.A., M.A., Florida State University; Ph.D., Arizona State University
- Moyer, Joan E. (1971) . . . . . *Associate Professor of Education*  
B.S., Kutztow State College; M.Ed., Pennsylvania State University,  
Ph.D., University of Maryland
- Muhlenkamp, Ann F. (1973) . . . . . *Associate Professor of Nursing*  
B.S., M.S., Marquette University; Ph.D., University of Kansas
- Mulhollan, Paige E. (1978) . . . . . *Professor of History, Provost  
and Academic Vice President*  
B.S., B.A., M.A., University of Arkansas,  
Ph.D., University of Texas, Austin
- Mumford, Patty J. (1977) . . . . . *Instructor of Nursing*  
B.S.N., Arizona State University; M.N., University of California, Los Angeles
- Mumma, Stanley Allan (1976) . . . . . *Associate Professor of Planning*  
B.S.M.E., University of Cincinnati; M.S., Ph.D., University ofinois
- Munch, Theodore W. (1959) . . . . . *Professor of Science Education*  
B.S. in Ed., B.S. (Bacteriology), Ohio State University,  
M.A. in Ed., Colorado State University; Ed.D., Stanford University
- Mundy, Erma (1978) . . . . . *Assistant Professor of Social Work*  
B.S., M.S.W., Arizona State University
- Munk, Morton E. (1961) . . . . . *Professor of Chemistry, Chair, Department  
of Chemistry*  
B.S., Northwestern University; M.S., University of Miami,  
Ph.D., Wayne State University
- Murphy, Juanita F. (1971) . . . . . *Professor of Nursing, Dean, College of Nursing*  
A.B., Oklahoma Baptist University,  
M.S., Ph.D., Case Western Reserve University
- Murphy, Nina L. (1924) . . . . . *Professor Emeritus of Physical Education*  
B.S., University of Arizona; M.A., University of Southern California
- Murranka, Patricia A. (1977) . . . . . *Assistant Professor of Administrative Services*  
B.A., Trenton State College; M.A., Rider College
- Murray, Roger N. (1968) . . . . . *Associate Professor of English*  
B.A., B.S., Moorhead State Teachers College; M.A., Stanford University;  
Ph.D., University of Iowa
- Musheno, Michael C. (1977) . . . . . *Associate Professor of Criminal Justice*  
B.A., Lycoming College; M.A., Ph.D., American University
- Myers, Anne M. . . . . *Instructor in English*  
B.A., Arizona State University,  
M.A., Western Washington State College

## RESIDENT FACULTY

- Myers, Louis M. (1937) . . . . . *Professor Emeritus of English*  
 B.A., St. Stephen's College; M.A., Cornell University  
 Ph.D., University of California, Berkeley
- Myer, Charles E. Jr. (196) . . . . . *Associate Professor of Real Estate*  
 B.B.A., Iowa University; M.B.A., Harvard University; Ph.D., University of Florida
- Nagasawa, Richard H. (1969) . . . . . *Associate Professor of Sociology*  
 B.A., University of Iowa; M.A., Ph.D., University of Wisconsin
- Nash, Leanne T. (197) . . . . . *Assistant Professor of Anthropology*  
 B.A., University of Central Florida; M.A., Ph.D., University of Central Florida
- Nish, Thomas H. III (1971) . . . . . *Associate Professor of Botany*  
 B.S., Duke University; M.S., Ph.D., Rutgers The State University
- Nivrotsky, Alexandra (1969) . . . . . *Professor of Chemistry and Geology*  
 B.S., M.S., Ph.D., University of Iowa
- Neal, Joyce L. (1974) . . . . . *Assistant Professor of Social Work*  
 B.S., Northern Arizona University; M.S.W., University of Florida
- Nebeker, Helen E. (1958) . . . . . *Associate Professor of English*  
 B.A., M.A., Arizona State University
- Necherits, Ciro R. (1975) . . . . . *Assistant Professor of Political Science*  
 B.A., Washington University; S.T.M., M.A., Ph.D., Ohio State University
- Nelsen, Edward A. (1975) . . . . . *Associate Professor of Education, Associate Director, I.D. Payne Laboratory*  
 B.S., University of Wisconsin; M.Ed., University of Florida; Ph.D., Stanford University
- Nelson, G. Lynn (1973) . . . . . *Assistant Professor of English*  
 B.A., Kearney State College; Ph.D., University of Nebraska, Lincoln
- Nelson, Harold D. (1967) . . . . . *Professor of Engineering*  
 B.S., South Dakota School of Mines and Technology; M.S., Kansas State University; Ph.D., Arizona State University
- Nelson, John C. (1967) . . . . . *Associate Professor of Education*  
 B.S., M.A., Arizona State University; Ph.D., George Peabody College
- Nering, Evar D. (1969) . . . . . *Professor of Mathematics*  
 A.B., Indiana University; A.M., Ph.D., Princeton University
- Ney, James W. (1969) . . . . . *Professor of English*  
 B.A., M.A., Wheaton College; Ph.D., University of Michigan
- Nichols, Ann W. (1970) . . . . . *Associate Professor of Social Work*  
 A.B., Stanford University; M.S.W., Columbia University
- Nichols, Catherine G. (1972) . . . . . *Professor Emerita of Counselor Education*  
 A.B., M.A., University of Kentucky; Ph.D., California State University
- Nielsen, Michael J. (1969) . . . . . *Assistant Professor of Design Sciences*  
 B.P.D., North Carolina State University; M.A., Stanford University
- Nielson, Gregory M. (1970) . . . . . *Associate Professor of Mathematics*  
 B.S., M.A., Ph.D., University of Utah
- Nigam, Bishan Perakash (1964) . . . . . *Professor of Physics*  
 B.S., M.S., University of Florida; Ph.D., University of Rochester
- Nilsen, Ailee P. (1951) . . . . . *Associate Professor of Education*  
 B.A., Bridgewater State University; M.Ed., American University; Ph.D., University of Iowa
- Nilsen, Don L. (197) . . . . . *Professor of English*  
 B.A., Brooklyn College; M.A., American University; Ph.D., University of Michigan
- Noble, Frank C. (197) . . . . . *Professor of Education*  
 B.S., Northern Illinois University; M.Ed., Ed.D., University of Wisconsin
- Nothey, William T. (1959) . . . . . *Professor of Microbiology*  
 B.A., West Virginia University; M.A., Ph.D., University of Kansas
- Norton, M. Scott (1973) . . . . . *Professor of Education, Chair, Department of Educational Administration and Supervision*  
 B.S., M.Ed., University of Nebraska
- Nwak, Mary Jane (1976) . . . . . *Associate Professor of Social Work*  
 Ph.B., Marquette University; M.S.S.W., University of Wisconsin; Ph.D., Catholic University of America
- Nutt, Raymond J. (1975) . . . . . *Assistant Professor of Music*  
 B.S., Wabash College; M.M., State School of Music
- Nutt, Merle C. (1956) . . . . . *Professor Emeritus of Engineering*  
 B.S., Johns Hopkins University; M.A., University of Iowa; LL.D., Iowa Wesleyan University
- Nygaard, Eldon (1976) . . . . . *Assistant Professor of Administrative Services*  
 B.S., University of Nebraska, Omaha; Ph.D., Marquette University; S.H.I.
- O'Bannon, Charles E. (1964) . . . . . *Professor of Engineering*  
 B.S.C.E., University of New Mexico; M.S., Harvard University; Ph.D., Oklahoma State University
- O'Beirne, Donald E. (1952) . . . . . *Professor of Education*  
 B.E., Whitworth State Teachers College; M.A., Ed.D., Northwestern University
- Ober, B. Scot (1975) . . . . . *Assistant Professor of Administrative Services*  
 B.S., M.A., Eastern Illinois University; Ph.D., Ohio State University
- O'Brien, Carmen A. (1959) . . . . . *Associate Professor Emerita of Education*  
 B.A., Ed.M., Ed.D., Arizona State University
- Ochoa, Gregory (1978) . . . . . *Assistant Professor of Social Work*  
 B.A., San Fernando Valley State College; M.S.W., University of Southern California
- O'Connell, John J. (1975) . . . . . *Associate Professor of Insurance*  
 B.A., Western Washington State College; M.S., University of Oklahoma; Ph.D., Ohio State University; C.P.C.U.
- O'Connor, Eleanor J. (1970) . . . . . *Assistant Professor Emerita of Home Economics*  
 B.S., College of St. Catherine; M.S., University of Iowa

- Odenkirk, James E. (1967) . . . . . *Professor of Physical Education*  
B.S., M.A., Ohio State University, Ed.D., Columbia University
- O'Grady, Emmett P. (1977) . . . . . *Associate Professor in Engineering*  
B.S.E.E., Southern University, M.S., Ph.D., University of Arizona
- O'Hearn, Carolyn (1977) . . . . . *Instructor in English*  
B.S., Indiana University of Missouri, M.A., Arizona State University
- Ohmart, Robert D. (1970) . . . . . *Associate Professor of Zoology*  
B.S., M.S., New Mexico State University, Ph.D., University of Arizona
- Ojala, William T. (1977) . . . . . *Associate Professor of English*  
B.A., M.A., University of Minnesota, Ph.D., Florida State University
- O'Keefe, Michael (1963) . . . . . *Professor of Chemistry*  
B.S., Ph.D., University of Bristol (England)
- Okun, Morris A. (1976) . . . . . *Assistant Professor of Education*  
B.A., Brooklyn College, M.S., Ph.D., Pennsylvania State University
- O'Leary, Timothy J. (1978) . . . . . *Assistant Professor of Quantitative Systems*  
B.S., Westminster College, M.B.A., D.B.A., Kent State University
- Oliver, Robert S. (1967) . . . . . *Professor of Architecture*  
A.B., M.A., University of California, Berkeley, M.F.A., Instituto de Mexico
- Olmsted, Cameron B. (1956) . . . . . *Associate Professor Emeritus of Education*  
B.A., Ed.M., Indiana State University, Ed.D., University of Northern Colorado
- O'neil, Claude W. (1967) . . . . . *Associate Professor of Administrative Services*  
B.S., D.M., Marquette University
- Olsen, Larry K. (1977) . . . . . *Associate Professor of Health Science*  
B.S., M.A.T., Grand Clark College, M.P.H., University of California, Berkeley, D.P.H., University of California, Angeles
- Olson, Grace P. (1977) . . . . . *Instructor of Nursing*  
B.S.N., M.S., Arizona State University
- Ong, Shirley G. (1978) . . . . . *Instructor of Nursing*  
B.S.N., M.S.N., Indiana University
- Osborn, Marianne (1972) . . . . . *Assistant Professor of Nursing*  
B.S.N., Arizona State University, M.S.N., University of Colorado
- Osenburg, Frederic C. (1946) . . . . . *Professor Emeritus of English*  
A.B., M.A., University of Michigan, Ph.D., University of Illinois
- Osterhoudt, Robert G. (1976) . . . . . *Associate Professor of Physical Education*  
B.S., M.S., Pennsylvania State University, Ph.D., University of Illinois
- Ostrom, Lonnie L. (1973) . . . . . *Professor of Marketing, Assistant Dean, College of Business Administration*  
M.S., Southern Illinois University, Ph.D., University of Nebraska
- O'Sullivan, Elizabethann (1975) . . . . . *Assistant Professor of Public Affairs*  
B.A., Dunbarton College, M.A., Ph.D., University of Maryland
- Ots Fronske, Jeanne (1975) . . . . . *Assistant Professor of Art*  
B.A., DePauw University, B.F.A., Indiana University, M.F.A., Ohio State University
- Overman, Glenn D. (1956) . . . . . *Professor of Marketing, Dean College of Business Administration*  
B.S., Central State College, M.S., Oklahoma State University, D.B.A., Indiana University
- Owen, John E. (1964) . . . . . *Professor of Sociology*  
B.A., Duke University, A.M., Ph.D., University of Southern California
- Packer, Merle A. (1959) . . . . . *Associate Professor of Physical Education*  
B.A., M.A., Arizona State University
- Pige, John B. (1969) . . . . . *Associate Professor of Physics*  
B.S., Ph.D., University of Utah
- Palais, Joseph C. (1964) . . . . . *Professor of Engineering*  
B.S., I.E., University of Arizona, M.S.E., Ph.D., University of Michigan
- Pangraz, Robert P. (1973) . . . . . *Associate Professor of Physical Education*  
B.A., M.S., Ph.D., Washington State University
- Pany, Kurt J. (1978) . . . . . *Assistant Professor of Accounting*  
B.S.B.A., University of Arizona, M.B.A., University of Minnesota, Ph.D., University of Texas, C.P.A., Arizona
- Pardue, Louis J. (1967) . . . . . *Associate Professor of Technology*  
B.A., A.M., Idaho State University, Ed.D., University of Northern Colorado
- Parker, L. Mayland (1955) . . . . . *Professor of Geography*  
B.S., Brigham Young University, M.S., University of Utah, Ph.D., Cornell University
- Parkinson, Stanley R. (1971) . . . . . *Associate Professor of Psychology*  
A.B., University of California, Berkeley, M.A., Ph.D., University of Colorado
- Parrish, Berta (1978) . . . . . *Assistant Professor of Education*  
B.A., M.A., Ed.D., Arizona State University
- Parrish, H. Wayne (1967) . . . . . *Assistant Professor of Education*  
A.B., San Diego State College, M.Ed., Ed.D., University of Oregon
- Parsons, Michael L. (1967) . . . . . *Professor of Chemistry*  
B.A., M.S., Kansas State College, Ph.D., University of Florida
- Pasqualetti, Martin J. (1977) . . . . . *Assistant Professor of Geography*  
B.A., University of California, Berkeley, M.A., Indiana State University, Ph.D., University of California, Riverside
- Patten, Duncan T. (1965) . . . . . *Professor of Botany, Chair, Department of Botany and Microbiology*  
B.A., Amherst College, M.S., University of Massachusetts, Ph.D., Duke University
- Patterson, John D. (1967) . . . . . *Professor of Engineering*  
B.S.I.E., M.S., Ph.D., University of California, Berkeley
- Patterson, Robert A. (1957) . . . . . *Professor of Zoology*  
B.S., University of Michigan, Ph.D., Ohio State University
- Patt, Charles H. (1974) . . . . . *Assistant Professor of Advertising*  
A.B., M.S., Ph.D., University of Illinois

## RESIDENT FACULTY

- Paulsen, George E. (1959) . . . . . *Professor of History*  
 B.A. Hobart College, M.A. Rutgers, The State University  
 Ph.D., Ohio State University
- Peavy, John W. III (1988) . . . . . *Assistant Professor of Finance*  
 B.B.A. Southern Methodist University, M.B.A. University of Pennsylvania  
 Ph.D. University of Texas at Arlington, C.I.
- Peck, George B. (1957) . . . . . *Assistant Professor of Mathematics*  
 B.S., Arizona State University, M.S., University of Illinois
- Pedrick, Willard H. (1966) . . . . . *Professor of Law*  
 B.A., Parsons College, J.D., Northwestern University
- Peck, George A. Jr. (1964) . . . . . *Professor of Political Science*  
 B.A., M.A., Ph.D., University of Virginia
- Peña, Veronica (1978) . . . . . *Assistant Professor of Social Work*  
 B.A., Adams State College, M.S.W., University of Michigan
- Perreault, Richard G. Capt. (1976) . . . . . *Assistant Professor of Military Science*  
 B.S., Westchester Polytechnic Institute, M.S., Arizona State University
- Perrell, Richard C. (1976) . . . . . *Assistant Professor of Architecture*  
 Christian Brothers College
- Perril, Lester S. (1957) . . . . . *Professor Emeritus of Education*  
 B.A., Ohio Wesleyan University, M.A., Ohio State University,  
 Ph.D., University of North Carolina
- Perril, Norman K. (1966) . . . . . *Professor of Communication*  
 B.S., M.A., Northwestern University, Ph.D., University of Southern California
- Peterman, Gordon G. (1966) . . . . . *Professor of Construction*  
 B.S.C.E., University of Iowa
- Peters, Kathleen A. (1967) . . . . . *Assistant Professor of Home Economics*  
 B.S., M.S., Kansas State University
- Peterson, Russell J. (1977) . . . . . *Professor of Accounting*  
 B.S., Oregon State University, *Chair Department of Accounting*  
 M.S., University of Oregon, Ph.D., University of Washington
- Peterson, Clifford J. (1974) . . . . . *Associate Professor of English*  
 B.A., University of Missouri, M.A., Arizona State University  
 Ph.D., University of Washington
- Peterson, Edward R. (197) . . . . . *Assistant Professor of Technology*  
 B.S.F.F., French-Dickerson University, M.S.E.E., Arizona State University
- Peterson, John R. (1963) . . . . . *Associate Professor of Architecture*  
 B.A., St. Olaf College, B.Arch., University of Minnesota, M.Arch., Harvard University
- Peterson, Paul T. (1979) . . . . . *Assistant Professor of Real Estate*  
 B.S., Brigham Young University, M.B.A., University of Utah
- Peterson, Patricia J. (1978) . . . . . *Assistant Professor of Education*  
 B.A., M.A.T., Rockford College, Ph.D., University of Florida
- Peterson, Ralph (1976) . . . . . *Assistant Professor of Education*  
 B.A., Eastern Washington State College, M.A., Ed.D., Columbus University
- Peterson, Samuel (1976) . . . . . *Assistant Professor of Art*  
 B.A., Dartmouth University, M.A., New York University
- Pettit, George R. (1964) . . . . . *Professor of Chemistry*  
 B.S., Washington State University, M.S., Ph.D., Wichita State University
- Pewe, Troy L. (1965) . . . . . *Professor of Geology*  
 A.B., Augustana College; M.S., University of Iowa, Ph.D., Stanford University
- Pfuhl, Erdwin H. Jr. (1968) . . . . . *Associate Professor of Sociology*  
 A.B., William College, A.M., University of Idaho  
 Ph.D., Washington State University
- Pheanis, David C. (1955) . . . . . *Assistant Professor of Engineering*  
 B.S., Case Western Reserve University, M.S., Ph.D., Ohio State University
- Philippakis, Andreas S. (1967) . . . . . *Professor of Quantitative Systems*  
 B.S., Gannon College, *Chair Department of Quantitative Systems*  
 M.B.A., Ph.D., University of Wisconsin, Madison
- Phillips, William W. (1958) . . . . . *Associate Professor of History*  
 Ph.B., M.A., University of North Dakota, Ph.D., University of Missouri, Columbia
- Pian, Richard H. J. (1959) . . . . . *Professor of Engineering*  
 B.S.C.E., Kung Shang University (China), M.S.E., Ph.D., Case University
- Piercey, Dorothy J. (1968) . . . . . *Associate Professor of Education*  
 B.A., College of St. Francis, M.A., Arizona State University  
 Ph.D., University of Arizona
- Pierini, Peter E. (1977) . . . . . *Assistant Professor of Engineering*  
 B.S.Ch.E., Christ the Bishop College, M.S., C.I.T., University of Tennessee, Knoxville
- Pike, Norma J. (1964) . . . . . *Assistant Professor of Physical Education*  
 B.S., M.S., University of Southern California
- Pile, James (1971) . . . . . *Associate Professor of Art*  
 B.F.A., M.F.A., University of Nebraska, Omaha
- Pimentel, David (1973) . . . . . *Assistant Professor of Art*  
 B.S.Ed., Massachusetts College of Art, M.F.A., Worcester Institute of Technology
- Pinkava, Donald J. (1964) . . . . . *Professor of Business*  
 B.S., M.S., Ph.D., Ohio State University
- Pitt, H. Ronald (1975) . . . . . *Assistant Professor of Accounting*  
 B.S., University of Montana, M.S., Oklahoma State University
- Pittman, Anne M. (1952) . . . . . *Professor of Physical Education*  
 B.S., University of Texas  
 M.A., New York University, Ed.D., Stanford University
- Plantz, Don V. (1960) . . . . . *Professor of Economics*  
 B.S., M.B.A., University of Kansas, Ph.D., Indiana University
- Pog, Frederick T. (1975) . . . . . *Associate Professor of Anthropology*  
 B.A., Northwestern University, *Chair Department of Anthropology*  
 M.A., Ph.D., University of Chicago
- Podlich, William F. (1949) . . . . . *Professor of Education*  
 B.S., Mirvond State Teachers College, Ph.D., University of Iowa

