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The Graduate School



1991-1993 Catalog



Indiana University of Pennsylvania

1991-1993 Graduate School Catalog

**IUP
Indiana, Pennsylvania 15705-1081**

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IUP is committed to providing leadership in taking affirmative action to attain equal educational and employment rights to all persons without regard to race, religion, national origin, ancestry, gender, physical handicap, or affectional or lifestyle preference. This policy is placed in this document in accordance with state and federal laws including Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, and Sections 503 and 504 of the Rehabilitation Act of 1973 as well as federal and state executive orders. This policy extends to disabled veterans and veterans of the Vietnam era. Please direct inquiries concerning equal opportunity and affirmative action to

Cynthia Cronk, Director
Office of Human Resources
G-30 Sutton Hall, IUP, Indiana, PA 15705

According to IUP's Mission Statement, “. . . The university community must be supportive of and open to all scholars regardless of race, religion, creed, age, sex, disability, or ethnic heritage . . .” Full participation from each member of the university community in activities that support this mission is encouraged. Each member of the university community has a right to study and work in an environment free from any form of racial, ethnic, and sexual discrimination. In accordance with federal and state laws, the university will not tolerate racial and ethnic discrimination.

IUP is accredited by the Middle States Association of Colleges and Secondary Schools, the National Council for Accreditation of Teacher Education, the National Association of Schools of Music for its music curricula, and the American Psychological Association for its psychology curricula. The university is a member of the Council of Graduate Schools in the United States and of the Northeast and the Pennsylvania Association of Graduate Schools.

IUP reserves the right to repeal, change, or amend the policies, regulations, and courses contained in this catalog at any time. Tuition and fees are also subject to change.

Press date: July, 1991

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The Graduate School at IUP

General Information

Graduate education was inaugurated at IUP in September, 1957. Master of Arts, Master of Business Administration, Master of Education, Master of Fine Arts, Master of Science, Doctor of Education, Doctor of Philosophy, and Doctor of Psychology degrees are currently available. Nondegree programs leading to certification in various teaching and school service fields are also available.

In all graduate programs the objectives are (1) to encourage excellence and scholarship; (2) to provide depth in the student's special field; and, (3) to stimulate enthusiasm for continued cultural and professional growth on the part of the student.

The Graduate School staff is assisted in its daily functioning by a) the Graduate Council, a standing committee of the University Senate concerned with graduate program curricular and policy matters; b) the Graduate Student Assembly, an elected graduate student body representative of all campus academic departments offering graduate programs, and c) the chairpersons and graduate studies coordinators of departments offering graduate course work.

IUP

Location

IUP, the largest state-owned university in Pennsylvania's State System of Higher Education, is located in Indiana, Pennsylvania, a community of 28,000 about fifty-five miles northeast of Pittsburgh and thirty miles north of Johnstown. Situated in the Allegheny foothills, Indiana has a moderate climate conducive to study the year round and a wide variety of historical, cultural, and recreational facilities both immediately at hand and in neighboring population centers.

Library

The IUP Libraries consist of the Stapleton/Stabley central facility, Cogswell Music Library, campus libraries in Kittanning and Punxsutawney, and the University School Library. Collectively, the University Libraries contain over 600,000 book volumes, 95,000 bound periodicals, 1.7 million items of microforms, 4,500 periodical subscriptions, and 35,000 media holdings. A wide range of resources and services are available to support teaching and research. The University Libraries are a select U.S. and State Government Depository, an associate member of the Center for Research Libraries, and a member of OCLC. Records of holdings in the IUP Libraries are accessible through an advanced version of the Carlyle online catalog system called IUP-TOMUS. TOMUS, (The Online Multiple User System) may be accessed through a modem by telephoning 357-7700 or via the IUP CHIEF (electronic communications) network and entering LIBRARY in response to the question, "Which service would you like?"

Dialogue online searching services are available to faculty and students of IUP. Online searching is supplemented by a number of CD-ROM databases (available within Stapleton Library) which run on a local area network. Located on the first floor of Stapleton Library within close proximity to the Reference Desk, databases include Dissertation Abstracts, ERIC, ABI/Inform, MLA, PsychLit, and Disclosure.

Interlibrary Loan services are available. Borrowing from other libraries is often curtailed between Thanksgiving and Christmas.

Stapleton Library has a limited number of shared and individual locked carrels for faculty and graduate students who are working on research requiring library resources. Application for locked study carrels should be made within the first two weeks of each semester at the Circulation Desk.

A \$10.00 key deposit is required.

Stapleton Library is open ninety-nine hours per week when classes are in session.

Hours are:

Monday-Thursday	7:45 a.m. - 11:45 p.m.
Friday	7:45 a.m. - 9:00 p.m.
Saturday	9:00 a.m. - 8:00 p.m.
Sunday	1:00 p.m. - 11:45 p.m.

Media Production and Distribution (Stabley 103) is open 8 a.m. to 4:30 p.m. Monday through Friday; Media Resources (Stabley second floor) and the Information Services (Reference) Desk are open when Stapleton Library is open with the exception that Media Resources closes at 10 p.m. Sunday through Thursday; and Special Collections and Archives is open 9 a.m. through 4:30 p.m., Monday through Friday.

A complete schedule of Library hours for the academic year may be obtained from the Stapleton Circulation Desk.

Book loans are made for three-week periods to students and may be renewed. Materials are subject to recall for the use of other borrowers. Periodicals do not circulate outside the building.

Periodicals, newspapers, and microform serials are located on the Ground Floor of Stapleton. Journals are shelved in closed stacks but are accessible to faculty and doctoral students.

The Computer Center

The Information Systems and Communications Center is located on the ground floor of Stright Hall. The center provides computational support for undergraduate and graduate courses, faculty and student research, and the administrative requirements of the university. The computing capacity of the center is provided by a large-scale, disk-oriented central processor which supports both time-sharing and batch processing services for the university community. Computer terminals, located both in the center and in various departments on campus, permit the use of the computer on a time-sharing basis. Aid in use of the computer and facilities may be obtained from user assistants on duty at the center and from the center's professional staff.

IUP Centers and Institutes

Centers and institutes serve a variety of functions. Each center/institute is unique in its focus and is created to meet a specifically identified need. Centers provide an opportunity for faculty to utilize their expertise through consultation, technical assistance, and research-related activities. Centers/institutes provide excellent opportunities for students to learn, to demonstrate their knowledge and skills, and to become involved in meaningful projects in the community. Centers/institutes strengthen the research and public service missions of the university and, therefore, enhance the quality of education.

<i>Center/Institute</i>	<i>Program Director</i>	<i>Telephone</i>
American Language Institute	Dan Tannacito	357-2402
Athletic and Sports Institute	Frank Condino	357-2757
Business Development Center	Robert Boldin	357-2465
Cardiac Rehabilitation Center	Edward Sloniger	357-4031
Center for Applied Communications and Information Systems	Ron Lester	545-9664
Center for Applied Psychology	Richard Magee	357-2446
Center for Drug-Free Schools	Robert Witchel	357-7820
Center for Economic Education	Arthur Martel	357-4775
	Nicholas Karatjas	357-4775
Center for Research in Criminology	Sherwood Zimmerman	357-6244
	Randy Martin	357-6244
Center for Vocational Personnel Preparation	Tom O'Brien	357-4434
	Mike Spewock	357-4434
Child Study Center	John Quirk	357-2445
Criminal Justice Training Center	Gary Welsh	357-4505
Highway Safety Center	Richard Hornfeck	357-4050
Institute for Research and Community Service:	Ginger Brown	357-2439
Applied Research Lab	Robert Sechrist	357-4530
Archaeological Services	Phillip Neusius	357-2733
Mid-Atlantic Addictions Training Institute	Robert Ackerman	357-4405
	Edward Gondolf	357-4405
Pennsylvania Center for the Study of Labor Relations	Martin Morand	357-2645
Pennsylvania/OSHA Consultation	Richard Christensen	357-2561
Principal Assessment Center	Robert Millward	357-5593
Small Business Institute	Tom Falcone	357-2535
Southwestern Pennsylvania Energy Center	Mark Geletka	357-5781
	Sara Crumm	357-7574
Southwestern Pennsylvania Industrial Resource Center	Ron Lester	545-7989
Speech and Hearing Clinic	Esther Shane	357-2451

Journal Publications

Five scholarly journals are published by the faculty at IUP. They are *Benjamin Mays Monograph Series*, *Criminal Justice Policy Review*, *The Literary Griot*, *Hispanic Journal*, *Studies in the Humanities and Works and Days: Essays in the Socio-Historical Dimensions of Literature and the Arts*.

