
Post-Bachelor's Artist Diploma

See "Post-Bachelor's Artist Diploma," page 274.

Professional Accountancy

Certificate Program

ASU West offers a postbaccalaureate certificate in Professional Accountancy. For information, see the *ASU West Catalog*, call 602/543-4567, or access www.west.asu.edu on the Web.

Psychology

Master's and Doctoral Programs

Darwyn E. Linder
Chair

(PSY 237C) 480/965-3326

psygrad@asu.edu

www.asu.edu/clas/psych/dinfo/gprograms.html

REGENTS' PROFESSORS

CIALDINI, EISENBERG, RUSSO

PROFESSORS

AIKEN, BARRERA, BRAUN, BRAVER, CASTRO, CHASSIN, HOMA, KAROLY, KENRICK, KILLEEN, KNIGHT, LANYON, LINDER, MacKINNON, MILLSAP, NEUBERG, OKUN, PARKINSON, PRESSON, REICH, SADALLA, SANDLER, SOMERVILLE, VAN ORDEN, WEST, WOLCHIK, ZAUTRA

ASSOCIATE PROFESSORS

CASTANEDA, DAVIS, FABRICIUS, GOLDINGER, GONZALES, LESHOWITZ, NAGOSHI, NEISEWANDER, NEMEROFF, SAENZ, STONE

ASSISTANT PROFESSORS

E. AMAZEEN, P. AMAZEEN, KHOO, MCBEATH

SENIOR LECTURERS

BARTON, WEIGAND, WOSINSKI

LECTURER

PALMER

The faculty in the Department of Psychology offer graduate programs leading to the Ph.D. degree in Psychology. Concentrations are available in clinical, developmental, environmental, and social psychology, as well as in cognitive/behavioral systems, behavioral neuroscience, and quantitative research methods.

Although there is no formal M.A. program as such, doctoral students are required to complete an M.A. degree as part of their doctoral training.

All applicants are required to submit scores on the Graduate Record Examination (verbal, quantitative, and analytical sections; advanced section is required for clinical psychology), transcripts, three letters of reference, and a statement of purpose.

Program of Study. A minimum of 30 semester hours is required for the master's degree.

Foreign Language Requirements. None.

Thesis Requirements. A thesis is required.

Final Examinations. A final oral examination in defense of the thesis is required.

DOCTOR OF PHILOSOPHY

See "Doctor of Philosophy," page 103, for general requirements.

Application Deadline. Completed applications for admission in the fall semester, including all letters and supporting documents, should be received by January 1.

The Department of Psychology requires all applicants to provide scores from the aptitude sections of the GRE for clinical psychology. A score from the advanced test in psychology is required. These scores are not used exclusively to determine admission but are viewed in the context of other supporting materials, such as GPAs and letters of recommendation.

Program of Study. At present the Department of Psychology offers the Ph.D. degree in the following research areas: clinical, developmental, environmental, cognitive/behavioral systems, behavioral neuroscience, quantitative, and social psychology. A minimum of 60 semester hours of course credit beyond the bachelor's degree is required, plus 24 semester hours of credit in research and dissertation.

In addition to a core curriculum, students take courses related to their area of interest as determined in consultation with their supervisory committees.

First-Year Evaluation. At the end of the first year of study, each student receives a comprehensive evaluation by the faculty based upon performance in courses and in professional or laboratory assignments and upon the evidence of professional responsibility and ethical behavior.

Foreign Language Requirements. None.

Comprehensive Examinations. Written and oral examinations are required near the end or upon completion of all course work. After passing the comprehensive examinations and meeting other requirements (e.g., dissertation prospectus), the student is eligible to apply for candidacy.

Dissertation Requirements. The dissertation must be an original contribution to knowledge, demonstrating the student's proficiency as an independent investigator. (See "Doctoral Degrees," page 102.)

Final Examinations. A final oral examination in defense of the dissertation is required.

PSYCHOLOGY (PGS)**PGS 414 History of Psychology. (3)***fall and spring*

Historical development of psychology from its philosophical beginnings to the present. Prerequisites: PGS 101; PSY 230, 290.

*General Studies: L/SB***PGS 461 Interpersonal Influence. (3)***not regularly offered*

Principles and procedures that affect the process of social influence; consideration of attitudinal, compliance-inducing, and perceptual influences. Prerequisite: PGS 350.

*General Studies: SB***Omnibus Graduate Courses.** See page 50 for omnibus graduate courses that may be offered.**PSYCHOLOGY (PSY)****PSY 420 Analysis of Behavior. (3)***not regularly offered*

Research, applications, and philosophy of the analysis and control of human behavior. Prerequisite: PSY 290.

*General Studies: L***PSY 424 Genetic Psychology. (3)***spring*

Introduction to the concepts, methodologies, and findings of behavioral genetics for Psychology majors. Prerequisites: PGS 101; PSY 230, 290.

*General Studies: L***PSY 425 Biological Bases of Behavior. (3)***not regularly offered*

Critical study of physiological psychology; brain mechanisms underlying motivation and learning. Prerequisite: PSY 325.

*General Studies: L***PSY 426 Neuroanatomy. (4)***not regularly offered*

Structure and function of mammalian brain, including sheep brain dissection. 3 hours lecture, 3 hours lab. Prerequisite: PSY 325 (or its equivalent).

*General Studies: L***PSY 434 Cognitive Psychology. (3)***spring*

Human organism as a processor of information, from perception to cognition. Abstract concepts, semantic memory, attention, and mental imagery. Prerequisite: PSY 323 or 324 or instructor approval.

*General Studies: L***PSY 437 Human Factors. (3)***fall*

Emphasizes human factors in high-technology systems. Specific topics include systems development, systems analysis techniques, displays, and controls. Prerequisites: both PSY 290 and upper-division standing or only instructor approval.

*General Studies: L***PSY 470 Psychopharmacology. (3)***fall and spring*

Basis of drug action at physiological and behavioral levels. Psychological and medical applications and limitations of drugs used in the treatment of mental illness. Prerequisites: PSY 325; 1 semester each of biology and chemistry.

PSY 501 Supervised Teaching. (4)*fall*

Experience in and examination of perspectives on teaching undergraduate psychology. Prerequisites: graduate standing in psychology; instructor approval.

PSY 506 Survey of Research in Environmental Psychology. (3)*fall*

Major topics and paradigms in the study of person-environment relationships. Prerequisite: instructor approval.

PSY 512 Advanced Learning. (3)*not regularly offered*

Principles and theories of learning, emphasizing research literature. Prerequisite: instructor approval.

PSY 524 Advanced Physiological Psychology. (3)*not regularly offered*

Contributions of physiological processes and brain function to fundamental behavioral processes. Prerequisite: instructor approval.

PSY 528 Sensation and Perception. (3)*not regularly offered*

Principles of sensory and perceptual processes, emphasizing research literature. Prerequisite: instructor approval.

PSY 530 Analysis of Variance in Psychological Research. (3)*fall*

One-way and factorial designs, contrasts, post-hoc tests, probing of interactions, mixed designs, power, computer applications. Prerequisite: undergraduate statistics or instructor approval.

PSY 531 Multiple Regression in Psychological Research. (3)*spring*

Multiple regression and correlation, hierarchical regression, interactions, curvilinear relationships, categorical predictors, ANOVA in regression, regression diagnostics, regression graphics. Prerequisite: PSY 530 or instructor approval.

PSY 532 Analysis of Multivariate Data. (3)*fall*

Matrix algebra for multivariate procedures, component and factor analysis, canonical and discriminant analysis, classification, MANOVA, logistic regression, hierarchical linear model. Prerequisites: both PSY 530 and 531 or only instructor approval.

PSY 533 Structural Equation Modeling. (3)*spring*

Path analysis; exploratory and confirmatory factor analysis; recursive and nonrecursive latent variable models; mean and covariance structures; latent growth models. Prerequisite: PSY 532 or instructor approval.

PSY 534 Psychometric Methods. (3)*fall and spring*

Theory and practice of psychological measurement using classical and modern test theories. Reliability assessment, test validation, test construction, test usage. Prerequisites: both PSY 530 and 531 or only instructor approval.

PSY 535 Cognitive Processes. (3)*not regularly offered*

Theoretical/empirical treatment of the human organism as a processor of information, including abstraction, memory structure, problem solving, and thinking. Prerequisite: instructor approval.

PSY 536 Statistical Methods in Prevention Research. (3)*fall and spring*

Statistical methods used in prevention research including epidemiological methods, logistic regression, program effect estimation, estimation, and mediation analysis. Prerequisites: both PSY 530 and 531 or only instructor approval.

PSY 537 Longitudinal Growth Modeling. (3)*not regularly offered*

Growth modeling methodology to describe individual variation in development over time. Employs multilevel and structural equation modeling frameworks. Prerequisite: PSY 533 or instructor approval.

PSY 538 Advanced Structural Equation Modeling. (3)*not regularly offered*

Mean and covariance structure analysis. Includes multiple-group modeling, two-level hierarchical modeling, longitudinal growth modeling, analysis with categorical outcomes. Prerequisite: PSY 533 or instructor approval.

PSY 539 Meta-Analysis I. (1)*fall*

Meta-analysis; searching the literature, coding study characteristics, computing effect sizes. Must be followed by PSY 540. Seminar. Prerequisites: both PSY 530 and 531 or only instructor approval.

PSY 540 Meta-Analysis II. (2)*spring*

Continuation of PSY 539. Meta-analysis; computing effect sizes, and analyzing the heterogeneity of effect sizes. Seminar. Prerequisite: PSY 539.

PSY 541 Research in Cognitive Development. (3)*not regularly offered*

Theoretical and empirical issues in the study of children's knowledge and cognitive processes. Comparison of research in Piagetian and other traditions. Prerequisite: admission to Psychology Ph.D. program or instructor approval.

PSY 542 Social Development. (3)*not regularly offered*

Reviews and critiques major issues in the area of social development. Covers theory, research, and content. Prerequisite: instructor approval.

PSY 550 Advanced Social Psychology. (3)*fall and spring*

Theory and research concerning interpersonal perception, decision making, attitude formation and change, group processes, social motivation, and interaction processes. Prerequisite: instructor approval.

PSY 551 Advanced Social Psychology. (3)*fall and spring*

Continuation of PSY 550. Prerequisite: PSY 550 or instructor approval.

PSY 553 Social Influence. (3)*not regularly offered*

Researches literature relevant to attitude formation and change, conformity, obedience, power, compliance, altruism, and others. Prerequisite: PSY 551 or instructor approval.

PSY 555 Experimental and Quasi-Experimental Designs for Research. (3)*not regularly offered*

Reviews research techniques. Analyzes laboratory and field research; applications to specific topics. Prerequisite: instructor approval.

PSY 569 Advanced Study of Personality. (3)*not regularly offered*

Personality as a theoretical concept in psychology, including definitional problems, behavioral and traditional approaches, the measurement of personality, and current research issues. Prerequisite: instructor approval.

PSY 572 Psychological Assessment. (3)*fall*

Theory and research on assessment of personality, psychopathology, and intelligence; construction of psychological assessment instruments. Prerequisite: admission to clinical Ph.D. program or instructor approval.

PSY 573 Psychopathology. (3)*fall*

Theory and research relating to the contribution of psychological, social, physiological, and genetic factors to the development and persistence of abnormal behavior. Prerequisite: admission to Psychology Ph.D. program or instructor approval.

PSY 574 Psychotherapy. (3)*spring*

Detailed survey of the theoretical and empirical literature relating to verbal psychotherapy and interviewing methods. Structured role-playing practice in the major procedures. Prerequisite: admission to the clinical Ph.D. program or instructor approval.

PSY 578 Child Psychopathology. (3)*not regularly offered*

Major theories and research related to the development of deviant behaviors in children, including some supervised experience in child assessment. Prerequisite: PSY 572 or instructor approval.

PSY 582 Community Psychology. (3)*summer*

Community systems, intervention techniques, consultation models, history and current status of community mental health movement, and conceptualization of the roles of community psychologists in social system intervention. Prerequisite: advanced standing in Psychology Ph.D. program or instructor approval.

PSY 588 Consultation Methods. (3)*not regularly offered*

Several theories and strategies of organizational consultation. Develops consultative skills through simulation and practical experience. Prerequisite: advanced standing in Psychology Ph.D. program or instructor approval.

PSY 624 Clinical Neuroscience. (3)*spring*

Examines the biological underpinnings of psychological disorders at the molecular, cellular, and system levels (schizophrenia, depression, anxiety, etc.). Lecture, pro-seminar. Prerequisites: graduate standing; instructor approval.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Public Administration

Master's Program**Larry Mankin***Director***(WILSN 208) 480/965-3926****mpa@asu.edu****spa.asu.edu/Acadprog/mpa.htm****PROFESSORS**

CAYER, CHAPMAN, COOR, J. DENHARDT,
R. DENHARDT, HALL, MANKIN, McGAW, PERRY

ASSOCIATE PROFESSORS

ALOEZIE, BROWN, CAMPBELL, DeGRAW, LAN

ASSISTANT PROFESSORS

DELORENZO, McCABE

DISTINGUISHED RESEARCH FELLOW

PFISTER

The faculty in the School of Public Affairs prepare students and practitioners for leadership in public service. Faculty also engage in research and service programs that advance understanding of public affairs and serve the public's policymaking needs.

The School of Public Affairs offers a 42-semester-hour professional Master of Public Administration (M.P.A.) degree and participates in an interdisciplinary degree leading to the Ph.D. degree in Public Administration.

MASTER OF PUBLIC ADMINISTRATION

The M.P.A. is an interdisciplinary, professional degree designed to prepare students for public service, public management, and policy analysis at the local, state, and national levels of government. The M.P.A. degree is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA).

Admission. Applicants to the M.P.A. program are considered for admission irrespective of undergraduate major, although students may be required to complete additional courses and/or workshops to prepare themselves for the core courses.

The applicant's undergraduate GPA, GRE scores (verbal, quantitative, and analytical), letters of recommendation, statement of educational and career goals, and professional experience are all considered in the admissions process. In addition, TOEFL scores (550 or higher) are required for international students. Admission may be limited by space availability.

Applications for admission can be sent at any time. Students requesting graduate assistantships and tuition scholarships should have their application files completed by March 1.

All applicants must submit the following materials to the Graduate College:

1. an official application;
2. official transcripts of all undergraduate and graduate work;
3. scores on the GRE (verbal, quantitative, and analytical; special subject tests not required); and
4. TOEFL scores for international students.

All applicants must submit the following materials to the School of Public Affairs:

1. three letters of recommendation, at least two of which should be written by faculty who can evaluate the applicant's academic performance;
2. a written statement of applicant's educational and career goals, which also is used as a sample of the applicant's writing abilities; and
3. résumé or additional documents as the applicant sees fit.

Program of Study. The M.P.A. program consists of 42 hours of graduate credit. Students take 27 of these hours in nine core classes in the School of Public Affairs, and 15 additional hours in elective courses.

No more than nine semester hours of ASU graduate courses taken before admission to the school and approved by the M.P.A. Committee can be included in the Program of Study.

Students enrolling in core courses must demonstrate minimum competency in statistics, American government, and computer applications. Courses taken to fulfill the competency do not count toward the 42-hour degree program. Competency in statistics or American government is met with a grade of "B" or higher in approved courses, passing a diagnostic test approved by the M.P.A. Committee, or earning a grade of "B" or higher in such approved courses as PAF 401, POS 401, PSY 230, QBA 221, and SOC 390 for statistics and POS 310 for American government. Competency in computer applications is met by enrollment in university short courses and training seminars.

Internship. A public service internship is recommended for M.P.A. students without previous administrative experience in government. The purpose of the internship is to provide students with practical and professional experience in a specific career area. Students work in and for public organizations applying the knowledge, skills, and abilities acquired in their program of study. During the internship experience, students can develop a professional network that will aid them in their pursuit of a career in government or non-profit organizations. Students can apply three hours of internship credit to the degree program. To receive course credit for an internship, students are required to attend class sessions and submit a paper to the internship coordinator.

Foreign Language Requirements. None.

Comprehensive Examination. None.

Thesis Requirements. None.

Capstone Requirement. The M.P.A. degree requires students to demonstrate competency for public service by synthesizing and applying core course knowledge, skills, and abilities to public service problems. Students demonstrate their public service competency by earning an "A" or a "B" in the M.P.A. capstone course, PAF 509 Public Service.

Morrison Institute for Public Policy

As an integral part of the School of Public Affairs, the Morrison Institute is an applied public policy research center that conducts research on public policy, informs policy-makers and citizens about issues, and advises leaders on choices and actions. In partnership with government officials, university faculty, and the private sector, the Morrison Institute conducts research, policy forums, program evaluations, and strategic planning for public, private, and non-profit clients. The Institute produces publications on a wide range of topics, including urban growth, education, natural resources, governmental systems and relations, health care, social services, quality of life, and economic development.

Advanced Public Executive Program (APEP)

APEP is a continuing education program designed to provide public-sector executives with analytical approaches and skills in leadership, policy analysis, total quality management, media relations, organizational development, team-building, and communication. Located at the ASU Downtown Center, APEP sponsors the Certified Manager Program (CPM), the Institute for Public Executives, Total Quality Management in the Public Sector, the County Elected Officials' Certification Program, and presents custom-tailored professional development programs for public-sector managers.

PUBLIC AFFAIRS (PAF)

PAF 401 Statistics. (3)

fall and spring

Surveys statistical concepts and techniques with application to public administration. Does not count toward program of study. Satisfies statistics prerequisite requirement for PAF 501 and 502.

PAF 501 Public Service Research. (3)

fall and spring

Philosophy, scope, and methods; public service research design, values, and ethics. Prerequisite: an approved course in statistics.

PAF 502 Computer Applications. (3)

fall and spring

Computer applications in public affairs; software packages for data analysis, decision making, information dissemination, and problem solving. Prerequisite: PAF 501.

PAF 503 Public Affairs. (3)

fall and spring

Development and context of American public administration and policy, role of administration in governance, and values and ethics in administration.

PAF 504 Public Affairs Economics. (3)

fall and spring

Basics of public sector economics, microeconomic and macroeconomic concepts applied to public sector decisions and policies.

PAF 505 Public Policy Analysis. (3)

fall and spring

Institutional and formal analysis of policy processes, decision making, and problem solving; values, ethics, and the uses of policy analysis. Prerequisites: PAF 504; satisfaction of the statistics requirement.

PAF 506 Public Budgeting and Finance. (3)

fall and spring

Legal, social, economic, political, institutional, and ethical foundations of governmental finance, budgets, and budgeting. Prerequisites: PAF 502, 504.

PAF 507 Public Human Resource Management. (3)

fall and spring

Personnel systems, behavior and management of people in public organizations, collective behavior, unionism, conflict management, motivation, productivity, and ethics.

PAF 508 Organization Behavior. (3)

fall and spring

Theory and application in the management of organizational behavior with emphasis on leadership and the public service.

PAF 509 Public Service. (3)*fall and spring*

Capstone application of core course knowledge, skills, and abilities required for public service. Prerequisites: PAF 501, 502, 503, 504, 505, 506, 507, 508.

PAF 510 Governmental Budgeting. (3)*not regularly offered*

Theories, applications, and consequences of budget decision making. Prerequisite: PAF 504.

PAF 511 Governmental Finance. (3)*not regularly offered*

Sources of funding, management of funds and debts, and general pattern of expenditures in states, counties, cities, and districts. Prerequisite: PAF 504.

PAF 520 Public Management. (3)*not regularly offered*

Management process in government and public agencies, with emphasis on the executive leadership within the public sector.

PAF 521 Organization Theory. (3)*not regularly offered*

Organization theory and current research emphasis with application to public administrative organizations.

PAF 522 Public Labor Relations. (3)*not regularly offered*

Rise of public unionism, managerial policy toward unionism, conflict resolution; impact of unionism on budgets, personnel policies, and public policy.

PAF 523 The City and County Manager. (3)*once a year*

Manager's role and resources in the differing forms of administrative, legislative, and community sectors.

PAF 525 Public Program Management. (3)*not regularly offered*

Governmental service programming: formulating, financing, operating, evaluating, and reporting. Analyzes interagency relationships and the role and conduct of research in the programming process.

PAF 526 Public Sector Human Resource Development. (3)*not regularly offered*

Concepts and techniques of organizational development in the public sector, including staffing, supervisor training, executive development, resource planning, and employee training.

PAF 529 Organization Change and Development. (3)*not regularly offered*

Explores the nature and management of change and development as a tool to achieve organizational goals; effecting planned change.

PAF 530 Management of Urban Government. (3)*not regularly offered*

Administrative practices and behavior within the urban political administrative environment. Functional areas such as citizen participation, urban planning, urban transportation, and the conflicts between urban politics and administrative efficiency.

PAF 531 Community Conflict Resolution. (3)*not regularly offered*

Interdisciplinary approach to understanding the dynamics of community conflict. Strategic considerations in policy design and advocacy; potential reaction to conflict. Relevant models and research findings generated by both case studies and comparative methods.

PAF 532 Urban Planning Administration. (3)*not regularly offered*

Historical and present-day uses of urban planning and procedures for its implementation. Basic principles and practices.

PAF 533 Urban Growth Administration. (3)*not regularly offered*

Examines the process of urban growth and change. Emphasizes partnership roles played by public and private sectors in management.

PAF 535 Urban Housing Policy. (3)*not regularly offered*

Comprehensive consideration of the revitalization of American cities with major emphasis upon the housing process and related institutions and services.

PAF 536 Urban Policy Making. (3)*not regularly offered*

Analyzes the opportunities and costs of influencing public policy and the roles of officials and bureaucracies in decision making.

PAF 540 Advanced Policy Analysis. (3)*once a year*

Emphasizes the structure of policy problems, forecasting policy alternatives, optimizing resources, and reducing uncertainty in policy making. Prerequisite: PAF 505 or instructor approval.

PAF 541 Program Evaluation. (3)*not regularly offered*

Various methodologies available for the evaluation of public policies and programs. Prerequisite: PAF 501 or instructor approval.

PAF 546 Environmental Policy and Management. (3)*not regularly offered*

Analyzes environmental policy and planning issues and principles related to the analysis and management of natural and urban/regional resources.

PAF 547 Science, Technology, and Public Affairs. (3)*not regularly offered*

Influence of science and technology on governmental policy making, scientists as administrators and advisors, governmental policy making for science and technology, government as a sponsor of research and development.

PAF 548 Women, Politics, and Public Policy. (3)*not regularly offered*

Explores how political philosophy, politics, and public policy affect and are affected by women.

PAF 549 Diversity Issues and Public Policy. (3)*not regularly offered*

Examines public policy issues concerning or affecting women, black, Latino, Asian, and American Indian communities, as well as those groups' impact on the policy process.

PAF 550 Information Management. (3)*not regularly offered*

Concepts and theory of information and information technology in public sector organizations.

PAF 551 Computers in Administration. (3)*not regularly offered*

Experience in use of computer technology for public administration problem solving.

PAF 552 Public Information Systems. (3)*not regularly offered*

Systems analysis concepts and theory as applied to administration. Alternative modes of information organization and their impact on public decision making.

PAF 555 Research Data Management. (3)*not regularly offered*

Techniques and problems associated with data management in a research environment. Database management systems, security and integrity, accessibility, and cost.

PAF 556 Database Management Systems. (3)*not regularly offered*

Concept and use of modern database management systems in an administrative organization. Advantages and disadvantages of this approach.

PAF 561 Comparative Administration. (3)*not regularly offered*

Literature on comparative public administration theory. Bureaucracies and their impact on the political development process. Studies selected nations.

PAF 562 Intergovernmental Relations. (3)*once a year*

Evolution, growth, present status, and characteristics of the U.S. federal system of government. Federal-state relations, state-local relations, regionalism, councils of government, interstate cooperation, grants-in-aid, and revenue sharing.

PAF 563 Report Preparation. (3)*not regularly offered*

Intensive practice in written and oral presentation of reports to conferences with problems in public administration. Visual aid techniques.

PAF 564 Political Economy. (3)*once a year*

Classical and contemporary literature and historical development of governmental and economic arrangements, with special emphasis on the role of the state.

PAF 591 Seminar. (1–12)*fall and spring*

Possible topics:

- (a) Business and Government
- (b) Emergency Management
- (c) General Public Administration
- (d) Information Management
- (e) Public Finance Administration
- (f) Public Management
- (g) Public Policy Analysis
- (h) Urban Affairs and Urban Planning

PAF 600 Research Design and Methods. (3)*once a year*

Advanced methods of research design and data collection. Prerequisites: formal graduate-level course work in statistics and in research methods.

PAF 601 Seminar: Policy Analysis and Evaluation. (3)*once a year*

Normative and conceptual issues of policy formulation, implementation, and evaluation; methods of policy analysis and evaluation.

PAF 602 Seminar: Foundations of Public Administration. (3)*once a year*

Ethical, social, legal, and philosophical foundations of public administration.

PAF 603 Seminar: Organization and Behavior in the Public Sector. (3)*once a year*

Structure, organization, conduct, and performance of public sector institutions in the administration of public policy. Prerequisite: PAF 602.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Public Administration

Interdisciplinary Doctoral Program**N. Joseph Cayer***Director*

(WILSN 207A) 480/965-3926

spa@asu.edu

spa.asu.edu/Acadprog/dpa.htm

Agribusiness

Professors: Edwards, Thor

Economics

Professor: Hogan

Geography

Professor: Burns

Health Administration and Policy

Professor: Johnson

Journalism and Telecommunication

Professor: Merrill

Justice StudiesRegents' Professors: Altheide, Palumbo;
Professors: Hepburn, Musheno, Schneider**Management**

Professor: Bohlander

Planning and Landscape Architecture

Professors: Mushkatel, Pijawka

Political Science

Professor: Berman

Psychology

Associate Professor: Castro

Public AffairsProfessors: Cayer, Chapman, J. Denhardt, R. Denhardt,
Hall, Mankin, McGaw, Montiel, Perry;

Associate Professors: Alozie, Brown, Campbell, Lan;

Assistant Professors: DeLorenzo, McCabe

Recreation Management and Tourism

Associate Professor: Virden

Social Work

Professors: Kettner, MacEachron

Sociology

Professor: Nagasawa;

Associate Professor: Benin

The School of Public Affairs offers an interdisciplinary graduate program leading to the Ph.D. degree in Public Administration.

The purpose of the degree program is to prepare skilled professional public administrators for high-level positions in the public sector, and to foster the next generation of public administration scholars in research and university teaching. The program is designed to emphasize both normative and conceptual content pertaining to value assessments, theoretical assumptions, ethics, and modes of decision making, as well as practitioner problem-solving skills in budgeting, public personnel management, public finance, planning, program evaluation, and policy analysis.

The degree program is interdisciplinary in nature and is offered by faculty from various colleges. One of the unique features of this interdisciplinary program is that, because it utilizes faculty research and teaching interests from a number of academic units, a student may tailor a course of study to fit individual needs and goals.