- Poe, Jerry B (1974) ... *Professor of Finance Chair Department of Finance*  
 B.A. Drury College, M.B.A. Washington University, D.B.A. Harvard University
- Polk, Norval F. (1978) ... *Associate Professor of Quantitative Systems*  
 BS, M.B.A., California State University Fresno, *Assistant Dean*,  
 MBA, Arizona State University, *College of Business Administration*
- Poenz, G. Donald (1967) ... *Associate Professor of Social Work*  
 BA, Western College, MA, University of Utah,  
 DSW, University of Southern California
- Portier, Karen K. (1971) ... *Assistant Professor of Nursing*  
 BS, Missouri State University, MS, University of Utah
- Prutnoff, Colce H. (1945) ... *Professor Emeritus of English*  
 AB, MA, University of California, Berkeley,  
 I.A.A.R., MA, University of California, Riverside, Ph.D., Stanford University
- Powers, Doris C. (1960) ... *Associate Professor of English*  
 B.A., Wesleyan College, MA, Occidental College,  
 Ph.D., University of California Berkeley
- Prather, Elizabeth (1978) ... *Associate Professor of Communication*  
 BS, University of Nebraska, M.A., Ph.D., University of Wisconsin
- Prehm, Herbert J. (1977) ... *Professor of Education*  
 BS, Concordia Teachers College, *Chair Department of Special Education*  
 MS, Ph.D., University of Wisconsin Madison
- Price, Riley (1978) ... *Assistant Professor of Social Work*  
 BA, Oklahoma State University, MSW, University of Oklahoma
- Price, Thornton W. (1966) ... *Professor of Engineering*  
 BS, Minnesota State University, MS, Lehigh University, Ph.D., University of Wisconsin
- Prudenoff, Eugene (1977) ... *Professor of Music*  
 BM, Curtis Institute of Music, M.M., Temple University
- Priddy, A. F. (1974) ... *Assistant Professor of Education*  
 BA, University of New Mexico, MSSW, Ph.D., University of Missouri
- Priddy, Edith (1977) ... *Assistant Professor of Social Work*  
 BS, Nebraska Wesleyan University, MSW, University of Missouri
- Prust, Zenis A. (1952) ... *Professor of Technology*  
 BS, University of Wisconsin, MA, University of Minnesota,  
 Ed.D., University of Northern Iowa
- Quesada, Eugene R. (1973) ... *Assistant Professor of Design Sciences*  
 BA, Arizona State University
- Quirk, Daniel (1959) ... *Assistant Professor Emeritus of English*  
 BA, BS, Arizona State University, MA, New York University
- Rader, Martha (1958) ... *Associate Professor of Administrative Services*  
 BS, MBE, Indiana University, MS, Mississippi, Ph.D., Kansas State University
- Rader, Rosemary (1976) ... *Assistant Professor of Humanities and Religious Studies*  
 BA, Oberlin College, BD, Yale Divinity School,  
 MA, Ph.D., University of Chicago
- Radke, Judith J. (1960) ... *Associate Professor of French*  
 BS, MA, University of Wisconsin, Ph.D., University of Colorado
- Ragan, Donald M. (1967) ... *Professor of Geology*  
 BA, Occidental College, MS, University of Southern California,  
 Ph.D., University of Washington
- Raiten, Mick A. (1956) ... *Professor of Education*  
 BS, MS, Indiana University, Ed.D., Indiana University
- Rainirez, Rau (1978) ... *Assistant Professor of Social Work*  
 BS, University of Arizona, MSW, Arizona State University
- Randal, Virginia R. (1962) ... *Assistant Professor of English*  
 B.A., College of New Rochelle, MA, Arizona State University,  
 Ph.D., Occidental College
- Rankin, Robert L. (1971) ... *Associate Professor of Engineering*  
 BS, University of Texas at El Paso, Ph.D., Rice University
- Rannels, Jesse M. (1939) ... *Professor Emeritus of Home Economics*  
 BS, Iowa State University, MS, Cornell University, Ph.D., University of Wisconsin
- Rapp, James R. (1962) ... *Professor of Architecture*  
 BA, Art University of Detroit, MS, Architecture, University of Michigan
- Rasmussen, David I. (1963) ... *Professor of Zoology*  
 BS, MS, University of Utah, Ph.D., University of Michigan
- Raschman, Robert D. (1949) ... *Associate Professor of Agriculture*  
 BS, Wisconsin State University, MS, Washington State University
- Ritterree, Jack L. (1964) ... *Associate Professor of Music*  
 BM, Curtis Institute of Music, MA, American University
- Riusch, Jack D. (1965) ... *Associate Professor of Music*  
 BS, MA, Ohio State University
- Rave, Wallace J. (1967) ... *Associate Professor of Music*  
 BS, Indiana State University, M.M., Ph.D., University of Illinois
- Raws, William S. (1949) ... *Professor of Physics*  
 BS, Murray State College, MS, Tufts University, Ph.D., Iowa State University
- Ray, William J. (1968) ... *Professor of Education*  
 BS, MS, State University of New York, B.Ed.,  
 Ed.D., Wayne State University
- Reader, Mark (1967) ... *Associate Professor of Political Science*  
 AB, AM, Ph.D., University of Michigan
- Reck, Ross R. (1975) ... *Assistant Professor of Management*  
 BA, Ph.D., Michigan State University
- Redican, Kerry J. (1975) ... *Assistant Professor of Health Science*  
 BA, Eastern State University, Ed.D.,  
 MSPH, University of California, San Diego, Ph.D., University of Wisconsin

## RESIDENT FACULTY

- Reed, William H. (1968) . . . . . *Assistant Professor of Technology*  
 B.S., University of Oklahoma; M.S., Arizona State University
- Reeves, Henry C. (1909) . . . . . *Professor of Microbiology*  
 B.S., Franklin and Marshall College; M.A., Ph.D., Vanderbilt University
- Reich, John W. (1965) . . . . . *Professor of Psychology*  
 B.A., M.S., University of Oklahoma; Ph.D., University of Colorado
- Reif, William E. (197) . . . . . *Professor of Management*  
 B.B.A., M.A., Ph.D., University of Illinois
- Reinard, John C. (1975) . . . . . *Assistant Professor of Communication*  
 B.A., M.A., Central State University; Ed.S., Ph.D., University of Southern California
- Rein', Robert L. (196) . . . . . *Professor Emeritus of Philosophy*  
 A.B., A.M., Ph.D., Harvard University
- Reiser, Castle O. (1958) . . . . . *Professor of Engineering*  
 B.S., Central State University; Ph.D., University of Wisconsin, Madison
- Reiss, Peter W. (1976) . . . . . *Assistant Professor of Administrative Services*  
 B.S., JD, Marquette University; M.A., Arizona State University
- Rencau, J. Hal (1975) . . . . . *Assistant Professor of Accounting*  
 B.B.A., M.S., Texas Tech University; Ph.D., University of Missouri, Columbia
- Reuter, Vincent G. (196) . . . . . *Professor of Management*  
 B.S.C., M.A., Ph.D., University of Iowa
- Reyes, Tita Generasi (1975) . . . . . *Assistant Professor of Nursing*  
 B.S.N., M.A., University of the Philippines
- Reynolds, Robert D. (1970) . . . . . *Associate Professor of Music*  
 B.M., Texas Christian University; M.M., University of Texas; Ph.D., Ohio State University
- Reznikoff, Shirley (1973) . . . . . *Associate Professor of Design Sciences*  
 B.A., University of Southern Illinois; Certificate, New York School of Interior Design; M.A., Missouri State University
- Rice, Margaret J. (1968) . . . . . *Assistant Professor Emeritus of Communication*  
 A.B., A.M., University of Kansas
- Rice, Ross R. (19) . . . . . *Professor of Political Science*  
 M.A., Ph.D., University of Chicago
- Rice, Roy C. (1946) . . . . . *Professor Emeritus of Education*  
 B.S., University of New Mexico; M.S., University of Massachusetts; Ph.D., University of Texas
- Rice, Warren (1958) . . . . . *Professor of Engineering*  
 B.S., M.S., Ph.D., Texas A & M University
- Richards, Gale I. (1965) . . . . . *Professor of Communication*  
 B.A., University of Akron; M.A., Ph.D., University of Iowa
- Richards, Mary I. (1978) . . . . . *Assistant Professor of Nursing*  
 B.S.N., M.S.N., DePaul University
- Richardson, Deane L. (1970) . . . . . *Professor of Physical Education*  
 B.S., Bridgewater State College; M.A., Ed.D., State University
- Richardson, Grant L. (1953) . . . . . *Professor of Agriculture*  
 B.S., M.S., University of Arizona; Ph.D., Oregon State University
- Richardson, H.D. (1940) . . . . . *Professor Emeritus of Counselor Education*  
 P.B., Ph.D., University of Wisconsin; Ph.D., Northern University; Ed.D., Arizona State University
- Richardson, Richard C. Jr. (1977) . . . . . *Professor of Education Chair*  
 B.S., Central State College; Department of Higher and Adult Education; M.S., Michigan State University; Ph.D., University of Texas
- Rickel, Harry P. (1948) . . . . . *Professor of Music*  
 B.M., M.M., University of Arizona
- Rider, Wendell J. (1953) . . . . . *Professor Emeritus of Music*  
 B.S., Iowa State University; Ch.D., M.M., Eastern School of Music; Ph.D., University of Iowa
- Ripley, Robert L. (1967) . . . . . *Associate Professor of Education*  
 B.A., M.A., Ph.D., University of Minnesota
- Ritchie, Kathleen E. (1972) . . . . . *Instructor in Psychology*  
 B.A., University of Arizona
- Robbins, Earl R. (196) . . . . . *Associate Professor of Engineering*  
 B.S.T.E., Texas Technological College; M.S.E., Ph.D., Army State University
- Roberts, Thomas G. (1970) . . . . . *Associate Professor of Education*  
 B.A., Wake Forest University; M.A., Ph.D., University of North Carolina
- Robertson, Herschel E., Jr., Capt. (1977) . . . . . *Assistant Professor of Aerospace*  
 B.B.A., University of Mississippi; Studies, Air Force ROTC; Admissions, M.A., College of Military University; Counselor, State of Arizona
- Robinson, Heene M. (1967) . . . . . *Associate Professor Emeritus of Music*  
 B.A., University of Oregon; M.M., Northern University
- Robinson, Sharon E. (1978) . . . . . *Assistant Professor of Counselor Education*  
 B.S., M.S., University of Wisconsin; Ed.S., Ph.D., Indiana University
- Rod, Bruce (1974) . . . . . *Assistant Professor of Art*  
 B.A., M.A., Michigan State College; M.F.A., University of Wisconsin, Madison
- Rodd, Laurel R. (1975) . . . . . *Assistant Professor of Japanese*  
 B.A., DePaul University; M.A.T., East Tennessee State University; M.A., University of Michigan
- Rohrer, Dwayne A. (1971) . . . . . *Associate Professor of Engineering*  
 B.S., M.S., Oklahoma State University; Ph.D., Idaho State University
- Rok, Fern H. (1969) . . . . . *Assistant Professor of Technology*  
 B.A., University of Colorado; M.A., Arizona State University
- Roper, Devon J. (1966) . . . . . *Associate Professor of Technology*  
 B.S., Utah State University; M.S., Arizona State University

- Rose, Jonathan (1968) . . . . . *Professor of Law*  
B.A. University of Pennsylvania, LL.B., University of Minnesota
- Rose, Seth D. (1976) . . . . . *Assistant Professor of Chemistry*  
B.S., University of California, Berkeley  
Ph.D. University of California, San Diego
- Rosst, Patrick J. (1967) . . . . . *Associate Professor of Psychology*  
B.S. St. Mary's College, M.A. St. Fernando Valley State College,  
Ph.D. University of California, Riverside
- Rossmun, Mark H. (1974) . . . . . *Associate Professor of Education*  
B.A. New York University, M.S. University of Bridgeport  
Ed.D. University of Massachusetts
- Rothschild, Mary A. (1975) . . . . . *Assistant Professor of History*  
B.A. M.A., Ph.D., University of Wisconsin
- Rover, R. Craig (1952) . . . . . *Professor of Education*  
B.A. Los Angeles College, M.A., Stanford University  
Ph.D. Cornell University
- Rowe, Kenneth L. (1962) . . . . . *Professor of Marketing,*  
B.A. M.A. Northern Iowa University . . . . . *Chair, Department of Marketing*  
Ph.D. Michigan State University
- Rowley, C. Stevenson (1970) . . . . . *Associate Professor of Accounting*  
B.A. Trinity College, M.B.A. University of Chicago  
Ph.D. University of Wisconsin, Madison CPA, Architect, Engineer
- Roy, Radha R. (1963) . . . . . *Professor of Physics*  
B.Sc. M.Sc. Presidency College, University of Calcutta,  
Ph.D. University of London
- Rubel, Jacqueline C. (1977) . . . . . *Instructor of Nursing*  
B.S.N., M.S.N., Boston College
- Ruccio, James S. (1974) . . . . . *Associate Professor of Music*  
B.M. Eastman School of Music, M.M., Arizona State University  
D.M.A. University of Arizona
- Ruel, Warren A. (1968) . . . . . *Associate Professor of Management*  
B.S. M.B.A. D.B.A., Indiana University
- Rueda, Robert (1978) . . . . . *Instructor of Special Education*  
B.A. University of California, Los Angeles  
M.S.W., University of Southern California
- Ruff, Paul F. (1958) . . . . . *Professor of Engineering*  
B.S.C.E., M.S.C.E., Case Western Reserve University
- Ruppe, Reynolds J. (1960) . . . . . *Professor of Anthropology*  
B.A. University of New Mexico, Ph.D., Harvard University
- Russell, Paul E. (1967) . . . . . *Professor of Engineering, Chair,*  
S.I.E., B.S.M.E. New Mexico A&M University . . . . . *Department of Electrical and*  
M.S.I.E., Ph.D., University of Wisconsin, Madison Ph.D. . . . . *Computer Engineering*
- Russell, Stanley J. (1969) . . . . . *Associate Professor of Engineering*  
B.S. University of Illinois, M.S., Ph.D. University of Wisconsin, Madison
- Rutherford, Robert B. Jr. (1976) . . . . . *Associate Professor of Education*  
B.S., M.Ed., University of Virginia, Ed.S., Ph.D. George Peabody College
- Rutowski, Ronald L. (1976) . . . . . *Assistant Professor of Zoology*  
B.A., University of California, Santa Cruz, Ph.D., Cornell University
- Sacks, Benjamin (1963) . . . . . *Professor Emeritus of History*  
B.A., University of New Mexico, M.A., McGill University, Ph.D. Stanford University
- Sadalla, Edward K. (1974) . . . . . *Assistant Professor of Psychology*  
B.A. University of California, Berkeley, Ph.D. Stanford University
- Sidler, William E. (1975) . . . . . *Assistant Professor of Design Sciences*  
B.S., M.S., Kent State University
- Salerno-Nchoias, A. (1961) . . . . . *Professor of English*  
B.A. in Ed., M.A. Arizona State University, Ph.D. Stanford University
- Samuchin, Michael G. (1966) . . . . . *Associate Professor of Architecture*  
B.Arch., University of Illinois, Chicago, M.S., Ph.D. Northwestern University
- Sanders, Bevie T. (1957) . . . . . *Associate Professor of Accounting*  
B.B.A., North Texas State University, M.S. Texas A & M University  
Ph.D. University of Texas CPA, Architect and Engineer
- Sanderson, R. Thomas (1963) . . . . . *Professor Emeritus of Chemistry*  
B.S., Yale University, Ph.D. University of Chicago
- Sandler, Irwin (1975) . . . . . *Assistant Professor of Psychology*  
B.A., Brooklyn College, Ph.D., University of Rochester
- Sandling, Rosemarie (1971) . . . . . *Assistant Professor of Nursing*  
B.S.N., Arizona State University, M.N., University of California, Los Angeles
- Sands, Kathleen M. (1977) . . . . . *Assistant Professor of English*  
B.A., Fairleigh Dickinson College, M.A., Ph.D., University of Arizona
- Sansone, Fred J. (1965) . . . . . *Associate Professor of Mathematics*  
B.S.E., M.S.E., University of Michigan, M.S., Ph.D. Rutgers, The State University
- Sargent, Charles S. Jr. (1971) . . . . . *Associate Professor of Geography*  
B.A., University of Wisconsin, M.A., Ph.D., University of California, Berkeley
- Sater, Vernon E. (1962) . . . . . *Professor of Engineering, Acting Chair*  
B.S.Ch.E., M.S.Ch.E., Ph.D., . . . . . *Department of Chemical and Bio Engineering*  
 . . . . . *Research Institute of Technology*
- Satterthwaite, Lester L. Jr. (1965) . . . . . *Professor of Education*  
B.S., M.S., Ed.D., Indiana University
- Sattler, Howard E. (1967) . . . . . *Professor of Education*  
B.S., M.S., Ph.D., Arizona State University
- Saun, Margo L. (1978) . . . . . *Instructor of Nursing*  
B.S.N., Creighton University, M.S.N., University of Nebraska, Medical Center
- Savage, Nevin W. (1959) . . . . . *Professor of Mathematics*  
B.S., M.A. Pennsylvania State University  
Ph.D., University of California, Los Angeles