The Foundation for IUP

The Foundation for IUP is a nonprofit agency established in 1967 to develop and maintain private support for IUP. It is governed by a twenty-four-member Board of Directors. The offices of Executive Director Anthony F. Lenzi '54 and his staff are located on campus in John Sutton Hall. Funds raised through contributions from alumni, friends, faculty and staff, corporations, and foundations are used to support scholarships, academic and athletic enrichment, departmental programs, and other priority needs of the university. In 1989-90, contributions received totaled over \$2.2 million, and the foundation's endowments are valued at over \$2.4 million.

University Testing Services

IUP is formally recognized as an official testing site by several national testing agencies. These include American College Testing, Educational Testing Service, Psychological Corporation, Law School Admissions Council, and College Board. The Office of Career Services sponsors IUP's University Testing Services as part of its comprehensive mission to place students in appropriate occupations and professional and graduate education programs. The following are of particular interest to potential students.

The Graduate Record Examination (GRE) is administered on nationally established dates five times each year. In the Saturday morning sessions the general examinations (formerly called aptitude examinations) are offered; the advanced examinations (specializations) are offered in the afternoon sessions. Information and registration booklets are available from the Graduate School or from the Office of Career Services. Registration forms must be sent directly to ETS in Princeton, New Jersey.

The Miller Analogies Test (MAT) is administered by University Testing Services frequently—usually monthly on a weekday afternoon. To register, contact the Office of Career Services at (412) 357-2235. All Graduate School applicants with a GPA below 2.6 must take the MAT.

The Graduate Management Admission Test (GMAT) is administered on nationally established dates. IUP is a regular center for some dates and can be a special center for other dates if fifteen registrations are submitted

to University Testing Services before the “special requests” deadline. Registrations for regular center dates, as listed in the GMAT booklet, are submitted directly to ETS. Information-registration booklets are available from the M.B.A. coordinator in the College of Business or from the Office of Career Services.

The National Teacher Examination (NTE) is administered on four nationally established dates. On two dates the common examinations are offered. The instrument is used generally by participating school systems for qualification and/or selection of instructional staff. This test is used at IUP in admission to the program for certification as a supervisor of guidance.

Information on graduate and professional school exams other than those used for IUP Graduate School programs is available through the Office of Career Services. *Law School Admission Test (LSAT)* information is also available in the office of the College of Humanities and Social Sciences.

Medical College Admission Test (MCAT) information is available through the dean of the College of Natural Sciences and Mathematics.

Arrangements can be made by advance contact for administration of tests adapted to visual, auditory, or physical handicaps.

University Testing Services is a center for the administration of tests and neither makes testing requirements nor offers interpretations of testing results. Commercial “How to Prepare for...” materials are available in the Co-op Store and other local bookstores. Questions regarding test requirements and desirable scores should be addressed to the Graduate School. Questions regarding specific registration matters and the test agency information-registration materials may be directed to the Office of Career Services, 302 Pratt Hall, (412) 357-2235.

Career Services

The Office of Career Services, 302 Pratt Hall, is open to all IUP graduate students and alumni. Individuals and classes are encouraged to utilize the resources of professional staff, career-related materials, and physical facilities for ongoing assistance in the process of career planning and successful entry into meaningful and productive employment.

The primary functions of the program include career planning assistance through voluntary conferences with professional career counselors; assembling a Career Credential File for transmission to prospective employers who request the individual's file (Note: the academic transcript is not included as part of the Career Credential File); cooperating with IUP faculty members to encourage increased awareness of current career planning, job seeking assistance, and employment trends; arranging campus interviews; publicizing career-related information. Other functions include receiving and assembling current job vacancies listings which are available

on a regular schedule; maintaining a career information library; arranging for the dispersal of occupational information through extensive meetings with representatives from education, business, industry, and government; and conducting frequent statistical studies of graduates to assemble “supply/demand” data.

Each student is urged to obtain a career credential packet which presents appropriate procedures to register for career services. Establishing a Career Credential File is each individual’s privilege and opportunity. Employment is not guaranteed by the university, but IUP graduates have established an outstanding reputation of success in the working world.

Publications

The Penn, IUP’s campus newspaper, is published three times a week during the fall and spring semesters by students wishing to gain practical newspaper experience. Interested students are advised to attend organizational meetings held in the beginning of each semester.

Student Handbook is distributed to all students, free of charge. It includes rules and regulations, extracurricular programs, and general information of interest to students.

Graduate Student Handbook is available to all graduate students and is free of charge. It includes rules and regulations and general information of interest to graduate students.

Thesis/Dissertation Manual is available to all graduate students and is free of charge. It includes guidelines, deadlines, and forms for students preparing theses or dissertations.

Disabled Student Services

Disabled Student Services (a unit of the Advising and Testing Center) is the primary agent for the provision of access for physically and learning disabled students at IUP. Students with disabilities are urged to register with the office. Services provided include early registration; assistance in locating accessible housing; equipment loan; test proctoring and reading; liaison with faculty, OVR, and BVS; and general advising and counseling. Further information may be obtained in 106 Pratt Hall or by calling (412) 357-4067. (VOICE/TDD)

Housing

IUP maintains and operates fourteen traditional residence halls and two apartment buildings, all of which are available for graduate students. In an effort to create a graduate environment, twelve two-person one-

bedroom apartments located on the fifth floor of Campus Towers have been reserved for the graduate population.

Students interested in living in any of IUP's residence facilities should write or call the Office of Housing and Residence Life, G-14 Sutton Hall, IUP, Indiana, PA 15705, (412) 357-2696.

A brochure enumerating privately owned apartment complexes located on the perimeter of the campus is available upon request to students who prefer to reside off campus.

Religious Life

The religious life of students is cared for through the activities of some twelve organizations. Three of these, the Newman Center, the United Campus Ministry, and the Lutheran Center, maintain private facilities near the campus. Others affiliate with and meet in local churches for worship.

Pechan Health Center

The University Health Service operates an outpatient clinic and provides routine health care to students while classes are in session. The outpatient clinic is staffed with physicians, nurse practitioners, nurses, and educators. It is located at the Pechan Health Center, at the corner of Maple Street and Pratt Drive. For emergency care of students when the Health Center is closed, Indiana Hospital emergency room is available. The university has a contract to cover the cost of transporting a student to Indiana Hospital for an emergency, if the student's health insurance policy does not include coverage of ambulance services.

In addition to primary medical care, including minor surgery, laboratory tests, allergy injections, and dispensing of medications, the University Health Service offers a self-care cold clinic, evening gynecology clinic, and programs in chemical health, health education, wellness, and nutrition counseling. Free transportation to area medical facilities also is available. See Tuition and Fees for health fee information.

Students are required to complete a *Student Health Form* which includes documentation of immunization status prior to starting classes. If a student is not adequately immunized s/he will be allowed to enroll and attend classes during the first semester with the understanding that second semester enrollment shall be contingent upon obtaining the necessary immunizations and documentation. The following vaccines are included in this policy: Measles, Mumps, Rubella, Tetanus Toxoid-Diphtheria, and Polio. Persons born after 1956 should receive a second measles immunization prior to entering college. It has always been important to update diphtheria and tetanus immunizations every ten years.