Admission. Applications are reviewed by an admissions committee appointed by the director of the program. Recommendations for admission are made by the director to the dean of the Graduate College. Minimum Graduate College admission requirements must be met. See "Admission to the Graduate College," page 92, for requirements. Additionally, each applicant must provide a letter of career goals and statement of reasons for seeking the degree, a GRE test score, a professional résumé, and six letters of recommendation (three from faculty and three from professional public administrators). International students must submit both TOEFL and TSE scores. Admissions recommendations are made only once each year, with admitted students beginning their studies in the fall semester. To assure consideration for the ensuing fall semester, submit applications for admission, graduate assistantship, and tuition waiver by February 15. Only applicants already holding a master's degree are considered. If deficiencies exist in public administration course work at the master's level, appropriate classes are prescribed.

Program of Study. When the program of study is filed, a supervisory committee consisting of at least three persons is appointed by the dean of the Graduate College upon the recommendation of the director of the program. The chair of the supervisory committee serves as the student's graduate advisor. The supervisory committee advises the student in developing a program of study and assumes primary responsibility in assessing the student's progress in the program.

The program consists of a minimum of 66 semester hours of graduate work beyond the master's degree. Of the 66 semester hours, at least 24 must be dissertation and research credit. A minimum of 30 semester hours of approved course work, exclusive of dissertation and research, must be taken at ASU after admission to the program. A sequence of four core courses is required of all students, followed by a screening examination. In addition to the four core courses, an approved program of study must have a course listed in each of the following areas: quantitative research methods, qualitative research methods, political economy, and democratic theory and governance.

Residency. See the graduate director with regard to the residency requirements for this program.

Comprehensive Examinations. Upon completion of course work, and before dissertation research, the student is given a written examination in each of the areas of specialization. The written examinations are followed by a single oral examination. If the student should fail one or more components of the examination, a reexamination may be administered no sooner than three months and no later than one year from the date of the original examination. Approval for this reexamination must be obtained from the supervisory committee, the director of the program, and the dean of the Graduate College. A second failure is considered final and dismissal from the program is recommended to the Graduate College.

Candidacy. Doctoral students should apply for admission to candidacy immediately after they have met all requirements for the degree, *except the dissertation*. These requirements include passing the comprehensive examinations and other requirements specified by the program.

Dissertation Requirements. A dissertation is required of each student. The dissertation must consist of a fully documented written analysis demonstrating a high level of skill and competence. Each student must register for a minimum of 24 hours of dissertation and research. The dissertation is supervised by a committee of at least three faculty members appointed by the dean of the Graduate College.

Final Examinations. The final oral examination in defense of the dissertation is scheduled by the dean of the Graduate College and conducted by the student's dissertation committee. A candidate must pass the final examination within five years after completing the comprehensive examination. Any exception must be approved by the dissertation committee, the director, and the dean of the Graduate College.

Graduation. The student is eligible for graduation when the Graduate College scholarship requirements have been met, the final oral examination has been passed, and the dissertation has been approved by the supervisory committee and accepted by the director and the dean of the Graduate College.

Applications for graduation should be made no later than the date specified in the Graduate College calendar.

COURSES

For courses, see "Public Affairs (PAF)," page 299.

Public Health

Master's Program

The School of Health Administration and Policy and the College of Nursing, at ASU, in conjunction with the University of Arizona and Northern Arizona University, offer courses leading to the Master of Public Health degree. Two concentrations are offered at ASU: (1) Community health practice is coordinated by the College of Nursing, and (2) health administration and policy is coordinated by the School of Health Administration and Policy. For general information see "Nursing," page 279, or contact the M.P.H. program coordinator at ASU at 480/965-6633.

Admission. Applicants must hold a bachelor's degree or equivalent from an accredited college or university, provide three letters of recommendation, and submit an official Graduate Record Examination (GRE) or Medical College Admissions Test (MCAT) score or the GMAT, if the applicant is applying to the health administration and policy concentration only. For applicants with a doctoral degree, test scores are recommended but not required. A minimum of two years of full-time, 40-hour workweek, postbaccalaureate work experience is required.

The GRE or MCAT must be taken within five years of the application date. Applicants whose native language is not English are required to submit a score on the Test of English as a Foreign Language. Students should submit their application to the University of Arizona by February 1 for fall admission. Applications are accepted only for fall admission.

Program of Study. The program of study for both concentrations requires 39 semester hours: 15 semester hours of core courses, and 12 semester hours of concentration courses, and six hours of electives. Both concentrations require the student to successfully complete an internship; the semester hours required for the internship may vary by concentration. In addition, each student is required to produce a comprehensive, analytical, problem-solving report integrating the in-class learning into the internship experience. The student is also required to make an oral presentation before a student and faculty colloquium, reporting on activities during the internship and relating those activities to broader public health issues.

Arizona Graduate Program in Public Health: Core Courses

EPI 596	Epidemiology*	3
HSA 560	Health Services Administration and Policy	3
HSA 561	Biostatistics	3
PHL 575	Environmental and Occupational Health*	3
PHL 577	Social and Behavioral Aspects of Public Health*	3
Total		15

* These courses, offered at ASU, are not ASU courses per se and are not found in this catalog.

COURSES

For courses, see "Health Services Administration (HSA)," page 231.

Public Programs

COLLEGE OF PUBLIC PROGRAMS (CPP)

- CPP 580 Practicum.** (1–12)
not regularly offered
- CPP 583 Field Work.** (1–12)
not regularly offered
- CPP 584 Internship.** (1–12)
not regularly offered
- CPP 590 Reading and Conference.** (1–12)
not regularly offered
- CPP 591 Seminar.** (1–12)
not regularly offered
- CPP 593 Applied Project.** (1–12)
not regularly offered
- CPP 594 Conference and Workshop.** (1–12)
not regularly offered
- CPP 598 Special Topics.** (1–4)
not regularly offered
- CPP 690 Reading and Conference.** (1–12)
not regularly offered
- CPP 691 Seminar.** (1–12)
not regularly offered
- Omnibus Graduate Courses.** See page 50 for omnibus graduate courses that may be offered.

Recreation

Master's Program

Randy Virden
Chair
(MOEUR 131) 480/965-7291
rmtgrad@asu.edu
www.asu.edu/copp/recreation/master

PROFESSORS

ALLISON, HALEY, YOSHIOKA

ASSOCIATE PROFESSORS

SCHNEIDER, TEYE, VIRDEN

ASSISTANT PROFESSORS

ASHCRAFT, BAKER, BROWN, LECLERC, MARTINEZ,
PRITCHARD, SONMEZ, TIMOTHY

MASTER OF SCIENCE

The faculty in the Department of Recreation Management and Tourism offer a program leading to the M.S. degree in Recreation.

The M.S. degree program prepares students to analyze and understand critical topics and issues pertinent to the field of leisure and recreation.

Students choose between two academic options: the thesis option or the professional option.

Admission. Students applying to the M.S. program must have achieved a GPA of 3.00 or the equivalent in the last two years of work leading to the bachelor's degree. Appli-

cants should submit their application, application fee, and all undergraduate transcripts to the Graduate College before February 15. To be considered for fall admission, candidates must have their Graduate Record Examination (or Miller's Analogy Test) scores, a statement of professional and academic goals, and three letters of recommendation sent to the Department of Recreation Management and Tourism by February 15. Only complete application files are reviewed or considered for admission. Students without undergraduate academic work in the recreation/tourism disciplines will be required to take six semester hours of deficiency course work in addition to the M.S. degree requirements. Deficiency course work may be taken in conjunction with M.S. degree classes.

Program of Study. Completion of the M.S. degree in Recreation on the average requires approximately two years of study. Students may select a thesis or professional option. The thesis option is a research-oriented degree and is recommended for students planning to continue graduate studies beyond the master's degree. The professional option is intended for students seeking additional knowledge and expertise relevant to professional career development. Advising and direction in both options are under the direct supervision of an assigned faculty member.

Program Requirements: Thesis Option. The thesis option consists of a minimum of 30 semester hours. The 30 semester hours include six hours of thesis (REC 599), which must be defended in an oral examination before a supervisory committee of at least three faculty members, one of which resides in another department.

REC 500 Research Methods.....	3
REC 552 Foundation of the Recreation and Tourism Professions.....	3
REC 555 Social and Psychological Aspects of Recreation and Tourism Behavior.....	3
Advanced inquiry skills	3
Electives	9
Introductory statistics (500-level)	3
Thesis	6
Minimum total	30

Program Requirements: Professional Option. The professional option consists of 30 semester hours including six hours of practicum (REC 580). The purpose of the Practicum is to provide graduate students with in-depth agency-based professional experiences. The student committee will consist of one department faculty member and one community/agency professional. At the end of the Practicum, the student is required to submit a written description and analysis of the project as well as present the results to the committee.

REC 501 Program Evaluation and Information Management.....	3
REC 530 Recreation and Tourism Service Management	3
REC 552 Foundation of the Recreation and Tourism Professions.....	3
REC 555 Social and Psychological Aspects of Recreation and Tourism Behavior	3
REC 580 Practicum	6
Electives	9
Introductory statistics (500-level)	3
Minimum total	30

Foreign Language Requirements. None.

Thesis Requirements. A thesis is an option.

Final Examinations. A final oral examination in defense of the thesis or a practicum is required.

RESEARCH ACTIVITY

The study of leisure, recreation, and tourism is a multidisciplinary field of research, scholarship, and program development. Recent scholarly activity of departmental faculty and students reflect this approach. Major research areas include the following: international travel and tourism; philosophy of leisure; recreation resource planning; social and psychological analyses of leisure behavior; leisure and youth development; travel and tourism policy and planning; urban recreation administration; outdoor recreation and wilderness management; cross-cultural analysis of play and leisure; gender differences in leisure behavior patterns; non-profit agency leadership/management.

RECREATION MANAGEMENT AND TOURISM (REC)

REC 500 Research Methods. (3)

once a year

Introduction to recreation research methods, with emphasis on methodological questions, research issues, and techniques relevant to contemporary social research. Prerequisite: 500-level or higher approved statistics course.

REC 501 Program Evaluation and Information Management. (3)

not regularly offered

Develops skills in several professional areas, including: evaluation, needs assessment, information and data collection, data management/analysis, computer applications, and report writing.

REC 530 Recreation and Tourism Service Management. (3)

spring in even years

Examines and applies organizational behavior, leadership, human resources, and development; planning and risk management to profession.

REC 552 Foundation of the Recreation and Tourism Professions. (3)

once a year

Examines the philosophical and conceptual foundations of play, leisure, recreation and tourism; history of the profession; professional and research issues.

REC 555 Social and Psychological Aspects of Recreation and Tourism Behavior. (3)

once a year

Theoretical review and empirical analysis of social, cultural, and psychological foundations of leisure behavior with practical implications.

REC 558 Integrative Seminar. (3)

once a year

Advanced exploration and assessment of current trends within the leisure studies profession. Variable topics, including, but not limited to: cross-cultural analysis of leisure, urban recreation, planning and resources, sociocultural dimensions of tourism development, wilderness management. Prerequisite: REC 552.

REC 569 Current Issues in Tourism. (3)

once a year

General survey of tourism literature with emphasis on relevant theories, concepts, and current research.

REC 570 Social Aspects of Outdoor Recreation Management. (3)

once a year

Analyzes the social aspects of natural resource recreation management and planning. Prerequisite: REC 370 (or its equivalent).

REC 580 Practicum. (1–12)

not regularly offered

REC 593 Applied Project. (1–12)

not regularly offered

REC 598 Special Topics. (1–12)

not regularly offered

REC 599 Thesis. (1–12)

not regularly offered

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Religious Studies

Master's Program

Joel D. Gereboff

Chair

(ECA 377) 480/965-7145

relstudy@asu.edu

www.asu.edu/clas/religious_studies/home/grad.html

PROFESSORS

CADY, COUDERT, FELDHAUS, FOARD

ASSOCIATE PROFESSORS

CLAY, FESSENDEN, GEREBOFF, MOORE, MORRISON, SCHOBER, SWANSON, WOODWARD

ASSISTANT PROFESSORS

DAMREL, LEON, UMAR

The faculty of the Department of Religious Studies offer a graduate program leading to the M.A. degree in Religious Studies. This program is designed to serve three main purposes. It offers intensive training in research methods and in select special fields for students who seek to qualify for doctoral programs at leading universities. It serves as specialized training for those who plan to teach religious studies subject matter in colleges and high schools or who wish to bring cultural and cross-cultural analytical tools to professions such as business, social work, government, and journalism. It allows qualified persons in nonacademic occupations the opportunity to acquire competence in the study of religions, broadly defined, and in areas of special interest.

Course offerings and faculty appointments reflect the commitment of the department to a balance of Western and Asian, historical and conceptual, methodological, and subject-oriented areas of study. This programmatic diversity is maintained in a context of scholarly collegiality involving both faculty and graduate students.

MASTER OF ARTS

See "Master's Degrees," page 100, for general requirements.

The graduate program leading to the M.A. degree provides two options: (1) a thesis option and (2) a portfolio option. While admission requirements and procedures are identical for both options, requirements for degree completion vary as indicated.

Admission. In order to be eligible for admission to the graduate program in Religious Studies, an applicant must meet Graduate College requirements. See "Admission to the Graduate College," page 92, and provide the following:

1. The student must submit test scores from the Graduate Record Exam (older returning students may peti-

tion the department to have this requirement waived).

2. The student must have completed the equivalent of 15 hours of undergraduate work in the study of religions, including advanced courses in both Western and Asian or other non-Western religions. Students without the necessary background in religious studies may remove deficiencies by taking additional specified courses (which may or may not count toward the fulfillment of degree requirements) at the beginning of their program of study.
3. The student must request three academic letters of reference to be sent to the graduate coordinator of the department.
4. The student must submit an essay of approximately 1,000 words outlining the academic background, career goals, and specific area of interest in religious studies in relation to fields offered by the faculty.

Complete applications are due by February 1. Students will receive notification from the department by April 1. Graduate assistantship awards are also announced on or about April 1. Late applications and applications for spring semester are reviewed on an individual basis.

GRADUATE PROGRAM REQUIREMENTS

Thesis Option. This option is recommended for students intending to seek admission to a doctoral program upon completion of the M.A. degree or planning to teach in the discipline at community colleges. For the thesis option the student must satisfy the following requirements:

1. reading knowledge of French, German, or another language relevant to the proposed thesis topic is normally required. At the discretion of the student's supervisory committee, the requirement may be waived for students who either are not planning to enter a doctoral program or are planning to pursue doctoral work that does not require proficiency in foreign languages;
2. 24 hours of course work, including six hours in methods and theory (REL 501, 502); six hours of graduate seminar (REL 591), offered each semester on varying topics within the academic study of religion; and three hours of research (REL 592) in the field of the thesis topic;
3. a thesis that earns six semester hours of 599 Thesis credit; and
4. an oral defense of the thesis.

Portfolio Option. This option is recommended for students intending to augment their primary area of expertise and professional training in fields such as journalism, law, teaching K-12, counseling, social work, the ministry, and others. For the portfolio option, the student must satisfy the following requirements:

1. reading knowledge of a foreign language relevant to the proposed area of concentration. At the discretion of the student's supervisory committee, the requirement may be waived;
2. 30 hours of course work, including six hours in methods and theory (REL 501, 502); six hours of graduate seminar (REL 591); four courses in a major

area of concentration; and two courses in a minor area;

3. a portfolio consisting of three papers: one on theory and method, one on the student's minor area of study, and one on the major area of study. Although portfolio papers may germinate from ideas generated in graduate seminars, they will be of publishable quality and make substantive contributions to the scholarship of the field. Credit towards completing the portfolio may be earned as part of the required credit hours outlined in (2); and
4. an oral defense of the portfolio.

RESEARCH ACTIVITY

For information on current research activity, access the Department of Religious Studies Web site at www.asu.edu/clas/religious_studies.

RELIGIOUS STUDIES (REL)

REL 410 Judaism in Modern Times. (3)

not regularly offered

Variety of expressions of Judaism and Jewishness in the modern period. Topics may include American Judaism or religious responses to the Holocaust.

General Studies: HU, H

REL 415 The Jewish Mystical Tradition. (3)

not regularly offered

Examines some of the esoteric lore of Judaism. Studies movements and literature such as Hasidism and Kabbalah.

General Studies: HU

REL 420 Religion in American Life and Thought. (3)

not regularly offered

Influence of religion on American society, culture, and ideas; the distinctive character of religion in America. Prerequisite: REL 320 or 321 (or its equivalent).

General Studies: L/HU

REL 426 American Preachers and Preaching: The Sermon in America. (3)

not regularly offered

Life and work of notable American preachers. Emergence of the preacher as representative of American religion. Prerequisite: REL 320 or 321 (or its equivalent).

General Studies: L/HU

REL 427 American Religious Thought. (3)

not regularly offered

Thought of representative American religious thinkers, i.e., Jonathon Edwards, William Ellery Channing, Horace Bushnell, and Reinhold Niebuhr. Prerequisite: REL 320 or 321 (or its equivalent).

General Studies: HU, H

REL 444 Religion in Japan. (3)

once a year

Religion in Japanese history, especially the development of Japanese Buddhism, and religion in the modern transformation of Japan. Prerequisite: instructor approval.

General Studies: HU, G, H

REL 460 Studies in Islamic Religion. (3)

not regularly offered

Issues in the interpretation and understanding of Islamic texts, history, society, culture, and rituals. Prerequisites: both REL 365 and Religious Studies major or only instructor approval.

General Studies: HU, G

REL 470 Religion in the Middle Ages. (3)

not regularly offered

Religious aspects of medieval life and thought; variety of forms of dissent, heresy, and reform movements from the 4th to 13th centuries.

General Studies: HU, H

REL 471 Reformation and Modern Christianity. (3)*not regularly offered*

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 liberal theology, ecumenical movement, and the World Council of Churches.

*General Studies: HU, H***REL 483 Religion and Science. (3)***spring*

Investigates the correlation between science and religion as an interdisciplinary study from a historical perspective. Readings, film, lecture, discussion. Prerequisite: junior standing or instructor approval.

REL 486 Modern Critics of Religion. (3)*not regularly offered*

Major theories and critiques of religion among modern social, philosophical, and religious thinkers.

*General Studies: HU***REL 494 Special Topics in Religious Studies. (3)***fall and spring*

Open to all students, freshmen by instructor approval only. Topics may be selected from various areas.

REL 498 PS: Pro-Seminar in Religious Studies. (3)*not regularly offered*

For students with a major or minor emphasis in Religious Studies.

REL 501 Research Methods in Religious Studies. (3)*fall*

Explores the major themes and methods in the study of religion, with primary focus on classical texts. Lecture, discussion.

REL 502 Research Methods in Religious Studies. (3)*spring*

Explores the major themes and methods in the study of religion, with primary focus on contemporary texts. Lecture, discussion.

REL 591 Seminar. (3)*fall and spring*

Topics on methodological issues in the study of religion. Prerequisite: Religious Studies graduate student or instructor approval.

REL 592 Research. (1–12)*fall and spring***REL 598 Special Topics. (1–4)***fall and spring*

May be repeated for credit. Possible topics:

- (a) Christianity. (3)
- (b) Islam. (3)
- (c) Judaism. (3)
- (d) Native American Religion. (3)
- (e) Problems in Religious Studies. (3)
- (f) Religion in America. (3)
- (g) Religion in East Asia. (3)
- (h) Religion in South and Southeast Asia. (3)
- (i) Study of Religion, Comparative Religion. (3)
- (j) Western Religious Thought, Ethics. (3)

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Renaissance Studies

See “Medieval and Renaissance Studies,” page 268.

Scholarly Publishing

Certificate Program

Beth Luey

Director

(SS 225H) 480/965-5775

www.asu.edu/clas/history/graduate/scholarlypub.html

SENIOR INSTRUCTIONAL PROFESSIONAL LUEY

Graduate students in any discipline may pursue a Certificate in Scholarly Publishing in conjunction with their degree programs. The program is also open to students who already hold graduate degrees. Students gain an understanding of the structure of scholarly publishing (scholarly books, journals, reference books, college textbooks, and scholarly electronic media), its role and responsibility in society, the legal and ethical issues that impinge upon it, and its economics. They also learn to perform the responsibilities of editors, designers, or producers of scholarly publications. Course work includes a required core, required courses in editing or design, and electives from a variety of disciplines. The certificate requires 28 hours of course work, including six internship hours. Some courses may be applied to both the certificate and the student's degree program. Applicants are strongly urged to submit Graduate Record Examination aptitude scores; a writing sample is required. Application deadline is February 1. For more information, contact the director, Scholarly Publishing Program, SS 225H, 480/965-5775.

SCHOLARLY PUBLISHING (PUB)

PUB 501 Introduction to Scholarly Publishing. (3)*fall*

Introduction to the purpose, organization, and operation of scholarly publishing, including its history, societal role, and current issues. Lecture, discussion. Prerequisite: graduate standing.

PUB 502 Scholarly Editing. (3)*fall*

Publishing procedures, proofreading, and manuscript editing of scholarly books, textbooks and scholarly journals. Lecture, discussion. Prerequisite: admission to scholarly publishing certificate program. Pre- or corequisite: PUB 501.

PUB 503 Advanced Scholarly Editing. (3)*spring*

Advanced manuscript editing, acquisitions, developmental editing, and indexing of scholarly books, textbooks, and scholarly journals. Lecture, discussion. Prerequisites: PUB 501, 502.

PUB 510 Research in Scholarly Publishing. (3)*spring*

Individual or group research projects on issues in scholarly publishing, including legal, economic, design, technological, and related topics. Directed research, discussion. Prerequisites: PUB 501; admission to scholarly publishing certificate program.

PUB 584 Scholarly Publishing Internship. (1–6)*once a year*

Structured, supervised, practical experience with a scholarly publisher or other appropriate publishing enterprise. Internship. Prerequisites: PUB 501; 9 hours in scholarly publishing core; instructor approval.

PUB 598 ST: Special Topics in Scholarly Publishing. (1)*spring*

One-week short courses covering special topics in scholarly publishing, to be taught by visiting publishing professionals. Lecture, discussion. Prerequisites: PUB 501; admission to scholarly publishing certificate program.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Science and Engineering of Materials

Interdisciplinary Doctoral Program

James Adams
William Petuskey
Codirectors

(PS A323) 480/965-2460

sem@asu.edu

www.asu.edu/graduate/SEM

Solid-State Science

Regents' Professor: Smith;
Senior Research Scientists: Crozier, McKelvy;
Research Scientist: McCartney;
Associate Research Scientists: Kim, Sharma

Chemical, Bio, and Materials Engineering

Professors: Adams, Dey, Krause, Mahajan;
Associate Professor: Alford

Chemistry and Biochemistry

Regents' Professor: Buseck;
Professors: Glaunsinger, Petuskey;
Associate Professors: Kouvetakis

Electrical Engineering

Regents' Professor: Ferry;
Professors: Goodnick, Kozicki, Schroder;
Associate Professor: Bird;
Assistant Professor: Zhang

Mechanical and Aerospace Engineering

Professor: Sieradzki

Physics and Astronomy

Regents' Professor: Smith;
Professors: Bennett, Ponce, Rez, Sankey, Tsong, Venables;
Associate Professors: Culbertson, Herbots, Marzke

The Committee on the Science and Engineering of Materials offers an interdisciplinary graduate program leading to the Ph.D. degree in Science and Engineering of Materials, with concentrations in high-resolution nanostructure analysis and solid-state device materials design. The members of the faculty comprising the program are from several academic research units in the College of Liberal Arts and Sciences and the College of Engineering and Applied Sciences: the Center for Solid-State Science; the Departments of Chemical, Bio, and Materials Engineering; Chemistry and Biochemistry; Electrical Engineering; Mechanical and Aerospace Engineering; Physics and Astronomy.

DOCTOR OF PHILOSOPHY

The Ph.D. degree in the Science and Engineering of Materials is an interdisciplinary program of study that integrates courses offered by faculty representing various disci-

plines, along with courses in mathematics, to provide a sound foundation for research leading to a dissertation. Emphasis is placed upon applications of the core fundamentals for investigation of the relationships between microstructure and properties and performance of solids, and the dependence of microstructure on processing.

Admission. Admission to the SEM Program is a two-step process. First, all prospective students must satisfy the general admission requirements of the Graduate College. International students must submit a Test of English as a Foreign Language (TOEFL) score. The minimum TOEFL score required by the SEM Program is 600. Second, students must satisfy the requirements of the SEM Program. These requirements are: a GRE (verbal, quantitative, analytical), a professional résumé, a statement of purpose, and three letters of recommendation. International students who wish to be considered for teaching assistantships must provide the program with a Test of Spoken English (TSE) score. Application materials must be received by the SEM Program Office by the following established deadlines: for fall, documents must be received (postmarked) by February 1; for spring, by October 1.

Program of Study. The program consists of a minimum 84 semester hours beyond the bachelor's degree, at least 24 of which are research and dissertation credit. Programs of study for individual students are defined during discussions between the student and the faculty supervisory committee. At least 30 semester hours of the approved program of study, including the core, exclusive of research and dissertation, must be completed after admission to the Ph.D. at ASU.

A minimum of 10 graduate-level courses beyond the bachelor's degree is required.

The curriculum includes core courses that define the essential course work for all students, involving 21 semester hours of selected courses in materials, chemistry, and physics. Students who previously have taken courses fulfilling some of the core requirements may select electives.

Interdisciplinary Core Courses

CHM 471 Solid-State Chemistry	3
or CHM 453 Inorganic Chemistry (3)	
CHM 541 Advanced Thermodynamics	3
CHM 545 Quantum Chemistry I.....	3
or PHY 598 ST: Quantum Physics (3)	
MSE 514 Physical Metallurgy	3
MSE 550 Advanced Materials Characterization.....	3
PHY 481 Solid-State Physics.....	3
SEM 598 ST: Graduate Student Seminar.....	3
Total	21

Students may choose one of the following concentrations in their program of study: (1) high-resolution nanostructure analysis and (2) solid-state device materials design, or may tailor a program of study in the science and engineering of materials to meet their professional and academic needs. Students achieve the desired concentration by completing three or more of the courses in the appropriate concentration group of courses. The courses in these concentrations are a part of the elective portion of the degree course requirements.

High-Resolution Nanostructure Analysis. The courses comprising the high-resolution nanostructure analysis

concentration are the most comprehensive education in the theory and application of transmission electron microscopy in the U.S. This group of courses is highly interdisciplinary. Because of the strict and important correspondence between the properties of materials and their nanostructure, transmission electron microscopy plays a central role in modern materials science, far beyond its role in other fields of natural science and engineering. Nanostructure analysis is fully one-third the field of materials research and is often the critical knowledge necessary to understand the behavior of materials. The development and applications of high-resolution nanostructure analysis methods is one of ASU's strongest materials research and education specialities and is an important part of the SEM program. Required courses are as follows:

SEM 556 Electron Microscopy Laboratory	3
SEM 557 Electron Microscopy Laboratory	3
SEM 558 Electron Microscopy I.....	3
SEM 559 Electron Microscopy II	3
Total	12

Solid-State Device Materials Design. The courses specified for the solid-state device materials design concentration are materials applications and characterization courses that introduce SEM students to the culture of device engineering. Students apply their knowledge of basic materials science to contemporary problems of the solid-state electronics industry. Required courses are as follows:

EEE 435 Microelectronics	3
EEE 436 Fundamentals of Solid-State Devices	3
EEE 536 Semiconductor Characterization.....	3
IEE 572 Design of Engineering Experiments.....	3
MSE 598 ST: Growth and Processing of Semiconductor Devices.....	3
Total	15

Foreign Language Requirements. None.