**RESIDENT FACULTY**

- Scalise, James W. (1975) . . . . . *Assistant Professor of Architecture*  
 B.A. Architecture, State University of Michigan, Ann Arbor
- Schabacker, Joseph (1963) . . . . . *Professor of Management*  
 B.S. Temple University, M.B.A. Ph.D. University of California, San Diego
- Schade, Thomas V. (1974) . . . . . *Associate Professor of Criminal Justice*  
 B.A. History, M.A. Ph.D. Western Michigan University
- Schill, Merril H. (1960, 66, 1977) . . . . . *Associate Professor of Education,  
 Chair, Department of Elementary Education*  
 B.A. Albion College, M.S. Ed.D. Arizona State University
- Schaumburg, Donald R. (1953) . . . . . *Professor of Art*  
 B.A. Art History, Arts and Crafts, M.F.A., Certificate of Graduate Study
- Schuster, John I. (1969) . . . . . *Associate Professor of Marketing*  
 B.B.A., Western Reserve University, M.B.A. Ph.D. Ohio State University
- Schligenhaupt, Don E. (1976) . . . . . *Assistant Professor of Economics*  
 B.S. Marquette University, M.A. Ph.D. University of Illinois
- Schmidt, Alfred H. (1960) . . . . . *Professor of Marketing*  
 B.S. University of Oklahoma, M.B.A., D.B.A., Ed.D. Indiana University
- Schmidt, Jean M. (1966) . . . . . *Associate Professor of Microbiology*  
 B.A. M.S., University of Wisconsin, Ph.D. University of California, Berkeley
- Schmidt, Peter A. (1978) . . . . . *Associate Professor of Technology*  
 B.S., in Ed. Northern Illinois University, M.A., Ed.D. Arizona State University
- Schmidt, Randall B. (1968) . . . . . *Associate Professor of Art*  
 B.A. History, University of Missouri, M.A. University of New Mexico
- Schnitzgrund, Karen P. (1977) . . . . . *Assistant Professor of Home Economics*  
 B.S., M.S. Ph.D. University of Utah
- Schrenk, Robert A. (1966) . . . . . *Assistant Professor of Technology*  
 B.S., M.S. Arizona State University
- Schoenfelder, James (1967) . . . . . *Associate Professor of Anthropology*  
 A.B., University of Chicago, M.S., University of Arizona  
 Ph.D., Southern Illinois University
- Schon, Isabele (1974) . . . . . *Assistant Professor of Education*  
 B.S., Marquette State College, M.A., M.Ed., State University  
 Ph.D., University of Colorado
- Schroeder, Milton R. (1969) . . . . . *Professor of Law*  
 B.A., Western University, J.D., University of Chicago
- Schuback, Gertrud B. (1966) . . . . . *Instructor of German*  
 B.A., M.A., State University
- Schwada, John W. (1971) . . . . . *President of the University  
 Professor of Political Science*  
 B.S., Northern Illinois University, Certificate of Graduate Study  
 M.A., University of Michigan, Ph.D., State University
- Schwartz, Bernard Neal (1978) . . . . . *Assistant Professor of Accounting*  
 B.B.A., University of Wisconsin, M.A., University of Illinois, Chicago  
 Ph.D., University of California, Los Angeles
- Scott, Craig O. (1979) . . . . . *Assistant Professor of Military Science*  
 B.S., M.S., Rensselaer Polytechnic Institute
- Scott, Walter T. (1961) . . . . . *Professor Emeritus of Mathematics*  
 B.A., M.A., Ph.D., Rensselaer Polytechnic Institute
- Scoular, David B. (1952) . . . . . *Professor Emeritus of Music*  
 B.A., Texas Christian University, B.M., Lawrence College  
 M.A., Columbia University
- Seale Vasquez, Mary (1975) . . . . . *Assistant Professor of Spanish*  
 B.A., Colorado State University  
 M.A. Ph.D., University of Wisconsin
- Searfoss, Lyndon W. (1973) . . . . . *Assistant Professor of Education*  
 B.S., West Chester State College, M.A., Ph.D., Syracuse University
- Seibald, Hans (1963) . . . . . *Professor of Sociology*  
 B.A., Manchester College, M.S., Ph.D., Ohio State University
- Sehested, Colene R. (1967) . . . . . *Assistant Professor of Nursing*  
 B.S., University of Arkansas, M.S., University of Maryland
- Scrupp, Kenneth F. (1963) . . . . . *Professor of Music*  
 B.S., Hartwick College, M.M., Conservatory of Music, University of Kansas City  
 Mus. Ed. D., Indiana University
- Seleck, Herbert H. (1973) . . . . . *Associate Professor of Construction*  
 B.S.C.E., Iowa State University
- Senner, Wayne M. (1973) . . . . . *Associate Professor of German*  
 B.A., Portland State University, M.A., University of Washington,  
 Ph.D., University of Illinois
- Seperch, George J. (1976) . . . . . *Assistant Professor of Agriculture*  
 B.S., Iowa University, Chicago  
 M.S. Ph.D., Michigan State University
- Slafker, Robert E. (1966) . . . . . *Professor of English,  
 Director, English Education*  
 B.S., M.S., University of Wisconsin, Madison  
 Ed.D., Clark University
- Shaler, Susanne M. (1966) . . . . . *Professor of Education*  
 A.B., Smith College, M.A., Syracuse University, Ph.D., University of Michigan
- Shirer, Jon W. (1975) . . . . . *Assistant Professor of Art*  
 B.A., Roosevelt University, Chicago, M.S., Illinois Institute of Technology,  
 Ph.D., Ohio State University
- Shaw, Milton C. (1978) . . . . . *Professor of Engineering*  
 B.S., M.E., Drexel University, M.Eng.Sc., Ph.D., University of Cincinnati
- Shelfed, Neal Y. R. (1978) . . . . . *Invitational Professor of Accounting*  
 B.B.A., University of Texas, Austin
- Shell, Leon G. (1967) . . . . . *Associate Professor of Education, Dean of Students*  
 B.A., University of Colorado, A.M., Ed.D., University of Northern Colorado
- Sheppard, Douglas C. (1971) . . . . . *Professor of Spanish*  
 B.A., Miami State University, M.A., Ph.D., University of Wisconsin, Madison

- Sheridan, Eleanor (1973) . . . . . *Assistant Professor of Nursing*  
BSN, MSN, Wayne State University
- Sheridan, Michele E. (1966) . . . . . *Professor of Geology*  
BA, Arheist College, MS, PhD, Stanford University
- Sherman, Thomas L. (1964) . . . . . *Professor of Mathematics*  
BA, University of California, Los Angeles, MS, PhD, University of Utah
- Sherwood, Margaret E. (1978) . . . . . *Instructor in English*  
BA, University of California, Los Angeles, MA, Ariz. State University
- Sheydavi, E. Yury (1973) . . . . . *Assistant Professor of Architecture*  
B.S. California State University, Azusa, M.S.C.E., Arizona State University
- Shinn, Randall A. (1978) . . . . . *Assistant Professor of Music*  
BA, Southwest Oklahoma State University, MM, University of Colorado, DMA, University of Illinois
- Shinn, Thea J. (1975) . . . . . *Assistant Professor of English*  
BA, Central Connecticut State College, MA, PhD, Purdue University
- Shipp, Vernon F. (1966) . . . . . *Assistant Professor of Art*  
BS, Central Connecticut College, MA, Arizona State University
- Shipper, Frank M. (1976) . . . . . *Assistant Professor of Management*  
BSME, West Virginia Tech, MBA, PhD, University of Utah
- Shirreffs, Janet H. (1977) . . . . . *Assistant Professor of Health Science*  
BS, Illinois College, MS, Syracuse University, PhD, Texas Woman's University
- Shofstall, We don P. (1950) . . . . . *Professor Emeritus of Secondary Education*  
BS in Ed., Northeast Missouri State Teachers College, MA, PhD, University of Missouri
- Shrock, David I. (1974) . . . . . *Assistant Professor of Transportation*  
BEF, Georgia Motors Institute, MBA, DBA, Indiana University
- Shuman, I. Gayle (1974) . . . . . *Associate Professor of Criminal Justice*  
BS, MA, Ed., Ed.D., Arizona State University
- Silvato, Nicholas J. (1963) . . . . . *Professor of Education Director*  
BS in Ed., State University of New York, Fredonia, MA, State University of New York, Buffalo, Ed.D., Syracuse University
- Silver, Benjamin (1971) . . . . . *Assistant Professor of Mass Communications*  
BA, MA, University of Iowa
- Simons, Douglas J. (1963) . . . . . *Assistant Professor of French*  
AB, Wabash College, MAT, Harvard University, Certificat de fran. us., dipl. des etudes, Certificat de prononciation francaise, L. Sorbonne, France
- Simon, Helen (1978) . . . . . *Assistant Professor of Communication*  
BA, Syracuse University, MA, State University of New York, PhD, Graduate School of Arts and Sciences, City University of New York
- Simon, Sheldon (1975) . . . . . *Professor of Political Science*  
BA, University of Minnesota, MA, Princeton University, Ph.D., University of Minnesota
- Singh, Av. C. (1977) . . . . . *Associate Professor of Engineering*  
BS, Metallurgical Engineering, B.Sc. Honor, St. Andrews University, Sc.D., Massachusetts Institute of Technology
- Sinkev, Abraham (1964) . . . . . *Professor Emeritus of Mathematics*  
BS, City College, New York, MS, Curtin University, PhD, Curtin University
- Sirkis, Murray D. (1968) . . . . . *Professor of Engineering*  
BS, Massachusetts Institute of Technology, MS, PhD, University of Illinois
- Skoldborg, Phyllis (1977) . . . . . *Professor of Music, Assistant Dean*  
B.M., M.M., New England Conservatory, Music College of Fine Arts, M.M.E.D.M., Indiana University
- Smith, Andrew T. (1978) . . . . . *Assistant Professor of Zoology*  
AB, University of California, Berkeley, PhD, University of California, Los Angeles
- Smith, Arthur B. Jr. (1967) . . . . . *Associate Professor of Administrative Services*  
BS, Harvard Summer University, MBA, Ed.D., University of Houston
- Smith, Charles B. (1964) . . . . . *Professor of Administrative Services*  
BS, Drake University, MS, New Mexico Highlands University, Ed.D., University of North Carolina
- Smith, Harvey A. (1977) . . . . . *Professor of Mathematics*  
BS, Tech. University, Chair, Department of Mathematics, MS, AM, PhD, University of Pennsylvania
- Smith, I. Christian (1971) . . . . . *Assistant Professor of History*  
BA, Union College, MA, PhD, University of Illinois
- Smith, Lehi T. (1959) . . . . . *Professor of Mathematics*  
BS, MA, Ed., Arizona State University, Ed.D., Stanford University
- Smith, Margo M. (1963) . . . . . *Associate Professor Emeritus of Music*  
B.M., Grace College, MA in Ed., Arizona State University
- Smith, Marion W. (1952) . . . . . *Associate Professor of Music*  
BS in Music Ed., Capital University, M.M., American Conservatory of Music
- Smith, Ralph E. (1971) . . . . . *Associate Professor of Accounting*  
BBA, Washington University, MS, PhD, University of Kansas, CPA, KUAS
- Smith, Richard L. (1967) . . . . . *Professor of Engineering*  
BS, Washington University, MS, Ohio State University, PhD, Arizona State University
- Smith, Ronald D. (1963) . . . . . *Associate Professor of History, Assistant Dean College of Liberal Arts*  
AB, San Diego State College, Dean College of Liberal Arts, PhD, University of Southern California
- Smith, Todd T. (1973) . . . . . *Assistant Professor of Design Sciences*  
BPA, Art Center College of Design, Los Angeles, MFA, Arizona State University
- Snyder, Donald L. (1967) . . . . . *Associate Professor of Engineering*  
BS in Ed., California State Polytechnic College, M.S.E.E., University of Pennsylvania, PhD, Case Institute of Technology

## RESIDENT FACULTY

- Snow, Robert (1970) . . . . . *Assistant Professor of Sociology*  
 B.S. M.A., Ph.D., University of Minnesota
- Snyder, Ernest E. Jr. (1958) . . . . . *Professor of Science Education*  
 A.B., M.A., Colorado State University, Ed.D., New York University
- Snyder, Lester M. Jr. (1967) . . . . . *Associate Professor of Education*  
 B.S., Minnesota State College, *Chair, Department of Counselor*  
 M.Ed., Western Maryland College, Ph.D., University of Michigan *Education*
- Somerville, Susan C. (1978) . . . . . *Assistant Professor of Psychology*  
 B.A., University of New England, *Assistant Professor of Psychology*  
 Ph.D., Australian National University
- Sommerfeld, Milton R. (1968) . . . . . *Professor of Botany*  
 B.S., Southwest Texas State College, Ph.D., Washington University
- Spence, John C. H. (1976) . . . . . *Assistant Professor of Physics*  
 M.Sc., Ph.D., University of Melbourne, Australia
- Spinosa, Frank (1965) . . . . . *Professor of Music*  
 B.M., M.A., Boston University, D.M.A., University of Illinois
- Stadtmiller, Jack E. (1963) . . . . . *Associate Professor of Engineering*  
 B.S., University of Utah, M.A., Arizona State University *Communications*
- Stafford, Alfred B. (1958) . . . . . *Professor Emeritus of Engineering*  
 B.S.E.E., Carnegie Institute of Technology, M.A., University of Pittsburgh,  
 Ph.D., University of Chicago
- Stafford, Kenneth R. (1957) . . . . . *Professor of Education*  
 B.A., M.Ed., Ph.D., University of Oklahoma
- Stahl, Robert (1978) . . . . . *Assistant Professor of Education*  
 B.A., M.A., Ed.D., University of Florida
- Stahnke, Herbert L. (1941) . . . . . *Professor Emeritus of Zoology*  
 S.B., University of Chicago, M.A., University of Arizona,  
 Ph.D., Iowa State University
- Staley, Frederick A. (1970) . . . . . *Associate Professor of Education*  
 B.A., M.A., Western Michigan University, Ph.D., Michigan State University
- Stazler, Frank S. (1955) . . . . . *Associate Professor of Music*  
 B.M.Ed., University of Kansas, M.M., Eastman School of Music
- Stange, Jean B. (1970) . . . . . *Associate Professor of Home Economics*  
 B.S., Iowa State University, M.S., University of Minnesota
- Stanley, James T. (1968) . . . . . *Professor of Engineering*  
 B.S., M.S., Ph.D., University of Illinois
- Stark, Barbara L. (1972) . . . . . *Assistant Professor of Anthropology*  
 B.A., Rice University, M.Phil., Ph.D., Yale University
- Starkey, Penny J. (1977) . . . . . *Instructor of Nursing*  
 B.S., M.S., University of Missouri
- Starrfield, Sumner G. (1972) . . . . . *Associate Professor of Astronomy*  
 B.A., University of California, Berkeley,  
 M.A., Ph.D., University of California, Los Angeles
- Steadman, Lyle B. (1971) . . . . . *Assistant Professor of Anthropology*  
 B.A., Occidental College, M.A., University of California, Los Angeles  
 Ph.D., Australian National University
- Steele, Caryl J. (1960) . . . . . *Assistant Professor of Education*  
 B.A., Abilene College, M.A., Arizona State University
- Steffl, Bernita M. (1961) . . . . . *Associate Professor of Nursing*  
 B.S.N., M.P.H., University of Minnesota
- Stemmann, Wilbur L. (1959) . . . . . *Associate Professor of Engineering*  
 B.S.F.E., University of Minnesota, M.S., University of Iowa
- Stellhorn, Martin H. (1963) . . . . . *Professor of Music*  
 Mus.B., St. Louis Institute of Music, Mus.M., Northwestern University  
 Ph.D., Washington University
- Stevenson, Harold W. (1967) . . . . . *Professor of Finance*  
 B.S., University of Minnesota, M.B.A., Ph.D., University of Michigan, C.F.A.
- Steverson, Norris J. (1932) . . . . . *Associate Professor Emeritus of*  
 B.A., Arizona State University *Physical Education*  
 M.S., University of Southern California
- Stewart, Donald G. (1964) . . . . . *Associate Professor of Mathematics*  
 B.A., M.S., University of Utah, Ph.D., University of Tennessee, Knoxville
- Stewart, Ernest I. (1959) . . . . . *Professor Emeritus of Health Science*  
 B.S., M.S., Utah State University, Ph.D., Columbia University
- Stewart, Kenneth M. (1947) . . . . . *Professor of Anthropology*  
 A.B., M.A., Ph.D., University of California, Berkeley
- Stiles, Philip G. (1969) . . . . . *Professor of Agriculture*  
 B.S., University of Arkansas, M.S., University of Kentucky  
 Ph.D., Michigan State University
- Stites, William H. (1954) . . . . . *Professor of Communication*  
 B.A., Louisiana Polytechnic Institute, M.A., Ph.D., University of Denver
- Stock, William A. (1973) . . . . . *Assistant Professor of Education*  
 B.A., Buckner College, M.S., Ph.D., Iowa State University
- Stocker, David Allen (1978) . . . . . *Associate Professor of Music*  
 B.S., Concordia Teachers College, M.M., Ph.D., Northwestern University
- Stocker, Richard L. (1976) . . . . . *Assistant Professor of Geology*  
 B.A., Lehigh University, M.S., M.Phil., Ph.D., Yale University
- Stone, John D. (1976) . . . . . *Assistant Professor of Philosophy*  
 B.A., University of Chicago, Ph.D., University of Texas, Austin
- Stone, William J. (1967) . . . . . *Professor of Physical Education*  
 B.S., Boston University, M.S., Florida State University,  
 Ed.D., University of California, Berkeley
- Stoner, Richard G. (1963) . . . . . *Professor of Physics*  
 A.B., A.M., Ph.D., Princeton University
- Stookey, John A. (1976) . . . . . *Assistant Professor of Political Science*  
 A.B., M.A., Masha, University, Ph.D., University of Kentucky

- Stout, Minard W. (1968) . . . . . *Professor Emeritus of Education*  
B.A., University of Northern Iowa, M.A., Ph.D., State University of Iowa
- Stout, Robert (1978) . . . . . *Professor of Education; Dean College of Education*  
B.A. Carleton College, Northfield, Minn., Ph.D., University of Chicago
- Stowe, Noel J. (1967) . . . . . *Associate Professor of History*  
B.A., Ph.D., University of Southern California
- Strange, Richard E. (1974) . . . . . *Professor of Music, Director of Bands*  
B.M.E., Wichita State University; M.M.E., University of Colorado;  
D.M.A. Boston University
- Straub, Calvin C. (1961) . . . . . *Professor Emeritus of Architecture,*  
B.Arch., University of Southern California *Chair, Department of Architecture*
- Strawn, Roland S. (1976) . . . . . *Associate Professor of Technology*  
B.S.E.E., M.S.E.E., University of Illinois, Ph.D. Arizona State University
- Streufert, Hildegard (1961) . . . . . *Associate Professor of Home Economics*  
B.S., University of Minnesota, M.S., Iowa State University
- Strobnik, Ales (1969) . . . . . *Professor of Physics*  
Diplom. Ing., Ph.D., University of Ljubljana (Yugoslavia)
- Strom, Robert D. (1969) . . . . . *Professor of Education*  
B.S., Macomber College, M.A., University of Minnesota,  
Ph.D., University of Michigan
- Stuler, John H. (1963) . . . . . *Professor of Art*  
B.A., M.F.A. Arizona State University
- Stumpf, Angela M. (1959) . . . . . *Associate Professor of Nursing*  
B.S.N.P., Marquette University, M.A., University of Chicago
- Stutsman, Paul S. (1967) . . . . . *Associate Professor Emeritus of Chemistry*  
B.S. University of Illinois, Ph.D. University of Wisconsin, Madison
- Stutts, Mary Ann (1977) . . . . . *Assistant Professor of Marketing*  
B.A., University of Texas, Austin  
M.B.A., Ph.D., Texas A&M University
- Sullivan, Deborah (1967) . . . . . *Assistant Professor of Sociology*  
B.S., University of Massachusetts, Amherst, M.A., University of California, Irvine,  
Ph.D., Duke University
- Sullivan, Howard J. (1971) . . . . . *Professor of Education*  
B.S., Oregon College of Education *Associate Dean, Graduate College*  
M.Ed., Ph.D., University of Oregon
- Sullivan, John J. (1976) . . . . . *Assistant Professor of Education*  
B.A., Villanova University, M.A., Ph.D., Arizona State University
- Sunkett, Mark E. (1976) . . . . . *Instructor of Music*  
B.M., Curtis Institute, M.Sc., M.M. Temple University
- Svoboda, William S. (1969) . . . . . *Professor of Education*  
B.S. in Ed., M.S., Ed.D. University of Kansas
- Swafford, James R. (1971) . . . . . *Assistant Professor of Microbiology*  
B.S., M.S., Arizona State University
- Swagert, S. Laird (1971) . . . . . *Professor Emeritus of Political Science*  
B. in Ed., Western Illinois State Teachers College, M.A., Ph.D., University of Iowa
- Swaim, S. Daniel (1975) . . . . . *Associate Professor of Music*  
B.M., Cincinnati College Conservatory of Music; M.M.E., Indiana University
- Swain, David (1975) . . . . . *Assistant Professor of Administrative Services*  
B.A., Manhattan University, J.D., Cleveland State University
- Swanson, Roger M. (1968) . . . . . *Assistant Professor of English,*  
B.A., North Central College, *Dean of Admissions*  
M.A., Ph.D., University of Illinois
- Sweeney, Mary C. (Sister) (1978) . . . . . *Instructor in English*  
B.A. St. Ambrose College, M.S., Iowa State University
- Swimmer, Alvin (1963) . . . . . *Associate Professor of Mathematics*  
B.A. Pennsylvania State University; M.S., New York University,  
Ph.D., University of California Berkeley
- Szarek, Stanley R. (1974) . . . . . *Assistant Professor of Botany*  
B.S. California State University, Pomona; Ph.D., University of California Riverside
- Tallman, Nancy N. (1975) . . . . . *Assistant Professor of Theatre*  
B.A., Arizona State University, M.F.A., Temple University
- Tambis, Lewis A. (1969) . . . . . *Professor of History*  
B.S., University of California, Berkeley  
M.A., Ph.D., University of California, Santa Barbara
- Tapia, Humberto S. (1976) . . . . . *Assistant Professor of Marketing*  
L.A.E., Instituto Tecnológico de Estudios Superiores de Monterrey,  
M.B.A., Ph.D., University of Arizona
- Tate, Donald J. (1958) . . . . . *Professor of Administrative Services*  
B.S. Kansas State Teachers College, M.A., Ed.D., New York University
- Taylor, Jack J. (1960) . . . . . *Professor of Art*  
B.S. in Art Ed., Kutztown Teachers College,  
M.Ed., Pennsylvania State University
- Taylor, Janet (1977) . . . . . *Assistant Professor of Art*  
B.F.A., Cleveland Institute of Art, M.F.A., Syracuse University
- Taylor, Louis (1949) . . . . . *Assistant Professor Emeritus of English*  
B.S. in Ed. MA. Ohio State University
- Taysom, Elvin D. (1953) . . . . . *Professor of Agriculture*  
B.S., University of Idaho, M.S., Utah State University  
Ph.D., Washington State University
- Tenney, Lester I. (1969) . . . . . *Professor of Insurance*  
B.A., University of Miami; M.A., San Diego State College  
D.B.A., University of Southern California
- Tetting, Daniel W. (1973) . . . . . *Assistant Professor of Nursing*  
B.S.N. DePaul University, M.S.N., University of Illinois