Admission

Admission to the Graduate School is required of all students who wish to take graduate courses for graduate credit. Each student applying for admission, either as an applicant for a graduate degree program or as an applicant for a nondegree program, must file with the Graduate School an application for admission and such other supporting documents as the school may specify. An admissions packet is supplied by the Graduate Office upon request. As a general rule, application materials must be on file in the Graduate Office at least two months prior to the beginning of the semester or term in which the applicant plans to begin graduate work. Some exceptions to these deadlines exist; please refer to the Graduate Calendar on the closing pages of this catalog for specific program dates.

Requirements for Admission

1. An applicant must have a bachelor's degree from a college or university accredited by the Middle States Association of Colleges and Secondary Schools or an equivalent regional accrediting agency.
2. The applicant's undergraduate transcript (or transcripts, collectively) must show a minimum cumulative quality point average of 2.6 on a 4.0 maximum scale. Occasionally, additional evidence of academic ability is required. Applicants whose grade point average is below 2.6 will be required to take the Miller Analogies Test (MAT).
3. Graduate Record Examination (GRE) scores must be submitted prior to admission or during the student's first semester of course work by all students except M.B.A. and M.S. in Business program applicants; the latter must submit Graduate Management Admission Test (GMAT) scores. (These tests are described in detail earlier in this catalog.)
4. Most applicants requesting admission to programs leading to an M.Ed. degree are required to have a Provisional Pennsylvania Teachers Certificate or its equivalent; all M.Ed. degree applicants should be sure to inquire at their program's sponsoring department. M.Ed. applicants who do not already have such certification where required must complete a planned program leading to certification **prior** to applying for M.Ed. degree candidacy at IUP.
5. Effective Fall, 1991, IUP requires documentation of dates of immunizations from new students for the following vaccines: Measles, Mumps, Rubella, Tetanus Toxoid-Diphtheria, and Polio. Individuals born after 1956 should receive a second measles immunization prior to entering college. It has been important to update diphtheria and tetanus immuniza-

tions every ten years. The documentation must be included on the *Student Health Form* and can take the form of one of the following:

1. dates of vaccinations and name of the health care provider who gave them
2. date of illness with the disease diagnosed by a physician
3. serum antibody level as determined by a blood test

Students will receive a copy of the *Student Health Form* with their notification of admission to the Graduate School; the form must be returned to the University Health Service before students start classes. If a student is not adequately immunized, s/he will be allowed to enroll and attend classes during the first semester with the understanding that second semester enrollment shall be contingent upon obtaining the necessary immunizations and documentation of immunity.

Graduate School admission means that students may program and register for graduate courses. Admission does not guarantee subsequent admission to candidacy for a degree, nor does it guarantee successful completion of requirements for a degree.

Admission Procedures

1. Each applicant must file with the dean of the Graduate School a completed application form. Applications along with forms pertaining to items 2 and 3 below are included in the admissions packet. (The admissions packet sent to Doctor of Psychology applicants differs somewhat from the regular packet, especially regarding item 3 below.)

2. The application must be accompanied by one copy of an official transcript from each graduate and undergraduate institution attended, regardless of whether or not a degree was earned, including IUP if the applicant attended IUP previously. IUP graduates must ask the Registrar's Office to forward official transcripts to the Graduate School.

3. Each applicant must submit statements of recommendation from two individuals who are familiar with his/her background. These individuals must be persons familiar with the applicant's academic background (e.g., persons who have taught the applicant at the graduate or undergraduate levels).

4. All applicants must submit Graduate Record Examination (GRE) scores during their first semester of course work. Students applying to the following programs must submit GRE scores *prior* to admission: Biology, Criminology (Ph.D.), Food and Nutrition, Geography, Psychology, and School Psychology (D.Ed.). M.B.A. and M.S. in Business degree applicants must submit Graduate Management Admission Test (GMAT) scores. Information about both tests is contained in the admissions packet.

5. A nonrefundable application fee in the amount of \$20 must accompany the application. Please pay by check and make the check payable to IUP.

Admission Classifications

Applicants for admission to the Graduate School are notified of their admission status by the Graduate School dean prior to the beginning of the term of planned study. Admission classifications are as follows:

1. **Precandidacy Status.** Given to an applicant who plans to work toward a graduate degree and whose application file with the Graduate School is both complete and satisfactory. The precandidacy student may program, under departmental guidance, six to twelve graduate hours toward the degree being sought. Precandidacy Status does not guarantee subsequent admission to candidacy.
2. **Special Graduate Standing.** Granted to applicants who indicate they do not plan to work toward a graduate degree but who wish to take graduate courses for which they are qualified. Applicants granted this standing who later wish to work toward a graduate degree must request reclassification by the Graduate School before the completion of twelve graduate hours. Credits earned by a student having Special Graduate Standing may or may not be applied to an IUP degree after the reclassified student has been awarded degree candidacy, depending on whether or not the credits are deemed appropriate to the degree by the program's sponsoring department.
3. **Admission Denied.** Applicants denied admission to the Graduate School will receive a letter from the Graduate School dean indicating the reason for the denial.

Graduate Record and Other Examinations

All Graduate School applicants must take the **general** section (formerly called the Aptitude section) of the Graduate Record Examination (GRE) during their first semester of course work, regardless of how many credits they are enrolled for. The following programs require submission of GRE results *prior* to admission: Biology, Criminology (Ph.D.), Food and Nutrition, Geography, Psychology, and School Psychology (D.Ed.). The following programs also require that the examination's **advanced** section be taken:

Biology
 Educational Psychology (M.Ed. and School Psychology programs)
 Music (M.A.)
 Psychology (M.A., Psy.D.)

Applicants with undergraduate GPAs below 2.6 will be required to submit MAT (Miller Analogies Test) scores of not less than 47. Both Graduate Record and Miller Analogies examinations are administered by IUP's University Testing Services; specific information about test availability can be obtained from the services director. Applicants taking such examinations, whether at IUP or elsewhere, should request that their scores be sent to Dean, The Graduate School, IUP, Indiana, PA 15705-1081.

Foreign Student Applicants

In addition to following the general procedures for admission to the Graduate School, foreign students must present evidence of fluency in English. Applicants whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL). The Graduate School will not process applications from such students until satisfactory TOEFL scores are filed with the dean of the Graduate School. (Students requesting information about the TOEFL should write to TOEFL, Educational Testing Service, Princeton, NJ 08540, U.S.A.)

Foreign applicants must also present evidence to the Graduate School of having financial resources sufficient to meet the cost of living in Indiana, Pennsylvania; the cost of travel to and from the student's native country; and, the cost of graduate education at IUP. Such evidence should be sent directly to Dean, The Graduate School, IUP, Indiana, PA 15705-1081, U.S.A. The Graduate School notifies the university's international student adviser of foreign student applications received. The international student adviser mails to the prospective foreign student information on housing, arrival dates, and other general information about the university. Applicants who have questions about legal or other matters such as the issuance of certificates of eligibility (I-20) and the like should address those questions directly to IUP International Student Adviser, IUP, Indiana, PA 15705-1081.

Foreign Student Candidacy Test - All foreign students will be required to take the GRE if they have received a degree in an American college or university. If a foreign student has not studied in an American college or university, the test required for candidacy will be the TOEFL. Business students in M.B.A. or M.S. programs must take the GMAT regardless of foreign status.

Applicants for Specialist for Supervisory Certification Programs

IUP offers specialist or supervisory certificate programs in Instructional Technology Specialist (Communications Media department), Elementary School Counselor, Secondary School Counselor, School Psychology certification (Educational Psychology department), Reading Specialist (Profes-

sional Studies in Education department), and Supervisor in Special Education (Special Education and Clinical Services department).