Comprehensive Examinations. Near completion of course work and no later than three years after admission to the program, the student is given a comprehensive examination with oral and written components. The written component is a test that examines the student's knowledge in the core course subjects.

The examination is administered by the Curriculum and Examination Committee. The oral component requires the presentation of a research proposition to the student's faculty supervisory committee. The student must define a research problem of current relevance to the materials science field. The problem may be experimental, theoretical, or a combination of both. The presentation should be based on the study of literature and discussions with members of the supervisory committee and materials researchers. The student will define the problem, describe its significance in the field, propose a method of investigation leading to a solution of the problem, and defend the problem and proposed solution before the faculty supervisory committee. The proposed problem may be from any area of materials research but it may not be part of the student's dissertation topic. The student must prepare and deliver to the members of the supervisory committee the written proposal describing the research proposition not less than seven business days before the scheduled examination date. The comprehensive

exams may be taken no more than twice upon formal application to, and under conditions specified by, the student's faculty committee, the director of the supervisory program, and the dean of the Graduate College. Upon successful completion of this examination, the student is advanced to candidacy for the degree by the Graduate College.

Dissertation Requirements. The dissertation, which is the final and most important product of the student's effort in this program, must report original research in the field and demonstrate the student's ability to conduct creative, independent research. Each candidate must register for 24 semester hours of research and dissertation as part of the degree requirements; specifically 12 semester hours of SEM 792 Research and 12 semester hours of SEM 799 Dissertation. Dissertation credits should be taken in the semester(s) following the student's advancement to candidacy.

After the student passes the comprehensive examinations, and every semester up to the time the student defends the dissertation, the student must submit a one-page report on the dissertation proposal to his or her dissertation committee at the end of the semester.

Final Examinations. The final oral examination in defense of the dissertation is conducted by the student's dissertation committee and others appointed by the dean of the Graduate College.

SCIENCE AND ENGINEERING OF MATERIALS (SEM)

SEM 556 Electron Microscopy Laboratory. (3)

fall

Lab support for SEM 558. Cross-listed as MSE 556. Credit is allowed for only MSE 556 or SEM 556. Pre- or corequisite: MSE 558 or SEM 558.

SEM 557 Electron Microscopy Laboratory. (3)

spring

Lab support for SEM 559. Cross-listed as MSE 557. Credit is allowed for only MSE 557 or SEM 557. Pre- or corequisite: MSE 559 or SEM 559.

SEM 558 Electron Microscopy I. (3)

fall

Microanalysis of the structure and composition of materials using images, diffraction, X-ray and energy loss spectroscopy. Requires knowledge of elementary crystallography, reciprocal lattice, stereographic projections, and complex variables. Cross-listed as MSE 558. Credit is allowed for only MSE 558 or SEM 558. Prerequisite: instructor approval.

SEM 559 Electron Microscopy II. (3)

spring

Microanalysis of the structure and composition of materials using images, diffraction, X-ray, and energy loss spectroscopy. Requires knowledge of elementary crystallography, reciprocal lattice, stereographic projections, and complex variables. Cross-listed as MSE 559. Credit is allowed for only MSE 559 or SEM 559. Prerequisite: instructor approval.

SEM 594 Vacuum System Science and Engineering. (3)

not regularly offered

Vacuum concepts, equipment, and systems are studied to give the student an operational knowledge of modern vacuum technology. Equal emphasis is placed on theoretical and practical instruction. Class time is equally distributed between lecture and laboratory sessions. Lab sessions consist of exercises and tours to provide hands-on experience with and a working perspective of the vacuum techniques and systems principally used in industry, academia, and government laboratories. Undergraduates take two written exams; graduate students take two written exams and complete a vacuum system design project. Prerequisite: college algebra.

SEM 598 Special Topics. (1-4)

not regularly offered

Possible topics:

- Graduate Student Seminar. (3)

SEM 700 Research Methods. (1–6)

not regularly offered

SEM 790 Reading and Conference. (1–6)

not regularly offered

SEM 791 Seminar. (1)

not regularly offered

SEM 792 Research. (1–12)

not regularly offered

SEM 799 Dissertation. (1–12)

not regularly offered

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Secondary Education

Master's Program

ASU West offers a Master of Education degree in Secondary Education. For information, see the *ASU West Catalog*, call 602/543-4567, or access www.west.asu.edu on the Web.

Social and Philosophical Foundations of Education

Master's Program

Eric Margolis
Program Coordinator
(ED 116E) 480/965-6357
eric.margolis@asu.edu

REGENTS' PROFESSOR
 BERLINER

PROFESSORS
 APPLETON, BARONE, GLASS, SMITH, WEBB, WILEY

ASSOCIATE PROFESSORS
 CASANOVA, HARTWELL-HUNICUTT

ASSISTANT PROFESSORS
 MARGOLIS, MOSES

MASTER OF ARTS

The faculty in the Division of Educational Leadership and Policy Studies offer a graduate program leading to the M.A. degree in Social and Philosophical Foundations of Education. Students may also select policy analysis as an area of study. The program offers students a thorough grounding in historical, social, and philosophical literature. The program is geared toward students seeking relevant and advanced preparation for doctoral-level study in one of the fields of education. The program is also appropriate for educational practitioners seeking terminal master's degrees and advanced intellectual development that will make them more thoughtful teachers and better informed decision makers. Students study both classic and leading contemporary

thought taken from educational, social, and philosophical literature. The program draws on intellectual sources and scholarly disciplines, including anthropology, curriculum theory, history, law, philosophy, sociology, and comparative international and multicultural perspectives.

Applicants for admission to the M.A. degree program must submit scores on the Graduate Record Examination. Candidates for the M.A. degree must pass a written comprehensive examination, in addition to writing a thesis or equivalent. An oral examination in defense of the thesis or equivalent is required.

RESEARCH ACTIVITY

Faculty are currently conducting research on hidden curricula in higher education, visual sociology and sociology of education, and the experience of Chicanos in higher education.

SOCIAL AND PHILOSOPHICAL FOUNDATIONS (SPF)

SPF 501 Culture and Schooling. (3)

fall and spring

Introduction to social science concepts of culture and the cultural milieu in which schooling takes place in the United States. Lecture, recitation.

SPF 510 Introduction to Organization and Administration of American Public Schools. (3)

fall and spring

Explores organizational structure and administration of public education through the application of legal and ethical concepts and relevant information of the social sciences. Cross-listed as EDA 510. Credit is allowed for only EDA 510 or SPF 510.

SPF 511 School and Society. (3)

fall, spring, summer

Interrelationship of school and society and the role of education in social change.

SPF 520 Cultural Diversity in Education. (3)

spring

Philosophic and sociological investigation of cultural diversity in the United States and how it relates to education.

SPF 530 Sociology of Education. (3)

fall

Explorations in the history of sociological thought, especially theories of the relations between educational systems and the social/cultural world.

SPF 533 Comparative Education in the Western World. (3)

not regularly offered

Educational practices and traditions in the leading nations of Europe and the Soviet Union.

SPF 544 Philosophical Foundations of Education. (3)

fall

Theories of education in ancient, medieval, and modern classical and contemporary philosophies.

SPF 566 History of Education. (3)

spring

Development of educational institutions and ideas in the Western world, from ancient times to the 20th century.

SPF 603 Visual Ethnography in Education. (3)

spring

Advanced qualitative methods class combining ethnography with the use of video and still photography in data gathering and presentation. Seminar. Corequisite: COE 503.

SPF 612 Evaluation Theory. (3)

fall

Explores the major theories of evaluation (inquiry leading to value judgments) in educational policy through examination of cases.

SPF 622 Organizational Theory. (3)

spring

Major views of organizations and their influence on role definition and participant behaviors in educational organization. Seminar, discussion. Cross-listed as HED 688. Credit is allowed for only HED 688 or SPF 622.

SPF 711 Social and Historical Foundations of Education. (3)
not regularly offered

Problems of American education and their sociohistorical context.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Social Work

Master's and Doctoral Programs

Leslie Leighninger
Director
(WHALL 135) 480/965-3304
social.work@asu.edu
ssw.asu.edu

PROFESSORS

ASHFORD, COUDROGLOU, DALEY,
FIGUEIRA-McDONOUGH, KETTNER, LECROY,
LEIGHNINGER, MacEACHRON, MORONEY, SEGAL

ASSOCIATE PROFESSORS

BRZUZY, GERDES, GUSTAVSSON, MARSIGLIA,
MONTERO, NICHOLS, PAZ, RISLEY-CURTISS, STEINER,
YELLOW BIRD, WALLER

ASSISTANT PROFESSORS

HOLLEY, HOLSCHUH, HURDLE, LARSON, NAPOLI,
OKAMOTO, STROMWALL

ACADEMIC PROFESSIONALS

GONZALEZ-SANTIN, JOHNSTON, KNUTSON-WOODS,
ROUNTREE-ANTAR, YEPEZ

The faculty in the School of Social Work offer programs leading to the Master of Social Work degree and the Ph.D. degree in Social Work.

MASTER OF SOCIAL WORK

The professional program leading to the Master of Social Work degree prepares social workers for advanced direct practice or planning, administration, and community practice. The program is designed to prepare social workers capable of responding effectively to the needs of special populations in the Southwest. The Master of Social Work degree program is accredited by the Council on Social Work Education.

Application Procedures. Students applying to the graduate program in Social Work must follow the procedures for admission to the Graduate College (see "Admission to the Graduate College," page 92). In addition the applicant must submit the following to

ACADEMIC SERVICES
SCHOOL OF SOCIAL WORK
ARIZONA STATE UNIVERSITY
PO BOX 871802
TEMPE AZ 85287-1802

1. application to the graduate Social Work program;
2. statement of educational and career goals in sufficient detail to indicate compatibility with the educa-

tional objectives and capabilities of the School of Social Work;

3. three letters of reference using the reference letter forms provided by the School of Social Work;
4. test scores from either the GRE or the MAT; and
5. professional résumé that includes volunteer and paid work experience.

Admission

Regular Admission. The school also requires one of the following:

1. a liberal arts undergraduate degree;
2. a B.S.W. from a Council on Social Work Education accredited school of social work; or
3. another undergraduate degree, with 30 semester hours in liberal arts courses at the undergraduate or graduate level.

The 30 semester hours described in item three above must include course work from the social/behavioral sciences, natural sciences, and humanities. The distribution should approximate the current policy for the B.S.W. program: 18 hours in social and behavioral sciences, six hours in natural sciences with at least one course in human biology, and six hours in humanities.

All students are required to successfully complete a course in human biology before enrollment in the graduate program. Additionally, all students must have successfully completed a course in statistics before admission. If the statistics requirement has not been met, then an equivalent course must either be successfully completed by December 31 or before registering for SWG 519.

Provisional Admission. Applicants with lower test scores or grades below minimum levels may be considered for provisional admission if there is counterbalancing evidence suggesting the potential of outstanding performance in the M.S.W. program. Normally, final determination of removal of provisional status is made by the time the student has completed 12 hours of approved graduate study. The provisional student does not begin field work until this status has been changed. However, the student carries the same academic load as a regularly admitted student and is expected to meet the same standards for continuation in the program.

All students are required to successfully complete a course in human biology before enrollment in the graduate program. Additionally, all students must have successfully completed a course in statistics either prior to admission or by the end of the first year in the M.S.W. program.

Applications to the M.S.W. program are accepted from November 1 to March 1 preceding the fall semester to which the applicant is seeking admission, with priority given to completed applications received on or before February 1. All applicants are reviewed for admission for the fall semester only.

Program of Study. The standard program consists of 60 hours including both classroom instruction and field practicum. It is divided into a foundation year (core curriculum) and a concentration year. During both years, students spend two days a week in a practicum setting. The foundation curriculum is the same for all students and must be completed

before entering the concentration year. The following are the required foundation courses:

SWG 501 Human Behavior in the Social Environment I.....	3
SWG 502 Human Behavior in the Social Environment II.....	3
SWG 510 Foundation Practice I.....	3
SWG 511 Foundation Practice II.....	3
SWG 519 Research Methods in Social Work.....	3
SWG 531 Social Policy and Services I.....	3
SWG 533 Diversity and Oppression in Social Work Context.....	3
SWG 541 Field Practicum I.....	3
SWG 542 Field Practicum II.....	3
SWG 580 Community and Organizational Change.....	3

In the second year, students pursue a concentration in either (1) advanced direct practice or (2) planning, administration, and community practice. Six to twelve hours of electives are available for students either to take additional course work in their concentration or to increase knowledge and skill in such areas as health and mental health, family and child welfare, or aging.

The following are required concentration courses:

Advanced Direct Practice (ADP)

SWG 606 Assessment of Mental Disorders.....	3
SWG 611 Social Work with Families.....	3
SWG 619 Practice-Oriented Research.....	3
SWG 621 Integrative Seminar.....	3
SWG 632 Social Policy and Services II.....	3
SWG 641 Advanced Practicum: Direct Practice I.....	3
SWG 642 Advanced Practicum: Direct Practice II.....	3
One of the following five approved advanced courses.....	3
SWG 613 Social Work with Individuals (3)	
SWG 614 Social Work with Families in Transition (3)	
SWG 616 Social Work with Chemically Dependent Families (3)	
SWG 617 Social Work Practice with Children and Adolescents (3)	
SWG 618 Domestic Violence (3)	
Electives.....	6
Total.....	30

Planning, Administration, and Community Practice (PAC)

SWG 623 Agency and Community-Based Research in Social Work.....	3
SWG 632 Social Policy and Services II.....	3
SWG 643 Advanced Practicum: Planning, Social Work Administration, and Community Practice I.....	3
SWG 644 Advanced Practicum: Planning, Social Work Administration, and Community Practice II.....	3
SWG 680 Program Planning in Social Services.....	3
One of the following advanced courses.....	3
SWG 681 Social Work Administration	
SWG 682 Community Participation Strategies (3)	
Electives.....	12
Total.....	30

Electives may be selected from offerings at the School of Social Work or courses offered through other departments with the approval of the M.S.W. program coordinator. The total semester hours for each concentration equals 30.

Transfer Credit. Upon recommendation of the admissions committee, the first year of graduate study (up to 30 graduate semester hours) earned at another CSWE accredited school of social work may be transferred and applied toward the M.S.W. degree at ASU. Under these circumstances, the student must complete the second full year of graduate study (at least 30 semester hours of graduate work) at ASU,

resulting in a 60-hour program composed of the work from both schools. A full report from the school at which the intended transfer credit was obtained is required.

In other cases, with the approval of the M.S.W. program coordinator, up to six semester hours of graduate work completed at another university may be transferred as elective credit.

Consideration for acceptance of prior graduate credits must be applied for at the time of admission. The grades of all transfer credit must be a “B” or higher.

Nondegree Course Work. A maximum of nine graduate semester hours earned as a nondegree student in the ASU School of Social Work or six semester hours earned at another graduate degree program at ASU may be applied toward the program of study. A combination of credit earned as a nondegree student—at ASU or transferred from another university—may not exceed nine hours and of those nine hours, no more than six hours may be electives.

Course work toward a master’s degree must be completed within six consecutive years. The six-year period begins with the first course included on the student’s approved program of study.

Consideration for acceptance of nondegree work must be applied for at the time of admission.

Exemptions and Waiver Examinations. The number of hours required to complete the M.S.W. degree ranges from 36 to 60 semester hours, with 60 hours representing the standard program. In addition to transferring credit (see policy on transfer credit), admitted students may meet requirements of up to 24 hours of credit towards the degree by (1) exempting up to fifteen hours of foundation course work without examination or (2) successfully completing examinations in any of the foundation courses except field practicum.

Exemptions. Only students from B.S.W. programs accredited by the Council on Social Work Education can be considered for exemptions. In order to be eligible for an exemption from any course, students must have received their B.S.W. degree no more than five years prior to the date of admission or must demonstrate current continuing education credits. Admitted B.S.W. students from ASU are exempted from the courses listed below without examination if they meet the stated GPA requirements. B.S.W. students from other accredited programs may also be exempted from the same courses, but must submit their course content material (course description, syllabus, and outline) for review by the M.S.W. program coordinator for an equivalency review to determine exemption. B.S.W. students may be exempted from the following courses:

1. SWG 501, if the student has an “A” in SWU 301 or an equivalent social work course;
2. SWG 502, if the student has an “A” in SWU 340 or an equivalent social work course;
3. SWG 519, if the student has an “A” in SWU 320 or an equivalent social work course;
4. SWG 531, if the student has an “A” in SWU 271 and 432 or equivalent social work courses;
5. SWG 533, if the student has an “A” in SWU 374 or an equivalent social work course.

Waiver Examinations. Students who believe they have successfully completed equivalent undergraduate courses or have related work experience covering content taught in these courses can request to take a written waiver examination:

SWG 501 Human Behavior in the Social Environment I.....	3
SWG 502 Human Behavior in the Social Environment II.....	3
SWG 510 Foundation Practice I.....	3
SWG 511 Foundation Practice II*.....	3
SWG 519 Research Methods in Social Work.....	3
SWG 531 Social Policy and Services I.....	3
SWG 533 Diversity and Oppression in a Social Work Context.....	3
SWG 580 Community and Organizational Change.....	3

* Only students who successfully pass the waiver exam for SWG 510 Foundation Practice I are allowed to take the waiver exam for SWG 511 Foundation Practice II.

Comprehensive Examinations. ASU requires a comprehensive examination or thesis for graduation in all professional master's programs. All Social Work students must pass a comprehensive examination, administered by the school, or complete a thesis before graduation.

Academic Standing and Curriculum Sequencing. In order to remain in good academic standing, the student must maintain an overall GPA of 3.00 at the end of each semester. Most courses in the program are sequential; successful completion of the prior course in the sequence is required to enroll in the following course. Students may not enroll in any second-year required courses until all foundation courses, including the foundation field (SWG 541 and 542), have been successfully completed.

Tucson Component. The School of Social Work offers the full foundation year (30 semester hours of credit) and some concentration-year course work in Tucson. Students may be required to commute to Tempe during both semesters of their concentration year. Courses are scheduled, however, so that a minimum of travel time is required of students. For information about or application to the Tucson component, call 520/884-5507.

Part-Time Program. A limited number of students are admitted each year to a planned part-time program. Students interested in this option must specifically apply to the part-time program.

Financial Assistance. Recent federal reductions in support of human services and educational programs have severely limited the resources available for stipends. Therefore, it is important that applicants have a sound financial plan to cover expenses for the duration of the degree program.

Financial assistance information is available from Student Financial Assistance Office, Student Services Building, second floor, 480/965-3355.

DOCTOR OF PHILOSOPHY

The program seeks to prepare future social work scholars who are involved in the development and application of theories in social work practice, and who plan to enhance social work knowledge through the classroom and field settings.

The program introduces students to the range of roles and responsibilities of faculty leadership, to the challenging

expectations of critical thinking and creativity in research and teaching, and to the multiple ways of integrating research, teaching, and service in the social work profession.

The Social Work faculty advocate for and support the human potential in the distinct experiences and perspectives of the Southwest region. The cultural and economic diversity of the Southwest makes it possible for faculty and students to engage in many issues in their community-based research and practice.

Admission. Applicants must hold an M.S.W. degree from an accredited school of social work, preferably have a minimum of two years of post-M.S.W. professional social work paid employment, and apply to both the ASU Graduate College and the School of Social Work.

Admission to the Ph.D. program requires completion of all admission requirements and procedures set forth by the Graduate College and test scores from the Graduate Record Examination (GRE) (verbal, quantitative, and analytical). Applications are accepted up to March 1 preceding the fall semester to which the applicant is seeking admission, with priority given to completed applications received on or before February 1.

Application Procedure. The following should be submitted to

ADMISSIONS OFFICE
GRADUATE COLLEGE
ARIZONA STATE UNIVERSITY
PO BOX 871003
TEMPE AZ 85287-1003

1. the application for admission to the Graduate College;
2. one official transcript from each institution the applicant has attended previously; and
3. test scores from the GRE.

The following should be submitted to

ACADEMIC SERVICES
SCHOOL OF SOCIAL WORK
ARIZONA STATE UNIVERSITY
PO BOX 871802
TEMPE AZ 85287-1802

1. application to the Ph.D. program in Social Work;
2. writing sample-Social Problem Essay;
3. examples of written work. Students may submit samples of their professional and/or academic writing;
4. three letters of reference that must use the reference letter form provided by the School of Social Work; and
5. *curriculum vitae* or *résumé*.

Program of Study. Students must demonstrate scholarly competencies in several broad areas identified during the mentoring and advising process. These areas must include: micro/macro theories and perspectives on critical issues in social work and social welfare (24 semester hours), quantitative/qualitative research methodologies (12 semester hours), and professoriate training and mentoring in research, teaching, and service. The program requires a

minimum of 36 semester hours beyond the M.S.W. degree and 84 semester hours beyond the baccalaureate degree. Because students must achieve competency requirements, they may need to take additional course work to achieve these competencies.

The program emphasizes enhancement of scholarship through:

1. applied social work research in diverse community settings and populations of the Southwest;
2. teaching, from syllabus development to classroom teaching across the professional continuum;
3. participation in collegial decision making; and
4. participation in field education and community services.

Students are expected to participate fully in research, teaching, and field liaison activities during their course of studies.

Advisement. The individualized plan for becoming a social work scholar and for learning associated faculty roles is developed by students and their faculty advisors over time.

Residency. The minimum residency requirement for the Ph.D. program is 18 semester hours in courses relating to the program of study, exclusive of dissertation. The residency must be completed in two consecutive semesters, not including summer sessions.

Foreign Language Requirements. None.

Qualifying Examination. Students are given a qualifying examination in the semester following the completion of the first 18 semester hours of approved Ph.D. course work. Students who fail the examination may retake it the following semester. Students failing the qualifying examination twice will be dropped from the program.

Comprehensive Examinations. Upon completion of course work and the qualifying examination, but before beginning dissertation research, students are given a written examination covering research, theory, and methods in their substantive area. If students should fail one or more components of the examination, a reexamination may be administered no sooner than three months and no later than one year from the date of the original examination. Approval of the reexamination must be obtained from the supervisory committee and the dean of the Graduate College.

Dissertation Requirements. Each candidate must register for a minimum of 24 semester hours of credit for research and dissertation. The final copy of the dissertation must be received by the supervisory committee and the dean of the Graduate College at least three weeks before the degree conferral date.

Final Examinations. The final oral examination in defense of the dissertation is scheduled and conducted by the student's dissertation committee. A candidate must pass the final examination within five years after completing the comprehensive examination.

SPECIAL PROGRAMS

Tucson Component. The School of Social Work offers a part-time, cohort driven M.S.W. Program in Tucson in con-

junction with the College of Extended Education. See "Tucson Component," page 312, for more information.

RESEARCH ACTIVITY

Drug Resistance Strategies (DRS) Project

This is a school-based substance abuse program funded by the National Institute on Drug Abuse (NIDA). Dr. Flavio Marsiglia is the principal investigator for the project. The program is uniquely designed to reflect students' cultural norms and values. Presented to 7th grade classes throughout the City of Phoenix, DRS is impacting 50 schools and 5,500 students. Latino, Non-Latino and mixed versions of the drug prevention curriculum have been developed. This innovation enables students to recognize themselves in the prevention message and provides solutions that are sensitive to their unique cultural environment. The objective of DRS is to prevent and reduce substance abuse by teaching valuable communication and life skills.

Navajo Nation IGA—Family Preservation and Support Services Program

The School's Office of American Indian Projects worked in conjunction with the Navajo Nation, Division of Social Services to provide an evaluation of the services rendered under the Family Preservation and Family Support Program. January 1 to December 31, 1999.

Understanding the Cultural Context: Working with American Indian Children and their Families

The School's Office of American Indian Projects is working to develop a competency-based training curriculum. The curriculum is intended to assist both state and tribal child welfare staff in developing the necessary cultural competence to work with American Indian families. This grant is a collaborative effort with the Inter Tribal Council of Arizona and Diné College, the only American Indian College in Arizona.

The 1998 volume 2, number 4 special issue of the *Journal of Poverty* entitled "Pressing Issues of Inequality and American Indian Communities" was composed entirely of research articles by ASU School of Social Work faculty, students, and professionals in the field:

1. Brooks, A.J., Stuewig, J., and LeCroy, C.W. (1998). A Family-Based Model of Hispanic, Adolescent Substance Abuse.
2. Brzuzu, S., Stromwall, L., Sharp, P., Wilson, R., and Segal, E. A. (2000). The Vulnerability of American Indian Women in the New Welfare State.
3. Gerdes, K.E., Napoli, M., Pattea, C.M., and Segal, E.A. (1998). The Impact of Indian Gaming on Economic Development.
4. Gustavsson, N.S. and MacEachron, E.A. (1999). Teaching Diversity Through the Indian Child Welfare Act.
5. Hurdle, D. (1998). The Health of Alaska Native Women: Significant Problems, Emerging Solutions.
6. Marsiglia, F.F. and Holleran, L. (1999). I Have Learned So Much from My Mother: An Ethnography of a Group of Chicana High School Students.

7. Marsiglia, F.F. and Navarro, R. (1999). Acculturation Status and HIV/AIDS Knowledge and Perception of Risk Among a Group of Mexican-American Middle School Students.
8. McEachen, D., Van Winkle, M., and Steiner, S. (1998). Domestic Violence Among the Navajo: A Legacy of Colonization.
9. Murphy, S., Risley-Curtiss, C., and Gerdes, K.E. (2000). American Indian Women and Domestic Violence: The Lived Experience.
10. Nagda, B., Spearmon, M., Holley, L.C., Harding, S., Balassone, M.L. Moise-Swanson, D., and deMello, S. (1999). Intergroup Dialogues: An Innovative Approach to Teaching Diversity and Justice in Social Work Programs.
11. Napoli, M. (1999). The Non-Indian Therapist Working with the American Indian Client.
12. Patterson, S. and Marsiglia, F.F. (2000). Mi Casa es Su Casa: A Beginning Exploration of Mexican-Americans Natural Helping.
13. Robin, R., Rassmussen, J.K., Gonzalez-Santin, E., Goldman, M.D. (1999). Impact of Childhood out of Home Placement on a Southwestern American Indian Tribe.
14. Steiner, S., Brzuzy, S., Gerdes, K.E. and Hurdle, D. (2000). Using Structured Controversy to Teach Diversity Content and Cultural Competence.
15. Stromwall, L.K., Brzuzy, S., Sharp, P., and Andersen, C. (1998). The Implications of Welfare Reform for American Indian Families and Communities.
16. Vidal de Haymes, M., Kilty, K.M., and Segal, E.A. (Eds) (2000). Inequalities, Challenges, and Barriers: Latino Communities in the New Century.
17. Waller, M. (2000). Addressing Student Writing Problems: Applying Composition Theory to Social Work Education.
18. Waller, M., Brown, B., and Whittle, B. (2000). Mentoring At-Risk Teen Parents: A Positive Community Response.
19. Waller, M.A., Risley-Curtiss, C., Murphy, S., Medill, A., and Moore, G. (1998). Harnessing the Positive Power of Language: American Indian Women, a Case Example.
20. Yellowbird, M.J. (1999). Radical, Skewed, Benign, and Calculated: Reflections on Teaching Diversity.