- Thomas, Keith J. (1975) . . . . . *Assistant Professor of Education*  
B.S., Illinois State University; M.A., Loyola University, Ed.D., University of Arizona
- Thomason, Leslie L. (1969) . . . . . *Professor of Technology*  
A.B., M.A., Ed.D., University of Oklahoma
- Thompson, Lee P. (1955) . . . . . *Professor of Engineering*  
B.A., Indiana University; M.S., Ph.D., Texas A & M University, P.E.
- Thompson, Truet B. (1959) . . . . . *Professor of Engineering*  
B.S., B.S.E.E., Louisiana Polytechnic Institute; M.S., Oklahoma State University; Ph.D., Northwestern University
- Thompson, Wilma M. (1959) . . . . . *Assistant Professor of Mathematics*  
A.B., New Mexico Highlands University; M.S., University of Wyoming
- Thomson, Ronald G. (1947) . . . . . *Professor Emeritus of Physical Education*  
B.S., Springfield College  
M.A., Arizona State University; Ed.D., University of Southern California
- Thomson, Tom R. (1961) . . . . . *Professor of Chemistry*  
B.A., University of California, Berkeley; M.S., Ph.D., Kansas State University
- Tice, Thomas E. (1967) . . . . . *Professor of Engineering*  
B.S.F.E., M.S.E.I., Ph.D.,  
Ohio State University
- Tidwell, Victor H. (1971) . . . . . *Professor of Accounting*  
B.S., Illinois College; M.B.A., D.B.A., Indiana University; C.P.A., Iowa
- Tilden, Arnold (1937) . . . . . *Professor Emeritus of History*  
B.A., M.A., DePaul University; Ph.D., University of Southern California
- Tillery, Bill W. (1973) . . . . . *Professor of Science Education*  
B.S., Northeastern State College; M.A., Ed.D., University of Northern Colorado
- Tillman, Hoyt C. (1976) . . . . . *Assistant Professor of History*  
B.A., Belhaven College; M.A., University of Virginia,  
A.M., Ph.D., Harvard University
- Tingey, Sherman (1966) . . . . . *Professor of Management*  
B.S., Utah State University; M.B.A., Golden Gate College  
Ph.D., University of Washington
- Tippeconic, John W. (1976) . . . . . *Assistant Professor of Education*  
B.S., M.A., Oklahoma State University; Ph.D., Pennsylvania State University
- Tipton, Gary P. (1969) . . . . . *Assistant Professor of Chinese*  
B.A., Brigham Young University; Ph.D., Indiana University
- Tobiason, Sarah J. (1963, 1974) . . . . . *Assistant Professor of Nursing*  
B.S.N., Vanderbilt University; M.A., Columbia University
- Toohy, Jack V. (1966) . . . . . *Professor of Health Science*  
B.A., Arizona State University; M.S.E., University of Illinois,  
M.S., Northern Arizona University, Ed.D., Arizona State University
- Tootle, John C. (1967) . . . . . *Associate Professor of Administrative Services*  
B.S., Georgia Southern College; M.A., George Peabody College,  
Ph.D., Ohio State University
- Towell, Leslie R. (1975) . . . . . *Assistant Professor of Botany*  
B.S., M.S., University of Wisconsin, Milwaukee; Ph.D., University of Michigan
- Treleash, Richard N. (1971) . . . . . *Associate Professor of Biology*  
B.S., M.S., University of Nevada; Ph.D., University of Texas
- Trennepohl, Gary L. (1977) . . . . . *Assistant Professor of Finance*  
B.S., University of Tulsa; M.B.A., Utah State University,  
D.B.A., Texas Tech University
- Trennert, Robert A. (1974) . . . . . *Associate Professor of History*  
B.A., Occidental College; M.A., Los Angeles State College,  
Ph.D., University of California, Santa Barbara
- Tu, Eugenia Y. (1973) . . . . . *Instructor of Chinese*  
B.Ed., Taiwan Normal University; B.A., Baylor Women's College;  
M.S., University of Arizona
- Tuma, Jan J. (1978) . . . . . *Professor of Engineering*  
B.S., College of Engineering, Page; M.S., Oklahoma State University,  
Ph.D., University of Colorado
- Turnbow, James W. (1959) . . . . . *Professor of Engineering*  
B.S.M.E., Texas Technological College; M.S.E.M., Ph.D., University of Texas
- Turner, Christy G. II (1966) . . . . . *Professor of Anthropology*  
B.A., M.A., University of Arizona; Ph.D., University of Wisconsin, Madison
- Turner, Katharine C. (1946) . . . . . *Professor Emeritus of English*  
B.Ed., Illinois State Normal; M.A., Ph.D., University of Michigan
- Tyler, Karen B. (1975) . . . . . *Assistant Professor of Education*  
A.B., Wellesley College; M.A., University of Denver; Ph.D., Arizona State University
- Udall, Alice (1977) . . . . . *Assistant Professor of Social Work*  
B.S., University of Arizona; M.S.W., Arizona State University
- Underwood, Willard A. (1975) . . . . . *Associate Professor of*  
B.S., M.S., Illinois State University, . . . . . *Communication*  
Ph.D., Bowling Green State University
- Umberson, George E. (1977) . . . . . *Professor of Music, Chair, Department of Music*  
B.M.E., Eastern New Mexico University; M.A., University of Iowa  
Ed.D., University of Northern Colorado
- Urry, Katharine (1975) . . . . . *Assistant Professor of Art*  
B.A., Mills College; M.F.A., University of Colorado
- Valdivieso, L. Teresa (1971) . . . . . *Assistant Professor of Spanish*  
B.A., M.A. in Ed., M.A., Ph.D., Arizona State University
- Valentine, Carol Ann (1975) . . . . . *Assistant Professor of Communication*  
B.A., M.A., University of Michigan; Ph.D., Pennsylvania State University

- Valentine, Kristin B. (1976) . . . . . *Associate Professor of Communication*  
 B.S., University of Wisconsin, M.A., University of Washington;  
 Ph.D., University of Utah
- Vallejo, Carlos J. (1976) . . . . . *Assistant Professor of Education*  
 B.S., Chadrin State Teachers College  
 M.A., Ed.D., University of Nebraska, Lincoln
- Vance, Donald (1978) . . . . . *Assistant Professor of Marketing*  
 B.A., University of Arizona, M.A., University of California, Ph.D., Syracuse University
- VanderLinden, Marjorie A. (1974) . . . . . *Assistant Professor of Nursing*  
 B.S.N., Arizona State University, M.S.N., Texas Woman's University
- Van Ess, Andrew E. (1978) . . . . . *Assistant Professor of Criminal Justice*  
 B.A., M.A., Loyola University Chicago  
 M.A., Ph.D., Northern Illinois University
- Van Hook, Barry L. (1976) . . . . . *Assistant Professor of*  
*Administrative Services*  
 B.S., Indiana State University, M.S., Northern Illinois University
- Van Scoy, Herbert A. (1963) . . . . . *Professor Emeritus of Spanish*  
 B.A., M.A., University of Auburn  
 Ph.D., University of Wisconsin, Madison
- Van Wagenen, R. Keith (1963) . . . . . *Professor of Education*  
 B.A., Ph.D., Union College, M.A., Ed., Arizona State University  
 Ph.D., University of Utah
- Vaughan, Jeanette (1968) . . . . . *Professor Emeritus of Education*  
 A.B., Western Michigan University, M.A., Ph.D., New York University
- Verdin, William A. (1976) . . . . . *Assistant Professor of Quantitative Systems*  
 B.S., West Virginia University  
 M.B.A., D.B.A., Kent State University
- Verges, John P. (1954) . . . . . *Professor of Education*  
 B.S., M.A., New York University, Ed.D., University of Southern California
- Vestre, Nancy P. (1972) . . . . . *Professor of Psychology*  
 B.A., Ph.D., University of Mines
- Vining, David C. (1975) . . . . . *Assistant Professor of Theatre*  
 B.A., University of Richmond, M.F.A., University of Minnesota
- Virgilio, Cirnelo (1965) . . . . . *Associate Professor of Romance Languages*  
 A.B., State University of New York at Albany, M.A., Ph.D., Education University
- Voek, Emil (1975) . . . . . *Assistant Professor of Spanish*  
 Ph.D., Ph.D., Carleton College, Prague, Czechoslovakia
- Vonder Heydt, Alfred (1950) . . . . . *Professor Emeritus of German*  
 D.Phil., University of Kentucky, M.A., Cornell University  
 Ph.D., Cornell University
- Von Dreeck, Robert B. (1971) . . . . . *Associate Professor of Chemistry*  
 B.S., Ph.D., Cornell University
- Voss, Howard G. (1964) . . . . . *Associate Professor of Physics*  
 A.B., Hill College, M.N.S., Arizona State University, M.S., Purdue University
- Votchenko, T. Alexander (1956) . . . . . *Assistant Professor of Philosophy*  
 A.B., Princeton University, M.A., Columbia University
- Wagner, Ronald F. (1967) . . . . . *Professor of Art*  
 B.S., University of Wisconsin, M.F.A., University of Iowa
- Walker, Bruce J. (1974) . . . . . *Associate Professor of Marketing*  
 B.A., Seattle University, M.B.A., D.B.A., University of Colorado
- Walker, Charles Thomas (1971) . . . . . *Professor of Physics*  
 A.B., M.S., University of Houston, Ph.D., Brown University
- Walker, James W. (1978) . . . . . *Associate Professor of Management*  
 B.S., Millersville University, M.A., Ph.D., University of Iowa
- Walker, Janet F. (1960) . . . . . *Professor Emeritus of Nursing*  
 B.S., Case Western Reserve University, M.S., Catholic University of America
- Walker, John E. (1970) . . . . . *Assistant Professor of Education*  
 B.A., Union College, M.A., Michigan State University, Ed.D., Utah State University
- Walker, Stephen G. (1969) . . . . . *Assistant Professor of Political Science*  
 A.B., Creighton University, M.A., Ph.D., University of Florida
- Walker, Westbrook (1978) . . . . . *Assistant Professor of Education*  
 B.S., Mesa College, M.S., Central Michigan University  
 Ph.D., Michigan State University
- Wallace, Charles E. (1958) . . . . . *Professor of Engineering Chair, Department of*  
*Aerospace Engineering and*  
*Engineering Science*  
 B.S., Lewis and Clark College, M.S., Oregon State University, Ph.D., Stanford University
- Willen, Carl (1973) . . . . . *Professor of Education*  
 B.A., University of Central Florida, State, Brazil  
 M.A., State University of São Paulo, College, Ed.D., Stanford University
- Walsberg, Glenn E. (1978) . . . . . *Assistant Professor of Zoology*  
 B.S., California State University, Long Beach  
 Ph.D., University of California, Los Angeles
- Wamacks, Naom W. (1968) . . . . . *Associate Professor of Secondary Education*  
 B.A., M.A., Ed.D., Arizona State University
- Wang, Alan P. (1970) . . . . . *Professor of Mathematics*  
 B.S., Washington State University, M.S., University of Southern California  
 Ph.D., University of Colorado, Los Angeles
- Wang, Cecilia (1973) . . . . . *Professor of Mathematics*  
 B.S., Lincoln College, M.A., Ph.D., University of California, Los Angeles
- Ward, Jack W. (1964) . . . . . *Associate Professor of Construction*  
 B.S.C.E., University of Idaho
- Warwick, Retha M. (1973) . . . . . *Associate Professor of History*  
 A.B., Indiana University, M.A., Ph.D., Howard University
- Warren, Morrison F. (1968) . . . . . *Professor of Education Director, I. D. Payne*  
*Learning Laboratory*  
 B.A., M.A., Ed.D., Arizona State University

## RESIDENT FACULTY

- Warwick, Ann C. (1976) . . . . . *Instructor of Nursing*  
 B.S.N., Indiana State University, M.S., University of Arizona
- Wasser, Paula K. (1927) . . . . . *Professor Emeritus of Art*  
 B.S. in Ed., University of North Dakota, M.A., Stanford University
- Watkins, Thomas B. (1972) . . . . . *Assistant Professor of Technology*  
 B.S., University of Wyoming, M.S., Arizona State University
- Watson, Clyde W. (1971) . . . . . *Associate Professor of Art*  
 B.F.A., Bethel College, M.A., Kansas State University
- Watson, George L. (1969) . . . . . *Associate Professor of Political Science*  
 B.A., Pomona University, M.A., Ph.D., Duke University
- Watts, Milton (1977) . . . . . *Assistant Professor of Social Work*  
 B.S., M.S.W., University of Utah
- Webb, L. Dean (1978) . . . . . *Associate Professor of Education*  
 B.A., M.A.T., Ph.D., University of Florida
- Weems, Charles W. (1976) . . . . . *Associate Professor of Agriculture*  
 B.S., M.S., East Tennessee State University,  
 Ph.D., West Virginia University
- Wegner, Artno L. (1957) . . . . . *Professor of Physical Education*  
 B.S., Wisconsin State College,  
 M.S., University of Wisconsin, P.E.D., Indiana University
- Wegend, Guido G. (1949) . . . . . *Professor of Geography, Dean, College of Liberal Arts*  
 B.S., M.S., Ph.D., University of Chicago
- Wehrich, Heinz (1973) . . . . . *Associate Professor of Management*  
 B.S., M.B.A., Ph.D., University of California, Los Angeles
- Weiner, Gordon M. (1968) . . . . . *Assistant Professor of History*  
 A.B., Ph.D., University of Pennsylvania
- Wengarten, Roger (1978) . . . . . *Assistant Professor of English*  
 B.A., Coddard College, M.F.A., University of New
- Weiss, Neil A. (1970) . . . . . *Associate Professor of Mathematics*  
 B.A., M.A., Ph.D., University of California, Los Angeles
- Weisser, David L. (1977) . . . . . *Assistant Professor of Agriculture*  
 B.A., Cornell State University,  
 M.A., University of California
- Weitz, Rose (1978) . . . . . *Assistant Professor of Sociology*  
 B.A., Yeshiva College, City University of New York,  
 M.A., Ph.D., Yeshiva University
- Welch, H. William (1967) . . . . . *Professor of Engineering, Assistant Dean College of Engineering and Applied Sciences*  
 B.A., DePaul University, Ph.D., University of Michigan, P.E.
- Weich, Patrick J. (1977) . . . . . *Instructor in English*  
 B.A., M.A., Ball State University
- Wellman, Henry M. (1975) . . . . . *Assistant Professor of Psychology*  
 B.A., Pomona College, Ph.D., University of Minnesota
- Wells, Christine L. (1976) . . . . . *Associate Professor of Physical Education*  
 B.S., University of Michigan,  
 M.S., Smith College, Ph.D., Pennsylvania State University
- Wentz, Richard E. (1972) . . . . . *Professor of Humanities and Religious Studies*  
 A.B., Ursinus College,  
 B.D., in S.T.C., Senior, M.P., Ph.D., George Washington University
- Wertler, William Jr. (1977) . . . . . *Professor of Management*  
 B.S.B.A., M.A., Ph.D., University of Florida
- Whaley, Patricia (1975) . . . . . *Assistant Professor of Communication*  
 B.A., M.Ed., University of Georgia
- Whiffen, Marcus (1960) . . . . . *Professor of Architecture*  
 B.A., M.A., University of Connecticut
- Whitman, Frederick L. (1966) . . . . . *Associate Professor of Sociology*  
 B.A., Millsaps College, A.M., Ph.D., Indiana University
- White, Harold C. (1966) . . . . . *Professor of Management*  
 B.S., M.S., University of Oregon, Ph.D., University of Florida
- White, John P. (1963) . . . . . *Professor of Political Science*  
 A.B., University of Cincinnati, A.M., Ph.D., University of Chicago
- White, Linda J. (1976) . . . . . *Associate Professor of Nursing*  
 B.S., University of Cincinnati, M.S., Ball State University,  
 M.P.H., D.P.H., University of Pittsburgh
- White, Michael J. (1974) . . . . . *Assistant Professor of Philosophy*  
 B.A., Arizona State University, M.A., Ph.D., University of California, San Diego
- White, Nancy E. (1975) . . . . . *Instructor of Nursing*  
 B.S.N., University of Virginia, M.S.N., University of Colorado
- White, Robert C. Jr. (1973) . . . . . *Associate Professor of Engineering*  
 B.S.E., Princeton University, M.S., Ph.D., University of Arizona
- Whitehurst, Harry B. (1958) . . . . . *Professor of Chemistry*  
 B.A., M.A., Ph.D., Rice University
- Whysong, Gary L. (1974) . . . . . *Assistant Professor of Agriculture*  
 B.S., M.S., Montana State University, Ph.D., University of Wyoming
- Wigand, Robert T. (1975) . . . . . *Assistant Professor of Communication, Assistant Dean for Research, College of Fine Arts*  
 B.B.A., M.A., Texas Tech University,  
 Ph.D., Michigan State University
- Wilcox, Sidney W. (1955) . . . . . *Professor of Engineering Communications*  
 B.A., Bethel University, M.A., University of Oklahoma
- Wilkinson, Joseph W. (1964) . . . . . *Professor of Accounting*  
 B.S., Case Institute of Technology, M.B.A., Stanford University,  
 D.B.A., University of Oregon, C.P.A., California
- Willekens, Mary (1978) . . . . . *Instructor in Elementary Education*  
 B.A., B.S., University of Arizona
- Williams, Frank G. (1975) . . . . . *Assistant Professor of Health Services*  
 B.S., M.A., Oregon State University, M.A., Ph.D., University of Massachusetts Administration