Applicants for these programs should follow the same procedures for admission, programming, and registration as described in this catalog for special programs requirements. However, potential applicants should check with the department chair or graduate coordinator responsible for the specialized program in order to gather information before beginning the admissions process.

Tuition and Fees

Regular Semester Tuition (Fall and Spring)

Full-Time Tuition for Pennsylvania Residents

\$1,139 for 9-15 semester hours (s.h.), then \$127 for each additional s.h.

Part-Time Tuition for Pennsylvania Residents

\$127 per semester hour (s.h.) for fewer than 9 s.h.

Full-Time Tuition for Non-Pennsylvania Residents

\$1,442 for 9-15 semester hours (s.h.), then \$160 for each additional s.h.

Part-Time Tuition for Non-Pennsylvania Residents

\$160 per semester hour (s.h.) for fewer than 9 s.h.

Summer Session Tuition

Pennsylvania Residents

\$127 per semester hour (s.h.)

Non-Pennsylvania Residents

\$160 per semester hour (s.h.)

Other Fees

Application Fee (nonrefundable)	\$20.00
Activity Fee — Semester Full-Time Students **	
(9 s.h. or more)	\$45.50
Semester Part-Time Students	
(8 s.h. or fewer)	\$19.50
Summer Sessions	
All Graduate Students	\$29.50
Health Fee — Semester Full-Time (1991/92)	\$51.00
Part-Time Fee Optional (1991/92)	\$26.00
Summer Sessions (per 5-week session 1991/92)	\$17.00
Semester Full-Time (1992/93)	\$52.00
Part-Time Fee Optional (1992/93)	\$26.00
Summer Sessions (per 5-week session 1992/93)	\$18.00

The Student Health Fee is waived for students commuting from a distance outside a 60-mile radius of Indiana and for students taking fewer than six credits per semester.

Educational Service Fee

Full-Time	\$75.00
Part-Time	\$35.00
Summer Sessions (per 5-week session)	\$35.00

Late Fee

After Late Registration	\$100.00
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Audit Fee (Same as Tuition)

Graduation Fee	\$30.00
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Master's or Doctoral Cap, Hood, and Gown Fee	Nominal
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**** Activity Fee does not include full activities.**

All fees are subject to change without notice.

Grades and transcripts may be withheld by IUP if a student is delinquent in paying any bill owed to the university. Payment of the bill or establishment of a payment plan satisfactory to the university will be required for release of grades and/or transcripts.

University Refund Policy

The university must engage its faculty, assign residence hall space, and make various other arrangements in advance of each term in accordance with the number of students who expressed their intent to be enrolled. When students withdraw from the university, they create vacancies which cannot be filled, and financial commitments for salaries and services by the university must be honored. The refund policy at IUP applies to all students enrolled in credit-producing programs at the university either full-time or part-time.

Graduate students withdrawing from the university must process such withdrawal through the Graduate School Office. The official withdrawal date will be established by the Graduate School.

Students totally withdrawing from courses, upon receiving approval from the Graduate School, will forfeit a portion of the semester charges in accordance with the following schedule:

<i>Withdrawal on Calendar Day Basis</i>	<i>Percentage of Student's Charges to be Forfeited</i>
4 days prior to the start of classes through 14 days	20%
15 through 21 days	30%
22 through 28 days	40%
29 through 35 days	50%
36 or beyond	100% (no reduction of fees)

The start of calendar days is defined as the first day of classes as scheduled on the university calendar.

Refunds for students receiving financial assistance from scholarships, loans, and/or grants will be returned to the source of aid in accordance with the provisions prescribed by the funding source.

During summer sessions, students totally withdrawing from the university, upon receiving approval from the Graduate School, will forfeit a portion of the total session charges in accordance with the following schedule:

<i>Calendar Day of Withdrawal</i>	<i>Percentage of Student's Total Session Charges to be Forfeited</i>
First class day through Fourth calendar day	50%
Fifth calendar day and beyond	100% (no reduction of charges)

The associate provost will determine the official start of classes for each semester or session. Refunds to students enrolled in credit-bearing summer conferences, institutes, workshops, or tours of less than five weeks duration will be granted a fifty-percent refund through the first day of the class (unless a no-refund policy is required by the sponsor).

Individual Course Withdrawal

A graduate student may cancel an individual course(s) up to four days prior to the first day of classes by notifying the *registrar* in writing. If a student cancels a course(s) prior to the fourth day preceding the start of classes, no penalty will be charged and the student will receive a 100-percent reduction of charges for the course(s) cancelled. No reduction of charges will be made to full-time students who withdraw from individual courses after the fourth day preceding the first day of classes. Individual course withdrawal is defined as a reduction in class load but not total withdrawal from the university. Example: A student who registers for three courses and then withdraws from one or two classes.

Part-time students will forfeit a portion of the credit-hour fee in accordance with the following schedule:

<i>Calendar Day of Individual Course Withdrawal</i>	<i>Percentage of Student's Instructional Fee to be Forfeited</i>
Fourth day prior to the first class day through 35 days	50%
36 days and beyond	100% (no reduction of charges)

Reduction of charges will be granted only for instructional fees. No reduction will be granted to students who drop and add a like number of credit hours.

Part-time students attending graduate courses at off-campus locations should refer to the appropriate section.

Withdrawal From University Services

Termination of Residence Hall or Dining Service Contract

Academic Year (Fall and Spring Semester)

1. **Residence Hall Termination** - Release from a residence hall contract is on a replacement basis except under those conditions outlined in the contract. Students who request in writing and are released from the Residence Hall Contract by the Office of Housing and Residence Life prior to the fourth day preceding the start of classes will be assessed no forfeiture and the student will receive 100 percent reduction of the residence hall fee, less applicable advance deposits. Students who request in writing to terminate their University Residence Hall Contract on or after the fourth day preceding the first day of classes and are granted a contract release from the Office of Housing and Residence Life will forfeit one week's residence hall rental for each week or portion thereof the student is assigned to a university residence hall. A week's rental charge is determined by dividing the semester's fee by the number of weeks in the semester. The specific date of release will be determined by the Office of Housing and Residence Life.

2. **Dining Service Termination** - Students who are released from their Dining Service Contract by the Office of Housing and Residence Life prior to the fourth day preceding the start of classes, will be assessed no forfeiture, and the student will receive a 100 percent reduction of charges of the food service fee, less applicable advance deposit. Students who request in writing to terminate their University Food Service Contract on or after the fourth day preceding the first day of classes and are granted a contract release from the Office of Housing and Residence Life will forfeit a portion of the semester charges in accordance with the following schedule:

<i>Date of Termination from Food Service Contract</i>	<i>Percentage of Semester fee to be Forfeited</i>
Fourth day prior to the first class day through 35th calendar day	50%
36th calendar day and beyond	100%

Summer Session

Once a student applies for and receives housing and/or food service assignment, he or she must request in writing and obtain a release of that assignment from the Office of Housing and Residence Life in order to be eligible for a reduction of charges in accordance with the following schedule:

<i>Date of Termination from Residence Halls and/or Food Service</i>	<i>Percentage of Session Charges to be Forfeited</i>
Check-in date* through fourth calendar day of classes	50%
Fifth calendar day and beyond	100%

*The Office of Housing and Residence Life will publish the date students are to check into the residence halls for each summer session. The check-in date is the effective date of the student's contract.

Graduate students wishing to terminate residence hall or food service contracts must do so through the Office of Housing and Residence Life. This same office can provide information on dates and percentage of forfeiture.

No reduction of charges will be granted unless formal withdrawal procedure has been initiated through the Graduate School by the student at the point of withdrawal. Written and dated notice is required by the student, or the student's family, in special circumstances such as sickness, within thirty days of the student's withdrawal.