SOCIAL WORK (SWG)

SWG 501 Human Behavior in the Social Environment I. (3)

fall

Analyzes theories of personality and life span development from methodological, ecological, and systems perspectives up to adolescence.

SWG 502 Human Behavior in the Social Environment II. (3)

spring

Life span development from middle childhood to maturity. Prerequisite: SWG 501.

SWG 510 Foundation Practice I. (3)

fall

Basic social work methods with emphasis on the problem-solving process as it pertains to individuals, families, and small groups. Prerequisite: Social Work major.

SWG 511 Foundation Practice II. (3)

spring

Theory and methods of direct practice with groups and selected practice models. Lecture, lab. Prerequisite: SWG 510.

SWG 517 Aging and Wellness. (3)

fall and spring

One-on-one service/experiential learning with seniors from the community. Lecture, lab. Cross-listed as GRN 540. Credit is allowed for only GRN 540 or SWG 517.

SWG 519 Research Methods in Social Work. (3)

spring

Conceptual foundations and methods of nomothetic research in social work. Includes problem identification, hypothesis formulation, measurement, sampling, and experimental design. Prerequisites: Social Work major; approved course in statistics.

SWG 531 Social Policy and Services I. (3)

fall

Conceptual, analytical, and historical perspectives on the social welfare institution. Emphasis on poverty and inequality. Principles of policy analysis.

SWG 533 Diversity and Oppression in a Social Work Context. (3)

fall and spring

Explores issues of social inequality related to disability, ethnicity, gender, race, and sexual orientation. Emphasis on populations of the Southwest.

SWG 541 Field Practicum I. (3)

fall and spring

With SWG 542, two consecutive semesters (480 hours) of supervised social work practice in an approved placement. Pre- or corequisite: SWG 510.

SWG 542 Field Practicum II. (3)

fall and spring

See SWG 541. Pre- or corequisite: SWG 511.

SWG 580 Community and Organizational Change. (3)

fall and spring

Examines communities and human service organizations as social systems. Introduces strategies for initiating planned change.

SWG 605 Substance Abuse. (3)

not regularly offered

Psychological and sociocultural determinants of substance abuse. Overview of social policies and treatment approaches.

SWG 606 Assessment of Mental Disorders. (3)

fall

Theories and concepts of mental health and illness. Attention to classification systems and nomenclature used in assessing mental disorders. Prerequisite: SWG 502.

SWG 611 Social Work with Families. (3)

fall

Theory, concepts, and skills for working with diverse family populations. Emphasis on a systems and integrative approach. Prerequisites: SWG 511, 542.

SWG 612 Social Work with Groups. (3)

not regularly offered

Practices applications of knowledge and skill to social work with groups.

SWG 613 Social Work with Individuals. (3)

spring

Treatment of prevalent disorders encountered by social workers, selected from the following: anxiety disorders, personality disorders, depression, and schizophrenia. Lecture, seminar. Prerequisite: SWG 611.

SWG 614 Social Work with Families in Transition. (3)

spring

Analyzes the psychosocial dynamics of families disrupted by divorce, separation, or death of a parent. Offers differential social work interventions. Prerequisite: SWG 611.

SWG 616 Social Work with Chemically Dependent Families. (3)

spring

Examines dynamics of the chemically dependent family and presents clinical approaches for intervening in the family system and sub-systems. Prerequisite: SWG 611.

SWG 617 Social Work Practice with Children and Adolescents. (3)

spring

Theory, research, and intervention that focus on children and adolescents. Prerequisite: SWG 611.

SWG 618 Domestic Violence. (3)

spring

Theory, research, intervention, and prevention strategies relevant to child maltreatment, partner abuse, and elder abuse. Prerequisite: SWG 611.

SWG 619 Practice-Oriented Research. (3)

fall

Accelerated course in application of scholarly and scientific principles to field practice, problem formulation, interventional procedures, and impact assessment. Prerequisite: SWG 519.

SWG 621 Integrative Seminar. (3)

spring

Explores the fit between theoretical frameworks and practice with clients. Requires presentation of empirical studies with clients. Prerequisite: SWG 611. Pre- or corequisite: SWG 641.

SWG 623 Agency and Community-Based Research in Social Work. (3)

spring

Research design techniques and data collection in human service agencies and communities. Analysis for program evaluation and needs assessment. Prerequisites: SWG 519, 541, 542. Corequisite: SWG 680.

SWG 632 Social Policy and Services II. (3)

spring

Develops advanced knowledge and skills in social welfare policy analysis, policy formulation, and advocacy and intervention for policy change. Prerequisite: SWG 531.

SWG 633 Child Welfare Services. (3)

fall

Examines, using ecological and system theories, services which supplement, support, and substitute for parental care of children. Prerequisite: SWG 542.

SWG 641 Advanced Practicum: Direct Practice I. (3)

fall and spring

With SWG 642, two consecutive semesters (480 hours) of supervised social work practice in an approved placement related to the student's career goal. Prerequisites: SWG 541, 542. Pre- or corequisite: SWG 611.

SWG 642 Advanced Practicum: Direct Practice II. (3)

fall and spring

See SWG 641. Prerequisites: SWG 541, 542, 611. Pre- or corequisite: SWG 614 or 616 or 617 or 618.

SWG 643 Advanced Practicum: Planning, Social Work Administration, and Community Practice I. (3)

fall and spring

With SWG 644, two consecutive semesters (480 hours) in social work practice in an approved placement related to the student's career goal. Prerequisites: SWG 541, 542. Pre- or corequisite: SWG 680.

SWG 644 Advanced Practicum: Planning, Social Work Administration, and Community Practice II. (3)

fall and spring

See SWG 643. Prerequisite: SWG 643. Pre- or corequisite: SWG 681 or 682.

SWG 680 Program Planning in Social Services. (3)

spring

Social services planning process; includes needs assessment, goals and objectives, program design, budgeting, management information systems, and program evaluation. Prerequisites: SWG 681, 682. Corequisite: SWG 623.

SWG 681 Social Work Administration. (3)

fall

Administrative skill building and theory application within human service nonprofit social work settings. Prerequisites: SWG 542, 580.

SWG 682 Community Participation Strategies. (3)

fall

Reviews strategies to involve citizens and the consumers of social and human services in community decision-making systems. Participation is viewed as means to facilitate the empowerment of oppressed peoples. Prerequisites: SWG 542, 580.

SWG 683 Developing Grants and Fund Raising. (3)

not regularly offered

Identification of potential funding sources, technical and interpersonal/political aspects of proposal development and fund raising.

SWG 720 Philosophy of Science Issues in Social Work. (3)

fall

Critical examination of social science, social work practice and policy in terms of philosophical assumptions and varying frames of reference.

SWG 721 Empirical Social Work Practice. (3)

spring

Applies scientific principles to problem formulation, assessment, and intervention procedures with emphasis on the direct use of scientific tools in the conduct and evaluation of practice at all levels.

SWG 730 Families Across the Life Span. (3)

fall

Policy and practice analysis of issues which affect families with a focus on the development of interventive strategies.

SWG 731 Social Welfare Policy Analysis and Development. (3)

fall

Methods of policy analysis, critique of social welfare policies against proposed models, and case studies of policy development emphasizing southwestern populations. Prerequisite: SWG 730.

SWG 732 Social Work Administration in a Systems Context. (3)

fall

Case studies of social work administration from initial conceptualization of policy through implementation at national, state, and local levels.

SWG 740 Community Research in Social Work. (3)

fall

Substantive, value, and methodological issues in community-based research as applied to social work topics.

SWG 741 Integrative Research Seminar. (3)

fall

Integrates theory, research methods, and statistics in community social work topics of specific interest to students.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Sociology

Master's and Doctoral Programs

Verna M. Keith

Chair

(SS 321F) 480/965-3735

sociology@asu.edu

www.asu.edu/clas/sociology/graduate

PROFESSORS

BOLIN, COBAS, GORDON, HACKETT, KRONENFELD, KULIS, LANER, NAGASAWA, THOMAS, WEITZ

ASSOCIATE PROFESSORS

BENIN, BLAIR, HARLAN, JACOBSON, KEITH, MILLER-LOESSI, QIAN, SULLIVAN

ASSISTANT PROFESSORS

AGADJANIAN, GLICK, PADILLA

SENIOR LECTURER

FINE

ACADEMIC PROFESSIONAL

WOLF

The faculty in the Department of Sociology offer graduate programs leading to the M.A. and Ph.D. degrees in Sociology.

MASTER OF ARTS

This degree program provides advanced training for those preparing for teaching, research, or applied careers in sociology, and may be taken either as a terminal program or as a step toward eventual fulfillment of requirements for the Ph.D. A detailed description of the graduate program (including opportunities in teaching and research assistantships) may be obtained from the department chair.

Admission. Admission to the program is determined by the following criteria: Graduate Record Examination (GRE) scores (verbal, quantitative, and analytical), three letters of appraisal from persons familiar with the applicant's academic background, valid transcripts of the student's academic record, and a biographical narrative provided by the applicant. Application deadline is February 15.

Program of Study. A master's degree in Sociology requires the successful completion of a minimum of 30 semester hours, including a 12-hour core curriculum, six hours of theory (SOC 585 and 586), and six hours of research methods (SOC 500 and 505), two hours of Sociology as a Profession (SOC 503 and 504), with the balance to be drawn from substantive courses and six hours earned through the M.A. thesis (SOC 599).

Foreign Language Requirements. None.

Thesis Requirements. A thesis is required.

Final Examinations. A final oral examination in defense of the thesis is required. This oral examination also tests the student's comprehension of the area of sociology exemplified by the thesis.

DOCTOR OF PHILOSOPHY

This degree provides advanced training in theory, research methodology, and substantive fields to prepare sociologists for teaching and research with special emphasis on urbanism, urbanization, and related issues. A detailed description of this program (including opportunities in teaching and research assistantships) may be obtained from the department chair.

See "Doctor of Philosophy," page 103, for general requirements.

Admission. Admission to the program is determined by the following criteria: GRE scores (verbal, quantitative, and analytical), three letters of appraisal from persons familiar with the applicant's academic background, valid transcripts of the student's academic record, and a biographical narrative provided by each applicant. Applicants should have an M.A. or its equivalent in Sociology or a related field. Application deadline is February 15.

Program of Study. The Ph.D. requires 54 semester hours beyond the master's degree. Three hours each of theory, methods, and statistics are required, and 24 hours are earned through dissertation and research. The remaining 21 hours are in substantive courses reflecting the student's specialization. First-year Ph.D. students are required to take Sociology as a Profession (503 and 504). A minimum of 30 semester hours of the approved Ph.D. program, exclusive of dissertation and research hours, must be completed after admission to the Ph.D. at ASU.

Foreign Language Requirements. None.

Comprehensive Examinations. Written comprehensive examinations focusing on two areas chosen by the student, and an oral defense of the dissertation proposal are required. After passing the comprehensive examinations and obtaining a formal approval of the dissertation proposal, the student is eligible to apply for candidacy.

Dissertation Requirements. A dissertation based on original work demonstrating creativity in research and scholarly proficiency in the subject area is required.

Final Examinations. A final oral examination in defense of the dissertation is required.

Research Facilities. Research facilities in the department consist of a survey research laboratory, small groups research laboratory, computer terminals and linkages to mainframe and the supercomputer, computational laboratory, and Gould Memorial Research Archive. The survey research laboratory conducts campus and community surveys. Among the topics studied are transportation, citizen attitudes, recreation, judicial evaluation, occupational destinies of graduate students, academic advisement, student, staff and faculty attitudes, student living arrangements, changing sex roles, and student activism and political involvement.

SOCIOLOGY (SOC)

SOC 500 Research Methods. (1-12)

not regularly offered

SOC 501 Practicum in Survey Research. (3)

fall and spring

Research practicum in survey field work, analysis, and reporting in the Phoenix Area Study. Prerequisite: SOC 391 (or its equivalent).

SOC 502 Practicum in Survey Research. (3)

fall and spring

Continuation of SOC 501. Prerequisite: SOC 501.

SOC 503 Sociology as a Profession I. (1)

fall

Becoming and working as a sociologist, including how to write a vita, choose a thesis topic, or find dissertation data. Prerequisite: graduate Sociology major.

SOC 504 Sociology as a Profession II. (1)

spring

Becoming and working as a sociologist, including how to write a vita, choose a thesis topic, or find dissertation data. Prerequisite: graduate Sociology major.

SOC 505 Applied Regression Analysis. (3)

fall and summer

Multiple linear regression topics relevant to sociological data analysis. Computer applications. Prerequisites: SOC 390 (or its equivalent); proficiency examination.

SOC 507 Social Statistics IIA: Categorical Data Analysis. (3)

fall

Logistic regression and related topics relevant to categorical data analysis in sociology. Computer applications. Prerequisite: SOC 505 or instructor approval.

SOC 508 Social Statistics IIB: Structural Equation Analysis. (3)

spring

Teaches structural equation models using LISREL and other computer packages. Topics include multiple group analyses and ordinal endogenous variable models. Prerequisite: SOC 505 or instructor approval.

SOC 509 Social Statistics IIC: Event History Analysis. (3)

fall and spring

Proportional hazards models and other methods for analyzing longitudinal data and establishing hazard rates of events for exploratory variables. Prerequisite: SOC 505 (or its equivalent).

SOC 515 Studies of the Family. (3)*spring*

Current developments in the study of marriage and the family. Prerequisite: instructor approval.

SOC 585 Development of Sociology. (3)*fall*

Major sociological theorists, including Durkheim, Weber, Marx, Parsons, Merton, Dahrendorf, Homans, and Mead. Prerequisite: instructor approval.

SOC 586 Contemporary Sociological Theory. (3)*spring*

Analyzes major theories, including structural-functional, conflict, social exchange, symbolic interaction, and role theory. Prerequisite: instructor approval.

SOC 587 Contemporary Issues in Sociology. (3)*spring*

Philosophy of social science. Contemporary issues in sociological theory and methods. Prerequisite: instructor approval.

SOC 588 Methodological Issues in Sociology. (3)*spring*

Basic methodological issues in the application of scientific methods to the study of human social life. Emphasis on limited number of major works, with contrasting approaches to issues.

SOC 599 Thesis. (1–12)*not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Spanish

See “Languages and Literatures,” page 247.

Special Education

Master's Programs

(ED 316) 480/965-4602
 cnigrad@asu.edu
 coe.asu.edu/coe/candi

PROFESSORS

RUTHERFORD, ZUCKER

ASSOCIATE PROFESSORS

COHN, Di GANGI, McCOY, NELSON

The faculty in the Division of Curriculum and Instruction Special Education Program offer graduate programs leading to the M.A. and Master of Education degrees. M.Ed. degree concentrations are available in the education of gifted, mildly handicapped, the multicultural exceptional, and severely/multiply handicapped.

ASU West also offers a Master of Education (M.Ed.) degree in Special Education. For more information about the ASU West program, see the *ASU West Catalog*, call 602/543-4567, or access www.west.asu.edu on the Web.

At the Ph.D. level, a concentration in special education is offered through the interdisciplinary Ph.D. degree program in Curriculum and Instruction. See “Curriculum and Instruction,” page 174, for more information on the interdisciplinary Ph.D. in Curriculum and Instruction.

To be considered for admission, applicants must meet all Graduate College requirements. The applicant for master's degree program admission is required to provide the following:

1. Graduate Record Examination test scores or Miller Analogies Test scores, or a 3.00 or higher junior/senior GPA;
2. three letters of recommendation;
3. a summary of professional experiences; and
4. evidence of certification in special education for applicants to the M.Ed. program. (The M.Ed. Initial Teacher Certification sequence must be pursued concurrently with the M.Ed. degree by applicants not meeting this requirement.)

MASTER OF ARTS

The M.A. program in Special Education requires at least 36 hours of course work. A thesis is required for the M.A. degree. Candidates are required to take an oral examination in defense of the thesis. For students in the M.Ed. or M.A. program lacking prerequisite courses, additional course work is required.

MASTER OF EDUCATION

The M.Ed. degree in Special Education requires a minimum of 36 semester hours of course work and a written comprehensive examination paper. The program structure includes a 12-hour methods core, a 12-hour knowledge core, and a 12-hour elective block which includes four content/theme areas: learning and instruction, diversity, foundations and values, and research and technology.

M.Ed. initial teacher certification sequences leading to standard certificates by the State of Arizona in mental retardation; and learning and emotional disabilities, as well as an endorsement in gifted education, are available.

Concurrent admission to the M.Ed. initial certification sequence and the M.Ed. degree is required. Students seeking initial certification by the State of Arizona in special education who have already completed a master's degree in another area may enroll for the M.Ed. initial certification sequence without enrolling in a second master's degree program. Contact the Office of Student Affairs for more information about specific admission requirements for the initial certification option. Further information is available in the Special Education Program Office.

RESEARCH ACTIVITY

Current faculty research activities include family-centered early identification of children with learning disabilities and behavior disorders; partnerships in the medical home; bilingual/English as a second language/special education; Arizona behavior initiative creating school environments that support high academic standards for all students; a crossover model of leadership preparation in special education; six interdisciplinary options; and education, disability, and juvenile justice.

SPECIAL EDUCATION (SPE)

SPE 411 Parent Involvement and Regulatory Issues. (3)

fall and spring

Emphasis on parent and school relations through effective communication and state and federal regulations impacting services for the handicapped. Prerequisite: PTPP admission.

SPE 455 Early Childhood and the Handicapped. (3)

fall

Early childhood education as it applies to the handicapped child.

SPE 510 Inclusionary Curriculum for Special Education Teachers. (3)

fall and summer

Curricular practices used in inclusion classrooms.

SPE 511 The Exceptional Child. (3)

fall, spring, summer

Educational needs of exceptional children and adults. Not recommended for students who have completed SPE 311.

SPE 512 Individuals with Mental Retardation. (3)

fall, spring, summer

Etiology, diagnosis, and management of individuals with mental retardation. Current trends in prevention, programming, and teacher preparation. Not recommended for students who have completed SPE 312.

SPE 514 Bilingual/Multicultural Aspects of Special Education. (3)

fall, spring, summer

Theories and issues related to the education of bilingual and culturally diverse exceptional children.

SPE 515 Methods for the Remediation of Learning Problems of Exceptional Children. (3)

spring

Methods and materials for remediating the basic academic problems of exceptional children. Prerequisites: SPE 511; methods course in the teaching of reading and mathematics.

SPE 522 Academic Assessment of Exceptional Children. (3)

fall

Normative and criterion-referenced assessment of learning problems in exceptional children. Includes formative evaluation. Requires practicum. Lecture, practicum. Prerequisites: SPE 311 (or 511); elementary methods courses; program approval.

SPE 523 Prescriptive Teaching with Exceptional Children. (3)

fall

Language, reading, and arithmetic methods, techniques, and materials used in individualized instruction. Requires practicum. Lecture, practicum. Prerequisites: SPE 311 (or 511); elementary methods courses; program approval. Pre- or corequisite: SPE 522.

SPE 524 Effective Classroom Behavior Management. (3)

spring

Organization and delivery of instruction including formative evaluation and techniques of academic behavior management for exceptional children. Requires practicum. Lecture, practicum. Prerequisites: SPE 311 (or 511), 522, 523; program approval.

SPE 525 Social Behavior Interventions. (3)

spring

Analysis and intervention into social behavior problems of exceptional students. Focuses on strategies to change maladaptive social behavior. Requires practicum. Prerequisites: SPE 311 (or 511 or 522 or 523); program approval.

SPE 531 Behavior Management Approaches with Exceptional Children. (3)

fall and summer

Behavior management approaches for classroom behavior of exceptional children. Prerequisite: SPE 511 (or its equivalent).

SPE 536 Characteristics of Children with Behavioral Disorders. (3)

fall, spring, summer

Variables contributing to behavior patterns of behaviorally disordered children.

SPE 551 Teaching Young Children with Special Needs. (3)

spring

Methods, materials, and curriculum for preschool and primary-aged children with special needs. Prerequisites: SPE 455 and 511 (or their equivalents).

SPE 552 Management of Individuals with Severe Handicaps. (3)

spring

Instruction and management of school-aged and adult individuals with severe, physical, or multiple handicaps. Prerequisites: SPE 511 (or its equivalent); instructor approval.

SPE 553 Developmental/Functional Assessment. (3)

fall

Teacher-focused developmental/functional assessment of preschool and severely, physically, and multiply handicapped individuals. Requires field experience. Prerequisites: SPE 511 and 512 and 574 (or their equivalents).

SPE 554 The Parent/School Partnership. (3)

spring

Includes knowledge and procedures for involvement and training of parents and caregivers of preschool and severely handicapped individuals. Requires field experience. Prerequisites: SPE 455 and 511 (or their equivalents).

SPE 561 Characteristics/Diagnosis of Learning Disabilities. (3)

fall, spring, summer

Theories related to learning disabilities, including identification and characteristics.

SPE 562 Methods of Teaching Students with Learning Disabilities. (3)

not regularly offered

Various methods and intervention strategies for remediating learning disabilities of children and youth. Prerequisite: SPE 361 or 561.

SPE 574 Educational Evaluation of Exceptional Children. (3)

fall

Design and statistical considerations of normative and criterion-referenced tests. Collection, recording, and analysis of data from formative evaluation. Prerequisites: SPE 511 (or its equivalent); methods course in teaching reading and mathematics.

SPE 575 Current Issues in the Education of Exceptional Children. (3)

fall

Mainstreaming, noncategorical, financing, legal diagnostic, labeling, legislative, and other critical and controversial issues related to the education of exceptional children.

SPE 577 Mainstreaming Methods. (3)

spring

Addresses successful mainstreaming methods, practical problem-solving sessions related to teacher's classroom needs, and individual contracts focusing on mainstreaming issues. General educators encouraged.

SPE 578 Student Teaching in Special Education. (9–15)

fall and spring

"Y" grade only. Fee. Prerequisites: completion of specified courses; approval by the special education program coordinator.

SPE 582 Classroom Research with Exceptional Children. (3)

summer

Introduction to interpreting research. Specific research techniques with primary emphasis on classroom research, including applied behavior analysis.

SPE 585 Creativity: Research and Development. (3)

spring

Explores nature of creativity in terms of philosophical underpinnings, empirical evidence, human development, self-actualization, and the ecology surrounding the creative event.

SPE 586 Advising the Gifted Child. (3)

once a year

Focuses on educational planning and guidance, social and emotional development, and family problem solving regarding needs of gifted children.

SPE 587 Controversies in Educating the Gifted. (3)

fall

In-depth analysis of major controversies in educating the gifted, including nature/nurture, the role of mental tests, and sex differences.

SPE 588 The Gifted Child. (3)

fall and summer

Gifted children's characteristics, identification, needs, school and home environments, definitions, and misunderstandings. Research by Pressey, Stanley, Terman, and others.

SPE 589 Methods in Teaching the Gifted. (3)*spring and summer*

Methods in teaching elementary and secondary school gifted children, including individualized and computer-assisted instruction, team teaching. Prerequisite: SPE 588.

SPE 774 Characteristics and Causation of Exceptionality. (3)*fall*

In-depth analysis of literature pertaining to causes of exceptionality and learning, educational, personal-social, and cognitive characteristics. Lecture, discussion.

SPE 775 Evaluation and Intervention in Special Education. (3)*spring*

In-depth analysis of research and literature on evaluation procedures and intervention approaches for exceptional individuals at all age levels. Lecture, discussion.

SPE 781 Research and Evaluation in Special Education. (3)*spring*

Issues and problems in conducting research and/or evaluation programs involving exceptional children.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Speech and Hearing Science

Interdisciplinary Doctoral Program

Don Sinex

Director, Executive Committee

(CSB 273A) 480/965-9396

shsgrad@asu.edu

www.asu.edu/clas/shs

Bioengineering

Associate Professor: Kipke

English

Professor: Adams;

Associate Professor: Bates

Family and Human Development

Professor: Roosa

Psychology

Professors: Braun, Killeen, Somerville;

Associate Professor: Goldinger

Speech and Hearing Science

Professors: Bacon, Case, Dorman, Ingram, Wilcox;

Associate Professors: Liss, Sinex;

Assistant Professors: Azuma, Sharma

The committee on Speech and Hearing Science offers an interdisciplinary graduate program leading to the Ph.D. degree in Speech and Hearing Science.

The program is designed to prepare scholars for careers of basic and applied research in educational, industrial, or health care delivery environments. The student pursues a program with the unifying theme of the influence of the neurologic system on human communication and its disorders. After a core curriculum, which may include aspects of neuroscience, methodology, or speech and hearing science, the student completes a program of study under the guidance of the program committee. As part of the interdisciplinary doctoral program, a programmatic research experience prepares the student for basic or applied research leading to the dissertation.

DOCTOR OF PHILOSOPHY

See "Doctor of Philosophy," page 103, for general requirements.

Admission Requirements. Admission to the program is competitive; therefore, applications are considered only for fall admission. Applicants typically have completed a master's degree or equivalent in speech and hearing sciences, psychology, linguistics, or a related discipline. Applicants with a bachelor's degree and a strong research background are also considered.

Applicants must submit the following materials for admission review:

1. application for admission to the Graduate College and official transcripts of undergraduate and graduate study;
2. verbal, quantitative, and analytical scores of the Graduate Record Examination (GRE);
3. professional résumé;
4. a statement describing academic and professional goals, specifying the focus of study desired in the Ph.D. program; and
5. three letters of recommendation.

All applicants whose native language is not English must submit a score from the Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE). Expected minimum scores are 600 on the TOEFL and 230 on the TSE.

Application materials are reviewed beginning February 1. Applications are reviewed by a three-member interdisciplinary admissions committee. Recommendations for admission or denial are forwarded to the dean of the Graduate College. Criteria for admission include the following:

1. evidence of high scholarship and research potential from GRE scores and previous academic records;
2. professional goals compatible with the degree program; and
3. scholarly interests compatible with one or more of the faculty active in the interdisciplinary degree program.

Areas of Concentration. Eighteen semester hours are taken in an area of concentration that focuses on some aspect of human communication. The student's program committee guides selection of these courses.

Program Committee. The purpose of the program committee is to guide the student through the completion of the program of study, the initiation of programmatic research, and the comprehensive examination. The program committee consists of a chair and at least two other members appointed by the dean of the Graduate College upon recommendation of the director of the Committee on Speech and Hearing Science. The committee must consist of members from more than one academic discipline. Upon completion of the comprehensive examination, the student may initiate forming a dissertation committee.

Dissertation Committee. Upon completion of the comprehensive examination and based on the recommendation of the director of the Committee on Speech and Hearing Science, the dean of the Graduate College appoints the stu-

dent's dissertation committee consisting of a chair and at least two other members. The dissertation committee must consist of members from more than one academic discipline. This committee approves the design and implementation of the dissertation. Members of the program committee also may serve as members of the dissertation committee.

Preliminary Examination. The preliminary examination is composed minimally of the first-year research project. This project, to be completed by the end of the second semester of the first year, consists of an oral presentation and defense of the research, as well as a written manuscript. The program committee decides whether an optional written examination is necessary. The format of that examination is determined by the program committee and depends, in part, upon the background of the student. Results of the preliminary examination are used to determine shortcomings that should be offset by course electives, the level at which the student is capable of pursuing various topic areas, and whether deficiencies are of sufficient magnitude to preclude recommendation for continued doctoral study.