- Williams, Robert C. (1978) . . . . . *Assistant Professor of Anthropology*  
B.A., M.A., University of Cambridge; B.A., M.A., Ph.D., University of Michigan
- Williams, Scott H. (1974) . . . . . *Assistant Professor of Technology*  
B.S., M.T., Georgia Southern College
- Williamson, Madeline J. (1976) . . . . . *Instructor of Music*  
B.Mus., Ohio Wesleyan University; M.M., Western Michigan University
- Willson, Ioretta L. (1947) . . . . . *Assistant Professor Emeritus of Communication*  
B.A., University of South Dakota; M.A., Northwestern University
- Wilson, Gail E. (1972) . . . . . *Assistant Professor of Music*  
B.S., Ohio State University; M.M., Arizona State University
- Wilson, Gloria N. (1961) . . . . . *Associate Professor of Administrative Services*  
B.A., Montana State College; M.A., Ed.D., Columbia University
- Wilson, Joan Hoff (1976) . . . . . *Professor of History*  
B.A., University of Montana; M.A., Cornell University  
Ph.D., University of California, Berkeley
- Wilson, Lorna A. (1968) . . . . . *Instructor of French*  
B.Ed., University of Saskatchewan; M.A., Arizona State University
- Wilson, Lynn D. (1961) . . . . . *Professor Emeritus of Engineering*  
B.S., M.S., Ph.D., Marquette University
- Wilt, Glenn A. Jr. (1963) . . . . . *Associate Professor of Finance*  
A.B., Occidental College; M.B.A., Miami University  
Ph.D., University of Michigan; C.F.A.
- Winkleman, Richard D. (1965) . . . . . *Associate Professor of Economics*  
A.B., Southern Illinois University; A.M., Ph.D., University of Illinois
- Wirtz, Dorothy (1959) . . . . . *Professor Emeritus of French*  
B.A., University of Iowa; M.A., Ph.D., University of Denver
- Wiseman, Douglas E. (1976) . . . . . *Associate Professor of Education*  
B.S., M.A., Eastern Michigan University; Ph.D., University of Illinois
- Witt, Daniel (1966) . . . . . *Professor of Theatre*  
B.F.A., Art Institute of Chicago; M.A., Ph.D., University of Denver
- Witt, Tom (1975) . . . . . *Associate Professor of Design Sciences*  
B.A., M.A., M.F.A., University of California, Los Angeles
- Wixted, J. Timothy (1978) . . . . . *Assistant Professor of Asian Languages*  
B.A., University of Toronto; A.M., Stanford University; D.Phil., Oxford University
- Wochner, Raymond E. (1952) . . . . . *Professor Emeritus of Education*  
B.S., York College; M.A., University of Nebraska, Lincoln  
Ph.D., University of Wyoming
- Wolf, Donald J. (1969) . . . . . *Associate Professor of Political Science*  
B.A., M.A., Gonzaga University; S.T.M., University of Saint Clare,  
Ph.D., Georgetown University
- Wollam, Owen A. (1964) . . . . . *Associate Professor of French*  
B.A., M.A., Montana State University; Ph.D., University of Washington
- Wong, Timothy C. (1974) . . . . . *Assistant Professor of Chinese*  
B.A., Saint Mary's College; M.A., University of Hawaii; Ph.D., Stanford University
- Wood, Billy G. (1977) . . . . . *Associate Professor of Technology*  
A.B., University of California; B.S. in Ed., Eastern Illinois University,  
M.S., University of Arizona
- Wood, Byard D. (1970) . . . . . *Associate Professor of Engineering*  
B.S.M.E., M.S.M.E., Utah State University; Ph.D., University of Minnesota
- Wood, Harry (1954) . . . . . *Professor Emeritus of Art*  
B.A., M.A., University of Wisconsin, Madison; B.A., Ph.D., Ohio State University
- Wood, Michael P. (1974) . . . . . *Associate Professor of Technology*  
B.S., Ph.D., University of Sheffield; M.B.A., Xavier University
- Wood, Steven D. (1975) . . . . . *Assistant Professor of Quantitative Systems*  
B.S., M.A., California State University, San Diego,  
Ph.D., University of Wisconsin, Madison
- Woodfill, Marvin C. (1966) . . . . . *Professor of Engineering*  
B.S., M.S., Ph.D., Iowa State University
- Wooding, Robert R. (1971) . . . . . *Associate Professor of Construction*  
B.S., U.S. Naval Academy; B.C.E., M.C.E., Rensselaer Polytechnic Institute
- Woodman, Natalie J. (1969) . . . . . *Associate Professor of Social Work*  
B.A., Washington Square College of New York University,  
M.S.S., Smith College School of Social Work
- Woods, Roosevelt Jr. (1965) . . . . . *Professor of Art*  
B.S., M.A. in Ed., Arizona State University
- Wooldridge, Charles B. (1959) . . . . . *Associate Professor Emeritus of*  
A.B., B.S., University of Kentucky, *Engineering*  
M.S., Ph.D., Purdue University
- Wooldridge, Donn G. (1976) . . . . . *Assistant Professor of Architecture*  
B.Arch., B.Arch. Engr., M.Arch. Engr., Oklahoma State University
- Wooldridge, Mary C. (1959) . . . . . *Assistant Professor of Home Economics*  
B.S., M.S., University of Kentucky,  
Ph.D., Purdue University
- Woolf, Charles M. (1961-63; 1964) . . . . . *Professor of Zoology; Vice President*  
B.S., M.S., University of Utah, *Graduate Studies and Research,*  
Ph.D., University of California, Berkeley *Dean, Graduate College*
- Wootten, William W. (1959) . . . . . *Associate Professor of History*  
B.A., University of Chicago; M.A., University of Iowa,  
Ph.D., University of Minnesota
- Wootton, Richard T. (1964) . . . . . *Professor of Education, Coordinator*  
B.S., M.S., Ed.D., University of Utah *Special Projects*
- Work, Richard N. (1965) . . . . . *Professor of Physics; Chair,*  
A.B., M.S., Ph.D., Cornell University *Department of Physics*
- Wrenn, C. Gilbert (1965) . . . . . *Professor Emeritus of Counselor Education*  
A.B., Williamette University; M.A., Ph.D., Stanford University,  
LL.D., Williamette University

## RESIDENT FACULTY; ASSOCIATED FACULTY

- Wright, Mary E (1973) . . . . . *Assistant Professor of Theatre*  
B.A., M.A., Ph.D., University of Minnesota
- Wunsch, Alan P. (1973) . . . . . *Associate Professor of Administrative Services*  
B.Ed. M.S.T., University of Wisconsin, Whitewater.  
Ed.D. University of California, Los Angeles
- Wurster, Stanley R. (1971) . . . . . *Associate Professor of Education*  
B.S., Lock Haven State College, M.S., Elmira College  
Ed.D., New Mexico State University
- Wurzell, Carol A. (1965) . . . . . *Assistant Professor of Nursing*  
B.S., Chico State College, M.S., University of Maryland
- Wyndelts, Robert (1974) . . . . . *Associate Professor of Accounting*  
B.B.A., M.P.A., Georgia State University, Ph.D., University of Georgia  
C.P.A. Georgia, California
- Wytko, Joseph R. (1975) . . . . . *Assistant Professor of Music*  
B.M.E., West Virginia University, M.M., Northwestern University
- Yale, Francis G. (1952) . . . . . *Associate Professor Emeritus of*  
A.B., M.A., University of Northern Colorado *Science Education*  
Ed.D., Columbia University
- Yamamoto, Kaoru (1972) . . . . . *Professor of Education*  
B.S., University of Tokyo, M.A., Ph.D., University of Minnesota
- Yeater, James W. (1958) . . . . . *Professor of Theatre*  
B.A., Baker University; M.A., University of Washington; Ph.D., University of Illinois
- Young, Dennis L. (1975) . . . . . *Associate Professor of Mathematics*  
B.S., St. Louis University, M.S., Ph.D., Purdue University
- Young, Hewitt H. (1967) . . . . . *Professor of Engineering*  
B.S.M.E., M.S.I.E., Case Institute of Technology, Ph.D., Arizona State University
- Young, Otis E. Jr. (1963) . . . . . *Professor of History*  
A.B., A.M., Ph.D., Indiana University
- Youngblood, Michael S. (1975) . . . . . *Assistant Professor of Art*  
B.A., University of Oregon, M.A., University of New Mexico,  
Ph.D., University of Oregon
- Youngblood, Robert L. (1972) . . . . . *Associate Professor of Political Science*  
B.A., Willamette University, M.A., University of Hawaii,  
Ph.D., University of Michigan
- Yuen, George U. (1957) . . . . . *Professor of Chemistry*  
B.S., Arizona State University, Ph.D., University of Utah
- Zacher, Robert V. (1947) . . . . . *Professor of Advertising*  
B.S., B.A., M.S.B.A., University of Alabama
- Zaslow, Bertram (1956) . . . . . *Professor of Chemistry*  
B.A., Cornell University, M.S., University of Minnesota, Ph.D., Iowa State University

- Zautra, Alex (1976) . . . . . *Assistant Professor of Psychology*  
B.A., Antioch College, M.S., Ph.D., University of Utah
- Zeiss, Antonette M. (1977) . . . . . *Assistant Professor of Psychology*  
B.A., Stanford University, M.A., Ph.D., University of Oregon
- Zillman, Donald N. (1974) . . . . . *Associate Professor of Law*  
B.S., J.D., University of Wisconsin, LL.M., University of Virginia
- Zimmer, Carl R. (1959) . . . . . *Associate Professor of Engineering*  
B.S.F.E., Cornell University, M.S.F.E., Ph.D., Syracuse University
- Zonn, Leo E. (1975) . . . . . *Assistant Professor of Geography*  
B.A., M.A., California State University, Northridge,  
Ph.D., University of Wisconsin, Milwaukee
- Zornow, Ruth A. (1970) . . . . . *Associate Professor of Nursing*  
B.S., Case Western Reserve University, M.Ed., Ed.D., Coe College
- Zucker, Stanley H. (1975) . . . . . *Assistant Professor of Education*  
B.A., State University of New York, Stony Brook, M.S., Hofstra University,  
Ph.D., University of Missouri, Columbia

### Associated Faculty

#### INTERCOLLEGIATE ATHLETICS

- Milner, Fred L. (1971) . . . . . *Professor, Director*  
B.A., University of the Pacific, *of Intercollegiate Athletics*  
M.S., University of Southern California, Ph.D., Indiana University
- Plummer, Ramona F. (1957) . . . . . *Associate Professor*  
B.S., M.A., University of Alabama *Swimming Coach, Assistant Director*
- Kush, Frank J. (1957) . . . . . *Assistant Professor*  
B.A., Michigan State University *Head Football Coach*  
M.S., Arizona State University
- Littlewood, Mary L. (1965) . . . . . *Assistant Professor*  
B.S., Miami University; *Softball and Volleyball Coach*  
M.S., University of Colorado
- Wulk, Ned W. (1957) . . . . . *Assistant Professor; Head Basketball Coach*  
B.S., Wisconsin State University, M.Ed., Xavier University
- Baker, Donald H. (1965) . . . . . *Instructor; Assistant Football Coach*  
B.S., M.A., North Texas State University
- Brock, James L. (1971) . . . . . *Instructor, Head Baseball Coach*  
B.A., M.A., Ed.D., Arizona State University
- Castillo, Senon A. (1951) . . . . . *Instructor; Head Track Coach*  
B.S., Arizona State University
- Robinson, Don R. (1968) . . . . . *Instructor; Gymnastics Coach*  
B.A., University of Northern Colorado, M.S., Eastern New Mexico University
- Robison, Ray C. (1967) . . . . . *Instructor; Head Trainer*  
B.S., Morningside College, M.S., Indiana University

Young, Troy L. (1977) . . . . . *Instructor/Assistant Trainer*  
 BS Ferris State College, MS Idaho University

Boutell, George W. (1976) . . . . . *Lecturer, Golf Coach*  
 BS Arizona State University

Dueltz, Bobby L. (1974) . . . . . *Lecturer Wrestling Coach*  
 BS Oklahoma State University

Howard, Paul C. (1974) . . . . . *Lecturer Assistant Basketball Coach*  
 BA Arizona State University

Jenkins, Reid L. (1975) . . . . . *Lecturer Swimming Coach*  
 BS University of Mississippi

Kerr, Roger D. (1977) . . . . . *Lecturer Cross Country Track Coach*  
 BS University of Massachusetts, WPY Phillips

Klein, J. Patrick (1977) . . . . . *Lecturer Assistant Director*  
 BS Eastern State College  
*Assistant Basketball Coach*

Mitt, Richard W. (1974) . . . . . *Lecturer Assistant Football Coach*  
 BA Arkansas University

Morris, Gregory R. (1977) . . . . . *Lecturer Assistant Football Coach*  
 BS Baylor University, MS Kent State University

O'Connell, F. Ward (1974) . . . . . *Lecturer Volleyball Coach*  
 BS Ed Davis Memorial State University

Oxley, B. R. (1967) . . . . . *Lecturer Assistant Football Coach*  
 BA Macomber State University, Ed Davis State University

Picus, Martin N. (1972) . . . . . *Lecturer Tennis Coach*  
 BA Macomber State University, Arizona

#### VISITING PROFESSORS

Aspö, Reid E. (1976) . . . . . *Visiting Assistant Professor of Education*  
 BA A. C. Cox MA, University of Michigan, PhD Michigan State University

Birce, John J. (1976) . . . . . *Visiting Professor of Law*  
 BA Dartmouth University

Bride, David A. (1976) . . . . . *Visiting Professor of Law*  
 BA University of California, Los Angeles, BS Stanford University

Burke, Wesley R. (1976) . . . . . *Visiting Professor of Humanities*  
 BS, MS Baylor University, PhD, University of Missouri

Campbell, Donald G. (1975) . . . . . *Visiting Assistant Professor of Mass*  
 AB Indiana University  
*Communications*

Dodge, William H. (1977) . . . . . *Visiting Professor of Marketing*  
 BS, Syracuse University, MA, Western State University,  
 PhD University of Wisconsin

Emmons, Chester W. (1974) . . . . . *Visiting Professor of Botany and Microbiology*  
 BS Penn College, MA, MS, University of Iowa, PhD, Columbia University

Fedder, Steven L. (1978) . . . . . *Visiting Assistant Professor of Chemistry*  
 BA, Colorado College, PhD, Arizona State University

Gregory, Donn (1976) . . . . . *Visiting Assistant Professor of Humanities*  
 BA University of Wisconsin, MA, BS, University of Colorado

Cross, Joseph J. (1975) . . . . . *Visiting Assistant Professor of Anthropology*  
 BA, Illinois State University, PhD, University of Rhode Island

Gudge, William D. (1976) . . . . . *Visiting Instructor in Music*  
 BA Dartmouth University, MA, M.P., Plymouth University

Gunte, S. Kay (1975) . . . . . *Visiting Assistant Professor of Chemistry*  
 BS State Eastern State College, PhD, Arizona State University

Hays, James F. (1978) . . . . . *Visiting Professor of Chemistry and Biology*  
 BA Central University, MS, California Institute of Technology,  
 PhD, Florida State University

Hicks, St. True H. Jr. (1978) . . . . . *Visiting Assistant Professor of Marketing*  
 BA University of North Carolina, MPH  
 BA, University of South Carolina

Ketey, James P. (1978) . . . . . *Visiting Professor of Chemistry*  
 BS, University of Alabama, MSc, University of Wisconsin,  
 PhD, Western State University

I. Seta, Antonio Jr. (1973) . . . . . *Visiting Professor of Law*  
 LLB University of Arizona

M. G. Little, Fine (1977) . . . . . *Visiting Assistant Professor of Education*  
 BS, North Carolina University, MEd, University of California, San Diego,  
 MS, PhD, University of Southern California

Meyer, Bonnie J. F. (1976) . . . . . *Visiting Assistant Professor of Education*  
 BA Wisconsin State University, MS, PhD, Central Missouri State University

Mer, Douglas C. (1976) . . . . . *Visiting Professor of Law*  
 BS, JD, University of Kentucky, LL.M., New York University

Merrill, Edwin W. (1975) . . . . . *Visiting Professor of Zoology*  
 PS, Colorado University, PhD, Arizona State University

Merrill, Michael (1978) . . . . . *Visiting Assistant Professor of Humanities and Religious Studies*  
 BA, Colby College  
 MA, PhD, University of Southern California

Mercer, A. E. (1977) . . . . . *Visiting Assistant Professor of Chemistry*  
 BS, University of Pennsylvania, PhD, Case Tech University

Meyer, Christine (1975) . . . . . *Visiting Assistant Professor of History*  
 PhD, University of Wisconsin, BS, Michigan

Rush, Robert W. (1976) . . . . . *Visiting Professor of Law*  
 AB, Harvard College, D., University of Wisconsin

Reed, David A. (1976) . . . . . *Visiting Professor of Law*  
 BB.A., University of Wisconsin, B.C., Columbia University

- Reiman, Etsuko (1978) . . . *Visiting Assistant Professor of Foreign Languages*  
 B.A., Keio University, Tokyo; M.A., Seton Hall University,  
 Ph.D., University of Wisconsin-Madison
- Rodewald, Richard A. (1976) . . . *Visiting Assistant Professor of Philosophy*  
 B.A., University of Michigan; Ph.D., University of California, Los Angeles
- Shpey, Mary L. (1978) . . . *Visiting Professor of Design Sciences*  
 B.F.A., University of Southern California,  
 M.A., Ph.D., Case Western Reserve University
- Smith, Stanley E. (1976) . . . *Visiting Assistant Professor of*  
 B.A., Cal State University; M.A., Purdue University *Mass Communications*
- Soleri, Paolo (1975) . . . *Distinguished Visiting Professor of Planning*  
 D.Arch., Politecnico Di Torino; D.H.L., Arizona State University
- Stone, John D. (1976) . . . *Visiting Assistant Professor of Philosophy*  
 B.A., University of Chicago; Ph.D., University of Texas at Austin
- Stump, Edmund (1976) . . . *Visiting Assistant Professor of Geology*  
 A.B., Harvard University; M.S., Yale University; Ph.D., Ohio State University
- Yellott, John L. (1973) . . . *Distinguished Visiting Professor of Planning*  
 B.S., M.M.F., Johns Hopkins University

LECTURERS

- Ahmar, Leslie J. (1974) . . . *Lecturer in English*  
 A.B., State College; M.A., New York University; Ph.D., Boston College
- Bicknell, J. F. Jr. (1971) . . . *Lecturer in Engineering*  
 B.S.E.E., Texas A & M University
- Buxberger, Cathy (1978) . . . *Lecturer in English*  
 B.A., Arizona State University; M.A., Ph.D., University of California, Berkeley
- Brown, Brent (1978) . . . *Lecturer in Public Affairs*  
 B.A., Brigham Young University; M.A., Arizona State University,  
 Ph.D., University of Illinois
- Brokaw, Peggy A. (1975) . . . *Lecturer Master Teacher Child*  
 B.S., Central State University *Development Laboratory*
- Cain, H. Thomas (1965) . . . *Lecturer in Anthropology*  
 M.A., University of Arizona
- Cervantes, James V. (1975) . . . *Lecturer in English*  
 B.A., University of Wisconsin; M.F.A., University of Iowa
- Coddington, Theron G. (1978) . . . *Lecturer in Public Affairs*  
 B.S., M.A., Arizona State University
- Coby, Andre (1975) . . . *Lecturer Master Teacher Child Development*  
 B.A., M.A., Arizona State University *Laboratory*
- DeBoske, John J. . . . *Lecturer in Public Affairs*  
 B.A., UCLA; University of Los Angeles; M.A., University of California, Los Angeles

- DesJardin, Margaret E. (1949) . . . *Lecturer and Accompanist, Dance*
- Dubce, Pamela Stewart (1978) . . . *Lecturer in English*  
 B.A., Goddard College
- Fremant, Bert M. (1967) . . . *Lecturer in History*  
 B.A., Arizona State University
- Frees, Robert H. (1975) . . . *Lecturer in Engineering*  
 B.M.E., M.S., Ohio State University
- Fullmer, Thomas P. (1976) . . . *Lecturer in Administrative Services,*  
 M.A., Goddard University *Director, Productivity Institute*  
 Ph.D., Finance College; Consultant, California
- Gardner, Jeanette W. (1974) . . . *Lecturer in English*  
 A.B., Creighton University; M.A., Ph.D., University of Nebraska
- Gardner, Andrea L. (1975) . . . *Lecturer in English*  
 A.B., Bryn Mawr; M.A., University of Pennsylvania
- Heller, Edward (1978) . . . *Lecturer in Public Affairs*  
 B.S., M.A., Arizona State University; Ph.D., University of Utah
- Horwath, Arnold M. (1974) . . . *Lecturer in Humanities*  
 Ph.D., University of Chicago *and Religious Studies*  
 M.A., Arizona State University; M.S., Lowell Technical Institute
- Hirshitz, Andrew D. (1978) . . . *Lecturer in Law*  
 A.B., Princeton University; J.D., Yale University
- Ingraham, Leonard W. . . . *Lecturer in Education*  
 B.S., City College; City University of New York  
 M.A., Ed.D., Teachers College, Columbia University
- Jeffery, Donna (1976) . . . *Lecturer in Home Economics*  
 B.A., San Jose State University; M.S., University of Missouri  
 Ph.D., University of California
- Kelley, Michael (1975) . . . *Lecturer Master Teacher,*  
 B.A., Arizona State University *Child Development Laboratory*
- Knudsen, Frances S. (1964) . . . *Lecturer in Nursing*  
 B.S., University of Arizona; M.S., University of Colorado
- Kuperwas, Sam . . . *Lecturer in English*  
 B.A., Brooklyn College; M.F.A., Bowling Green University
- Lewin, Ian (1978) . . . *Lecturer in Architecture*  
 B.S., Ph.D., University of New Mexico
- Lewis, John W. (1971) . . . *Lecturer in Mathematics*  
 B.S., Stanford University; M.S., M.Ph., Yale University
- Lucy, Michael E. (1977) . . . *Lecturer in Philosophy*  
 B.A., Yale University; B.H., Harvard University; M.A., University of Utah
- McBroom, Gerald L. . . . *Lecturer in English*  
 B.S., M.A., Kent State University