Off-Campus Graduate Programs Withdrawal and Refund Policy

Part-time students taking graduate courses supported by the School of Continuing Education at off-campus locations must request refunds on an official Request for Refund Form. The form may be obtained from the instructor or by calling the director of Off-Campus Studies, School of Continuing Education at (412) 357-2227. The official withdrawal date will be established by the School of Continuing Education. Students will forfeit a portion of the semester charges in accordance with the following schedule:

1. Total Withdrawal

<i>Withdrawal</i>	<i>Refund</i>	<i>Forfeiture</i>
Prior to Week 1	100%	0%
Week 1 or 2	80%	20%
Week 3	70%	30%
Week 4	60%	40%
Week 5	50%	50%
Week 6 or later	0%	100%

2. Individual Course Withdrawal

Part-time students who reduce their course credit load will receive a fifty-percent refund from the fourth day prior to the first class meeting through

the fifth week of the course. After the expiration of the fifth week, no refund will be granted for reduction of class load.

Note: For refund purposes, Week One (1) will begin on the day of the first class meeting. Example: If a course meets every Thursday, the week is defined as Thursday through the following Wednesday.

Other Refund Policy Provisions

No refunds will be granted to students who are suspended or expelled from classes, residence halls, and/or food service.

The Accounts Receivable Office, Administrative Annex, is responsible for implementing the refund policy. Students who wish to appeal a decision rendered by Accounts Receivable may do so through the treasurer to the vice president for Finance.

Programming and Registration

Advisement

After a student has been admitted to the Graduate School, he/she should consult the department chairperson or coordinator of graduate studies in his/her intended field of study about a program of courses. If the student is a special graduate student, consultation should be with the director of Graduate School Academic and Administrative Services. Many departments feel strongly that their students should be advised well before registration for each semester or summer term; these departments are identified each term in the schedule of graduate course offerings. Students are responsible for knowing their department's scheduling advisement rules.

Telephone Registration (TELREG)

To facilitate graduate student registration in fall and spring classes, the Graduate School offers telephone registration (TELREG). TELREG is available to all graduate students admitted to the Graduate School who enrolled in at least one class during the preceding two years. TELREG gives graduate students the opportunity to register for classes without attending an on-campus registration, as well as provides the advantage of securing a schedule of classes before other students using either the mail or walk-in registration procedures. Details on TELREG are provided in each semester schedule.

Final Registration

After students have returned their registration materials to the Graduate School, they will receive from the Accounts Receivable Office a bill for tuition and fees. Students registering at final or "walk-in" registration may also arrange for housing, meals, parking, and "I" cards at that time.

"Walk-in" registration is for students who have not pre-registered by telephone or mail and is held shortly before the start of classes. Check the graduate class schedule or call the Graduate School at (412) 357-2222 for the time and date.

Continuous Registration

For all doctoral students admitted or commencing course work during the fall, 1990, semester and thereafter, the following policy is binding. Following the completion of all course requirements and the comprehensive examinations, doctoral students must enroll for at least one graduate credit of dissertation or extended dissertation each fall semester annually through the defense of the dissertation.

Drop/Add Policy

At the beginning of each semester, a few days are set aside for dropping and adding courses. The Drop/Add period was established to permit enrolled students to make schedule adjustments. It was not designed to allow unregistered students to build schedules from scratch. Students using the Drop/Add period for anything other than schedule adjustments will be charged a late registration fee. Drop/Add dates are set at the beginning of each semester, and students should check with their departments to learn the dates, times, and procedures for dropping and adding courses.

Financial Aid

The Financial Aid Office, located at 308 Pratt Hall, offers financial information and counseling to all students attending IUP. The types of financial assistance offered by the Financial Aid Office include student employment, loans, and scholarships. In most cases the Pennsylvania State Grant Application is used to determine eligibility for these programs.

In order to be considered for financial aid administered through the university, a Pennsylvania State Grant Application must be submitted to Harrisburg. The preferred filing deadline is May 1 of each year. Students attending IUP on at least a half-time basis (five credit hours or more) will be awarded assistance based on demonstrated financial need. To be eligible for continued funding, applicants must remain in satisfactory academic standing at the university and show continued academic progress.

The cost of attending IUP and the university's refund policy are listed in this catalog. Please refer to the index for further information.

Assistantships

IUP offers both half-time assistantships (twenty hours per week of assistantship service) and quarter-time assistantships (ten hours per week of assistantship service) to full-time graduate students. Duties will vary somewhat from assistant to assistant and may include supervised teaching, research or assistance with research, and university service activities. Duties are under the supervision of a faculty member or administrator. Assistantships are looked upon as an encouragement or reward for academic excellence rather than as a means to relieve financial need.

Half-time assistantships carry a full tuition waiver for the two semesters of the assistantship and the following summer. With some exceptions, quarter-time assistantships carry one-half tuition waiver for the two semesters of the assistantship and a six semester-hour waiver for the following summer.

Since stipends for assistantships may be raised from year to year, potential applicants should check with the Graduate School for current stipend levels.

The deadline for applying for a fall assistantship is March 15 of the same calendar year. Applications and further information are available at the Graduate School.

The Graduate Scholars Program

The Graduate Scholars Program at IUP is a resource committed to the education of graduate students of minority heritage. The Graduate Scholars Program provides financial aid in the form of graduate assistantships. The terms of the graduate assistantships are as follows: (1) an academic year stipend of \$4,410 to \$6,000, depending on the department and level of study; (2) tuition waiver during the academic year; and (3) tuition waiver for both sessions the following summer. Graduate assistants work twenty hours per week during the academic year but have no work assignments during the summer. Assistantship assignments are in academic departments or other academic units and are designed to be a valuable part of students' educations. All American citizens of racial minority heritage (African-American, Hispanic, Asian-American, American Indian) are invited to apply for entrance to the Graduate Scholars Program. A minimum cumulative undergraduate grade point average of 2.6 "B-" is required; 3.0 "B" is preferred. An undergraduate degree from an accredited institution must be completed prior to the beginning of graduate work at IUP. Prospective Graduate Scholars should write for an admissions packet to

Evelyn S. Mutchnick, Director
The Graduate Scholars Program
The Graduate School and Research
IUP
Indiana, PA 15705-1081

Teaching Associates

Each year the Graduate School offers a limited number of teaching associate positions to qualified doctoral students. Usually an associate teaches six credit hours of undergraduate courses, but other teaching-related service is sometimes assigned in lieu of teaching. These positions carry a stipend and a tuition waiver and require the associate to be enrolled for graduate credit during each semester of the appointment. Tuition waiver includes up to nine hours of graduate credits during the summer following the appointment. Activity and health fees, as well as tuition during the fall and spring semesters, must be paid by the associate.

Minimum requirements: Associates must hold a master's degree or have completed thirty-six graduate semester hours prior to the appointment and must be enrolled in an IUP doctoral program and remain in good standing during the term of the appointment. Departments may have additional requirements.

For further information, contact the director of Doctoral Studies in the department offering your doctoral program.

Scholarships

Margaret Flegal Harte Scholarships - Two \$450 scholarships are awarded yearly to needy new full-time graduate students. All new Graduate School applicants except for those who receive other IUP scholarships are considered for the Margaret Flegal Harte Scholarships based on academic records and financial need. No application forms for the scholarships are required; the Pennsylvania State Grant Application submitted to Harrisburg serves as the need analysis document for need assessment.

Employment Programs

Federal College Work-Study Program (CWSP) - The College Work-Study Program provides an opportunity for graduate students to earn money to help finance educational expenses. Students may be employed on campus for up to twenty hours per week when classes are in session and forty hours per week during vacation periods. College Work-Study jobs not only help to defray the cost of education but can add valuable practical experience accompanying the student's graduate education. Eligibility is based on financial need as determined by an analysis of the Pennsylvania State Grant Application submitted to Harrisburg. The form is available in the Financial Aid Office.