Research Methods and Statistics. The student is required to demonstrate proficiency in research methods (research design, statistics, computer languages). Evidence of required proficiency may be demonstrated by examination or by successful completion of a sequence of courses designated by the program committee.

Program of Study. The program consists of a minimum of 54 semester hours of graduate work beyond the master's degree or 84 semester hours of graduate work beyond the bachelor's degree. Of the required semester hours, at least 24 must be research (SHS 792) and dissertation (SHS 799) credit completed at ASU. A minimum of 30 hours of the approved Ph.D. program, exclusive of dissertation and research hours, must be completed after admission to the Ph.D. at ASU.

Comprehensive Examinations. Near the completion of course work and before commencing dissertation research, the student is given a written examination covering the field of study. The written examination, when passed, may be followed by an oral examination.

Programmatic Research. Twelve semester hours of programmatic research (SHS 792) are required before the dissertation prospectus meeting. The student must conduct several studies, each representing a facet of a research problem or a step toward a progressive solution. Each component study must be reviewed by the program committee and conducted in collaboration with a faculty member of the interdisciplinary degree program. This research program allows the doctoral student to use different methodologies in various component studies, to exercise progressively tighter experimental controls as determined by serial investigations, or to pursue significant or unexpected outcomes of a study.

This systematic or serial research program engages the student and faculty in an ongoing research activity, the components of which allow increasing discretion and independence of the student investigator. The program is designed to prepare students for careers in basic or applied research and enhance the quality of the dissertation research.

Research and Dissertation Proposals. (1) Before conducting the programmatic research, the student is advised by the program committee on the appropriateness of the planned research. (2) Before conducting the research for the dissertation, each student must submit a dissertation proposal that is defended orally and approved by the dissertation committee.

Dissertation Requirements. The dissertation must consist of a fully documented written product of mature and original scholarship. It must be a significant contribution to knowledge that reflects the student's creativity and competence in independent research.

Final Examinations. A final oral examination in defense of the dissertation, conducted by the dissertation committee, is required.

COURSES

For courses, see "Speech and Hearing Science (SHS)," page 157.

Statistics

Interdisciplinary Master's and Certificate Programs

Richard K. Burdick
Director, Executive Committee
 (BAC 565) 480/965-5439
 statistics@asu.edu
 www.asu.edu/graduate/statistics

Accountancy and Information Management

Associate Professor: St. Louis

Biology

Associate Professor: Carroll

Economics

Professors: Burdick, Mayer;
 Associate Professors: Reiser, Wilson

Industrial Engineering

Professors: Hubele, Keats, Montgomery, Runger

Mathematics

Professors: Lohr, Young;
 Associate Professors: Driscoll, Prewitt;
 Assistant Professor: Zuo

Supply Chain Management

Associate Professor: Brooks

The Committee on Statistics offers a program leading to a graduate Certificate in Statistics and the M.S. degree in Statistics. The program is interdisciplinary in the sense that it draws upon faculty research and teaching interests from a number of academic units so that programs of study can be tailored to reflect individual needs and goals. The committee, which sets program requirements and supervises programs of study, is composed of faculty from several departments in the College of Business, the College of Engineering and Applied Sciences, and the College of Liberal Arts and Sciences.

Certificate in Statistics. This certificate provides statistical training to graduate students at ASU and professionals in the metro-Phoenix area. The certificate requires 15 semester hours of course work selected from approved courses offered in graduate programs at ASU.

To enroll in the certificate program, the applicant must have a bachelor's degree, an introductory applied statistics course, and one semester of calculus. The applicant is also required to have some computer literacy with knowledge of either a programming language, a spreadsheet program, or a statistical software program.

For more information, access the Web site at www.asu.edu/graduate/statistics.

MASTER OF SCIENCE

The program for the M.S. degree in Statistics provides preparation for either a research-oriented or a practice-oriented career. Requirements specific to this program (see "Master's Degrees," page 100, for general requirements) ensure balanced attention to the theoretical and applied aspects of the discipline of statistics. Flexibility in the program reflects the fact that statistical analysis is one of the most widely used tools of modern scientific reasoning.

Admission. Applicants must satisfy the general requirements for admission to the Graduate College (see "Admission to the Graduate College," page 92) and must, in addition, have three letters of academic recommendation submitted to the admissions subcommittee of the Committee on Statistics. Although most applicants earn the bachelor's degree in a quantitative area (such as statistics, quantitative business analysis, mathematics, engineering, or computer science), this is not required for admission to the program.

Applicants should have completed the following courses (equivalents at ASU are given in parentheses): calculus (MAT 270, 271, and 272), advanced calculus (MAT 371), linear algebra (MAT 342), computer programming (CSE 100 or 183), and introductory applied statistics (QBA 221 or STP 420). Applicants who lack more than two of these seven prerequisite courses should expect to be admitted with deficiencies or provisionally. The submission of the Graduate Management Admission Test or Graduate Record Examination test scores is strongly recommended.

Supervisory Committee. Upon entering the program, the student should contact the program director for assistance in selecting a three-member supervisory committee. (Typically, the student progress subcommittee of the Committee on Statistics serves as the student's initial supervisory committee.) The faculty member who directs the student's work on the thesis or applied project must be a member of the Committee on Statistics and serves as the chair of the student's final supervisory committee.

Program of Study. The student's program of study must contain at least 30 semester hours of credit, none of which may be from the prerequisites and at least 18 of which must be at or above the 500 level. The program must include the nine hours from three required theory courses: theory of probability (STP 421), mathematical statistics (STP 427), and theory of statistical linear models (STP 526). The program must also include either three hours of applied project

(IEE 593, QBA 593, or STP 593) or six hours of thesis (IEE 599, QBA 599, or STP 599).

The remaining 15 or 18 hours may come from elective courses chosen by the student with the approval of supervising faculty. A maximum of six hours may be chosen from a related field on which statistics relies (such as computer science) or in which statistics is an essential tool (e.g., biostatistics, quality control).

The required theory courses are fundamental to the education of statisticians and are necessary for more advanced graduate study. The elective courses allow the student to emphasize a particular area of statistical inference, culminating in an applied project report or a thesis on a topic in that area. The student has considerable flexibility in selecting an area of specialty. Possible areas of specialty include, among others, mathematical statistics, biostatistics, applied data analysis, design of experiments, statistical modeling, time series analysis, statistical process control, variance components analysis, statistical computing, and survey research. Sample programs of study for such areas of specialty may be obtained from the director of the program.

Foreign Language Requirements. None.

Comprehensive Examinations. None.

Thesis Requirements. Either an applied project or a thesis is required.

Final Examinations. An oral examination in defense of the applied project or thesis is required. The content of the applied project report or thesis must, in its final form, be suitable for submission to an academic journal or conference proceedings. The thesis must conform to Graduate College format requirements.

RESEARCH ACTIVITY

Research interests of current members of the Committee on Statistics include the following: nonparametric regression, variance components, generalized linear models; multivariate analysis, latent structure models, categorical data analysis; biostatistics, biomedical research; time series analysis and forecasting, econometrics, statistical process control, statistical decision support systems; statistical computing, statistical graphics; panel data analysis, complex sampling designs; decision-theoretic methods, risk assessment, robust statistical methods; design of experiments; process optimization; and response surface methodology. Students and faculty have access to excellent computing facilities, including servers, work stations, and personal computers running a broad selection of statistical software.

COURSES

For courses, see "Industrial Engineering (IEE), page 241, "Quantitative Business Analysis (QBA)," page 140, and "Statistics and Probability (STP)," page 263.

Taxation

Master's Program

Philip M.J. Reckers

Director

(BA 223) 480/965-3631

asusaim@asu.edu

www.cob.asu.edu/acct/graduate/prospective/mtax/index.cfm

PROFESSORS

J.R. BOATSMAN, BOYD, GOUL, JOHNSON, KAPLAN, PANY, PEI, PHILIPPAKIS, RECKERS, ROY, SCHULTZ, SMITH, STEINBART, VINZE, WYNDELTS

ASSOCIATE PROFESSORS

CHRISTIAN, GOLEN, GUPTA, HWANG, KEIM, KULKARNI, MOECKEL, O'DELL, O'LEARY, REGIER, ST. LOUIS, WHITECOTTON

ASSISTANT PROFESSORS

BHATTACHERJEE, CHEN, CHENOWETH, COMPRIX, DAVID, DOWLING, IYER, O'DONNELL, ROBINSON, SANTANAM, SHAO, WEISS

SENIOR LECTURERS

MacCRACKEN, SHREDNICK

LECTURERS

BALOGH, J.L. BOATSMAN, GEIGER, HAYES, TAYLOR

MASTER OF TAXATION

The faculty in the School of Accountancy and Information Management offer specialized professional programs leading to the Master of Taxation, Master of Accountancy and Information Systems (see "Accountancy and Information Systems," page 105), and Master of Science in Information Management, (see "Information Management," page 182) degrees. The M.Tax. degree is a specialized program providing students with skills required to succeed in careers in public accounting (consulting), as well as corporate accounting.

The faculty also participate in offering the program leading to the Master of Business Administration degree (see "Master of Business Administration," page 137) and Ph.D. degree in Business Administration (see "Doctor of Philosophy," page 137).

For more information on faculty, programs, and courses, visit the school's Web site www.cob.asu.edu/acct/graduate/prospective/mtax/index.cfm

Admission. All applicants are required to submit the supplemental application materials required from the school. A complete advising guide and application packet may be obtained from the school's Web site.

Students applying to this program must submit scores from the Graduate Management Admission Test (GMAT). International applicants whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE) exams. Preference in admission is given to those with

degrees in accounting and business, although other exceptional candidates are considered.

Prerequisites. Visit the School of Accountancy and Information Management's Web site for a current list of the program prerequisites.

Program of Study. The program of study consists of a minimum of 30 semester hours and is continually updated. The program of study must include a minimum of 15 semester hours of credit in graduate-level accounting courses and a minimum of 24 semester hours of resident credit in courses open exclusively to graduate students. A maximum of six hours may be taken outside the College of Business. Visit the school's Web site for a current program of study.

Course Load. Students are limited to 12 hours per trimester.

Foreign Language Requirements. None.

Thesis Requirements. None.

Final Examinations. A final comprehensive written examination is required of all candidates.

RESEARCH ACTIVITY

For current information about research activity, access the School of Accountancy and Information Management Web site at www.cob.asu.edu/acct and see "Publications and Working Papers."

COURSES

For courses, see "Accountancy (ACC)," page 106.

Teaching English as a Second Language

Master's Program

Roy C. Major

Director

(LL 313) 480/965-3188

enggrad@asu.edu

www.asu.edu/clas/english/linguistics

PROFESSORS

ADAMS, MAJOR, NILSEN

ASSOCIATE PROFESSORS

BATES, VAN GELDEREN

ASSISTANT PROFESSOR

JOHNSON

The faculty in the Department of English offer a professional program leading to the Master of Teaching English as a Second Language degree (M.TESL). The M.TESL degree is a specialized program providing students with the knowledge and the skills necessary to teach English as a second language.

Admission Requirements. All applicants must meet the general requirements for admission to the Graduate College (see "Admission to the Graduate College," page 92). International students must submit a TOEFL score of at least 580.

Program of Study. The program requires a minimum of 30 hours of approved graduate course work and must include LIN 500 Research Methods: Linguistics, LIN 510 English Linguistics, LIN 572 Theories Underlying the Acquisition of English as a Second Language, LIN 574 The Teaching of English as a Second Language, and a three-hour applied project (LIN 593) overseen by the supervisory committee.

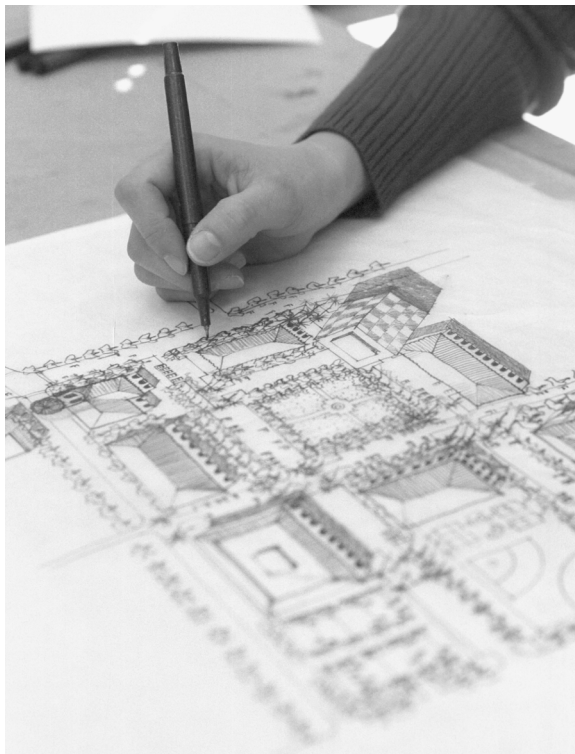
Foreign Language Requirements. A foreign language is required. International students whose native language is not English may fulfill the foreign language requirement by (1) providing evidence that English is not the medium of instruction at their native-language universities and (2) satisfactory completion of the TSE.

Applied Project. A three-hour applied project (LIN 593) which is overseen by the director, chosen from the English department linguistics/TESL faculty, is required. Two additional faculty members serve with the director to form a committee for the final oral examination on the project.

Final Examinations. An oral examination on the applied project is required.

COURSES

For courses, see "Linguistics (LIN)," page 206.



A student creates plans at the Urban Design Center

Tim Trumble photo

Technology

Master's Programs

Department of Aeronautical Management Technology

William K. McCurry
Chair
 (SIM 205) 480/727-1998
 AeroTech@asu.edu
 eastair.east.asu.edu

Department of Electronics and Computer Engineering Technology

Timothy E. Lindquist
Chair
 (TECH 101) 480/727-1137
 Fax 480/727-1723
 EMAllen@asu.edu

Department of Information and Management Technology

Thomas Schildgen
Chair
 (TECH 102) 480/727-1781
 TS@asu.edu

Department of Manufacturing and Aeronautical Engineering Technology

Scott G. Danielson
Chair
 (SIM 425) 480/727-1185
 Fax 480/727-1549
 MAET@asu.edu
 www.east.asu.edu/ctas/maet

Aeronautical Management Technology

Professor: Gesell;
 Associate Professors: Jackson, McCurry, Turney;
 Assistant Professors: Karp, Pearson;
 Lecturer: O'Brien

Electronics and Computer Engineering Technology

Professors: Lindquist, McHenry, Munukutla;
 Associate Professors: Abuelyaman, Macia,
 Sundararajan, Zeng;
 Assistant Professors: Lipari, Peterson

Information and Management Technology

Professors: Duff, Hild, Sadowski, Schildgen;
 Associate Professors: Grossman, Hirata, Humble,
 Matson, Olson;
 Senior Lecturer: Wilson;
 Lecturer: Dolin

Manufacturing and Aeronautical Engineering Technology

Professor: Collins;
 Associate Professors: Danielson, Palmgren, Rajadas
 Rogers, Schmidt

The Master of Science in Technology (M.S.Tech.) degree program is offered by the faculty in four departments of the

College of Technology and Applied Sciences: Aeronautical Management Technology, Electronics and Computer Engineering Technology, Information and Management Technology, and Manufacturing and Aeronautical Engineering Technology. Courses are offered at ASU East. Both a thesis and applied project option are available.

The professional programs leading to the M.S.Tech. degree are intended as preparation for a career in a selected branch of technology or as the foundation for further advanced study. Graduates of this program are provided with technical and professional skills for use in leadership positions in industry and education.

Faculty members administering the program have been selected because of relevant backgrounds in industry and business along with their academic training and teaching experience.

Admission. Admission to the degree program requires the completion of all general admission requirements and procedures set forth by the Graduate College. The College of Technology and Applied Sciences also requires an appropriate baccalaureate degree from an accredited college or university, with a minimum of 30 semester hours in technology or equivalent and 16 hours of physical science and mathematics appropriate to the program pursued. The specific requirements vary within each department.

Graduate work presupposes an adequate technical preparation in a selected technology at the undergraduate level. Deficiencies for admission to the graduate program, if any, are specified at the time of admission. The applicant's past work and professional experience is also evaluated and taken into consideration when determining admission classification.

To be considered for regular admission, a 3.00 GPA is required.

Program of Study. The program of study is designed to promote greater depth of understanding and preparation in technology as it can be applied to industry and education. The program of study is planned in consultation with an appointed supervisory committee. It is designed for flexibility, permitting the student to select a combination of courses in a technological area and a supporting area to meet individual career goals.

A minimum of 33 semester hours is required for the degree program. Of these, a minimum of 15 semester hours must be 500-level courses and part of the approved program. Specific credit requirements vary within each department. The minimum requirements are as follows:

Thesis Option	
Technical area of emphasis	18
Supporting area	6
Research course	3
Research	6
Total	33
Applied Project Option	
Technical area of emphasis	18
Supporting area	9
Research course	3
Research	3
Total	33

A maximum of nine semester hours of appropriate course work completed before admission may be included in the program of study for the degree program.

A master's degree candidate forms a supervisory committee, the chair of which is from one of the four technology departments within the College of Technology and Applied Sciences. The chair and the committee members assist the student in selecting appropriate courses to meet the degree requirements and the student's goals. Specific program patterns are approved by the committee.

The Department of Aeronautical Management Technology provides students the opportunity to select courses, to be included in the technical area of their program of study, in aviation management technology and aviation human factors.

The Department of Electronics and Computer Engineering Technology offers concentrations in computer systems engineering technology, electronics systems engineering technology, instrumentation and measurement technology, microelectronics engineering technology, and instrumentation and measurement technology.

The Department of Information and Management Technology provides students the opportunity to study environmental technology management, fire service administration, information technology, and management of technology.

The Department of Manufacturing and Aeronautical Engineering Technology offers concentrations in aeronautical engineering technology, manufacturing engineering technology, mechanical engineering technology, and security technology.

The College of Technology and Applied Sciences offers a concentration in global technology and development (GTD). This concentration gives students a comprehensive understanding of technological systems, how they interface with society, and their role in global development and change. The GTD concentration integrates the study of economic, social, and political development with technology course work to explore issues critical to 21st-century globalization and the role and impact of technological innovations on societies around the world. Students completing the GTD concentration will gain the knowledge and skills to become "technology interpreters" for careers in technology-related public policy, government service, international development, and international management.

The GTD concentration consists of two seminars: global technology and development and technology and the international political system. It also includes one core course in each of the four GTD technology content areas: telecommunications, transportation, commerce, and sustainable development. Students may select elective courses from a wide range of topics in social science and/or technology to create their own individualized specialization. An emphasis is placed on the acquisition of solid research skills with a required sequence in applied research methodologies and tools. A minimum of 33 semester hours is required (24 of which must be at the 500 level or above), including an applied project or thesis. The exact program of study, including elective courses leading to an area of specialization, and the applied project or thesis, is planned in consultation with a faculty advisor from the GTD faculty committee.

Final Examination. A final oral examination in defense of the applied project or thesis is required.

COURSES

For courses, refer to the departmental listings that follow.

Department of Aeronautical Management Technology

Admission. Applicants are expected to satisfy all requirements for admission to the Graduate College. Industrial experience beyond completion of a baccalaureate degree is strongly recommended. Applicants having deficiencies or not meeting the prerequisites may be required to complete them before being admitted to the M.S.Tech. degree program.

Program of Study. All candidates for the degree program are required to complete a minimum of 33 semester hours of approved courses. Additional courses may be assigned by the supervisory committee depending on the background of the candidate.

An applied project or thesis is required. Upon completion of the approved course of study or during the last semester, an oral defense of the applied project or thesis is required.

The program is designed for flexibility, permitting the student to select a combination of courses in a technical area and supporting area to meet individual goals.

Students may take courses in two areas of interest: aviation management and aviation human factors. Students will work with a faculty advisor to define specific courses that satisfy degree requirements.

Final Examinations. A final oral examination in defense of the applied or research project is required.

RESEARCH ACTIVITY

The Department of Aeronautical Management Technology has established a broad research agenda including both technical and management disciplines. Current research initiatives include: aviation education and training; human factors in aviation; aviation physiology; hypobarics; hyperbarics; retention of women in aviation; air traffic control enhancement; runway incursion analyses; human factors in aviation maintenance; and the development of broad-based industrial partnerships through teaming arrangements, internships, and capstone course participation.

AERONAUTICAL MANAGEMENT TECHNOLOGY (AMT)

AMT Note 1. Flight instruction costs are not included in university tuition and fees.

AMT 400 Flight Safety IV. (1)

fall, spring, summer

Multiengine and crew training and safety briefings. Continuous enrollment required until completion of rating and multicrew training. Lecture, lab. Fee. See AMT Note 1. Prerequisite: AMT 300. Pre- or corequisite: AMT 387.

AMT 408 National Aviation Policy. (3)

fall

Examination of aviation and airspace policies and policy process, including agencies involved in formulation, implementation, and evaluation of aviation policy. Prerequisite: AMT 308.

AMT 409 Nondestructive Testing and Quality Assurance. (1)

not regularly offered

Purpose of inspection and quality assurance. Theory and application of nondestructive inspection methods. Application of pertinent standards, specifications, and codes. Lecture, lab. Cross-listed as AET 409. Credit is allowed for only AET 409 or AMT 409. See AMT Note 1. Prerequisite: AMT 280 or MET 230.

AMT 410 Aviation Safety and Human Factors. (3)

fall

Aviation accident prevention, human factors, life support, fire prevention, accident investigation, and crash survivability. Development and analysis of aviation safety programs. Prerequisites: junior standing; completion of 1 semester of General Studies L requirement.

AMT 442 Aviation Law/Regulations. (3)

fall

Aviation within context of U.S. Common Law system. Public law, administrative rule making, sovereignty, enforcement, and case law analysis. Prerequisite: junior standing.

AMT 444 Airport Management and Planning. (3)

spring

Orientation to administration and management of modern public airports, including overview of planning, funding, and development of airport facilities. Prerequisite: AMT 308.

AMT 482 Airline Instrument Procedures. (3)

fall

Advanced instrument flight using airline instrument procedures and airline crew and cockpit resource management. Lecture, lab. Prerequisites: AMT 322, 382.

AMT 484 Aeronautical Internship. (1–12)

fall, spring, summer

Work experience assignment with aerospace industry commensurate with student's program. Special project guidance by industry with university supervision. Prerequisites: advisor approval; junior standing.

AMT 489 Airline Administration. (3)

spring

Administrative organizations, economics of airline administration, operational structure, and relationship with federal government agencies. Prerequisites: AMT 308; instructor approval.

AMT 491 Aviation Management Capstone. (3)

spring

Integration and overview of management tools, current business problems and topics related to aviation industry. Group project with industry and government and business partners. Prerequisite: senior standing.

AMT 496 Airline Aircraft Systems Capstone. (3)

spring

Commercial airline aircraft systems and flight procedures. Includes theoretical education for large, commercial passenger aircraft. Lecture, lab. Prerequisite: senior standing.

AMT 521 Air Transportation Regulation. (3)

not regularly offered

Reviews evolutionary history of government regulations. Explores alternatives for economic, safety, social, and administrative regulatory reform in air transportation. Prerequisite: AMT 444 or 489 (or its equivalent).

AMT 523 Aviation Systems Management. (3)

not regularly offered

Systems theory applied to intermodal transportation networks. Survey of air and ground transportation infrastructure, institutional frameworks, and intermediaries promoting connections between modes. Prerequisite: AMT 444 or 489 (or its equivalent).

AMT 525 Airport Planning and Design. (3)

not regularly offered

Students complete various phases of airport master planning process. Provides guidance for logical and timely development of airports. Project work groups assigned. Prerequisite: AMT 444 or 489 (or its equivalent).

AMT 527 Airline Management Strategies. (3)

not regularly offered

Since deregulation, airlines have undergone profound changes through mergers, consolidation, and acquisition. In-depth look at airline management strategies for the 21st century. Prerequisite: AMT 444 or 489 (or its equivalent).

AMT 528 International Aviation. (3)

not regularly offered

Major issues of international aviation, historical review of institutional framework. Bilateral route agreements, freedom versus sovereignty, current legal and political arrangements. Prerequisite: AMT 444 or 489 (or its equivalent).

AMT 529 Fixed-Base Operations Management. (3)*not regularly offered*

Examination of FBO role in the national aviation system. Organization of flight line operations, aircraft maintenance, and administration for multiple aircraft types. Prerequisite: AMT 444 or 489 (or its equivalent).

AMT 541 Aviation Physiology. (3)*not regularly offered*

Survey of human physiology and human performance principles related to modern aircraft and aircraft systems operating in multiple environments. Prerequisite: AMT 410 (or its equivalent).

AMT 543 Ergonomics in High-Technology Environments. (3)*not regularly offered*

Examination of ergonomic design principles regarding man-machine interface requirements of high-technology workstations. Emphasis on computer workstation design issues. Prerequisite: AMT 410 (or its equivalent).

AMT 545 Human Factors in Aviation. (3)*not regularly offered*

Overview of human role in aviation. Issues, problems of unsafe acts and attitudes in human behavior. Human engineering capabilities and limitations. Prerequisite: AMT 410 (or its equivalent).

AMT 546 Crew Resource Management/Line-Oriented Flight Training. (3)*not regularly offered*

Evaluation of in-depth, multicrew coordination issues for commercial aviation pilots. Stresses importance of critical thinking, decision making, integrated resource utilization. Prerequisite: AMT 410 (or its equivalent).

AMT 547 Modern Human Factors Design Issues. (3)*not regularly offered*

Research and discussion of current human factors issues. State-of-the-art analyses of information regarding rapidly evolving designs and applications. Prerequisite: AMT 410 (or its equivalent).

AMT 549 Human Factors Research. (3)*not regularly offered*

Aviation human factors research principles applied and tested in operational settings. Group projects assigned in conjunction with industry partners. Prerequisite: AMT 410 (or its equivalent).

AMT 580 Practicum. (1–12)*not regularly offered***AMT 584 Internship. (1–12)***not regularly offered***AMT 590 Reading and Conference. (1–12)***not regularly offered***AMT 591 Seminar. (1–12)***not regularly offered***AMT 592 Research. (1–12)***not regularly offered***AMT 593 Applied Project. (1–12)***not regularly offered***AMT 595 Continuing Registration. (1)***not regularly offered***AMT 598 Special Topics. (1–4)***not regularly offered***AMT 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Department of Electronics and Computer Engineering Technology

The faculty in the Department of Electronics and Computer Engineering Technology offer a graduate program leading to the M.S.Tech. Four concentrations are available: computer systems engineering technology, electronics systems engineering technology, instrumentation and measurement technology, and microelectronics engineering technology. The instrumentation and measurement technology concentration is offered in conjunction with the Department

of Manufacturing and Aeronautical Engineering Technology.

Admission and Proficiency Requirements. For general admission requirements, see “Admission to the Graduate College,” page 92, and “Technology,” page 323. Admission and proficiency requirements and course work may be obtained from the department.