McDonald, Kenneth A (1978) . . . . . *Lecturer in Public Affairs*  
 B.S., University of Detroit, M.A., Arizona State University

McHenry, Albert L. (1978) . . . . . *Lecturer in Technology*  
 B.S. Ind. Ed., Southern University M.S.T., Arizona State University

Miller, Charles W. (1978) . . . . . *Lecturer in Public Affairs*  
 B.S., M.A., University of Denver

Mills, Joy (1976) . . . . . *Lecturer Master Teacher, Child Development Laboratory*  
 B.A., University of California, Berkeley

Milstein, Stanley R. (1974) . . . . . *Lecturer in Zoology*  
 B.A., City College of New York; M.A., M.D., University of Iowa

Molnare, Lorna M. (1972) . . . . . *Lecturer in Nursing*  
 B.S., University of Arizona; M.S.W., Indiana University

Moore, Josiah N. (1973) . . . . . *Lecturer in English*  
 B.A., Arizona State University

Plotkin, Albert . . . . . *Lecturer in Humanities*  
 B.A., University of Notre Dame; M.H.L., D.H.L., Hebrew Union College

Red, Leonard N. (1976) . . . . . *Lecturer in Advertising*  
 B.S., Virginia Commonwealth University, M.S., University of Illinois, Urbana

Roberts, Mark D. (1977) . . . . . *Lecturer in Technology*  
 B.S., M.S., Purdue University

Roebuck, Elisabeth A. (1976) . . . . . *Lecturer in Nursing*  
 B.S., Virginia Marine College, M.S.N., Wayne State University

Sackton, Frank J. (1976) . . . . . *Lecturer in Public Affairs*  
 B.S., University of Maryland, M.A., Arizona State University

Sakotis, Nicholas G. . . . . *Lecturer in Engineering*  
 B.S.E.E., College of the City of New York

Sheller, Don L. . . . . *Lecturer in Technology*  
 B.S.M.E., Ohio State University

Stein, Jack S. (1978) . . . . . *Lecturer in Architecture*

Stellhorn, Edythe G. (1960; 1973) . . . . . *Lecturer in Nursing*  
 B.S., Northwestern University, M.S.N., Washington University

Theisen, Lee S. . . . . *Lecturer in History*  
 Ph.D., University of Arizona

Theobald, Carabelle (1962) . . . . . *Lecturer in Nursing*  
 B.S., Arizona State University, M.S., University of California, Los Angeles

Tomlinson, Andrew D. (1978) . . . . . *Lecturer in Public Affairs*  
 B.S., M.A., Arizona State University

Wardin, Bruce E. (1977) . . . . . *Lecturer in Architecture*  
 B.A., University of Southern California

Wolff, Tobias J. . . . . *Lecturer in English*  
 B.A., M.A., Oxford University, M.A., Stanford University

Woodson, James D. Jr. (1977) . . . . . *Lecturer in Agriculture*  
 B.S., Arizona State University,  
 M.S., American Graduate School of International Management

Zsohar, Helen (1975) . . . . . *Lecturer in Nursing*  
 B.S.N., M.S.N., University of Texas

#### ADJUNCT FACULTY

Coulson, William R. . . . . *Adjunct Professor of Humanities*  
 B.A., Arizona State University, Ph.D., University of Notre Dame,  
 Ed.D., University of California, Berkeley

Dexter, Wayne R. (1975) . . . . . *Adjunct Assistant Professor of Education*  
 B.S., M.S., Brigham Young University, Ph.D., University of Otago, New Zealand

Foster, Joyce (1972) . . . . . *Adjunct Associate Professor of Zoology,*  
*Assistant Academic Vice President*  
 B.A., M.A., DePauw University  
 Ph.D., Arizona State University

Hecht, Frederick (1978) . . . . . *Adjunct Professor of Zoology*  
 B.A., Dartmouth College; M.D., University of Rochester

Houlihan, Patrick T. (1975) . . . . . *Adjunct Assistant Professor of Anthropology*  
 B.S., Georgetown University, M.A., University of Minnesota  
 Ph.D., University of Wisconsin, Milwaukee

Karasek, Francis W. . . . . *Adjunct Professor of Chemistry*  
 B.S., Elmhurst College; Ph.D., Oregon State University

Khera, Sigrid . . . . . *Adjunct Assistant Professor of Anthropology*  
 Ph.D., University of Vienna, Austria

Knipe, Duane D. . . . . *Adjunct Associate Professor of Agriculture*  
 B.S., M.S., New Mexico State University; Ph.D., University of Arizona

Kosow, Lawrence E. (1976) . . . . . *Adjunct Assistant Professor, Center for*  
*Latin American Studies*  
 B.A., Cornell State College, Ithaca, New York  
 M.A., Ph.D., University of California, Riverside

Krueger, Hilmar C. (1976) . . . . . *Adjunct Professor of History*  
 A.B., Northwestern College, Ph.D., University of Wisconsin

Kunkel, John Howard (1976) . . . . . *Adjunct Professor of Sociology*  
 B.A., Pomona College, M.A., Ph.D., University of Michigan

Manheim, Bhavani B. (1974) . . . . . *Adjunct Assistant Professor of Anthropology*  
 B.A., M.A., Mysore University; Ph.D., Pooni University

Marzke, Mary W. (1978) . . . . . *Adjunct Assistant Professor of Anthropology*  
 B.A., University of California, Berkeley; M.A., Columbia University,  
 Ph.D., University of California, Berkeley

McCaw, Barbara K. (1978) . . . . . *Adjunct Professor of Zoology*  
 B.A., M.A., Stanford University; Ph.D., University of Oregon

Nelson, Kenneth O. (1975) . . . . . *Adjunct Assistant Professor of Education*  
 B.S., University of Montana; M.A., Ph.D., Arizona State University

**ASSOCIATED FACULTY; UNIVERSITY LIBRARY**

- Obitz, Fred (1975) . . . . . *Adjunct Assistant Professor of Education*  
 B.A., University of Colorado, M.A., Ph.D., University of Utah
- Ota, Masahide . . . . . *Adjunct Professor of Sociology*  
 B.A., Waseda University, M.A., Syracuse University
- Pase, Charles P. . . . . *Adjunct Associate Professor of Agriculture*  
 B.S., M.S., Montana State University
- Patton, David R. . . . . *Adjunct Associate Professor of Agriculture*  
 B.S., West Virginia University, M.S., Virginia Polytechnic Institute  
 Ph.D., University of Arizona
- Radin, John . . . . . *Adjunct Associate Professor of Botany and Microbiology*  
 B.S., Ph.D., University of California, Davis
- Rice, G. Elizabeth B. (1978) . . . . . *Adjunct Assistant Professor of Anthropology*  
 B.A., Reed College, Ph.D., University of California, Irvine
- Rich, J. David . . . . . *Adjunct Professor of Law; Director of  
 Legal Clinic*  
 B.A., University of Colorado, D., University of Chicago
- Sampl, I. Laetitia (1978) . . . . . *Adjunct Assistant Professor of Anthropology*  
 B.A., Whitman College, Ph.D., University of Wisconsin, Madison
- Short, Henry L. . . . . *Adjunct Associate Professor of Agriculture*  
 B.S., Swarthmore College, M.S., Johns Hopkins University  
 Ph.D., Michigan State University
- Vincent, Clark . . . . . *Adjunct Professor of Sociology*  
 A.B., M.A., Ph.D., University of California, Berkeley
- Weiss, Lillian (1975) . . . . . *Adjunct Assistant Professor of Education*  
 B.A., Hebrew University Jerusalem, Ph.D., State University of New York Buffalo
- Woody, A-Young Moon . . . . . *Adjunct Assistant Professor of Chemistry*  
 B.S., University of California, Berkeley, Ph.D., Cornell University
- Wulfange, Catherine . . . . . *Adjunct Professor of Education*  
 A.B., Trinity College, M.A., Ph.D., Ohio State University
- Zondag, Cornelius H. (1975) . . . . . *Adjunct Professor Center for  
 Latin American Studies*  
 M.A., New York University,  
 Ph.D., Cleveland University
- Zuzich, Paul (1978) . . . . . *Adjunct Assistant Professor of Education*

**University Library**

- Donald E. Riggs (1979) . . . . . *University Librarian*  
 B.A., Genesee State College, M.A., West Virginia University;  
 M.L.S., University of Pittsburgh  
 Ed.D., Virginia Polytechnic Institute and State University
- Gater, Helen L. (1970) . . . . . *Associate University Librarian*  
 B.A., Fort Hays Kansas State College, M.A., University of Denver
- Batalden, Sandra (1977) . . . . . *Assistant Librarian, Acquisitions Service*  
 B.A., M.A., University of Minnesota

- Bell, George H. (1976) . . . . . *Assistant Librarian Chair Science Reference*  
 B.A., William Peterson College, M.I.S., Pratt Institute
- Bunder-Lamb, Sylvia L. (1978) . . . . . *Assistant Librarian, Reference Service*  
 B.A., University of California, Davis, M.A., University of Denver
- Blouin, Deborah K. (1971) . . . . . *Associate Librarian, Reference Service*  
 B.A., Cedar Crest College,  
 M.I.S., State University of New York, Albany
- Borovansky, Vladimir T. (1968) . . . . . *Librarian Science Reference*  
 M.L.S., Charles University (Prague, Czechoslovakia)
- Colley, Charles C. (1972) . . . . . *Head, Arizona Collection*  
 B.A., University of California, Los Angeles, M.A., San Diego State University,  
 Ph.D., Arizona State University
- Corey, Constance H. (1973) . . . . . *Assistant University Librarian*  
 B.A., Derrison University, M.I.S., University of Arizona,  
 M.B.A., Arizona State University
- DeFato, Rosalinda (1970) . . . . . *Associate Librarian, Reference Service*  
 B.A., St. John's University; M.L.S., University of California, Los Angeles
- Dobbins, Jennv L. (1967) . . . . . *Associate Librarian, Catalog Service*  
 A.B., M.A., Indiana University
- Ferrall, J. Eleanor (1969) . . . . . *Associate Librarian, Reference Service*  
 A.B., Heideberg College, M.A., Arizona State University
- Gardiser, Kathleen (1978) . . . . . *Affiliate Librarian, Government Documents*  
 A.B., University of California, Berkeley,  
 M.L.S., University of California, Los Angeles
- Henning, Jane C. (1968) . . . . . *Librarian Head Interlibrary Loan*  
 B.A., M.I.S., Indiana University
- Jones, Kay F. (1975) . . . . . *Associate Librarian, Reference Service*  
 B.A., Auburn University, M.I.S., University of Hawaii
- Knepp, Kenneth (1968) . . . . . *Associate Librarian, Catalog Service*  
 B.A., University of the Pacific, B.D., Garrett Theological Seminary  
 M.A., University of Denver
- Kusche, Larry D. (1969) . . . . . *Adjunct Associate Librarian*  
 B.A., M.A., Arizona State University, M.A., University of Denver
- Larson, Donna R. (1972) . . . . . *Associate Librarian, Head Government Documents*  
 A.B., M.A., M.L.S., University of Michigan
- Leibold, Anne M. (1977) . . . . . *Assistant Librarian Reference Service*  
 M.A., University of Paris
- Lowenthal, Sallie F. (1977) . . . . . *Affiliate Librarian; Head Circulation Services*  
 B.A., M.L.S., University of California, Berkeley
- Machovec, George (1977) . . . . . *Assistant Librarian Science Reference Service*  
 B.S., M.L.S., University of Arizona
- McColgin, Ronda L. (1970) . . . . . *Assistant Librarian, Catalog Service*  
 B.A., Arizona State University; M.S.L.S., University of Southern California

McDonald, Arlys L. (1970) . . . . . *Associate Librarian, Head Music Librarian*  
 B.Mus., St. Mary of the Plains, M. Mus., University of Illinois

Miller, Rosanna (1974) . . . . . *Assistant Librarian; Head, Map Service*  
 B.A. Arizona State University, M.L.S., University of Arizona

Palais, Elliot S. (1959-62, 1966) . . . . . *Librarian, Collection Development*  
 A.B., Bowdoin College, A.M.L.S., University of Michigan *and Maintenance*

Rich, Stephen K. (1976) . . . . . *Assistant Librarian Reference Service*  
 B.A., Amherst College, M.L.S. Indiana University

Ruppé, Carol V. (1962) . . . . . *Associate Librarian, Reference Service*  
 B.A., University of New Mexico M.A., University of Denver

Sager, Harvey M. (1977) . . . . . *Affiliate Librarian, Reference Service*  
 B.A. San Francisco State College, M.A., California State University, Chico;  
 M.A., University of Denver

Schneberger, Lois I. (1969) . . . . . *Librarian, Head Catalog Service*  
 B.A., Viterbo College M.L.S. Kansas State Teacher College

Soete, George J. (1975) . . . . . *Associate Librarian Collection*  
 B.A. University of Cincinnati, *Development and Maintenance*  
 M.A.L.S., University of Wisconsin, Madison

Swaty, Mary A. (1968) . . . . . *Associate Librarian, Catalog Service*  
 B.A., University of Missouri, M.L.S., Indiana University

Thomas, Alfred Jr. (1939) . . . . . *University Archivist, University Archives*  
 B.A., M.A. Arizona State University

Vanderhoff, Barbara A. (1968) . . . . . *Associate Librarian, Head Serial Records*  
 A.B., Ft. Hays Kansas State College M.A., University of Denver

Voth, Annette (1978) . . . . . *Associate Librarian Acting Head Acquisitions Service*  
 B.M.S. University of Kansas, Lawence  
 M.L.S., M.A., University of California, Berkeley

Walters, Sheila A. (197) . . . . . *Assistant Librarian Acquisitions Service*  
 B.A. University of Oklahoma, M.L.S., Louisiana State University

Watrous, Lyle C. (1962) . . . . . *Librarian, Head, Curriculum Microforms Service*  
 A.B., University of North Carolina, B.S.L.S. Carnegie Institute of Technology,  
 M.A., Arizona State University

Wu, Ai Hwa (1964) . . . . . *Associate Librarian Catalog Service*  
 B.A. National Taiwan University, M.L.S. University of Washington

Wurzburger, Marilyn J. (1960) . . . . . *Associate Librarian Special Collections*  
 A.B. MacMurray College

Yao, Winberta M. (1975) . . . . . *Assistant Librarian Reference Service*  
 B.A. University of California M.S., Columbia University

Yee, Cynthia A. (1975) . . . . . *Assistant Librarian Head Bimson Library*  
 B.A. Drake University, M.A.L.S., University of Iowa

## Law Library

Dahl, Richard C. (1966) . . . . . *Director*  
 B.A., B.L.S., University of California, Berkeley, J.D., Catholic University

Au, Chih Chun (1970) . . . . . *Head, Technical Services*  
 B.A., National Taiwan University, M.A. University of Chicago

Dobbins, Sara (1971) . . . . . *Acquisitions Librarian*  
 B.A., University of California, Los Angeles; M.S.L.S., University of Southern California

Nash, Richard M. (1976) . . . . . *Associate Law Librarian*  
 B.A., University of Missouri, Kansas City; M.A.L.S., University of Denver,  
 D., Drake University

## Student Health Service

Jones, Richard L. (1968) . . . . . *Director*  
 B.S., Purdue University, M.D., University of Arkansas

Guerra, Frank B. Jr. 1969 . . . . . *Assistant Director*  
 B.S.B.A. B.S.Ph., University of Arizona

Baker, Charles J., F.A.C.P. (1970) . . . . . *University Physician*  
 A.B., Tufts College, M.D., Cornell University, American Board of Pediatrics

Bauer, Daniel (1973) . . . . . *University Physician*  
 B.S., Dennis University, M.D., Northwestern University

Fee, Norman F. (1973) . . . . . *Medical Consultant P T*  
 B.A. Carleton College, M.D., George Washington University, American Academy of Orthopedic Surgeons

Feggs, G. Wayne (1975) . . . . . *Medical Consultant P T*  
 B.A. Phillips University, M.D., Kansas City School of Medicine

Gentner, George A., F.A.C.R. (1964) . . . . . *Consulting Roentgenologist P T*  
 M.D. University of Buffalo, Diplomate American Board of Radiology

Gough, James S. (1975) . . . . . *University Psychiatrist, P T*  
 B.A. University of Kansas M.D., University of Kansas School of Medicine

Heand, N. J. (1975) . . . . . *University Physician*  
 B.A. St. Olaf, M.D. University of Wisconsin, American Board of Urology

Mouer, James R., F.A.C.O.G. (1974) . . . . . *Medical Consultant P T*  
 B.S., M.D. University of Nebraska

Phillips, Melvin W. (1971) . . . . . *University Physician*  
 B.A., University of Michigan, M.D.C.M., McGill University

Ponitch, Jerry A. (1976) . . . . . *Medical Consultant P T*  
 B.A. Marmouth College, M.D. Northwestern University,  
 American Academy of Dermatology

Schwartz, Alan C. (196) . . . . . *University Physician*  
 B.S., Carnegie Mellon University M.D. Creighton University

Scott, Woodrow W. (1964) . . . . . *University Physician*  
 B.S., University of Kentucky, M.D. Medical College of Virginia

|  |                                  |
|--|----------------------------------|
| Sinning, John E. (1971) .....  | <i>University Physician, P/T</i> |
| B.S., M.D., University of Iowa   |                                  |
| Strand, Martin E. (1975) .....   | <i>University Physician</i>      |
| B.S., Albion College; M.D., Wayne University                                     |                                  |
| Urrea, Donald (1975) .....   | <i>Medical Consultant, P/T</i>   |
| B.A., University of Arizona; M.D., Cornell University                            |                                  |
| Van Ham, Joseph A. (1974) .....  | <i>University Physician, P/T</i> |
| B.S., M.D., University of Illinois   |                                  |
| Williams, Harvey (1976) .....  | <i>Medical Consultant, P/T</i>   |
| B.S., Wayne State University; D.O., Iowa C.O.M. & S.                             |                                  |
| Winter, Lewis S. Jr. (1976) .....  | <i>University Physician</i>      |
| B.S., M.D., University of Nebraska   |                                  |
| Zonis, Richard D. (1975) .....   | <i>Medical Consultant, P/T</i>   |
| A.B., Harvard College; M.D., Boston University; American Board of Otolaryngology |                                  |

## **University Academic and Administrative Organization**

### **Academic Administration**

|   |                            |
|---|----------------------------|
| Provost/Academic Vice President .....   | <i>Paige E. Mulhollan</i>  |
| Assistant Academic Vice President ..... | <i>Mathew J. Betz</i>      |
| Assistant Academic Vice President ..... | <i>Joyce M. Foster</i>     |
| Registrar .....                         | <i>Enos E. Underwood</i>   |
| Associate Registrar .....               | <i>William R. Haid</i>     |
| Assistant Registrar .....               | <i>Ronald K. Winterhof</i> |

### **Colleges and Schools**

|   |                                |
|---|--------------------------------|
| College of Liberal Arts .....                     | <i>Guido G. Weigend, Dean</i>  |
| College of Architecture .....                     | <i>Hugh Burgess, Dean</i>      |
| College of Business Administration .....          | <i>Glenn D. Overman, Dean</i>  |
| College of Education .....                        | <i>Robert T. Stout, Dean</i>   |
| College of Engineering and Applied Sciences ..... | <i>C. R. Haden, Dean</i>       |
| School of Engineering .....                       | <i>C. R. Haden, Director</i>   |
| College of Fine Arts .....                        | <i>Jules Heller, Dean</i>      |
| College of Law .....                              | <i>Alan A. Matheson, Dean</i>  |
| College of Nursing .....                          | <i>Juanita F. Murphy, Dean</i> |
| Graduate College .....                            | <i>Charles M. Woolf, Dean</i>  |
| School of Social Work .....                       | <i>Ismael Dieppa, Dean</i>     |
| Continuing Education and Summer Sessions .....    | <i>Denis J. Kigin, Dean</i>    |