University Employment (UE) - The University Employment Program provides an opportunity for students to work as an accompaniment to their studies program. Maximum UE hours are twenty hours per week when classes are in session and forty hours per week during vacation periods. No application is necessary. This employment program is not based on financial need.

Special Funded Grant Employment - Grant employment opportunities are also available to graduate students from time to time. Interested students should check with the Graduate School Office.

Loan Programs

Stafford Loan - The Stafford Loan can be obtained through private lending institutions such as banks and credit unions and is administered in conjunction with the state and federal governments. In addition to filing a Stafford Application with your lender, you must also complete a Pennsylvania State Grant/Federal Student Aid Application. For students demonstrating sufficient financial need, loans of up to \$7,500 per academic grade level are available. The interest rate for new borrowers is eight percent for the first four years following the expiration of a six-month grace period and ten percent thereafter. A maximum of \$54,750 including all amounts received as an undergraduate may be borrowed. Students must be enrolled in a degree or certificate granting program in order to receive Stafford funds. Repayment of principal and interest begin six months after

you cease half-time attendance. There are no cancellation privileges, but deferments are available in specific situations.

To students who apply through the Pennsylvania Higher Education Assistance Agency and who do not meet the financial need criteria required of federally subsidized loans, an unsubsidized Stafford Loan may be offered. On this type of loan, all of the provisions are the same as with the subsidized GSL except that interest of eight percent is paid quarterly during periods of enrollment.

Parental Loans for Students (PLUS) and Supplemental Loans for Students (SLS) - Applications for both of these loans may be obtained from private lending institutions such as banks and credit unions. PLUS loans are for parent borrowers of dependent graduate students, and SLS loans are for student borrowers. Students must be enrolled in a degree or certificate granting program of study. Up to \$4,000 per academic level may be borrowed at a variable interest rate no to exceed 12%. For students who are enrolled full-time, principal payments may be deferred, while interest payments begin immediately. Some deferment options are available.

PHEAA Higher Education Loan Plan (Alternative Loan) - Applications for this loan program may be obtained through the Pennsylvania Higher Education Assistance Agency in Harrisburg. The current interest rate is a variable 9.5 percent with repayment of principal and interest beginning thirty days after the funds are received. Up to \$10,000 per academic level may be requested. There are no deferment provisions for this loan program.

Veterans

IUP is approved to offer training under the various G.I. Bills. Students who are entitled to training under one of these bills should contact the veterans counselor immediately after being accepted for admission to IUP in order to secure additional instructions. This procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans Counselor is in 302 Pratt Hall, (412) 357-2234.

Health Insurance

Students are encouraged to purchase their own health insurance. Health insurance not only helps defray some of the additional health care costs, but it also provides total confidentiality to the policyholder. The university does not sponsor a group health insurance program for students. An information booklet designed to assist individuals in purchasing private health insurance is available upon request from the Administrative Office, Pechan Health Center, IUP, Indiana, PA 15705-1083.

The University Health Service does offer primary care services to IUP students. Students pay a per-semester student health fee which entitles them to unlimited visits at the Health Center. Minimal fees are charged for medications, laboratory tests, and procedures. The University Health Service does not bill insurance companies for services; however, students receive a copy of a bill for each visit which can be used if the individual chooses to bill his/her insurance company directly. Services available at the Pechan Health Center include gynecology care, laboratory services including blood drawing, minor surgery, allergy clinic, self-care cold clinic, health education, nutrition counseling, and chemical health education and intervention services.

Master's Degree Programs

The Graduate School offers Master of Arts and Master of Science degrees in most academic fields plus the professional degrees Master of Business Administration, Master of Education, and Master of Fine Arts. (See below for specific degree fields.) All students working toward a master's degree must satisfy the Graduate School policies set forth in this catalog and any additional special program requirements imposed by a department.

Under certain circumstances, a specific Graduate School requirement for the master's degree may be satisfied by means of substitution. In no case are requirements waived. Requests for substitutions must be made by petition to the Graduate School dean after approval by the student's department.

Master of Arts degrees are offered in the following:

Adult/Community Education	History
Art	Industrial and Labor Relations
Chemistry	Music
Counseling Services	Physics
Criminology	Public Affairs
English: Generalist	Sociology
Literature	Student Affairs in Higher Education
Teaching English	
TESOL	
Geography	

Master of Science degrees are offered in:

Biology	Mathematics
Business	Nursing
Chemistry	Physics
Exceptionality (Adult)	Safety Sciences
Food and Nutrition	Speech-Language Pathology
Geography	

A Master of Business Administration degree (M.B.A.) is offered.

Master of Education degrees are offered in the following:

Business	Elementary or Secondary
Education of Exceptional	School Counseling
Children	Elementary and Middle School
Educational Psychology	Mathematics Education
Elementary Education	Mathematics
	Reading
	Speech-Language Pathology

A Master of Fine Arts degree (M.F.A.) is offered.

The Thesis/No-Thesis Option - Master's Programs

Several IUP master's degree programs offer the graduate student a thesis/no-thesis option.

When the no-thesis option is chosen, additional approved course work—usually six or more credit hours—is frequently required.

The typical committee thesis arrangement (3-6 s.h.) has the student working with a committee of three or four faculty members including the student's adviser and two faculty members, one of whom may or may not be a member of the program's department. On some occasions, a college dean or a Graduate School representative may sit on a thesis committee. The committee may include an off-campus person with special expertise as one of the four if this is requested by the department and approved by the Graduate School dean. The *Thesis/Dissertation Manual* provides additional information and is available through the Graduate School.

<i>Department</i>	<i>Degree</i>	<i>Thesis</i>	<i>Credits</i>	<i>Comments</i>
Adult/Community Education	M.A.	Optional	36	- AC645 may be substituted for the thesis.
Art	M.A.	Required	30	
Biology	M.S.	Required	32	
Business	M.B.A.	No Thesis	33	
	M.Ed.	Optional	30	- Thesis
			30	- No Thesis
	M.S.	Optional	30	- Thesis
			30	- No Thesis
Chemistry	M.A.	Optional	30	- Thesis
			30	- No Thesis
	M.S.	Required	30	
Counselor Education	M.Ed.	Optional	33	- Thesis
			33	- No Thesis
	M.A.	Optional	36	- Thesis
			39	- No Thesis
Criminology	M.A.	Optional	36	- Thesis
			36	- No Thesis
Educational Psychology	M.Ed.	Optional	33	- Thesis
			36	- No Thesis
Elementary Education	M.Ed.	Optional	30	- Thesis
			36	- No Thesis
English:				
Generalist	M.A.	Required	36	
Literature	M.A.	Required	36	
Teaching English	M.A.	Required	36	
TESOL	M.A.	Required	36	
Exceptionality	M.S.	Optional	33	- Thesis
			36	- No Thesis

Food and Nutrition	M.S.	Optional	30	- Thesis
			33	- No Thesis
Geography and Regional Planning	M.A.	Optional	30	- Thesis
			36	- No Thesis
	M.S.	Optional	30	- Thesis
			36	- No Thesis
History	M.A.	Optional	30	- Thesis
			36	- No Thesis
Industrial and Labor Relations	M.A.	Optional	42	- Thesis
Mathematics	M.Ed.	Optional	30	- Thesis
			30	- No Thesis
	M.S.	Optional	30	- Thesis
			30	- No Thesis
Music				
Music Performance	M.A.	Recital	31	
Theory or Musical Composition	M.A.	Optional	31	- Musical Composition
Music History	M.A.	Required	31	
Music Education	M.A.	Optional	30	- Course Work or Thesis or Recital
Nursing	M.S.	Optional	45	- Thesis
			45	- No Thesis
Physics	M.S.	Required	30	
			30	- Thesis
	M.A.	Optional	33	- No Thesis
Political Science	M.A.			
International Studies		Optional	30	- Internship required if Thesis Option or field-based research project not chosen
Public Affairs		Optional	36	- Internship required if thesis option or field-based research project not chosen
Professional Growth	M.Ed.	Required	30	
	M.S.	Required	30	
	M.A.	Required	30	
Psychology	M.A.			
Clinical Psychology		Required	54	
Reading	M.Ed.	Optional	33	- Thesis
			36	- No Thesis