Program of Study. The minimum requirements for the M.S.Tech. degree offered by the Department of Electronics and Computer Engineering Technology are as follows:

Thesis Option

Concentration	15–17
Supporting area	7–9

Research Methods Courses

EET 500 Research/Writing	2
EET 591 Graduate Seminar	1
EET 592 Research	3
EET 599 Thesis	3
<hr/>	
Total minimum semester hours	33

A minimum of 20 semester hours must be 500-level courses. At least nine hours of 500-level course work must be included in the concentration. Students may take up to 12 semester hours of 400-level course work to broaden their technical knowledge within the technical concentration or the supporting area. Students are required to complete EET 592 (three semester hours) and EET 599 (three semester hours), write a thesis, and present an oral defense.

Applied Project Option

Concentration	15–18
Supporting area	9–12

Research Methods Courses

EET 500 Research/Writing	2
EET 591 Graduate Seminar	1
EET 593 Applied Project	3
<hr/>	
Total minimum semester hours	33

A minimum of 20 semester hours must be 500-level courses. At least nine hours of 500-level course work must be included in the technical concentration. A maximum of three semester hours of applied project (EET 593) may be applied toward the 20 semester hour 500-level minimum. The applied project requires a supporting report; the project and report are defended in a final oral examination. All course work applied toward the minimum 33 semester hour total must be at the 400 level or higher.

All course work outside the Department of Electronics and Computer Engineering Technology must be preapproved. Completion of deficiencies or prerequisites may be required before admission to the M.S.Tech. degree program.

For more information concerning the M.S.Tech. degree, see “Technology,” page 323.

RESEARCH ACTIVITY

Research activities in the Department of Electronics and Computer Engineering Technology include systems, circuit applications, and hardware design. Teaching and research are conducted in microelectronics fabrication, utilizing the clean-room facilities of the College of Technology and Applied Sciences Teaching Factory. Various aspects of computer systems are under investigation within the department,

such as networking, internet activities, distributed Web-based software applications, and embedded systems. Electronic systems and telecommunications are also topics of research by department faculty and graduate students. M.S.Tech. degree candidates will find a broad range of research that can lead to an applied project or thesis. For more information on research areas and laboratories, access the department's Web site at www.east.asu.edu/ctas/ecet.

Faculty research interests are concentrated in, but not limited to, the following general areas and topics.

Computers and Digital Systems. Digital systems design and applications; digital switching circuits; microcomputer hardware, programming, interfacing, and software systems development and application; computer process control hardware, techniques, and applications; computer networks; digital testing; distributed applications and software frameworks to support them; databases; embedded systems; wireless systems and their software; computer process control hardware, techniques, and applications; client-server models and reconfigurable computers.

Engineering Technology Education. Studies emphasizing curriculum and laboratory design and development in electronics, computers, telecommunications, and microelectronics engineering technology at the bachelor's and master's levels; studies involving faculty, student, administrative, and graduate characteristics; industry unitization and manpower needs; program curriculum and math-science articulation requirements and characteristics; characteristics of excellence in engineering technology education; computerized educational design.

Microelectronics. Solid-state device fabrication, testing, and design; monolithic bipolar and MOS and thin-film/thick-film hybrid circuit fabrication and manufacturing techniques; vacuum vapor deposition and sputtering techniques and applications; new photolithography processes; device and system packaging; new hybrid materials and processing techniques.

Systems Control and Instrumentation. Electrical power equipment and systems, insulator testing, control and distribution; direct solar energy conversion; analog and digital process control components, instrumentation, systems, and process applications; electronic measurements and instrumentation circuits, systems, and applications; automatic test systems, test programming, and failure tolerant design; computer-aided design; analog and digital simulation.

COMPUTER ENGINEERING TECHNOLOGY (CET)

CET 400 Software Engineering Technology. (3)

spring

Software life-cycle models; project management; team development environments; software specification, design, implementation techniques and tools, validation, and maintenance; user documentation. Prerequisite: senior standing in Technology.

CET 401 Digital Signal Processing for Multimedia. (3)

fall

Application of DSP techniques to multimedia. Digital filter analysis and design. Time and frequency techniques. Computer applications. Cross-listed as EET 401. Credit is allowed for only CET 401 or EET 401. Prerequisites: EET 301; MAT 262.

CET 425 Server Software Programming. (3)

once a year

Design and implementation of software servers, threaded socket servers, servers for distributed Web-based applications; security for the Web. Prerequisite: CET 300 or instructor approval.

CET 426 Software Tools for the Semiconductor Industry. (3)

spring

Introduction to software tools commonly used in the semiconductor industry, such as SUPREM IV, PSPICE, VIEWLOGIC, and ICED. Cross-listed as UET 426. Credit is allowed for only CET 426 or UET 426. Prerequisite: UET 331.

CET 427 Distributed Objects with Java and CORBA. (3)

spring

Managing network objects with RMI and CORBA; frameworks for naming, discovering, and invocation, such as JNDI, JINI, and JavaSpaces. Prerequisite: CET 300 or instructor approval.

CET 428 Web-Client User Interface Programming. (3)

fall

Client-server model for window interfaces. Java Swing, Applets, markup and scripting languages; Web tools and related technologies. Prerequisite: CET 300 or instructor approval.

CET 433 Database Technology. (3)

fall

Introduction to database technologies and DBMS, data models, and languages. Prerequisites: CET 230, 300.

CET 436 Applications of Visual BASIC. (3)

fall

Applications of Visual BASIC to graphics, graphical user interfaces, error handling, file processing, OO programming, DBMS, networking, and multimedia. Prerequisite: CET 236.

CET 450 Advanced Internetworking Technologies. (3)

spring

Effects and benefits, design and functions of internetworking protocols. Prepares students for the Cisco certification examination. Prerequisite: CET 250.

CET 452 Digital Logic Applications. (4)

spring

Design of sequential machines using system design techniques and complex MSI/LSI devices with lab. Prerequisite: CET 350.

CET 454 Microcontrollers. (3)

spring

Microcontroller input/output ports and advanced features. Microcontrollers as an embedded system and their interfacing considerations. Prerequisites: CET 350, 354.

CET 456 Assembly Language Applications. (3)

fall

Programming using BIOS and DOS routines. High-level language interfacing. Disk operations, TSR routines, and device drivers. Prerequisite: CET 354.

CET 457 Microcomputer Systems Interfacing. (4)

spring

Applications of microcomputer hardware and software. Special purpose controllers, interface design. Lecture, lab. Prerequisites: CET 354; CSE 183; EET 310.

CET 458 Digital Computer Networks. (3)

once a year

Network technology, topologies, protocols, control techniques, reliability, and security. Prerequisite: CET 354.

CET 473 Digital/Data Communications. (4)

fall

Signals, distortion, noise, and error detection/correction. Transmission and systems design. Interface techniques and standards. Lecture, lab. Prerequisites: CET 354; EET 372.

CET 483 UNIX with C Applications. (3)

fall

Generate user proficiency in the use of the UNIX operating system, its shells, environment, and 4th generation language and tools. Prerequisite: senior standing in the ECET department (or its equivalent).

CET 485 Digital Testing Techniques I. (3)

once a year

Hardware/software aspects of digital testing technology; systems, board, and logic testing and equipment. Lecture, lab. Cross-listed as UET 485. Credit is allowed for only CET 485 or UET 485. Prerequisites: CET 350; EET 310.

CET 486 Hardware Description Languages: VHDL. (3)

spring

Introduction to hardware description languages using VHDL. Techniques for modeling and simulating small digital systems using a VHDL simulator. Prerequisites: CET 350, 483.

CET 487 Hardware Description Languages: VERILOG. (3)*fall*

Introduction to hardware description languages, digital modeling, and simulation techniques using the VERILOG HDL. Prerequisites: CET 350, 354.

CET 488 UNIX Systems Administration. (3)*fall*

Generate user proficiency in administration of UNIX operating system, its processes, system calls, kernel, file structure, and interprocess communication tools. Prerequisites: CET 483 (or its equivalent); C or C++ language.

CET 489 Network Programming Applications. (3)*fall*

Generate user proficiency in writing C programs and scripts to control and administer a UNIX operating system network. Prerequisites: CET 473 and 488 (or their equivalents); C or C++ language.

CET 494 Special Topics. (1–4)*not regularly offered*

Possible topics:

(a) Computer Project

CET 501 Digital Signal Processing Applications. (3)*fall*

Application of DSP techniques to the design and analysis of digital filters. Solution of filtering problems using computer techniques. Cross-listed as EET 501. Credit is allowed for only CET 501 or EET 501. Prerequisite: EET 401 or instructor approval.

CET 520 Computer Architecture. (3)*fall*

Basics of computer architecture. RTN, RISC, CISC concepts; computer arithmetic; ALUs; memory systems; I/O. Prerequisite: CET 354.

CET 533 Database Management Systems. (3)*fall*

Systems aspects of relational databases: relational database design, index and access structures, implementation and performance evaluation, query processing and optimization. Prerequisite: CET 433.

CET 546 Computer Vision. (3)*spring*

Image segmentation and enhancement. Object recognition and modeling. Morphological operation for object recognition and measurement. Prerequisite: CET 300.

CET 552 Digital Systems Design. (3)*spring*

Digital system design techniques and applications. Prerequisite: CET 452 or instructor approval.

CET 554 Distributed Computing. (3)*spring*

Topics in distributed systems, including communications, distributed operating systems, fault-tolerance, and performance issues. Prerequisites: CET 354, 386.

CET 556 Windows Programming. (3)*fall*

Programming techniques in the MS Windows and X Window environments. Prerequisite: CET 256 (or its equivalent).

CET 557 Microcomputers and Applications. (3)*fall*

Applications of small computer systems, mini- and microcomputer hardware and software. Prerequisites: CET 354; CSE 100 (or 183); EET 310.

CET 566 Principles and Practices of Operating Systems. (3)*spring*

Principles and practices of operating systems: virtual memory systems, I/O devices and systems, file systems and organization, and other topics. Prerequisite: CET 386.

CET 576 Embedded Real-Time Programming. (3)*fall*

Topics in real-time embedded operating systems such as synchronization, communications, file systems, and memory sharing. Prerequisites: CET 300, 386.

CET 580 Practicum. (1–12)*not regularly offered***CET 583 Network Programming. (3)***fall*

Generate user proficiency in writing C programs and scripts to control and administer a UNIX operating system network. Prerequisites: CET 473 and 488 (or their equivalents); C or C++ language.

CET 584 Internship. (1–12)*not regularly offered***CET 585 Digital Testing Techniques II. (3)***fall*

Testing technology as applied to digital systems, boards, and chips. Lecture, lab. Prerequisite: CET 354.

CET 586 Digital Modeling Techniques. (3)*spring*

Digital system modeling and simulation using hardware description languages. Prerequisites: CET 350, 354.

CET 590 Reading and Conference. (1–12)*not regularly offered***CET 591 Seminar. (1–12)***not regularly offered***CET 592 Research. (1–12)***not regularly offered***CET 593 Applied Project. (1–12)***not regularly offered***CET 594 Conference and Workshop. (1–12)***not regularly offered***CET 595 Continuing Registration. (1)***not regularly offered***CET 598 Special Topics. (1–4)***not regularly offered***CET 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

ELECTRONICS ENGINEERING TECHNOLOGY (EET)**EET 401 Digital Signal Processing for Multimedia. (3)***fall*

Application of DSP techniques to multimedia. Digital filter analysis and design. Time and frequency techniques. Computer applications. Cross-listed as CET 401. Credit is allowed for only CET 401 or EET 401. Prerequisites: EET 301; MAT 262.

EET 406 Control System Technology. (4)*spring*

Control system components, analysis of feedback control systems, stability, performance, and application. Lecture, lab, computer simulations. Prerequisites: EET 301; MAT 262.

EET 407 Energy Conversion and Applications. (4)*fall*

Electricity, magnetism, mechanics, heat and units, and three-phase circuits. Electrical machines, transformers, generation, transmission, and distribution of electrical energy. Lecture, lab. Prerequisite: EET 208.

EET 410 Electronic Circuits II. (3)*fall and spring*

Analysis and design of OP-amps, power amplifiers, and digital logic families. Feedback design using frequency response. Computer analysis and design. Prerequisites: EET 301, 310.

EET 422 Electronic Switching Circuits. (4)*once a year*

Analysis and design of electronic circuits operating in a switching mode. Waveshaping, timing, and logic. Computer simulation. Lecture, lab. Prerequisites: CET 350; EET 301, 310.

EET 430 Instrumentation Systems. (4)*fall*

Measurement principles and instrumentation, techniques. Signal and error analysis. Lecture, lab. Prerequisites: EET 301, 310.

EET 460 Power Electronics. (4)*spring*

Analysis of circuits for control and conversion of electrical power and energy. Lecture, lab. Prerequisites: EET 301, 310, 407.

EET 470 Communication Circuits. (4)*spring*

Analysis and design of passive and active communication circuits. Coupling networks, filters, and impedance matching. Modulation and demodulation techniques. Computer solutions. Lecture, lab. Prerequisites: EET 372; MAT 262.

EET 478 Fiber Optic Communications. (3)*spring*

Fiber optic communication systems analysis and design. Study of fiber optic waveguides, light sources, light detectors, noisy light signal detection. Prerequisites: EET 372; MAT 262.

EET 500 Research/Writing. (2)*fall and spring*

Designed to help master's students develop their projects and write the first three chapters of their projects. Lecture, seminar. Prerequisite: instructor approval.

EET 501 Digital Signal Processing Applications. (3)*fall*

Application of DSP techniques to the design and analysis of digital filters. Solution of filtering problems using computer techniques. Cross-listed as CET 501. Credit is allowed for only CET 501 or EET 501. Prerequisite: EET 401 or instructor approval.

EET 506 System Dynamics and Control. (3)*spring*

Time, frequency, and transform domain analysis of physical systems. Transfer function analysis of feedback control systems performance and stability. Compensation. Prerequisite: EET 301 or MAT 262.

EET 508 Digital Real-Time Control. (3)*once a year*

Sample data control techniques and applications to process control. Prerequisites: CET 354; EET 406.

EET 510 Linear Integrated Circuits and Applications. (3)*fall*

Analysis, design, and application of linear integrated circuits and systems. Prerequisites: CET 350; EET 301, 310.

EET 522 Digital Integrated Circuits and Applications. (3)*spring*

Analysis, design, and application of integrated circuits and systems. Prerequisites: CET 350; EET 301, 310.

EET 530 Electronic Test Systems and Applications. (3)*fall*

Analysis, design, and application of electronic test equipment, test systems, specifications, and documentation. Prerequisites: CET 354; EET 301, 310.

EET 560 Industrial Electronics and Applications. (3)*spring*

Analysis, design, and application of special electronic devices and systems to industrial control, power, communications, and processes. Prerequisites: CET 350; EET 301, 310, 407.

EET 574 Microwave Amplifier-Circuits Design. (3)*fall*

Analysis and design of microwave amplifier-circuits using s-parameter theory and computer-aided design. Prerequisites: EET 304, 470.

EET 578 Digital Filter Hardware Design. (3)*spring*

Hardware design of FIR and IIR filters, including adaptive filters, based on DSP chips. Develop new applications using DSP microprocessor systems. Prerequisites: CET 354; EET 401.

EET 579 Digital Image Communication. (3)*spring*

Image capture, transform, compression, storage, and transmission. Computer environment (software and hardware) is provided to emphasize the practical aspect. Prerequisite: EET 401 or instructor approval.

EET 580 Practicum. (1–12)*not regularly offered***EET 584 Internship. (1–12)***not regularly offered***EET 590 Reading and Conference. (1–12)***not regularly offered***EET 591 Graduate Seminar. (1–12)***not regularly offered***EET 592 Research. (1–12)***not regularly offered***EET 593 Applied Project. (1–12)***not regularly offered***EET 594 Conference and Workshop. (1–12)***not regularly offered***EET 595 Continuing Registration. (1)***not regularly offered***EET 598 Special Topics. (1–4)***not regularly offered***EET 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

MICROELECTRONICS ENGINEERING TECHNOLOGY (UET)

UET 411 Applied Vacuum Technology. (3)*spring*

Fundamentals, applications, and practical aspects of vacuum systems and their uses in semiconductor fabrication. Prerequisite: UET 331.

UET 416 Monolithic Integrated Circuit Devices. (3)*fall*

Physics and electronics of bipolar and MOS devices used in integrated circuits. Prerequisite: UET 331. Corequisite: UET 417.

UET 417 Monolithic Integrated Circuit Laboratory. (2)*fall*

Laboratory practice in the fabrication of integrated circuits. Lab. Prerequisite: UET 331. Corequisite: UET 416.

UET 418 Hybrid Integrated Circuit Technology. (4)*spring*

Layout, fabrication, design, and manufacture of thin and thick film hybrid circuits. Lecture, lab. Prerequisites: EET 310; UET 331.

UET 421 Applied Device Physics. (3)*fall*

Band structures of solids, physics of current carriers in solids, pn junctions, MOS and bipolar transistors. Prerequisite: senior standing in the department.

UET 424 Integrated Circuit Mask-Making Technology. (3)*fall*

Fundamentals, applications, and techniques for the fabrication of integrated circuit masks. Prerequisite: UET 331.

UET 426 Software Tools for the Semiconductor Industry. (3)*spring*

Introduction to software tools commonly used in the semiconductor industry, such as SUPREM IV, PSPICE, VIEWLOGIC, and ICED. Cross-listed as CET 426. Credit is allowed for only CET 426 or UET 426. Prerequisite: UET 331.

UET 432 Semiconductor Packaging and Heat Transfer. (3)*spring*

Packaging theory and techniques; hermetic and plastic assembly; thermal management; electrical characteristics and reliability. Prerequisites: EET 340 and UET 331 (or their equivalents).

UET 437 Integrated Circuit Testing. (3)*spring*

Principles, techniques, and strategies employed at wafer level and final product testing, both destructive and nondestructive. Prerequisite: UET 416.

UET 485 Digital Testing Techniques I. (3)*once a year*

Hardware/software aspects of digital testing technology; systems, board, and logic testing and equipment. Lecture, lab. Cross-listed as CET 485. Credit is allowed for only CET 485 or UET 485. Prerequisites: CET 350; EET 310.

UET 513 VLSI Circuit Design and Layout. (3)*fall*

Techniques and practice for the design and layout of very large-scale integrated (VLSI) circuits. Emphasis on "system on silicon" using tools for computer-aided design layout. Seminar. Prerequisite: UET 416.

UET 516 Semiconductor Process Simulation and Integration. (3)*spring*

Modern IC processes and process integration; design of modern IC processes using SUPREM. Lecture, lab. Prerequisite: UET 416.

UET 518 Hybrid IC Technology and Applications. (3)*spring*

Theory, processing, fabrication, and manufacturing of hybrid microelectronics devices and products. Applications. Prerequisite: UET 331 (or its equivalent) or instructor approval.

UET 521 Device Physics. (3)*fall*

Band structure of solids, electron hole-pairs, mobility, lifetime, fermi-level, pn junctions, diodes, and bipolar and MOS transistors. Prerequisite: graduate standing in the department.

UET 532 IC Packaging. (3)*spring*

IC packaging theory and techniques; assembly techniques, material issues; thermal management; electrical performance and reliability. Lecture, lab. Prerequisites: ETC 340 and UET 331 (or their equivalents).

UET 580 Practicum. (1–12)*not regularly offered***UET 584 Internship. (1–12)***not regularly offered***UET 590 Reading and Conference. (1–4)***not regularly offered***UET 591 Seminar. (1–12)***not regularly offered***UET 592 Research. (1–12)***not regularly offered***UET 593 Applied Project. (1–12)***not regularly offered***UET 594 Conference and Workshop. (1–12)***not regularly offered***UET 595 Continuing Registration. (1)***not regularly offered***UET 598 Special Topics. (1–4)***not regularly offered***UET 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Department of Information and Management Technology

The faculty in the Department of Information and Management Technology through the College of Technology and Applied Sciences at ASU East offer the M.S.Tech. degree. The student may select one of four technical concentrations: environmental technology management, fire service administration, graphic information technology, or management of technology.

Graphic Information Technology. The graphic information technology concentration provides students with a seamless graphic user interface from traditional printing and publishing applications to digital/multimedia, 3-D modeling, animation, database management, and Internet/Intranet Web development. Computer hardware/software configurations, information protocols, and networks provide students with an applications-level working knowledge of the different facets of the graphic information industry.

Environmental Technology Management. The environmental technology management concentration for the M.S.Tech. degree provides three areas of study: environmental management, hazardous materials and waste management, and international environmental management. Classes are scheduled to minimize disruption of work schedules by meeting six times a semester on alternating Fridays and Saturdays.

Fire Service Administration. The fire service administration concentration is the advanced study of fire administration and leadership concepts. Students learn concepts and develop skills needed to be effective fire administrators.

This program is designed to build a bridge between grounded theory and applied practice. Students completing this program are able to perform the functions of a fire chief in any size public sector fire department, administer fire related programs in the private sector, and conduct meaningful research applicable to fire service programs. The technical concentration is 21 semester hours and includes an applied research project. Students select from the list of technical classes or related support electives to complete the balance of the 33 required hours. Course work in the related area of support cannot exceed six semester hours.

Management of Technology. The management of technology concentration provides the necessary content and technical knowledge to improve management functions in industry, manufacturing, and public service organizations. The curriculum addresses topics to include data analysis, ethical issues, project management, organizational effectiveness, personnel development, project management, quality assurance, and technological advancements that impact a global marketplace.

Admission. Applicants are expected to satisfy all requirements for admission to the Graduate College. Industrial experience beyond completion of a baccalaureate degree is strongly recommended. Applicants who have deficiencies or who do not meet the prerequisites may be required to complete them before being admitted to the degree program.

Program of Study. All candidates for the M.S.Tech. degree program are required to complete a minimum of 33 semester hours of graduate credit. Additional courses may be assigned by the faculty supervisory committee depending on the background of the candidate.

Final Examinations. Either an applied project or thesis is required. Upon completion of the approved course of study or during the last semester, an oral defense of the applied project or thesis is required.

Master's degree candidates are required to complete a six semester hour research block that includes either ITM 549 Research Techniques and Applications and IMC 593 Applied Project, or ITM 549 Research Techniques and Applications and IMC 599 Thesis. The program of study is designed for flexibility, permitting the student to select a combination of courses in a technical area and supporting area to meet individual goals.

For more information concerning the M.S.Tech. degree, see "Technology," page 323.

RESEARCH ACTIVITY

Research interests of faculty in the Department of Information and Management Technology include digital imaging, digital publishing, internet development/e-commerce, information databases, multimedia, animation, 3-D modeling, perishability studies of technology, hazardous materials and waste management, environmental regulations, remediation processes, operations management, quality assurance, and industrial training.

ENVIRONMENTAL TECHNOLOGY MANAGEMENT (ETM)**ETM 401 Hazardous Waste Management. (3)***fall and spring*

Definition of hazardous waste, RCRA classification, and OSHA criteria. Overview of requirements and methods of waste management. Prerequisite: ETM 301.

ETM 402 Unit Treatment Technologies. (3)*spring*

Addresses various treatment technologies for contaminated air, water, and soil. Emphasizes design based upon medium, type of contamination, and concentration. Prerequisite: ETM 302.

ETM 406 Environmental Chemistry. (3)*fall and spring*

Examines reactions, transport, and fates of hazardous chemicals in water, soil, air, and living organisms. Prerequisites: both CHM 113 and 115 or only CHM 114; MAT 170.

ETM 407 Occupational Hygiene. (3)*spring*

Overview of occupational health hazards, including recognition, evaluation, and control. Includes regulatory status and health standards. Prerequisites: CHM 101 (or 113 or 114); MAT 170.

ETM 424 Comprehensive Emergency Management. (3)*summer*

Addresses theory and management techniques for emergency preparedness, including mitigation, preparedness, response, and recovery. Pre- or corequisite: ETM 301.

ETM 426 Environmental Issues. (3)*spring*

Explores the science and policy implications of contemporary problems that threaten the environment. Pre- or corequisites: CHM 113; MAT 170.

ETM 428 International Environmental Management. (3)*summer*

Emphasis on technological and economic pressures experienced by developing countries. Prerequisite: ETM 301.

*General Studies: G***ETM 501 Principles of Hazardous Materials and Waste Management. (3)***fall*

Foundation for courses in curriculum. Topics include definitions of toxic and hazardous substances and wastes, RCRA classification, and OSHA criteria. Pre- or corequisites: both CHM 113 and 115 or only CHM 114.

ETM 502 Regulatory Framework for Toxic and Hazardous Substances. (3)*fall*

Examines federal, state, and local regulations for hazardous materials and wastes. Includes history and trends in regulatory development. Prerequisite: ETM 501.

ETM 503 Principles of Toxicology. (3)*spring*

Interaction of chemicals with life and environment. Mechanisms of toxic action, dose-response relationships, toxicity testing models, predictive toxicology, and epidemiology. Prerequisites: both CHM 113 and 115 or only CHM 114.

ETM 504 Technology for Storage, Treatment, and Disposal of Hazardous Materials. (3)*fall*

Current and state-of-the-art technologies and future trends for storage, treatment, and disposal of hazardous materials and waste. Prerequisites: both CHM 113 and 115 or only CHM 114; ETM 501.

ETM 505 Quantitative Analysis and Practical Laboratory Techniques. (3)*fall and spring*

EPA methodologies for sampling and analysis of soils and water. Includes quality assurance and regulatory requirements. Lab is arranged off site. Prerequisites: both CHM 113 and 115 or only CHM 114, 231; MAT 170.

ETM 506 Chemistry of Hazardous Materials. (3)*fall*

Chemistry and toxicology of hazardous chemicals. Topics include proper handling, storage, transportation, and disposal. Prerequisites: both CHM 113 and 115 or only CHM 114; MAT 170. Corequisite: CHM 231.

ETM 507 Industrial Hygiene. (3)*not regularly offered*

Emphasis on chemical hazards in industrial settings. Topics include recognizing and measuring hazards, control techniques, and regulatory standards. Prerequisites: both CHM 113 and 115 or only CHM 114; MAT 170.

ETM 522 Air Pollution and Toxic Chemicals. (3)*fall*

Examines issues in the measurement analysis and control of toxic chemicals in air pollution. Prerequisites: both CHM 113 and 115 or only CHM 114; ETM 501; MAT 170.

ETM 523 Soils and Groundwater Contamination. (3)*fall*

Theoretical and practical hydrogeology as it applies to cleaning up contamination. Investigative techniques, monitoring, risk assumptions, and assessment methodology. Prerequisites: both CHM 113 and 115 or only CHM 114; ETM 501; MAT 170. Corequisite: CHM 231.

ETM 524 Emergency Preparedness, Response, and Planning for Hazardous Materials. (3)*summer*

In-house or on-site emergency response contingency planning. Preemergency assessment, resources for cooperation, equipment requirements, and coordination with other agencies. Prerequisites: both CHM 113 and 115 or only CHM 114; ETM 501; MAT 170.

ETM 525 Risk Assessment for Hazardous Materials. (3)*spring*

Applies the risk assessment process in situations ranging from hazardous facilities regulation to toxic substances in the environment. Prerequisites: both CHM 113 and 115 or only CHM 114; ETM 501; MAT 170.