### **Instruction Units**

|   |                                       |
|---|---------------------------------------|
| Accounting .....                                    | <i>Russell J. Petersen, Chair</i>     |
| Administrative Services .....                       | <i>Lohnie J. Boggs, Chair</i>         |
| Aerospace Engineering and Engineering Science ..... | <i>C. E. Wallace, Chair</i>           |
| Aerospace Studies .....                             | <i>Col. Paul R. Hammock, Chair</i>    |
| Agriculture .....                                   | <i>Richard R. Chalquest, Director</i> |
| Anthropology .....                                  | <i>Fred Plog, Chair</i>               |
| Architecture .....                                  | <i>Calvin C. Straub, Chair</i>        |
| Art .....   | <i>Leonard Lehrer, Chair</i>          |
| Botany and Microbiology .....                       | <i>Duncan T. Patten, Chair</i>        |
| Chemical and Bio Engineering .....                  | <i>V. E. Säter, Acting Chair</i>      |
| Chemistry .....                                     | <i>Morton E. Munk, Chair</i>          |
| Civil Engineering .....                             | <i>Louis A. Hill Jr., Chair</i>       |
| Communication .....                                 | <i>William E. Arnold, Chair</i>       |
| Construction .....                                  | <i>Vernon Hastings, Director</i>      |
| Counselor Education .....                           | <i>Lester Snyder, Chair</i>           |



Criminal Justice, Center of ..... , *Director*  
 Design Sciences ..... *Vaughn P. Adams, Chair*  
 Economics ..... *Ryan Amacher, Chair*  
 Educational Administration and Supervision ..... *M. Scott Norton, Chair*  
 Educational Psychology ..... *Maurine Fry, Chair*  
 Educational Technology and Library Science ..... *Norman Higgins, Chair*  
 Electrical and Computer Engineering ..... *Paul E. Russell, Chair*  
 Elementary Education ..... *Merri Schall, Chair*  
 Engineering Core and Special and Interdisciplinary  
 Programs ..... *George C. Beakley, Director Associate Dean*  
 English ..... *Marvin M. Fisher, Chair*  
 Finance ..... *Jerry Poe, Chair*  
 Foreign Languages ..... *Michael J. Flys, Chair*  
 Geography ..... *Melvin Marcus, Chair*  
 Geology ..... *David Krinsley, Chair*  
 Health, Physical Education, Recreation and Dance ..... *Glenn Cheatham, Chair*  
 Health Services Administration, Center for ..... *Charles L. Eveland, Director*  
 Higher and Adult Education ..... *Richard C. Richardson, Chair*  
 History ..... *Thomas Karnes, Chair*  
 Home Economics ..... *Helene Hoover, Chair*  
 Industrial and Management Systems Engineering ..... *David D. Bedworth, Chair*  
 Humanities and Religious Studies ..... *Bettie Anne Doebler, Chair*  
 Management ..... *Harold Fearon, Chair*  
 Marketing ..... *Kenneth Rowe, Chair*  
 Mass Communications ..... *ElDean Bennett, Chair*  
 Mathematics ..... *Harvey Smith, Chair*  
 Mechanical and Energy Systems Engineering ..... *Darryl E. Metzger, Chair*  
 Military Science ..... *Lt. Col. William Lacy, Chair*  
 Music ..... *George Umberson, Chair*  
 Philosophy ..... *Ted B. Humphrey, Chair*  
 Physics ..... *Richard N. Work, Chair*  
 Planning ..... *Bernard M. Boyle, Chair*  
 Political Science ..... *Patrick G. McGowan, Chair*  
 Psychology ..... *Peter R. Killeen, Chair*  
 Clinical Psychology ..... *Richard B. Lanyon, Director*  
 Public Affairs, Center for ..... *Nicholas L. Henry, Director*  
 Quantitative Systems ..... *Andreas Philippakis, Chair*  
 Secondary Education ..... *John Bell, Chair*  
 Sociology ..... *Frederick B. Lindstrom, Chair*  
 Special Education ..... *Herbert Prehm, Chair*  
 Technology ..... *Director*  
 Theatre ..... *William Akins, Chair*  
 Zoology ..... *Ronald Alvarado, Chair*

## Graduate Studies

Vice President, Graduate Studies and Research;  
 Dean, Graduate College ..... *Charles M. Woolf*  
 Assistant Vice President,  
 Director, Research Grants and Contracts ..... *Harold B. Hunnicutt*  
 Assistant Dean, Graduate College .....  
 Associate Dean ..... *Howard J. Sullivan*  
 Assistant to the Dean ..... *Jack O. Shafer*  
 Graduate Admissions ..... *Frances Gill*  
 Administrative Assistants ..... *Susan M. Janssen, Sara M. Tobias*

## University Continuing Education and Summer Sessions

Dean, University Continuing Education,  
 and Director, Summer Sessions ..... *Dems J. Kigin*  
 Assistant Dean, University Continuing Education,  
 and Assistant Director, Summer Sessions ..... *John L. Edwards*  
 Administrative Assistant ..... *Wanda B. Godwin*  
 Coordinator, Community Services Program ..... *Donald R. Campbell*  
 Coordinator, Credit Extension Programs ..... *Daniel K. Phippen*  
 Coordinator, Conferences and Institutes ..... *Edward E. Scannell*  
 Coordinator, Instructional Television ..... *Ted J. Christensen*  
 Coordinator, Special Programs ..... *Obadiah S. Harris*  
 Assistant Coordinator Metrocenter ..... *Gerie L. Leshin*

## Student Affairs

Vice President for Student Affairs ..... *George F. Hamm*  
 Assistant to the Vice President, Student Affairs ..... *Robert W. Chamberlain*  
 Dean of Admissions ..... *Roger M. Swanson*  
 Director of Admissions ..... *Christine K. Wilkinson*  
 Director of Financial Aids .....  
 International Student Adviser ..... *Suzanne H. Steadman*  
 Dean of Students ..... *Leon G. Shell*  
 Assistant Dean ..... *Joe McDonald*  
 Coordinator, ASASU ..... *G. Allan Frazier*  
 Director of Counseling Service ..... *L. Thomas Cummings*  
 Director of Health Service ..... *Richard L. Jones*  
 Director of Special Services ..... *George Carrillo*  
 Director of Veterans Affairs ..... *Loren A. Corsberg*



Director, News Bureau and Information Services . . . . . *Joseph E Spring*  
 Director, Bureau of Publications . . . . . *Dean E Smith*  
 Director, Special Events and Programs . . . . . *James W Creasman*  
 General Manager, Television Station KAET . . . . . *Robert H Ellis*

**Arizona State University Foundation**

**OFFICERS**

Chairman of the Board . . . . . *Allen L Rosenberg*  
 First Vice Chairman . . . . . *Walter E. Craig*  
 Second Vice Chairman . . . . . *J. A. Riggins Jr.*  
 President . . . . . *Carl S. Miller*  
 Secretary . . . . . *Wayne E. Legg*  
 Associate Secretary . . . . . *Kathryn K. Gammage*  
 Treasurer . . . . . *Edward M. Carson*  
 Past Chairman . . . . . *Rod J. McMullin*

**BOARD OF DIRECTORS**

|                               |                              |                             |
|-------------------------------|------------------------------|-----------------------------|
| <i>James E. Barry</i>         | <i>Robert H. Johnson</i>     | <i>J. A. Riggins Jr.</i>    |
| <i>Walter R. Binson</i>       | <i>Phelma H. Kieckhefer</i>  | <i>Allen L. Rosenberg</i>   |
| <i>Elmer Bradley</i>          | <i>Orval A. Knox</i>         | <i>Lewis J. Ruskin</i>      |
| <i>Edward M. Carson</i>       | <i>Director Emeritus</i>     | <i>James P. Simmons</i>     |
| <i>Tom Chauncey</i>           | <i>Wayne E. Legg</i>         | <i>Dallas Smith</i>         |
| <i>E. Ray Cowden</i>          | <i>Barbara V. Long</i>       | <i>Rex E. Staley</i>        |
| <i>Walter E. Craig</i>        | <i>Roger A. Lyon</i>         | <i>Thomas H. Taber, Jr.</i> |
| <i>Ralph H. Eaton</i>         | <i>Russ Lyon Jr.</i>         | <i>Mae Sue Talley</i>       |
| <i>Gary Edens</i>             | <i>Sam Mardian Jr.</i>       | <i>Lyle E. Trimble</i>      |
| <i>Kathryn K. Gammage</i>     | <i>Rod J. McMullin</i>       | <i>Keith Turley</i>         |
| <i>John I. Griffin</i>        | <i>Carl S. Miller</i>        | <i>Donald J. Ulrich Jr.</i> |
| <i>Sherman Hazeltine</i>      | <i>John B. Mills</i>         | <i>J. C. Wetzlar</i>        |
| <i>Katherine K. Herberger</i> | <i>Daniel E. Noble</i>       | <i>Jack W. Whiteman</i>     |
| <i>Mary Boots Hunt</i>        | <i>John C. Pritzlaff Jr.</i> |                             |

**Sun Angel Foundation Board**

President . . . . . *Harry Rosenzweig*  
 Vice President . . . . . *W. W. "Wally" Cavood*  
 Vice President . . . . . *Walter E. Craig*  
 Secretary . . . . . *Malcolm Straus*  
 Treasurer . . . . . *Leslie Murray Jr.*  
 Executive Director . . . . . *Gene Felker*  
 At Large . . . . . *John C. Baldwin Jr.*

At Large . . . . . *Kemp Biddulph*  
 At Large . . . . . *Edward M. Carson*  
 At Large . . . . . *Harry J. Cavanagh*  
 At Large . . . . . *Gray Madison Sr.*  
 At Large . . . . . *Dan Mardian*  
 At Large . . . . . *Keith Turley*

**ASU Alumni Association Board, 1979-80**

President . . . . . *Karl Wochner '70 JD*  
 President Elect . . . . . *Darrell Sawyer, '57*  
 Vice President . . . . . *John Brooking, '63*  
 Secretary-Treasurer . . . . . *Dr. George Hershev, '6*  
 Past President . . . . . *Mary Boots Hunt, '60*

**COLLEGE DIRECTORS**

|   |   |
|---|---|
| <b>ARCHITECTURE,</b><br><i>Craig Walling Jr., '57</i>                   | <b>FINE ARTS,</b><br><i>William M. Mosley Jr. '74</i>           |
| <b>BUSINESS ADMINISTRATION,</b><br><i>William E. Wilson, '62</i>        | <b>LAW,</b><br><i>Elizabeth Ellie Finn '69, '72 JD</i>          |
| <b>EDUCATION,</b><br><i>Kay Gianopoulos, '61</i>                        | <b>LIBERAL ARTS,</b><br><i>Irene Joy Lashinsky, '69, '72 JD</i> |
| <b>ENGINEERING AND APPLIED SCIENCES,</b><br><i>R. George Steele '59</i> | <b>NURSING,</b><br><i>Ramona Hartman, '75</i>                   |

**AT-LARGE DIRECTORS**

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| <i>Ray Artigue '76</i>                | <i>Charles "Nap" Lawrence '62</i>     |
| <i>Bob Breunig, '77</i>               | <i>Ellen McConnell '35, '42</i>       |
| <i>Bob Bulla '61</i>                  | <i>Nadia McConnell, '68</i>           |
| <i>John "Rick" Callahan, '69</i>      | <i>Francis McCullough, '41 '51 MA</i> |
| <i>Nelda Saxton Crowell '58</i>       | <i>Gary K. Nelson, '57</i>            |
| <i>Bob Davies, '58</i>                | <i>Dr. Carol Norris '58, '65 MA</i>   |
| <i>Wayne Dcran, '56</i>               | <i>Pat Norris '74 '77 JD</i>          |
| <i>Richard O. Finley, '59 '69 MAE</i> | <i>Guthrie Packard</i>                |
| <i>Arthur Garcia '71 '74 JD</i>       | <i>Tom Pavelin '37 '56 MAE</i>        |
| <i>Ben Garcia, '56</i>                | <i>Bob Rosenberg, '66</i>             |
| <i>Ellen "Ellie" Glaeser '78</i>      | <i>James R. Sellers '55</i>           |
| <i>John Holman, '69, '71 '75 JD</i>   | <i>Don Thomas '67 '69 MAE</i>         |

**STUDENT DIRECTORS**

*Lance Ross '77*     *Sally Hartman, '79*     *Gary Husk '79*



# Index

## A

Absence from class 40  
Abbreviations key, course listings 33  
Academic calendar 6-7  
    organization 5  
    standards, 35  
    recognition, 42  
Accounting Dept. of courses 141  
    Master of Accountancy, 133  
    major in 134  
Accreditation and affiliation 9  
Activities student, 44-47  
    athletics 48  
    extracurricular 44  
    musical groups, theatre 47  
Admission stratification officers 312  
Admission Stratification Services Dept. of  
    courses in 142  
    major in, 135  
Admission 14 23  
    academic admission requirements, 15  
    for transfer students, 17  
    advanced standing 20 21  
    appeal procedure 18  
    Arizona residents 15  
    application, 15  
    aptitude test ACT SAT 15  
    classification of students, 35  
    College of Law 288  
    community college credits 17  
    condition 16  
    disability applications 18  
    domestic affidavit, 15  
    entrance credit, 20  
    freshman standing, 15, 35  
    general requirements, 15  
    Graduate College 299  
    international students, 18  
    medical examination on 15  
    nonresidents, 15, 26  
    procedures, 15  
    readmission, 19  
    registration on procedures 39  
    required secondary school subjects, 16  
    scholarship requirements, 15  
    School of Social Work 293  
    Summer Sessions 19  
    transcripts 15

transfer credits, 17  
unclassified undergraduates 17  
undergraduate 14  
veterans benefits 17  
with distinction, 16

Adult Education courses 165  
Advanced degrees 299  
Advanced placement 20  
Advertising courses 147  
    major in 135  
Advertising design courses, 262  
Advisors 39

Aeronautics, industrial or  
    engineering technology, 214  
    see engineering science programs)  
    courses, 219

Aerospace Engineering and  
    Engineering Science, Dept. of 186

Aerospace Studies Dept. of 65  
    courses, 67  
    ROTC program 65

Agriculture Division of, 173  
    courses 176-179  
    curricula 173  
    Ag-Industry, 174 176  
    agribusiness management international ag 174  
    Bio-agricultural sciences, 174  
    nutrition physiological sciences pre-  
        veterinary, 175  
    Engineering systems 175  
    Environmental resources in ag 175  
    environmental horticulture, natural resource  
        environment 176  
    bachelor/master of science degree in, 173

Air transportation 215  
Alumni Association 51  
American College Test (ACT), 15  
    Proficiency Examination Program (PEP) 22  
American Indian Student program 158  
American Studies, Center for, 59  
Anthropology Dept. of 66  
    courses 67  
Appeals 18, 36  
Application for degree candidacy, 41  
Archaeology courses, 67  
Architecture, College of, 226  
    admission to programs, 231 233  
    academic retention requirements 232

Bachelor of Architecture degree, 230  
Departments Architecture 236  
    Design Sciences, 240  
    Planning, 245  
    general studies courses, 227  
    graduating 235  
    joint B.Arch. M.S.E. degree, 230  
    options 228  
    preparatory studies 228  
    professional studies 232  
Architecture Dept. of, courses 236  
Arizona Board of Regents 312  
Arizona resident requirements for, 26  
Art Collections University 12  
Art Dept. of curriculum, 259  
    courses in Art 260  
    Art education history, 263  
    Auxiliary courses 265  
Arts, Master of 302 (See also specific subject)  
Asian Studies Center for 60  
    See also specific dept. for study emphasis  
Asiatic languages 80 82 84  
Associated Students 48  
Astronomy courses 117  
ASU Student Foundation 47  
Athletics, coaching, major in 94  
    intercollegiate, intramural 48  
Attendance 40  
Auditorial Services 12  
Auditorial education courses 168  
Audit enrollment 34  
Auxiliary services 43  
Awards to students 48

## B

Baccalaureate degree requirements 41  
Bachelor's degrees:  
    of Architecture 230  
    of Arts See area of specialization  
    of Fine Arts 259  
    of Music, 274  
    of Science. See area of specialization  
    of Social Work, 293  
    second bachelor's degree 42  
Behavioral sciences (general studies), 36  
Bilingual secretary program 135  
Bio-Agricultural Sciences  
    nutrition physiological sciences pre-

    veterinary medicine, 174 177  
Biology courses, 71 129  
    Biological Sciences curriculum, major 69  
Biological program 194  
Board and room, fees for 24-25  
Board of Regents Arizona 312  
Botany and Microbiology, Dept. of 70  
    courses in 72  
Broadcasting major in 105  
    courses in 106  
Buckley Amendment 14  
Bureaus University  
    Business and Economic Research 132  
    Educational Research and Services 150  
Business Administration  
    College of 132  
    bachelor of science degree in 133  
    core requirements 134  
    courses in 141  
    Doctor of 133, 306  
    General, major in 134  
    graduation requirements, 139  
    Master of, 133  
    professional program, 139  
    transfer credit 139  
Business Education courses 142  
    major in 135

## C

Calendar Academic 6-7  
Campus Service Cards (C) 14 24  
Candidacy for degrees:  
    graduate, 302  
    undergraduate, 41  
Career Services 51  
Catalog, graduation under  
    or graduate enrollment 42  
    readmission, 19  
Centers  
    American Studies 59  
    Asian Studies 60  
    Criminal Justice 285  
    Executive Development 132  
    Family Studies, 101  
    Health Services Administration 132, 146  
    Latin American Studies, 62  
    Public Affairs, 64, 125  
    South State Science, 64

See also research and service agencies, 359  
 Ceramic courses 262  
 Certification for teaching in Arizona 153  
 Chains of prerequisites 56  
 Charges fees, 23-24  
 Chemical and Bio Engineering, Dept. of, 187  
 courses, 200  
 Chemistry Dept. of courses, 74  
 Child Development courses 101  
 Child drama major 282  
 Chinese courses 82  
 Chorus musical major in, 274 276  
 City and Regional Planning, 37  
 Civil Engineering, Dept. of, 188  
 courses 201  
 Classification of courses 30  
 Class standing of students 35  
 Civil engineering (see electrical engineering)  
 Clothing textiles courses, 104  
 Coaching athletics major in, 94  
 Code of Conduct, 13  
 Coding designation for courses, 32 33  
 College student  
 Architecture 226  
 Business Administration, 132  
 Education 150  
 Engineering and Applied Sciences, 170  
 Fine Arts 256  
 Graduate 299  
 Law 288  
 Liberal Arts, 53  
 Nursing 250  
 College Level Examination Program (CLEP) 20  
 Communication Dept. of; curricula 265  
 communication communication  
 disorders courses 266-269  
 Communication arts major  
 (theatre), 282  
 Community college credits 17  
 Community services 309  
 Comprehensive examinations 22  
 Computer engineering 189  
 Computer information systems curriculum, 136  
 courses, 140  
 Computer Services Campus, 12  
 Computer science (math), 107  
 engineering 191, 209  
 Conditional admissions on 16, 18 19

Conduct of students 13  
 Construction, Division of, 179  
 bachelor of science degree in 180  
 core courses 180  
 construction systems administration,  
 general building construction  
 heavy construction 180-181  
 courses, 181 182  
 Correspondence courses, 23, 308  
 USAF 23  
 Continuing education (Nursing 255  
 Counselor Education Dept. of, courses 163  
 Counseling, Master of 151  
 Counseling service students), 44  
 Courses classification of 30  
 prefix designations 32  
 Course loads 39  
 Crafts courses 262  
 Credit-no credit option, 58  
 also see each college  
 Credit requirements 41  
 graduate for seniors 30  
 community college, 17  
 transfer of 17  
 Criminal Justice Center of, 285  
 degrees in 285  
 courses in, 286  
 Cultural geography courses 88  
 Curriculum advancement 39

**D**  
 Dance courses in, 94  
 major in 93  
 activities 47  
 DANTES 23  
 Dean of Students Office, 44  
 Decorative Arts courses 102  
 Deficient scholarship report, 35  
 Degrees  
 Bachelor's (see specific college or department)  
 Doctor's 304 307  
 Education Specialist, 303  
 Juris Doctor 288  
 Master's, 302  
 (also see specific college or department)  
 Professor's, 55  
 Second bachelor's, 42  
 Dental, Pre-, 55