Safety Sciences	M.S.	Optional	36	- 3-6 credits of thesis option is included
Sociology	M.A.	Optional	30 36	- Thesis - No Thesis
Special Education Emotionally Disturbed	M.Ed.	Optional	33 36	- Thesis - No Thesis
Learning Disabilities	M.Ed.	Optional	33 36	- Thesis - No Thesis
Mental Retardation	M.Ed.	Optional	33 36	- Thesis - No Thesis
Speech-Language Pathology	M.S.	Optional	36 36	- Thesis - No Thesis
Student Affairs in Higher Education	M.A.	Optional	33 33	- Thesis - No Thesis

Doctoral Degree Programs

The Graduate School offers work leading to the doctorate through the following departments: Counselor Education, Criminology, Educational Psychology (School Psychology), Professional Studies in Education (Elementary Education), English (Literature and Criticism; Rhetoric and Linguistics), and Psychology (Clinical Psychology).

Applicants should keep in mind that the doctorate is conferred for distinguished achievement in a particular field of scholarship and for demonstrated ability to perform independent research in an area of that field. No specific number of course credits entitles a student to the degree.

Those interested in any of the doctoral programs should read the descriptions provided by sponsoring departments later in this catalog. Deadlines for submitting applications and supporting documents vary from program to program, as do degree requirements. Therefore, it is important for students to check with the sponsoring department at the very start of the application process.

The following doctorates are offered:

- Doctor of Psychology in Clinical Psychology
- Doctor of Philosophy in Criminology
- Doctor of Education in Elementary Education
- Doctor of Philosophy in English
- Doctor of Education in School Psychology

The doctoral programs in school psychology and elementary education maintain cooperative arrangements with other universities in the State System of Higher Education (SSHE), whereby some part of the requirements may be fulfilled at these schools.

Requirements for the Doctoral Degree

Students seeking a doctoral degree must satisfy the minimum Graduate School requirements described below. Sponsoring departments may have additional requirements, and students must be familiar with these, since they are equally binding.

Under certain circumstances, Graduate School requirements for the doctoral degree may be satisfied by means of substitution. Requests for the

acceptance of substitutions should be made in the form of a petition to the Graduate School dean, after first obtaining the approval of the student's department.

Credit requirement

A minimum of sixty graduate semester credits, exclusive of dissertation credits, must be earned beyond the bachelor's degree for any of the doctorates offered at IUP.

Residency Requirements

Doctoral candidates will find that residency requirements vary from doctoral program to doctoral program. Doctoral students should check with their departments to learn which of the following residency options apply to their specific doctoral program: completion of a minimum of nine graduate credits at IUP in each of at least two consecutive semesters; completion of a minimum of nine graduate credits at IUP for at least one semester immediately preceding or following a summer of nine-hour study; completion at IUP of at least nine graduate credits in each of two consecutive summers plus six graduate credits during the intervening academic year; or completion of twelve graduate credits at IUP in each of two consecutive summers.

Transfer credit

Transfer credit is limited to the credit equivalent of a recognized master's degree, except in those special cases recommended by the student's department and approved by the Graduate School dean, and to up to twelve graduate credits through approved interinstitutional agreements.

In order to have credits considered for transfer purposes, the student should provide the Graduate School with a catalog course description/course syllabus of the course(s), an official transcript showing the earned credits, and a letter requesting the course(s) to be transferred as either program elective credits or as program requirements.

Degree Candidacy

Each student admitted to a doctoral program must receive doctoral degree candidacy after completing at IUP no less than nine nor more than fifteen graduate credits beyond the master's degree. The student must have a minimum quality point average of 3.0. The student's minimum grade point average may be set higher than the foregoing Graduate School requirement by the program's sponsoring department, but in no case may it be lower.

Candidacy Examination

The candidacy examination, which may be written, oral, or both, as determined by the sponsoring department, and which may serve also as the final examination for the master's degree if a department so prescribes, is administered by the department in the student's field of specialization. The examination may not be taken until the student has completed at least one year of study beyond the bachelor's degree. Examination scores must satisfy the student's dissertation committee.

The Dissertation Committee

The candidate's dissertation committee supervises the student's degree program from the point at which he/she is admitted to doctoral degree candidacy through defense of the dissertation. The committee approves the student's plan of study; arranges for the candidacy examination; arranges for the comprehensive examination; and oversees the candidate's general supervision related to research, the dissertation, and the general meeting of degree requirements.

The Comprehensive Examination

This examination is given, usually upon the candidate's completion of course work, to determine the student's progress in the degree field and fields related to it and the student's likelihood of success in his/her research-dissertation phase. The examination may be written, oral, or both and is not necessarily limited to areas in which the candidate has taken course work.

Foreign Language/ Research Tool Options

Foreign language and/or research tool requirements for doctoral degrees vary from program to program. In most cases, programs offer options for meeting these requirements. Students should consult with the department sponsoring the degree for specific information and guidance on meeting these requirements.

Research Proposal

After the candidate has passed the comprehensive examination and has done extensive preliminary proposal research, he/she must present and defend a research proposal before the dissertation committee and the academic community. A copy of the proposal must be placed in the hands of

all committee members at least two weeks in advance of the scheduled meeting. The proposal must be found satisfactory by all members of the committee before the candidate may proceed with the dissertation. The *Thesis/Dissertation Manual* outlines this procedure and is available through the Graduate School.

The Dissertation

A dissertation is required of all doctoral candidates and must demonstrate the candidate's mastery of his/her research and reflect the results of an original investigation in the principal field of study. The goal should be to make a definite original contribution to knowledge in the field.

Dissertation Process

Upon acceptance of the dissertation by the candidate's adviser, the candidate must follow procedures acceptable to his/her department and dean in providing copies for review by the dissertation committee, college dean, and graduate coordinator. The candidate shall then request a formal meeting of the dissertation committee, at a time convenient to all members, to secure dissertation approval. The dissertation must be approved in writing by each member of the committee, as well as the Graduate School's associate dean for research.

Publication of the Dissertation

Following dissertation approval by the committee, three copies of the dissertation and two copies of an abstract must be submitted to the Graduate School's associate dean for research. The program's sponsoring department may also require a copy for its archives. The dissertation must be microfilmed according to the plan provided by University Microfilm, Ann Arbor, Michigan.

Reexamination

A student who fails the candidacy examination, or any part of the comprehensive examination, or any of the examinations in foreign languages and/or computer language, may request reexamination not earlier than one semester following the time of failure, nor later than one year after that date. No student is permitted a third examination without a recommendation to that effect from the degree program's sponsoring department and the approval of the Graduate Council.

Application for Graduation

Formal application for graduation must be filed in the Graduate School on or before the published date in the back of this catalog. Deadline dates are also available in the *Thesis/Dissertation Manual*, as well as in each semester's schedule of classes.

General Graduate School Procedures, Regulations, and Policies

The graduate student is expected to assume full responsibility for knowing graduate program procedures and regulations. General Graduate School requirements are set forth in this catalog; a description of special departmental degree requirements is available at each department sponsoring the specific degree or certification program. Requests for exceptions to policy are given consideration when unique circumstances exist; questions concerning the proper routing of such requests should be addressed to the Graduate School dean.