ETM 526 Current Environmental Technology Issues. (3)*fall*

In-depth study of current issues in environmental technology facing both the private and public sectors.

ETM 527 Environmental/Resources Regulations Concepts. (3)*spring*

Develops environmental regulations from common law to statutory requirements. Emphasis on Superfund, hazardous materials, toxics, and liability contracts. Pre- or corequisite: ETM 501.

ETM 591 Graduate Seminar. (1)*not regularly offered***ETM 592 Research. (1–12)***not regularly offered***ETM 598 Special Topics. (1–4)***spring*

Possible topics:

- (a) Advanced Bioremediation. (3)
Management and policy issues related to bioremediation of mine-tailing and animal waste and replacement of chemical control with biological methods. Lecture, case studies.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

FIRE SERVICE ADMINISTRATION (FSA)**FSA 500 Research Methods. (1–12)***not regularly offered*

Possible topics:

- (a) Fire Administration. (3)
Relationship of fire administration and the role of executive fire administrator in administration of complex issues in a dynamic environment.

FSA 502 Managing Change in the Fire Service. (3)*not regularly offered*

Dynamics of organizational change and the effect change has on the delivery of fire services to the community.

FSA 503 Fire Service and the Community. (3)*not regularly offered*

Theoretical concepts of public service to build an understanding of how the fire service fits within the community.

FSA 510 Fire Department Budgeting and Finance. (3)*not regularly offered*

Functions of budgeting and finance in fire departments within the context of the public sector.

FSA 522 Leadership in the Fire Service. (3)*not regularly offered*

Leadership theories analyzed in a variety of contexts within public and private organizations, then applied to the leadership challenges in the fire service.

FSA 530 Public Policy in the Fire Service. (3)*not regularly offered*

Public policy and the fire services' role in the making of public policy in the community.

FSA 540 Applied Research Methods in the Fire Service. (3)*not regularly offered*

Research methods applicable to problems that arise in the fire service, including assessments of programs and customer service research.

FSA 550 Fire Service Program Management. (3)*not regularly offered*

Functions of developing and managing fire service programs. Designed for advanced students of fire service administration.

FSA 551 Fire Prevention and Public Fire Education. (3)*not regularly offered*

Managing fire prevention organizations and administering fire prevention programs in a contemporary society.

FSA 552 Emergency Medical Services Administration. (3)*not regularly offered*

Complex issues of administering an Emergency Medical Services (EMS) division in a fire department.

FSA 553 Special Operations in the Fire Service. (3)*not regularly offered*

Focuses on the variety of special emergency services operations provided by contemporary fire departments.

FSA 554 Emergency Fire Operations Administration. (3)*not regularly offered*

Delivery of emergency services to a community by a contemporary fire department.

FSA 580 Practicum. (1–12)*not regularly offered*

Possible topics:

- (a) Fire Service Practicum. (3)
Structured practical fire service research experience that is supervised by an approved fire service professional or faculty member.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

FIRE SERVICE MANAGEMENT (FSM)**FSM 598 Special Topics. (1–4)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

GRAPHIC INFORMATION TECHNOLOGY (GIT)**Git 411 Computer Animation. (3)***fall and spring*

2D and 3D computer animation methods: project planning, scripting, storyboards, advanced modeling, lighting, materials mapping, and motion. Lecture, lab. Prerequisites: GIT 312, 334.

Git 412 Multimedia Authoring, Scripting, and Production. (3)*fall and spring*

Production of multimedia projects using industry-standard authoring applications: project management, client considerations, and project documentation; user interface design, interactivity, media, and databases. Lecture, lab. Prerequisites: GIT 314.

Git 413 Professional Portfolio Design and Presentation. (3)*spring*

Digital media portfolio design and production: planning, audience analysis, media selection, authoring, media formats, production, copyright considerations, marketing, and delivery. Lecture, lab. Prerequisites: GIT 314, 334.

Git 414 Web Site Design and Internet/Web Technologies. (3)*spring*

Web site design, authoring, standards, protocols, tools, and development techniques for commercial client-sided Web-based graphic information systems. Lecture, lab. Prerequisites: GIT 334, 337.

Git 415 Computer Graphics: Business Planning and Management. (3)*spring*

Implementation planning: feasibility and application studies; needs assessment and operational analysis techniques; organization, managerial, and technology considerations; business plan development. Lecture, lab, field trips. Prerequisite: senior standing in Information Technology (graphic information technology concentration).

Git 417 Advanced Internet Programming. (3)*fall*

Uses industry-standard programming languages and techniques to create interactive graphic information Web sites and applications. Lecture, lab. Prerequisite: GIT 414.

Git 432 Graphic Industry Business Practices. (3)*not regularly offered*

Business practices related to press/prepress/Web industries; trade customs, cost analysis, marketing and management approaches. Lecture, lab, field trips. Prerequisite: GIT 414.

Git 435 Web Management and E-Commerce. (3)*not regularly offered*

Internet Web site management, security, online databases, and new E-commerce business models. Lecture, lab. Prerequisite: GIT 237. Corequisite: GIT 414.

Git 436 Gravure Technology. (3)*spring*

In-depth study of the market profile and production sequences related to the gravure method of printing. Prerequisite: GIT 135.

Git 437 Color Reproduction Systems. (3)*fall*

Scientific analysis for the engineering of color reproduction systems and color models used in the graphics industry. Prerequisite: GIT 334.

Git 441 Graphic Information Systems. (3)*not regularly offered*

Graphic information systems common to the workplace: graphic user interfaces for online databases, geographic, industrial, architectural, and management applications. Lecture, lab. Prerequisite: senior standing in Information Technology (graphic information technology concentration).

Git 450 Digital Workflow in Graphic Industries. (3)*fall*

Analysis of digital production systems for input, assembly, and output of graphic information to print and Web, including networking and job tracking. Lecture, lab. Prerequisite: GIT 334.

Git 510 Computer Graphics Programming: Design, Customization, and Development. (3)*not regularly offered*

Advanced design, development, and documentation of graphic application programs. Lecture, lab.

Git 512 Multimedia-Based Education and Training. (3)*fall*

Creative design, planning, development, documentation, and production of technology-based learning and multimedia-based education and training materials and programs. Lecture, lab. Prerequisite: GIT 412.

Git 537 Current Issues in Quality Assurance. (3)*not regularly offered*

Directed group study of selected issues relating to quality assurance in the printing, publishing, and information industry.

Git 538 Personnel Development for the Graphics Industry. (3)*not regularly offered*

Employee training and development specific to production and management in the graphics industry.

Git 590 Reading and Conference. (1–12)*not regularly offered***Git 598 Special Topics. (1–4)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

INDUSTRIAL TECHNOLOGY MANAGEMENT (ITM)**ITM 402 Legal Issue for Technologists. (3)***fall*

American legal system and impact on technology management issues: contracts, torts, intellectual property, white collar crime, anti-trust, environmental, and employment.

ITM 405 Forecasting and Evolution of Technology. (3)*not regularly offered*

History and evolutionary nature of selected technologies, issues in the management of emerging technologies, and methods of technological forecasting. Prerequisite: IMC 346 (or its equivalent).

ITM 430 Ethical Issues in Technology. (3)*spring*

Topics in social responsibility for industrial technology and engineering. Prerequisite: IMC 346.

ITM 440 Introduction to International Business. (3)*spring*

International business principles and operations, including partnerships, trade agreements, currency issues, international sales, and cultural differences between countries. Prerequisite: IMC 346.

*General Studies: G***ITM 445 Industrial Internship. (1–10)***fall, spring, summer*

Work experience assignment in industry commensurate with student's program. Specialized instruction by industry with university supervision. Pass/fail. Prerequisites: advisor approval; junior standing; 2.50 GPA.

ITM 451 Industrial Distribution and Materials Management. (3)*not regularly offered*

Surveys topics in industrial distribution including, but not limited to, materials handling, purchasing, receiving, warehousing, traffic, inventory control, and shipping. Prerequisite: IMC 346 or ITM 343.

ITM 452 Industrial Human Resource Management. (3)*fall*

Concepts and practices of human resource management in a global industrial environment. Prerequisite: IMC 346.

ITM 453 Safety Management. (3)*not regularly offered*

Development and management of safety programs, education and training, and relationships within an organization. Prerequisite: ITM 343 or instructor approval.

ITM 455 Industrial Marketing Concepts. (3)*not regularly offered*

Customer and sales strategies for industrial organizations, including current practice and future planning. Prerequisites: ECN 111; IMC 346; junior standing.

ITM 456 Introduction to Organized Labor. (3)*spring*

Introduction to labor relations, unions, federations, collective bargaining, grievances, and labor legislation. Prerequisites: IMC 346; ITM 344.

ITM 461 Operations Management. (3)*fall*

Introduction to supervisory principles as applied to production of goods and services. Prerequisites: IMC 346; ITM 344.

ITM 480 Organizational Effectiveness. (3)*spring*

Human aspects of supervisory behavior in the industrial setting and how they influence efficiency, morale, and organizational practices. Prerequisite: IMC 346.

ITM 501 Managerial Economics. (3)*not regularly offered*

Basic managerial economic tools and techniques applied to unique concerns of scientifically intensive firms operating in rapidly evolving industrial sectors.

ITM 502 Financial Management. (3)*not regularly offered*

Examines corporate financial and managerial accounting systems, budgeting, and financial policy, using microcomputers to analyze, forecast, and report information.

ITM 503 Marketing Management. (3)*not regularly offered*

Modern methods and industrial case studies of planning, pricing, promoting, and distributing goods and services in the global marketplace. Prerequisites: ITM 480 (or its equivalent); instructor approval.

ITM 504 Law and Ethics for Technical Professionals. (3)*not regularly offered*

Analyzes legal and ethical framework for making managerial decisions in the corporate environment of engineering- and technology-related industries.

ITM 520 Strategic Management of Technology. (3)*not regularly offered*

Analyzes entrepreneurial dynamics and technology development, methods of research and development management, new technology implementation, and start-up organization. Prerequisites: ITM 480 (or its equivalent); instructor approval.

ITM 540 International Management. (3)*not regularly offered*

Practices and procedures for effective management of multinational business organizations, including partnerships, joint ownerships, and global subsidiaries.

ITM 548 Statistical Methods for Research. (3)*not regularly offered*

Multivariate statistical techniques to analyze research data. Uses statistical software and applications. Prerequisite: STP 420 (or its equivalent).

ITM 549 Research Techniques and Applications. (3)*fall and spring*

Selection of research problems, analysis of literature, individual investigations, preparing reports, and proposal writing. Prerequisite: STP 420 (or its equivalent).

ITM 550 Industrial Training and Development. (3)*not regularly offered*

Training techniques and learning processes. Planning, developing, evaluating, and managing industrial and governmental programs. Prerequisite: ITM 480.

ITM 552 Global Management Philosophies. (3)*not regularly offered*

Analyzes and compares significant supervision philosophies developed in various industrial nations and their potential application in the United States.

ITM 560 Managerial Decision Making. (3)*fall*

Analyzes common decision-making bias and techniques to overcome them. Uses both subjective quantitative decision tools and computerized decision aids.

ITM 570 Advanced Project Management. (3)*spring*

Planning, organizing, coordinating, and controlling staff and project groups to accomplish the project objective.

ITM 593 Applied Project. (1–12)*not regularly offered***ITM 598 Special Topics. (1–4)***not regularly offered*

Possible topics:

(a) Quantitative Research Analysis

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Department of Manufacturing and Aeronautical Engineering Technology

The faculty in the Department of Manufacturing and Aeronautical Engineering Technology (MAET) in the College of Technology and Applied Sciences, ASU East, offer the M.S.Tech. degree. A minimum of 33 semester hours of approved courses is required. Both a thesis and applied project option are available. The flexible program permits the student to select a combination of courses in the relevant concentration and supporting areas to meet individual career goals in technology or to provide the foundation for further advanced study.

The department provides the student with a number of programs of study that presuppose a sound technical undergraduate degree. The programs are designed to provide the graduates with technical and professional skills that will facilitate preparation for and advancement in leadership positions in industry, education, government, and military. Laboratories and classrooms are well equipped, and the

faculty members administering the classes have relevant teaching, research, industry and training experience and background. Areas of concentrations include aeronautical engineering technology, instrumentation and measurement technology, manufacturing engineering technology, mechanical engineering technology, and security engineering technology. The instrumentation and measurement technology concentration is offered jointly with the Department of Electronics and Computer Engineering Technology.

The student may select one of the areas to meet the requirement of 16–18 semester hours. Careful program selection in coordination with a faculty advisor and/or advisory committee is an essential aspect of building a focused program for the student. The selection process also facilitates the potential for expanding the depth and breadth of the training the student may receive in related areas. The supporting area (six to nine semester hours) may be selected from outside the department upon approval from the supervisory committee. The thesis option includes six hours of research credits spread over at least two semesters.

Admission. Applicants are expected to satisfy all requirements for admission to the Graduate College. Industrial experience beyond completion of a baccalaureate degree is strongly recommended. Applicants with deficiencies or those not meeting the prerequisites may be required to complete them before being admitted to the degree program.

Program of Study. All candidates for the M.S.Tech. degree program are required to complete a minimum of 33 semester hours of graduate credit as follows:

Thesis Option	
Technical area of emphasis	18
Supporting area	6
Research course	3
Research	6
Total	33
Applied Project Option	
Technical area of emphasis	18
Supporting area	9
Research course	3
Applied project.....	3
Total	33

Additional courses may be assigned by the supervisory committee depending on the background of the candidate. The program is designed for flexibility, permitting the student to select a combination of courses in a technical area and supporting area to meet individual goals.

Final Examinations. An applied project or thesis is required, upon completion of the approved course of study or during the last semester. An oral defense of the applied project or thesis is required.

RESEARCH ACTIVITY

Department faculty are engaged in both theoretical and applied research projects, involving undergraduate and graduate students in both manufacturing and aeronautical-related topic areas. Graduate students employed in local industry are encouraged to develop research topics that address problems of interest to their employers.

Current research interests of the faculty include manufacturing modeling and simulation—with a particular focus on

the semiconductor fabrication process, “smart” materials—especially composite materials, hydrogen generation and use as a fuel, optimization of turbine engines, machinability and manufacturing processes, and design.

Applied research projects are carried out in a number of well-equipped laboratories and facilities: computer-aided design and computer-aided manufacturing laboratory, machining center laboratory, composite materials laboratory, energy conversion and combustion laboratory, automation laboratory, welding and casting laboratory, materials inspection and metrology laboratory, and metallurgy/materials testing laboratory.

AERONAUTICAL ENGINEERING TECHNOLOGY (AET)

AET Note 1. Flight instruction costs are not included in university tuition and fees.

AET 409 Nondestructive Testing and Quality Assurance. (1)
not regularly offered

Purpose of inspection and quality assurance. Theory and application of nondestructive inspection methods. Application of pertinent standards, specifications, and codes. Lecture, lab. Cross-listed as AMT 409. Credit is allowed for only AET 409 or AMT 409. See AET Note 1. Prerequisite: AMT 280 or MET 230.

AET 415 Gas Dynamics and Propulsion. (3)

spring

Introduction to compressible flow, internal and external flow, and aerothermodynamic analysis of propulsion systems. Prerequisite: MET 434.

AET 417 Aerospace Structures. (3)

fall

Analysis and design of aircraft and aerospace structures. Shear flow. Semimonocoque structures. Effects of dynamic loading. Prerequisites: AET 300, 312; MET 313.

AET 420 Applied Aerodynamics and Wind Tunnel Testing. (3)

fall

Introduction to viscous and inviscid flow and their relationship to aircraft lift and drag. Wind tunnel design and testing. Lecture, lab. Prerequisites: AET 300; MET 434.

AET 432 Applied Heat Transfer. (3)

fall

Steady-state and transient conduction, heat transfer by convection and radiation. Applications of heat transfer. Prerequisite: MET 434 or instructor approval.

AET 487 Aircraft Design II. (3)

spring

Basic aerodynamics and airplane performance analysis methods applied to practical design project. Prerequisite: AET 300.

AET 490 Advanced Applied Aerodynamics. (3)

not regularly offered

Study of fluid motion and aerodynamics. Essentials of incompressible aerodynamics and computational fluid dynamics. Elements of laminar and turbulent flows. Prerequisites: AET 312; ETC 100; MAT 262.

AET 500 Research Methods. (1–12)

not regularly offered

AET 524 Application of Heat Transfer. (3)

fall

Energy conservation, steady-state and transient conduction, convection transfer, free and forced convection Reynolds analogy, blackbody and environmental radiation. Prerequisite: MET 434 or instructor approval.

AET 525 Advanced Propulsion. (3)

spring

Mechanics and thermodynamics of propulsion systems. Solid, liquid propellant rocket design performance. Electrical nuclear propulsion systems. Space missions. Prerequisites: both AET 415 and 420 (or MET 434) or only instructor approval.

AET 560 Numerical Methods in Engineering Technology. (3)

not regularly offered

Analyzing problems in physical sciences, modeling of physical problems, perturbation techniques, curvefitting, data analysis, numerical solutions, ordinary and partial differential equations.

AET 580 Practicum. (1–12)

not regularly offered

AET 583 Field Work. (1–12)*not regularly offered***AET 584 Internship. (1–12)***not regularly offered***AET 590 Reading and Conference. (1–12)***not regularly offered***AET 591 Seminar. (1–12)***not regularly offered***AET 592 Research. (1–12)***not regularly offered***AET 593 Applied Project. (1–12)***not regularly offered***AET 594 Conference and Workshop. (1–12)***not regularly offered***AET 595 Continuing Registration. (1)***not regularly offered***AET 598 Special Topics. (1–4)***not regularly offered***AET 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

MANUFACTURING ENGINEERING TECHNOLOGY (MET)**MET 401 Quality Assurance. (3)***spring*

Introduction to statistical quality control methods design of experiments, sampling, gage requirements, specifications, quality assurance tools emphasizing CNC-CMM programming. Lecture, lab. Prerequisite: junior standing.

MET 416 Applied Computer-Integrated Manufacturing. (3)*fall*

Techniques and practices of computer-integrated manufacturing, with emphasis on computer-aided design and computer-aided manufacturing. Prerequisite: MET 345.

*General Studies: CS***MET 432 Thermodynamics. (3)***spring*

Thermodynamics of mixtures. Combustion process. Applies thermodynamics to power and refrigeration cycles. Prerequisite: ETC 340.

MET 433 Thermal Power Systems. (4)*not regularly offered*

Analyzes gas power, vapor power, and refrigeration cycles. Components of air conditioning systems. Direct energy conversion. Psychrometry. Analyzes internal combustion engines and fluid machines. Lecture, lab. Prerequisite: MET 432 or instructor approval.

MET 434 Applied Fluid Mechanics. (3)*spring*

Fluid statics. Basic fluid flow equations. Viscous flow in pipes and channels. Compressible flow. Applies fluid measurement and flow in conduits. Prerequisite: ETC 340.

MET 435 Alternate Energy Sources. (3)*not regularly offered*

Alternate energy systems, energy use and its impact on the environment, and demonstrating practical alternative energy sources to fossil fuels. Prerequisite: instructor approval.

MET 436 Turbomachinery Design. (3)*not regularly offered*

Applies thermodynamics and fluid mechanics to the analysis of machinery design and power cycle performance predictions. Prerequisites: ETC 340; MET 434.

MET 438 Design for Manufacturing II. (4)*fall*

Applies mechanics in design of machine elements and structures. Uses experimental stress analysis in design evaluation. Lecture, lab. Prerequisite: AET 312 or MET 331 or instructor approval.

MET 442 Specialized Production Processes. (3)*fall*

Nontraditional manufacturing processes, emphasizing EDM, ECM, ECG, CM, PM, HERF, EBW, and LBW. Prerequisite: MET 231.

MET 443 CNC Computer Programming. (3)*fall*

Theory and application of N/C languages using CAM software and CNC machine tools. Lecture, lab. Prerequisite: MET 345 or instructor approval.

MET 444 Production Tooling. (3)*fall*

Design and fabrication of jigs, fixtures, and special industrial tooling related to manufacturing methods. Lecture, lab. Prerequisite: MET 345.

MET 448 Expert Systems in Manufacturing. (3)*not regularly offered*

Introduction to expert systems through conceptual analysis, with emphasis on manufacturing applications. Prerequisite: MET 231.

MET 451 Introduction to Automation. (3)*spring*

Introduction to automation. Topics include assembly techniques, fixed and flexible automation systems, robots, material-handling systems, sensors, and controls. Lecture, lab. Prerequisite: MET 346.

MET 452 Implementation of Robots in Manufacturing. (3)*not regularly offered*

Robotic workcell design, including end effectors, parts presenters, and optimum material flow. Prerequisite: MET 451 or instructor approval.

MET 453 Robotic Applications. (3)*spring*

Lab course utilizing robots and other automated manufacturing equipment to produce a part. Students are required to program robots, as well as interface the robots with other equipment. Prerequisite: instructor approval.

MET 460 Manufacturing Capstone Project I. (3)*fall*

Small-group projects designing, evaluating, and analyzing components, assemblies, and systems. Develop products/manufacturing techniques demonstrating state-of-the-art technology. Lecture, lab. Prerequisites: MET 331, 341, 346; senior standing.

MET 461 Manufacturing Capstone Project II. (3)*spring*

Small-group projects applying manufacturing techniques, with emphasis on demonstrating state-of-the-art technology. Lecture, lab. Prerequisite: MET 460 or instructor approval.

MET 500 Research Methods. (1–12)*not regularly offered***MET 501 Statistical Quality Control Applications. (3)***spring*

SPC problem-solving techniques for implementation in industrial setting; design and analysis of experiments. Prerequisite: instructor approval.

MET 502 Specialized Production Processes. (3)*fall*

Specialized production processes including lasers, electronic beam, abrasive and water jet, and chemical and thermal processes. Prerequisite: instructor approval.

MET 504 Applications of Production Tooling. (3)*fall*

Design and fabrication of fixtures, jigs, templates, and specialized industrial tooling for manufacturing. Lecture, lab. Prerequisite: instructor approval.

MET 507 Manufacturing Enterprise. (3)*fall and spring*

Organization and project management of cellular manufacturing methods, including IIT and lean manufacturing. Prerequisite: instructor approval.

MET 509 Applied Engineering Economics. (3)*spring*

Fundamentals of engineering economics in a practical, industry-based approach. Includes effects of depreciation, taxes, inflation, and replacement analysis. Lecture, computer lab experiences.

MET 512 Introduction to Robotics. (3)*not regularly offered*

Introduction to industrial robots. Topics include: robot workspace, trajectory generation, robot actuators and sensors, design of end effectors, and economic justification. Application case studies. Prerequisite: instructor approval.

MET 513 Advanced Automation. (3)*fall*

Analysis and design of hard and flexible automation systems. Particular attention to material-handling technology. Prerequisite: instructor approval.

MET 514 CNC Computer Programming. (3)*spring*

Theory and application of N/C languages using CAM software and CNC machine tools. Lecture, lab. Prerequisite: instructor approval.

MET 515 Manufacturing Simulation. (3)*spring*

Computer simulation of manufacturing operations. Discrete event simulation models range from individual processes to whole factories. Lecture, computer lab experiences.

MET 517 Applied Computer-Integrated Manufacturing. (3)*fall*

Techniques and practices of computer-integrated manufacturing, with emphasis on computer-aided design and computer-aided manufacturing. Prerequisite: MET 345 or instructor approval.

MET 560 Fundamentals of Security Engineering. (3)*fall*

Definitions of threats, fundamentals of design of physical protection systems, computer modeling and analysis of security systems.

MET 571 Waste Minimization and Waste Prevention. (3)*spring*

Life cycle analysis, selection of environmentally compatible materials, design of waste minimization equipment and operation, economics of waste minimization and prevention. Prerequisite: ETC 340 or instructor approval.

MET 580 Practicum. (1–12)*not regularly offered***MET 584 Internship. (1–12)***not regularly offered***MET 590 Reading and Conference. (1–12)***not regularly offered***MET 591 Seminar. (1–12)***not regularly offered***MET 592 Research. (1–12)***not regularly offered***MET 593 Applied Project. (1–12)***not regularly offered***MET 594 Conference and Workshop. (1–12)***not regularly offered***MET 595 Continuing Registration. (1)***not regularly offered***MET 598 Special Topics. (1–4)***not regularly offered***MET 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

SECURITY ENGINEERING TECHNOLOGY (SET)**SET 540 Explosives Surety. (3)***fall*

Physical and chemical nature of explosives; detonation models; initiating systems; commercial, military, and improvised explosives; investigations; and counter measures. Lecture, lab. Prerequisite: graduate standing.

SET 560 Physical Security I. (3)*spring*

Systems engineering principles and concepts to guide the design, analysis, and implementation of protection systems. Lecture, lab. Prerequisite: graduate standing.

SET 561 Physical Security II. (3)*fall*

Scientific theory behind analysis of physical protection systems. Includes probability and statistics, data collection techniques, algorithm processing. Lecture, lab. Prerequisite: SET 560.

SET 570 Security System Instrumentation. (3)*fall*

Operating principles, limitations, and test procedures of security instrumentation and sensors. Lecture, lab. Prerequisite: SET 560.

SET 592 Research. (1–12)*not regularly offered***SET 598 Special Topics. (1–4)***not regularly offered***SET 599 Thesis. (1–12)***not regularly offered*

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Theatre**Master's and Doctoral Programs****(GHALL 232) 480/965-5359****herbergercollege.asu.edu/theatre**

PROFESSORS

BARKER, BEDARD, ECKARD, GINER, KNAPP, MASON,
SALDAÑA, THOMSON, WILLS

ASSOCIATE PROFESSORS

ACKER, EDWARDS, HOLLOWAY, RISKE, VINING

ASSISTANT PROFESSORS

REYES, STERLING, WOODSON

LECTURERS

IRVINE, SMITH-DAWSON, TONGRET

The faculty in the Department of Theatre offer graduate programs leading to the M.A., the Master of Fine Arts, and the Ph.D. degrees in Theatre. Areas of concentration are performance, scenography and theatre for youth at the M.F.A. level and theatre for youth at the Ph.D. level. Students may also pursue an interdisciplinary program leading to the M.F.A. degree in Creative Writing. This program is offered by the faculties in the Departments of English and Theatre (see "English," page 202).

MASTER OF ARTS

The M.A. degree in Theatre is a flexible program of advanced theatre studies that prepares students for graduate study beyond the master's level. The program primarily emphasizes theoretical studies.

See "Master's Degrees," page 100, for general requirements.

Admission. Applicants must meet all admission requirements of the Graduate College. In addition, the Department of Theatre requires comprehensive undergraduate preparation in theatre (at least a Theatre minor or its equivalent), acceptable scores on either the Graduate Record Examination (GRE) or Miller Analogies Test, three letters of recommendation, and an undergraduate GPA of 3.00.

Application Deadline. The first deadline for receipt of applications and test scores is March 1 (February 1 for Creative Writing). After that date, admission is subject to space availability.

Deficiencies. Deficiencies in undergraduate preparation (not to exceed 12 hours) may be removed while pursuing the

M.A. degree; courses taken to remove deficiencies may not be counted toward the degree.