Departments of instruction 5  
 Deposits 23  
 Design courses art 262  
 Design Sciences Dept. of, 240  
 courses 244  
 Dining hall 24  
 Directed teaching 153  
 Directing major (theatre) 282  
 Directory information, 14  
 Disabled applicants 18  
 also see Housing 43  
 Disqualification 35 58  
 Distinction graduation with 42  
 Divisions Agriculture 173  
 Construction, 179  
 Technology, 212  
 Doctoral degree  
 of Business Administration, 133  
 of Education, 151  
 Juris Doctor 288  
 of Philosophy 304  
 Domestic affairs 15  
 Dormitories 11  
 Dropping courses 40  
 Drama program (see theatre) 281  
 Duplicate registration 40

**E**  
 E-mail 34  
 Economics Dept. of, 143  
 courses in 143  
 PhD degree in 133  
 major in 77 136  
 Master of Science in 133  
 Education, College of, 150  
 admissions to undergraduate program 151  
 areas of specialization 156  
 bachelor's degree in 150 154  
 business courses in, 142  
 certification requirements 153  
 courses 159 169  
 credit no credit grades 154  
 degree requirements, 156  
 doctor of, 151  
 elementary secondary curricula 154 156  
 engineering base, 151  
 honors program, 154  
 Master of Arts in 150

Master of Counseling degree 151  
 Master of Education 150  
 professional options 156  
 research and resource agencies, 150  
 selected studies curriculum 157  
 special education curriculum 157  
 student teaching, 153  
 specialist degree 151  
 teaching majors and minors (also see  
 departments or areas of specialization), 156  
 Educational Administration and Supervision,  
 Dept. of courses in, 163  
 Educational foundations courses, 162  
 Educational Opportunity Program 38  
 Educational Psychology Dept. of courses in, 165  
 Education Specialist degree 151  
 Educational resources and services of  
 University 12  
 Educational Technology and Library Science  
 Dept. of courses in 168  
 Electrical and Computer Engineering  
 Dept. of 189  
 courses 204  
 Electronic engineering technology, 215  
 Electronics Technology 215  
 courses 220  
 Elementary Education Dept. of  
 courses, 159  
 curriculum 154  
 Employment of students 51  
 Energy Studies, 37  
 Engineering and Applied Sciences  
 College of 170  
 admissions on 171  
 organization 170  
 Bachelor of Science in 171  
 core courses 206  
 divisions 170  
 general studies, 172  
 interdisciplinary programs 194  
 Master of Science degree in 171  
 transfer students, 172  
 Engineering of Agriculture Systems, 175  
 Engineering, School of 183  
 admissions on programs of study 183  
 degrees core requirements 185  
 Aerospace Engineering and Engineering  
 Science core and program 186  
 courses, 198

Analysis and Systems courses, 199  
 Chemical and Bio Engineering core and program 187  
     courses 200  
 biomedical chemical plant administration  
 computerized design and modeling energy and materials conservation environmental control nuclear simulations and systems control, 188  
 Civil Engineering programs and core 188  
     courses 201  
     structural soils and foundations  
         environmental transportation water resources construction 189  
 Computer science engineering courses 209  
 Electrical and Computer Engineering core and programs 189-190  
     courses 204 209  
     antennas microwaves biomedical electronics  
     compute languages computer programming controls digital circuit design digital computer systems design, electrical communications electronic networks engineering mathematics and coherent optics, measurement systems instrumentation power systems machinery solid state electronics, 190  
 engineering communication courses 198  
 Engineering Science, 186  
     special and interdisciplinary program 194  
     courses 198  
     aerospace engineering bioengineering  
     engineering science manufacturing  
     engineering 194  
     materials science nuclear engineering, system engineering 195  
     urban systems engineering  
     business petroleum 196  
     education engineering mathematics geology  
     engineering, premedical 197  
 Industrial and Management Engineering core and programs 190  
     courses 207  
 Mechanical and Energy Systems Engineering, core and program 192  
     courses 209  
     aerospace biomedical computer methods controls and measurement systems design dynamics, electrical power distribution  
     environmental manufacturing nuclear stress

analysis failure prevention thermosciences 195  
 Society values and technology courses 211  
 Engineering Technology 213  
 English Dept of 77  
     courses 78  
     proficiency requirements 22  
     English Literature Translation 1820 1920 78  
 English Skills Program 9 19 309  
 Enrollment types of changes 40  
     high-rank high school seniors 16  
 Entomology courses 129  
     curriculum 128  
 Environmental Studies 37  
 Environmental Resources Agriculture  
     environmental horticulture natural resource management 175 178  
 Entrance requirements 15 19  
 Examination comprehensive and proficiency, 15 20 22  
     credit by 20  
     physics 15  
     required 15  
 Exceptional children program 157  
 Executive Development Center for 132  
 Exemptions English 22  
 Expenses and fees 23-25

## F

Faculty 311  
 Family Educational Rights and Privacy Act of 1974, 14  
 Family Studies Center for 101  
     courses, 102  
 Federal programs 27  
 Fees, 23-24  
 Fee status classification procedures  
     process 26-27  
 Fellowship and scholarship 28 30  
 Film Studies 37  
 Finance Dept of 145  
     courses 145  
     major 136  
 Financial Aids 27  
 Financial responsibilities 23 26  
     medical expenses 43 44  
 Fine Arts College of 256  
     bachelor's degrees 257 259  
     graduate studies 36 258

honors, pre-professional secondary education programs 257  
     master's degrees, 257  
     transfer credit 256  
 Food and nutrition courses 103  
 Foreign agricultural service 174  
 Foreign Languages Dept of 80  
     courses 82  
     also see specific language  
 Foreign language requirement 56  
 Foreign Service Training Program 55  
 Forensics 47  
 Forestry Services Laboratory 11  
 Fraternities 46  
 French courses 82  
 Freshmen academic admissions on 15

## G

General administration officers 311  
 General business administration,  
     major 136  
 General Studies requirements 36 37\*  
     Architecture 227  
     Business Administration 134  
     Criminal Justice 286  
     Education 152  
     Engineering and Applied Sciences, 172  
     Fine Arts 258  
     Liberal Arts 56 57  
     Nursing 252  
     Sociology, 293  
 General Science curriculum 115  
 Geography Dept of 87  
     courses 88  
 Geology Dept of courses 90  
 Geological engineering 197  
 German courses, 83  
 Gerontology Studies 37  
 Good standing requirement 35  
 Grades average required 35  
     change of, 34  
     credit mark of 34  
     grading system 34  
     incomplete 34  
     point index 35  
     removal of grades 34  
     scholarship requirement 35  
     withdrawal 34, 41

Graduate College 299  
     admissions to, 300  
     degree programs offered 299  
     doctor's degrees 304, 306  
     general regulations 299 302  
     master's degrees 302  
     Education Specialist degree 303  
 Graduate credit for seniors 30 58  
 Graduation requirements 41  
     academic recognition 42  
     candidacy application for 41  
     fees 24  
 Graphic arts design courses 222 262  
     communication curriculum 217  
 Greek courses 84

## H

Health history requirement 15  
 Health, Physical Education Recreation and Dance Dept of, 93  
 Health science major 93,94  
     courses 95  
 Health Services Administration, Center for  
     courses in, 146  
     master's degree 133  
 Health Services, Student 43  
 High school seniors special enrollment 16  
 Higher and Adult Education Dept of  
     courses, 165  
 History Dept of courses 98  
 Home Economics Dept of 101  
     courses in, 103  
 Honorary societies 44  
 Honors university wide program 58  
     also see individual colleges  
     and awards 48  
 Housing facilities 43  
     charges regulations reservations 24  
 Humanities and Religious Studies Dept. of  
     courses and curriculum 270  
     graduate studies 36  
 Human development courses 255

## I

Identification cards 14, 24  
     ness report of, 44  
 Incomplete mark of 34

independent study 30  
 index, grade 34  
 Indian Educational courses, 167  
     teaching Indian children program, 158  
 Indian students program 47  
 Industrial Design curriculum 240  
     courses 245  
 Industrial and Management Systems  
     Engineering Dept of 190  
     courses 207  
 Industrial Technical Education, 203  
     Industrial arts, technical teacher education 217  
     courses 223  
 Industrial Technology 213  
 Instrumental music major, 274-276  
 Insurance courses 145  
     for foreign students 19  
     major 136  
     students, 44  
 Instructional media courses 168  
 Integrated B.S.E.-M.S.E. programs  
     see School of Engineering, 171  
 Intercollegiate athletics, 48  
 Interdisciplinary studies, 37-38  
 Interfraternity Council 47  
 Interior Architecture 241  
 International agriculture, 174  
 International Business curriculum 140  
 International students admission 18  
     insurance 19  
 International studies programs 38  
 Interpreters Theatre 47  
 Instructional television services, 309  
 Intramural athletics 48  
 Islamic Studies, 38-61  
     taught courses, 84

## J

Japanese courses 84  
 Jobs student, 51  
 Journalism courses major, 105  
 Juris Doctor degree 288

## L

Languages, foreign 80  
 Late registration 23  
 Latin American Studies  
     Center for, 62

See also specific dept. for study emphasis  
 Latin courses 84  
 Law College of 288  
     academic standards and retention, 289  
     admission to 288  
     courses, 289  
     Juris Doctor degree 288  
     Pre 55  
 Law enforcement see Public Safety 126  
 Legislation 26  
 Liberal Arts, College of 53  
     admission to College, 53  
     advisement 55  
     chains of prerequisites, 56  
     degree requirements 56  
     departments list of, 5  
     Honors program 58  
     interdisciplinary studies 59  
     majors and recommended minors 54  
     pre-professional programs, 55  
     special credit options and programs 58  
     standards and retention, 58  
     transfer credits 53  
 Liberal Arts courses, 104  
 Libraries University, 9  
     law, 289  
     auxiliary 10  
 Library science courses, 168  
     programs 158  
 Loads course 39  
 Loan funds, 28

## M

Major change of 53  
 Majors offered Liberal Arts 54  
 Management Dept. of 146  
     courses, 146  
     major 137  
 Management engineering see Industrial  
     engineering 190  
 Manufacturing engineering 194  
 Manufacturing Engineering Technology, 218  
     courses, 224  
 Marketing Dept of;  
     courses, 147  
     major 137  
 Mass Communications Dept. of courses, 105

Master's degrees  
     of Accountancy 133  
     of Arts, 299-302  
     see specific subject also  
     of Arts Education, 150  
     of Business Administration, 133  
     of Counseling 151  
     of Education 150  
     of Environmental Planning 248  
     of Fine Arts 257-260  
     of Health Services Administration 133  
     of Music 257, 277  
     of Natural Sciences 115, 299  
     of Public Administration 125  
     of Science 299-302  
     see specific subject also  
     of Social Work 296  
     of Technology 171  
 Material science 187  
 Mathematics Dept of 107  
     courses, 108  
     general studies 36  
     examination for proficiency, 22  
 Mechanical and Energy Systems Engineering  
     Dept of 192  
     courses 209  
 Mechanical Engineering Technology 219  
 Medical Pre-, 55  
 Medical technology 7  
 Memorial Union 10  
 Mentally retarded children program  
     see exceptional children, 157  
 Meteorology Climatology emphasis 87  
 Mexican American Studies 81, 140  
 Microbiology courses 73  
     major 170  
 Midterm grades 35  
 Military Science Dept of, 111  
     courses, 112  
     ROTC program 112  
 Minsteria Pre 55  
 Multicultural Education  
     Center for 158  
     courses, 168  
 Musical activities 47  
 Music Dept of, 273  
     curriculum 274  
     choral general instrumental, performance

(keyboard, orchestra instrument, voice,  
 accompanying), music theatre voice, music  
 therapy jazz performance, music theory and  
 composition 274-277  
 Bachelor of Music 274  
     education courses 277  
     fees, 23  
     Master of Music 277  
     music history literature,  
     music theory composition courses 278  
     placement exams, 273  
     performance courses 279

## N

Noncredit continuing education 309  
 Nondegree status, 300  
 Nondegree Secretariat program 135  
 Nonresident admissions 26  
     tuition, 23  
 Noncredit option 58  
 No preference option 55  
 Nuclear engineering, 195  
 Nutritional science quality assurance  
     curriculum 175  
 Nursing College of 250  
     admission, 252  
     Bachelor of Science in Nursing  
     degree 250-251  
     pre-nursing major, 252  
     Continuing education 250  
     courses 254  
     curriculum 252  
     Master of Science degree, 251  
     retention 254

## O

Occupational Therapy Pre, 55  
 Office administration 135  
     courses 143  
 Optometry Pre, 55  
 Organization University 5  
 Orientation new students 14  
 Osteopathy, Pre- 55  
 Overloads 39

## P

Packaging design 242  
Panhellenic Council, 47  
Pass-Fa 172, 254  
Paralegal program 135  
Pharmacy Practice- 55  
Philosophy, Dept of courses n 113  
doctor of (See fields of  
specialization)  
Photography courses 106  
Physical education  
Dept. of HPERD, 93  
courses 95  
major n, 93  
Physical examination 15  
Physical geography courses 89  
Physical Science curriculum 115  
courses 118  
Physical Therapy Pre-, 55  
Physics Dept. of 114  
courses n 116  
major n 115  
Physical Science 175  
Placement advanced 20-22  
English foreign language mathematics  
examination, 22  
Planning Dept. of, 245  
courses, 247, 249  
Master of Environmental Planning degree 248  
Police Science see Public Safety)  
Policy and records, 14  
Political Science Dept of 118  
courses 119  
Portuguese courses 84  
Printingmaking courses 261  
Prefix designations 32-33  
Pre-Architecture 189  
Pre-Law program, 196  
Pre-Medical advisor's office 55  
engineering 197  
Pre-professional programs 55  
architecture, bilingual secretarial dentistry,  
foreign service law medicine medical  
technology, ministry occupational therapy  
optometry, osteopathy pharmacy physical  
therapy, public service training program social

welfare education 55  
medical technology, radiology 70  
ROTC 65, 111  
veterinary 175  
Prerequisite chains 56  
Probation 35  
Product design 241  
Professional organizations, 45  
Professional education options, 156  
Proficiency examination 22  
Pro-semester 30  
Provost's statistics 18-19  
Psychology, Dept of courses, 122  
Public Administration Master of, 125  
Public Affairs Center for 64, 125  
courses n 125  
Public Safety curriculum 126  
Public service training program 55

## Q

Quantitative business analysis,  
major n 138  
Quantitative Systems Dept of; courses 149

## R

Radiology major n, 70  
Radio television courses 106  
Readmissions 19  
Reading education courses 160  
Real estate courses, 145  
major n 138  
Records student 14  
Recreation courses 97  
major n 93  
Recreational facilities 9-12  
Refund of fees 24-25  
Registration 39  
fees 23  
late, 23  
period of 6-7  
Registrar's classification of graduate students, 300  
Registration 36  
Regious organizations 46  
Regious studies program 270  
courses 272  
Repetition of courses 34  
Required subjects (General Studies), 36-37

Requirements for  
admission 15-19  
Graduate College, 299  
graduation 41-42  
language 22  
physical examination on 15  
residence 26  
Research and service agencies, 359  
Research course numbers, 31  
Reservations room 43  
Reserve Officers Training Corps 65-111  
awards 50  
Resident credit requirements 42  
Residence halls, 11  
fees 23  
reservations, 43  
Retention, requirements for, 35  
Room and board fees for 23  
reservation occupancy 43  
Russian courses 85

## S

Safety education courses 162  
SAT test 15  
Scholarships fellowships and loans 28-30  
Scholarship index requirements  
deficient report, 35  
Scholastic honorary groups 44  
achievement awards 48  
Schools, 5  
School of Engineering, 183  
School of Social Work, 293  
Sciences general studies, 36  
Science Education curriculum, 115  
courses, 118  
Science Master of, 302  
see also specific subject)  
Second Bachelor's degree 42  
Secondary Education Dept of, 161  
courses 161  
curriculum, 155  
Secondary schools  
subject units required from 16  
Secretarial program bilingual 135  
Service agencies 359  
Social Sciences (general studies) 36  
Social and philosophical foundations courses 162

Social Work School of, 293  
admission criteria, 294  
courses n 295-297  
degrees n, 293, 296  
Master of Social Work 296  
major in 294  
Society, values and technology  
courses 211  
Sociology, Dept of courses 126  
Solar energy see mechanical engineering)  
Soldier State Science Center for 64  
Sororities 47  
Spanish courses, 85  
Special credit option 58  
Special Education Dept of courses 166  
curriculum 157  
Special fees 23-25  
Special interest groups, 45  
Special programs, 20-37-38  
advanced placement and credit 20-21  
engineering, 194  
teaching exceptional children 157  
teacher preparation  
Library science independent children, 158  
Special topics courses, 31  
Speech curriculum see communication 265  
Speech communication courses 266  
Speech and Hearing Science, 266  
Sports, 48  
Standards academic, 34  
undergraduate admissions on 16  
Students affairs and activities council's course  
service, Dean of, Office 44-52  
conduct 13  
employment, 51  
government, 48  
health service 43  
identification 14  
membership in University, 13  
organizations 44  
Student exchange programs, 38  
Student teaching, application on requirements  
cooperating schools, waiver, 154  
Studio art courses, 263  
Subiect designation code 32  
Subiect examination on credit 20-21  
Summer Sessions, 309  
System engineering, 195

**T**

Teaching certificate application, 154  
 for Liberal Arts Secondary majors 55  
 Technical science courses 225  
 Technica Teacher Education 203  
 Technica management 243  
 Technology Division of, 212  
   bachelor's or master's degree in 212  
   courses 219  
   curricula 213-219  
 Aeronautics 214  
   aeronautical engineering industrial  
   technology, air transportation  
 Electronics 215  
   electronic engineering technology  
 Graphic Communications, 217  
 Industrial Technica Education 217  
 Engineering Technology 213  
   aeronautical electronic engineering  
   manufacturing mechanical engineering  
 Industrial Technology 213  
 Manufacturing 218  
   manufacturing mechanical engineering  
   technology  
 Television radio courses 106  
 Test of English as a Foreign Language  
 (TOEFL), 18-19  
 Tests aptitude (ACT) 15  
   CLEP, Subject PEP, 20-22  
   Comprehensive proficiency, 22  
   SAT 15  
 Textiles and clothing courses 104  
 Theatre, Dept. of 281  
   curriculum, 282  
   bachelor's degrees 282  
   courses 282  
 Transcripts 15  
 Transfer of credit 17  
 Transportation major 138  
   courses 148  
 Transportation design 241  
 Traveling scholars programs 23  
 Tuition for nonresident students, 23

**U**

Unclassified students 17  
 Undergraduate social work 293

Undergraduate admission 17  
 Undergraduate credit for graduate courses 58  
 Undergraduate studies for  
   prospective teachers 158  
 Unit of credit defined 39  
   required for degrees 41  
 University Conference Services 309  
 University Continuing Education 308  
 University  
   academic organization 5  
   accreditation 9  
   Art Collections 12  
   buildings 10  
   calendar 6-7  
   campus 9  
   counseling service 44  
   facilities 9  
   history 8  
   libraries, 9  
   loan funds 27-30  
   objectives, 8  
   officers 311  
   residence halls 11  
   resident faculty, 311  
 Upward Bound program 39  
 Urban Studies 87  
 Urban systems engineering 196  
 U.S. Armed Forces Institute correspondence  
   courses, 23

**V**

Variable credit courses 40  
 Veterans Affairs Office, 39  
 Veterans benefits, 39  
 Veterinary Pre, 55-175  
 Visual communications, 244

**W**

Work of, 34  
 Western Interstate Commission for Higher  
   Education 42  
 Webology curriculum, 128  
 Withdrawal from university 41  
   from courses 34  
 Women's studies 38-64

**X**

X-ray technology (radio) program, 70

**Z**

Zoology, Dept. of 128  
   courses 130  
   major 128

Photo Credits:  
 ASU Audiovisual Photographica  
 Service, Charles R. Conroy,  
 Greg Harris, Hoss Moomaw,  
 June P. Payne







**Arizona State University**



**Arizona State University General Catalog 1979-80 | 1980-81**