Program of Study. The required courses are THE 500, 504, 505, 520, and 521. Additional course work to complete the degree is selected by the student with the approval of the supervisory committee. Theatre courses must be completed with a grade of “B” or higher. A thesis or equivalent is required.

Foreign Language Requirements. Optional, depending upon research area, and with the approval of the supervisory committee.

Thesis or Equivalent Requirements. For students electing to prepare a thesis, the program consists of a minimum of 24 semester hours of graduate work and three hours each of thesis (599) and research (592) credit. A research thesis is especially recommended for students planning to continue graduate study beyond the master’s degree and may be elected with the approval of the supervisory committee.

In consultation with their supervisory committee, students may elect to prepare a thesis equivalent. This option consists of 36 semester hours of graduate work, of which six hours are research (592) credit, and three hours of THP 593 Applied Project. Each student develops an approved project and supports this project with a written document. In addition, at least 18 semester hours of course work on the program of study must be 500-level courses and 20 semester hours must be in the major field.

Final Examinations. Both final written and oral examinations are required of all candidates. The written examination is based on the required courses; the oral examination is a defense of the thesis or equivalent.

MASTER OF FINE ARTS

The M.F.A. degree in Theatre is a 60-semester-hour professional program with concentrations in performance, scenography, and theatre for youth. It is a terminal degree for students interested in pursuing professional and educational careers. The concentration in performance is focused on developing performers as creative artists. It emphasizes skills for approaching and creating new work and developing entrepreneurship, performance applications in multimedia, interdisciplinary collaboration, artistic integrity, and social responsibility.

In the scenography concentration, students learn skills and methodologies to create and execute designs in costumes, lighting, and scenery.

The concentration in theatre for youth is designed to prepare candidates for work as drama specialists; for college and university teaching in the field of theatre for youth; for professional careers in children’s theatre; and for work in community theatres, recreational programs, and various social agencies.

Admission. Applicants must meet all admission requirements of the Graduate College. In addition, the Department of Theatre requires a minimum of 30 semester hours of course work in theatre, a minimum GPA of 3.20 for all course work in theatre, and acceptable scores on either the GRE or MAT.

For the concentration in performance, requirements include:

1. an interview and audition consisting of two performed selections, not to exceed four minutes total;
2. three letters of recommendation; and
3. a detailed statement of purpose.

Dates and sites for interviews may be obtained from the Department of Theatre.

For the concentration in scenography, three letters of recommendation are required from leaders in the field of theatre, education, or art. In addition, applicants must provide a portfolio of 12 slides or photographs of their work with a return envelope and postage, as well as a statement of educational and artistic objectives. An interview is recommended; dates and sites may be obtained from the Department of Theatre.

For the concentration in theatre for youth, three letters of recommendation are required from leaders in the field of theatre for youth, theatre education, or recreation, as well as a statement of educational and career goals. Submission of a current résumé is also necessary. An interview is suggested but not required.

More detailed information regarding admission requirements for the concentration may be obtained from the Department of Theatre.

Application Deadline. The first deadline for receipt of applications and test scores is March 1. After that date, admission is subject to space availability.

Program of Study. Each student works closely with a supervisory committee to develop a program of study in required and elective course work. All M.F.A. candidates majoring in Theatre are evaluated at the end of each semester by their supervisory committee, with the responsibility resting on each student for documenting professional development. The advancement of each student through each of the three years in the M.F.A. program is dependent upon a positive recommendation of the supervisory committee.

The program for the performance concentration consists of a minimum of 60 semester hours, distributed as follows: 48 hours of course work in the major (THE 500, 504, 505, 520, 521; THP 501, 502, 503, 504, 598); six hours of THE 692 Research; and six hours of THP 693 Applied Project.

The program for the scenography concentration consists of 60 semester hours distributed as follows: 43 hours of required course work in the major (THE 500 [one hour], 504, 505, 520, 521; THP 506, 530, 540, 545, 649 [three hours], 691, six hours each of THP 684 Internship and THP 693 Applied Project); 12 hours of additional design and/or technical theatre classes which may be selected from THE 430, 431; THP 431, 435, 441, 442, 444, 445, 494; and five additional hours of electives subject to the approval of the supervisory committee.

The program for theatre for youth consists of 60 semester hours, distributed as follows: 39 hours of required course work in the major (THE 500, 504, 505, 520, 521, 524; THP 411, 511, and 611 or 618, six hours each of THP 684 Internship and THP 693 Applied Project); and 21 hours of approved electives in the major and related areas.

Credit Before Admission. Subject to approval by the supervisory committee, a maximum of 24 semester hours of graduate work from a completed master’s degree program earned at ASU or another accredited institution may be applied to the program of study. In other cases, a maximum

of nine semester hours of nondegree graduate work from ASU or another institution may be applied (see “Credit Completed Before Admission,” page 101). All course work for the degree must be completed within the six-year time limit.

Foreign Language Requirements. Optional.

Final Examinations. A comprehensive examination or comprehensive review in the area of concentration is required. In addition, students failing to receive a grade of “B” or higher in THE 504, 505, 520, and 521 must pass a written comprehensive examination on the subject matter of those courses. A final project THP 693 Applied Project (six hours), supported by written documentation and defended in an oral defense, is required.

Deficiencies. Deficiencies in undergraduate preparation of no more than 12 hours may be removed while pursuing the M.F.A. degree; courses taken to remove deficiencies may not be counted toward the degree.

DOCTOR OF PHILOSOPHY

The Ph.D. degree is designed to give students a broad knowledge of theatre as well as special research, production, and teaching skills in theatre for youth. A detailed description of the program may be obtained from the Department of Theatre.

See “Doctor of Philosophy,” page 103, for general requirements.

Admission. Applicants must meet all admission requirements of the Graduate College. In addition, the Department of Theatre requires a master’s degree in theatre or education; a minimum of 36 hours of undergraduate and graduate course work in theatre (to include courses in dramatic literature, acting, directing, stagecraft, improvisation with youth, theatre for children, children’s literature, research methods, theatre history, and theatre theory/criticism); acceptable scores on the GRE and on the Test of English as a Foreign Language (where applicable); and three letters of recommendation.

Application Deadline. The first deadline for receipt of applications and test scores is March 1. After that date admission is subject to space availability.

Program of Study. A total of 90 semester hours is required for this degree, consisting of (1) a minimum of 66 semester hours of graduate course work (including a maximum of 30 semesters hours accepted from the first year of graduate study, a core of 15 semester hours of required courses, and 21 semester hours of elective and research credits); and (2) 24 semester hours of research and dissertation preparation.

A minimum of 30 semester hours of the approved Ph.D. program, exclusive of dissertation and research hours, must be completed after admission to the Ph.D. at ASU.

In meeting these requirements, students, with the advice of the supervisory committee, may select theatre courses in areas such as theatre education, directing, acting, design, playwriting, theatre history, and theatre theory/criticism, in addition to tutorial courses, as well as courses offered by other departments in areas such as pertinent research methodologies, educational theory and methodology, aesthetic theory, the arts and arts education, and children’s literature.

Students are encouraged to be involved in on- and off-campus production and teaching. All activities are selected to help students meet the goals of the program and develop the capability of becoming leaders in the field.

Research Technique Requirement. Students must successfully complete two graduate level courses in qualitative or quantitative research approved by their committee, or they must successfully pass an examination in a foreign language approved by their committee.

Preliminary Reviews. Reviews of a student’s performance in courses and development of research skills, artistic skills, and teaching competencies are conducted by the supervisory committee at the end of each semester.

Comprehensive Examinations. These examinations are composed of written and oral components centering upon: theatre history, literature, and criticism; theatre for youth and theatre in education; and the research area.

Dissertation Requirements. A dissertation based on original research work of high quality, demonstrating proficiency in the student’s special field, is required. (See “Doctoral Dissertations,” page 102.)

Financial Assistance. University scholarships, fellowships, grants, and other forms of financial assistance are available. See “Financing Graduate Studies,” page 46, and “Assistantships and Associateships,” page 98. Graduate assistantships are granted by the Department of Theatre; application forms and information concerning graduate assistantships are available through the graduate secretary, Department of Theatre. A current résumé and a minimum of three letters of recommendation must accompany applications for graduate assistantships.

RESEARCH ACTIVITY

Recent Ph.D. dissertations completed in Theatre for Youth:

An Interrogation of Drama in Colonial Educational Contexts: Three Boys Schools in Queensland, Australia, by Janet McDonald.

Mapping the Cultural Geography of Childhood or Constructing the Child in Child Drama: 1950–Present, by Stephani Woodson.

Drama Activities at the Ethical Culture School, 1878–1930, by Virginia Page Tennyson.

Longevity and the Secondary Theatre Arts Teacher: A Case Study, by Cynthia Brown.

Russian Theatre for Young Audiences and the Changes in Ideological Function with Glasnost and Perestroika, by Manon C. van de Water.

Understanding Two Teachers’ Practices and Their Use of Theatre in the Elementary School Classroom, by Lorenzo Garcia.

THEATRE (THE)

THE 400 Focus on Film. (3)

fall, spring, summer

Specialized study of prominent film artists, techniques, and genres. Emphasis on the creative process. May be repeated for credit. Prerequisite: ENG 101 or 105.

THE 402 Gender Identity in Film. (3)*fall, spring, summer*

Examines the representation of gender in Hollywood cinema with particular focus on films from 1970 to the present. Prerequisite: THE 300.

THE 403 Independent Film. (3)*fall and spring*

Examines independent films and filmmakers in the United States, 1968 to the present

THE 404 Foreign Films and Filmmakers. (3)*once a year*

Films and filmmakers from Europe, Asia, Australia, South America, and Caribbean. Emphasis on cultural content and filmmaking philosophies.

THE 405 Film: Great Performers and Directors. (3)*fall and spring*

Examines processes and influences of one or more great film performers and/or directors. May be repeated for credit. Prerequisite: THE 300.

*General Studies: HU***THE 420 History of the American Theatre. (3)***fall*

History of the plays, artists, and events in the development of American theatre from colonial to modern times.

*General Studies: HU, H***THE 421 History of the English Theatre. (3)***spring*

History of the artists, events, and plays in the development of English theatre from medieval times to the present. Lecture, group and independent work. Prerequisite: THE 100 or 220.

*General Studies: L/HU***THE 422 Latino and Latina Theatre. (3)***spring*

Readings, discussion, video of dramatic literature and production styles of Latino/Latina playwrights and theatre companies in the United States. Prerequisites: both ENG 101 and 102 or only ENG 105.

THE 424 Trends in Theatre for Youth. (3)*not regularly offered*

Surveys the history, literature, and contemporary practices in theatre for youth.

THE 425 History of Asian Theatre. (3)*not regularly offered*

History and production techniques of theatre forms in India, China, and Japan. Prerequisite: 6 hours in theatre history or written instructor approval.

*General Studies: L/HU***THE 430 History of Costume: Western Tradition. (3)***not regularly offered*

Studies major costume styles throughout history of Western civilization and how these fashions reflected society. Explores how styles can be used by theatrical costumers.

THE 431 History of Costume: Non-Western Tradition. (3)*not regularly offered*

Studies major costume styles of India, Asia, Eastern Europe, and the Middle East and how these fashions reflected society. Explores how styles can be used by theatrical costumers.

THE 440 Theatre Forms and Contexts. (3)*fall*

Explores 20th-century modernist theatrical forms and movements and development of alternative strategies for analyzing contemporary theatre and performance. Prerequisites: THE 220, 320, 321; Theatre major.

THE 480 Methods of Teaching Theatre. (4)*spring*

Applies materials, techniques, and theories for theatre with 9th-through 12th-grade students. Emphasis on curriculum development and praxis. Prerequisite: theatre education concentration or written instructor approval.

THE 500 Research Methods. (1–3)*fall*

Introduction to graduate study in theatre.

THE 504 Studies in Dramatic Theory and Criticism. (3)*fall*

Dramatic theory, criticism, and aesthetics from the classical period to the 19th century. Related readings in dramatic literature. Prerequisite: Theatre major.

THE 505 Studies in Dramatic Theory and Criticism. (3)*spring*

Dramatic theory, criticism, and aesthetics from the 19th century to the present. Related readings in dramatic literature. Prerequisite: Theatre major.

THE 510 Studies in Literature. (1)*fall and spring*

Assigned individual reading programs in standard sources and masterpieces in theatre literature. May be repeated for credit in different sections. Possible topics:

- (a) Acting–Directing
- (b) Criticism
- (c) Design–Technical
- (d) History

THE 520 Theatre History and Literature I. (3)*fall*

Surveys historiographical issues, historical periods, and theatre literature, through the 17th century.

THE 521 Theatre History and Literature II. (3)*spring*

Surveys historiographical issues, historical periods, and theatre literature, from the 17th century to present.

THE 524 Advanced Studies in Theatre for Youth. (3)*fall*

In-depth study of the history, literature, and contemporary practice of theatre for youth. Prerequisite: written instructor approval.

THE 591 Seminar. (3)*once a year*

Selected topics in child drama, community theatre, and theatre history. Prerequisite: written instructor approval.

THE 598 Special Topics. (1–4)*not regularly offered*

Possible topics:

- (a) College Teaching

THE 692 Research. (1–12)*not regularly offered***THE 700 Advanced Research Methods. (3)***fall*

Critical review of research, development, and design of research in theatre and theatre for youth.

THE 791 Seminar. (3)*not regularly offered*

Selected topics offered on a revolving basis. May be repeated for credit when topics vary.

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.**THEATRE PERFORMANCE AND PRODUCTION (THP)****THP 401 Theatre Practicum. (1–3)***fall, spring, summer*

Production assignments for advanced students of technical production, stage and business management, and design. May be repeated for credit. Prerequisite: written instructor approval.

THP 406 Scenography. (3)*not regularly offered*

Process of production collaboration. Taught in conjunction with THP 519. Prerequisites: a combination of THP 214 and 340 and 345 or only instructor approval.

THP 411 Methods of Teaching Drama. (3)*fall*

Applies materials, techniques, and theories with grades K–8 youth. Regular participation with children. Prerequisite: THP 311 or written instructor approval.

THP 418 Directing the Actor. (3)*fall*

Practical applications of directing for the stage. Rehearsal and presentation of scenes and short plays. Prerequisites: THP 318; instructor approval.

THP 430 Costume Design. (3)*not regularly offered*

Principles of costume design with projects in both modern and period styles. Includes budgets and fabric/pattern estimates. Lecture, studio. Prerequisite: THP 214.

THP 431 Advanced Costume Construction. (3)*once a year*

Specialized training in costume construction problems and crafts with projects in tailoring, millinery, and period accessories. Prerequisites: both THP 214 and 331 or only instructor approval.

THP 435 Advanced Technical Theatre. (3)*once a year*

Selection of materials, drafting of working drawings, tool operation, and construction techniques. 2 hours lecture, 2 hours lab. Prerequisites: both THP 340 and 345 or only written instructor approval.

THP 440 Advanced Scene Design. (3)*once a year*

Advanced studio projects in designing scenery for a variety of stage forms. Fee. Prerequisite: THP 340 or written instructor approval.

THP 441 Scene Painting. (3)*not regularly offered*

Studio projects in painting stage scenery. Fee. Prerequisite: THP 340 or written instructor approval.

THP 442 Drawing. (3)*not regularly offered*

Techniques in drawing and rendering for scenic, costume, and lighting design. Prerequisite: written instructor approval.

THP 444 Drafting for the Stage. (3)*not regularly offered*

Fundamentals of and practice in graphic techniques for the stage. Introduction to computer-aided design for the stage. 2 hours lecture, 3 hours studio. Fee. Prerequisites: THP 213; written instructor approval.

THP 445 Advanced Lighting Design. (3)*not regularly offered*

Specialized techniques in stage lighting. Advanced application of design process, graphic techniques of design presentation, and use of qualities of light. Lecture, class workshops. Fee. Prerequisite: THP 345 or written instructor approval.

THP 450 Theatre Organization and Management. (3)*not regularly offered*

Overview of nonprofit arts: organizational design, strategic planning, financial management, and leadership. Prerequisite: THE 220.

THP 460 Playwright's Workshop. (3)*fall and spring*

Practice and study of creating characters, dialogue, scenes, plays, and monologues for the stage. May be repeated for credit. Studio, lecture. Prerequisite: written instructor approval.

THP 461 Scripts in Progress. (3)*fall and spring*

Studio work with the instructor, centered on revisions of original plays. May be repeated for credit. Studio. Prerequisite: THP 460 or written instructor approval.

THP 472 Advanced Movement for the Stage. (3)*once a year*

Movement techniques for the classical and nonrealistic theatre; stage combat and special skills. Prerequisite: THP 272 or instructor approval.

THP 477 Advanced Speech for the Stage. (3)*once a year*

Exercises to develop vocal flexibility and power; mastery of elevated American diction and language skills applied to classical and nonrealistic drama; stage dialects. Prerequisite: THP 377.

THP 481 Secondary School Play Production. (3)*fall*

Methods of directing, designing, and coordinating play production experiences at the secondary school level. Off-campus practicum. Prerequisites: both THP 318 and theatre education concentration or only instructor approval.

THP 484 Internship. (1–4)*once a year***THP 485 Acting: Advanced Classical Scene Study. (3)***once a year*

Rehearsal and performance of period, classical, and nonrealistic plays. Emphasis on understanding poetic language and strong vocal and physical skills. Prerequisite: THP 385 or instructor approval.

THP 486 The Meisner Approach to Acting. (3)*once a year*

Improvisations and exercises developed by Sanford Meisner applied to scene work from selected texts. Studio. Prerequisite: introductory acting classes.

THP 487 Acting for TV and Film. (3)*once a year*

Professional television and film acting techniques, terminology, and on-camera experience. Studio. Prerequisite: THP 207 or 285.

THP 488 Audition Techniques. (3)*once a year*

Techniques and preparation for stage, commercial, and TV/film auditions utilizing monologues, cold readings, and personal style. Studio. Prerequisite: introductory acting classes.

THP 489 Actor Career Development. (3)*once a year*

Familiarization with the business of acting: self-promotional tools and techniques, marketing strategies, finances, interview skills, and actor unions. Studio. Prerequisite: introductory acting classes.

THP 494 Special Topics. (1–4)*once a year*

Possible topics:

- (a) Advanced Acting Techniques
- (b) Advanced Scene Painting
- (c) Advanced Screenwriting
- (d) Advanced Stage Management
- (e) Performance and Technology
- (f) Problems in Directing
- (g) Properties and Dressings Design and Construction
- (h) Solo and Collaborative Performance
- (i) Solo Performance
- (j) Stage Dialects
- (k) Standards in the School K–12
- (l) Storytelling
- (m) Technical Theatre
- (n) Theatre of the Oppressed
- (o) Theory and Practice of Performance
- (p) Video and Industrial Scene Design

THP 498 Pro-Seminar. (1–7)*once a year*

Possible topics:

- (a) Directing. (1–6)
- (b) Projects. (1–6)
 - Costume Design
 - Lighting Design
 - Properties Design
 - Scenery Design
 - Technical Direction
- (c) Stage Management. (1–6)
- (d) Theatre for Youth Tour. (1–6)
- (e) Theatre in Education. (1–6)

Prerequisite: written instructor approval.

THP 501 Performance: Solo Performance. (8)*once a year*

Students begin to define their mission in art. Emphasis on the actor as a solo storyteller, speaking as herself or himself. Studio. Prerequisite: instructor approval.

THP 502 Performance: Aesthetics of Theatre Art. (8)*once a year*

Understanding and analyzing scripts and performance in order to be an effective actor/storyteller who speaks as a character. Projects focus on solo, duet performances. Studio. Prerequisite: instructor approval.

THP 503 Performance: The Ensemble. (8)*once a year*

Ensemble, working with a playwright, creates a play that addresses social issues through improvisation and community input. Studio. Prerequisite: instructor approval.

THP 504 Acting: Transformation II. (8)*once a year*

Fundamentals including combat, scansion, poetic language, acting style. Scene study, ensemble performance projects focused on Shakespeare, new scripts. Studio. Prerequisite: THP 503 or written instructor approval.

THP 506 Scenography. (3)*not regularly offered*

Process of production collaboration. Taught in conjunction with THP 519. Fee. Prerequisite: theatre graduate standing or written instructor approval.

THP 507 Acting: Advanced Research and Performance. (1–3)*once a year*

Acting in advanced theatre projects, productions, or collaborative

performance in directing classes. May be repeated for credit. Studio. Prerequisite: instructor approval.

THP 508 Multiethnic Workshop. (3)

fall and spring

Advanced workshop for development and presentation of works originating out of American ethnic cultures. Lecture, lab.

THP 509 Singing for Actors. (1)

fall and spring

Introduces the basics of singing technique. Breath control, resonance, articulation, exploration, and expansion of singing range. May be repeated for credit. Studio. Prerequisite: admission to M.F.A. performance concentration or written instructor approval.

THP 511 Improvisation with Youth Workshop. (3)

spring

Theories and techniques of drama with various populations of youth. Emphasis on how research informs practice. Includes practicum. Prerequisites: only THP 411 or both graduate standing and written instructor approval.

THP 512 Puppetry Workshop. (3)

fall and spring

Survey of puppetry in education, puppetry as an art form in design and performance. Fee. Prerequisite: graduate standing or written instructor approval.

THP 517 Stage Management Practicum. (3)

fall

Readings and research in stage management and participation as a stage manager in a university theatre production. Prerequisite: written instructor approval.

THP 518 Advanced Directing Lab. (3)

fall and spring

Active discovery of directing concepts through practical exercises and collaboration; deconstruction of contemporary/classic literature. Explores director as primary artist. Lab. Prerequisite: written instructor approval.

THP 519 Directing: Works in Progress. (3)

spring

Advanced projects in directing concentrating on a collaborative process between director, playwright, actors, and designers. Focuses primarily on new scripts or adaptations of literature. May be repeated for credit. Studio, on-site practicum. Prerequisites: THP 418; instructor approval.

THP 530 Advanced Costume Design. (3)

not regularly offered

Advanced studio projects in costume design for a variety of production forms. Prerequisite: written instructor approval.

THP 540 Scene Design Applications. (3)

once a year

Conceptual and practical application of the design process including graphic and sculptural projects. Practical design problems investigated in laboratory. Lab fee. Prerequisite: written instructor approval.

THP 545 Lighting Design Applications. (3)

not regularly offered

Advanced studio projects in stage lighting design. Prerequisite: written instructor approval.

THP 560 Playwright's Workshop. (3)

fall and spring

Practice and study of creating characters, dialogue, scenes, plays, and monologues for the stage. May be repeated for credit. Studio. Prerequisite: written instructor approval.

THP 561 Scripts in Progress. (3)

fall and spring

Studio work with the instructor centered on revisions of original plays. May be repeated for credit. Studio. Prerequisite: THP 560 or written instructor approval.

THP 562 Literary Management Workshop. (3)

fall

Advanced literary management for the contemporary theatre, including trends in new play development, festivals and productions throughout the United States. Participation in Arizona Playwriting Competition. Prerequisite: THP 560 or written instructor approval.

THP 584 Internship. (1–3)

once a year

Field research and on-site training in theatre for youth, community theatre, and production techniques. Prerequisite: written instructor approval.

THP 592 Research. (1–12)

not regularly offered

THP 593 Applied Project. (1–12)

once a year

Prerequisite: written instructor approval.

THP 594 Conference and Workshop in Child Drama. (3)

once a year

Prerequisite: written instructor approval.

THP 598 Special Topics. (1–4)

once a year

Lecture, studio. Possible topics:

- (a) Acting
- (b) Advanced Screenwriting
- (c) College Teaching:
 - Acting
 - Improvisation with Youth
 - Movement
 - Puppetry
 - Theatre for Social Change
 - Voice
- (d) Directing
- (e) Performance and Technology
- (f) Solo and Collaborative Performance
- (g) Solo Performance
- (h) Stage Dialects
- (i) Stage Management
- (j) Works in Progress:
 - Actor
 - Playwright

THP 599 Thesis. (1–12)

not regularly offered

THP 611 Improvisation with Youth Seminar. (3)

once a year

Examines current research, theory, and practices in drama with youth. Development and execution of research projects. Prerequisite: written instructor approval.

THP 618 Directing Practicum. (3)

once a year

Practical experience in directing and producing an entire play or musical for young audiences. Prerequisite: written instructor approval.

THP 649 Design Studio. (3)

fall and spring

Projects include design of scenery, costume, lighting, or sound for laboratory or mainstage productions. May be repeated for credit. Prerequisite: written instructor approval.

THP 684 Internship. (3–6)

fall, spring, summer

Field research in performance, improvisation with youth, theatre for youth, puppetry, and scenography. Prerequisite: written instructor approval.

THP 691 Seminar: Scenography. (3)

not regularly offered

Examines and researches modern concepts and practices of scenography. Prerequisite: written instructor approval.

THP 693 Applied Project. (1–12)

fall, spring, summer

Final projects for M.F.A. Theatre candidates in performance, scenography, and theatre for youth. Prerequisite: written instructor approval.

THP 783 Field Work. (1–12)

once a year

Possible topics:

- (a) Theatre Education

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.

Translation

See "Certificate in Translation," page 248.

Transportation Systems

Interdisciplinary Certificate Program

Mary Kihl
Director
 (ARCH 119) 480/965-6395
 Fax 480/965-3635
eastair.east.asu.edu/transportation

Aeronautical Management Technology (ASU East)

Professor: Gesell;
 Associate Professor: Jackson;
 Assistant Professor: Karp

Civil and Environmental Engineering

Professor: Mamlouk;
 Assistant Professors: Owusu-Antwi, Zhu

Geography

Professor: Burns;
 Associate Professor: Kuby

Planning and Landscape Architecture

Professors: Kihl, Mushkatel, Pijawka;
 Associate Professor: Guhathakurta

Under the auspices of the Graduate College, the interdisciplinary certificate in Transportation Systems program is administered by the Committee on Transportation Systems. The objective of this program is to enable existing ASU gradu-

ate students and transportation professionals with advanced degrees to examine transportation-related issues from a variety of perspectives and in the context of different travel modes.

The certificate program requires a minimum of 15 semester hours of course work. To qualify for the certificate, the student must complete an interdisciplinary issues proseminar class (three semester hours), complete three elective courses (nine semester hours) from an approved list of transportation-related courses in at least two disciplines that are outside the student's degree program, and complete a capstone research paper that explores a transportation problem from a multidisciplinary perspective (three semester hours). A thesis in the area of transportation may substitute for the capstone paper.

Master's degree candidates in good standing in participating departments may apply. Current practicing professionals who already hold a graduate degree or who have at least three years of postbaccalaureate professional transportation experience may also apply for admission to the certificate program. Applications are reviewed by the Transportation Systems Certificate Admissions and Advisory Committee, made up of representatives of participating departments. Enrollment in all classes outside the major requires permission of the instructor. For more information, contact the program director, 480/965-6395.

TRANSPORTATION SYSTEMS CERTIFICATE (TRC)

TRC 591 Seminar. (1-12)

fall and spring

TRC 593 Applied Project. (1-12)

fall and spring

Omnibus Graduate Courses. See page 50 for omnibus graduate courses that may be offered.



The Student Recreation Complex, featuring a 70-meter outdoor pool, is one of the finest collegiate workout facilities in the U.S.