Academic Credits and Student Status

Although many graduate students work part-time or full-time, such work must not interfere with academic achievement. Graduate education at IUP is offered only to students in a position to benefit from it, and students are expected to maintain a sensible balance between graduate program commitments and outside commitments.

Students may schedule full-time academic loads in most graduate programs. Full-time graduate student status is defined as nine to fifteen semester hours of graduate courses per semester, while part-time status is defined as eight or fewer semester hours per semester. Graduate assistants may not register for more than twelve total hours in any semester and must maintain full-time status throughout their assistantship award.

Academic Good Standing

IUP master's students must maintain a minimum of 3.0 "B" cumulative graduate quality point average to be in good standing academically. Students falling below good standing are placed on probation for their next active semester or summer term, during which the cumulative average must be raised to 3.0. Students who fail to raise their cumulative averages to at least 3.0 during their probation schedule will be dropped from degree programs and Graduate School rolls and will not be permitted to register for further courses. A student must be in good standing to be admitted to

degree candidacy and to graduate. This policy remains the same for students pursuing a graduate degree at the doctoral level, except the required minimum grade point average is between 3.0 and 3.5, depending upon the program.

Course Auditing

Auditing is not permitted in a graduate course unless the student has been admitted to the Graduate School, has received permission to audit from the course's instructor, and has been approved for course enrollment by the dean of the Graduate School. Auditors must pay normal tuition and related fees. An auditor will, with permission from the instructor, participate in class discussion, do practicum work, take examinations, and share generally in the privileges of a class member. If the student completes all course requirements, an "audit" notation is posted to the student's academic record. No student who is required to carry a certain number of credits may count among those credits the credit for an audited course.

Class Cancellation

It is the policy of the Graduate School not to cancel regularly scheduled classes because of weather conditions, nor does it make announcements via radio, newspaper, or through its switchboard that classes are being suspended because of such conditions. In the case of hazardous travel conditions, students should decide to attend or not, based on their own particular circumstances.

Course Numbering

All dual-level courses, open to enrollment by both graduate and qualified undergraduate students, carry 500-599 course numbers; all courses open only to graduate students carry 600-series and above numbers.

Dual-Level Courses

The number of 500-599 course credits applicable to a degree program shall be a maximum of fifty percent of the credits required for that degree. Some programs may call for less than fifty percent. Students should check this requirement with their advisers.

Graduate students who enroll in dual-level courses should be aware that dual-level courses commonly impose greater obligations on graduate students than on undergraduate students taking the same courses.

Course Overlaps in Degree Programs

Within set limits, a student may use the same course to count in two different master's degree programs, if the course is acceptable in both programs. However, the number of overlap credits counted toward a second master's degree will be limited to twenty percent of the credits in the second master's degree program.

Course Repeat Policy

No graduate credit is given for "F" grades, and graduate grading policy does not permit "D" grades. Students may repeat "C" or "F" grades according to the following policy:

1. Only one course can be repeated for each graduate degree program the student attempts or completes.

2. This one course can be repeated up to two times, for a total of three attempts (the original registration for the course plus two repeat attempts).

Semester hours for repeated courses will be counted only once for all attempts made, and the hours and grade earned when the course was last taken will be used to compute the grade point average. However, all attempts and the original grade(s) will continue to appear on the graduate transcript.

Course Scheduling by Certain Undergraduates

IUP undergraduate students with an academic grade-point average of at least 2.6 who are within thirty-two semester hours of graduation are permitted, after receiving appropriate approvals, to take up to six semester hours of graduate work whether or not they have applied for acceptance into an IUP graduate program. Graduate hours so earned have no necessary bearing upon the meeting of undergraduate degree requirements, and no assurance is given or implied as to their later applicability toward graduate degrees should the students be admitted to IUP graduate programs. Should these credits later be approved toward a graduate degree program, they will be treated as transfer credits, in accordance with the policy stated below.

Credit Transfers

Up to six credits of graduate work taken at another institution may, under certain circumstances, be incorporated as part of the graduate student's

program at IUP. These courses must have been completed at a regionally accredited institution, and the grade earned must be a "B" or its equivalent or better. The time limitation rule for IUP degrees (cited later in this catalog) pertains without modification to transfer credits.

Transfer credits are not necessarily posted to the student's IUP graduate record until the student has been admitted to degree candidacy. Acceptance of transfer credit must be approved by the candidate's department and the Graduate School dean. Students wishing to transfer back to IUP credits taken at another institution while enrolled in an IUP graduate program must receive advance written authorization for credit acceptance from the department and the Graduate School dean. If approved, only the credit, not the grade or accompanying quality points, will transfer and appear on the student's IUP transcript.

In order to have credits considered for transfer purposes, the student should provide the Graduate School with a catalog course description/course syllabus of the course(s), an official transcript showing the earned credits, and a letter requesting the course(s) to be transferred as either program elective credits or as program requirements.

Degree Candidacy - Master's Degrees

Students with especially strong credentials may be granted candidacy upon admission to the Graduate School if their academic department so recommends and if their files are complete in every respect, including GRE or GMAT scores.

Those not receiving candidacy at the time of admission will undergo a candidacy review at the beginning of the semester or summer after which they have completed twelve hours of graduate credits. (This applies to both full-time and part-time students.) To be admitted to candidacy upon completing twelve hours, students must have achieved an average of 3.0 or higher in all graduate course work, have completed their admissions file, including GRE or GMAT scores, and have met all program requirements to the satisfaction of the department.

Students who are not granted candidacy after completing twelve graduate credits must satisfy all candidacy requirements during the term immediately following the Fall, Spring, or Summer in which they have completed twelve graduate hours. At the end of this additional term, students will either be granted candidacy or be asked to leave the master's degree program.

It is not necessary for students to file an application with the Graduate School to be considered for candidacy. Candidacy reviews take place automatically. However, to facilitate their own record keeping, some academic departments may require those students not granted candidacy at admissions time to file an application within the department.

Final Credits Policy

All degree candidates must complete their program's final six credits of graduate work in courses offered by IUP. Under unique circumstances, appropriate substitutions may be authorized by petitioning the Graduate School dean after obtaining departmental approval.

Discrete Course Withdrawal

During the fall and spring semesters, graduate students may ask to withdraw from a graduate course without prejudice and with the grade of "W" by petitioning the Graduate School dean within the first two-thirds of the semester as determined by the published university calendar. The request must first be endorsed by the course instructor and the student's department chair or graduate studies coordinator, in that order. Graduate students wishing to withdraw from an undergraduate course within the prescribed period must do so by processing the standard Discrete Course Withdrawal form.

For summer classes and labs, withdrawals must be processed within the first six days for each of the summer sessions.

Following the close of the established six weeks (or sixth or twelfth day) withdrawal period, graduate students may withdraw from a course, either graduate or undergraduate, without grade penalty only with the written approval of their department chair or graduate studies coordinator and the Graduate School dean (in that order) for such reasons as accident, severe illness, or extreme personal disturbance. A student dropping a course under any other circumstances will automatically receive an "F" at the end of the semester or summer term.

Degree Eligibility of IUP Teaching Staff

Members of the faculty at IUP with a rank of assistant professor or above (or equivalent) may not receive a graduate degree from this institution. This regulation applies also to any faculty member employed at this institution *full-time* at the instructor rank unless such an individual is already an approved candidate for a degree in the Graduate School of IUP at the time he or she is given full-time employment as an instructor. Faculty members may, however, register for work in the Graduate School and apply the credits earned toward graduate degrees to be conferred by other institutions. Special cases will come before the Graduate Council.

Grading System

The following grades are used in reporting the standing of students at the end of each semester or summer term:

A - Excellent
B - Good
C - Fair
F - Failure

I - Incomplete
R - Research in Progress
W - Withdrawal

No "D" grade is recognized in IUP graduate work but may be earned by a graduate student enrolled in an undergraduate course.

Quality points are assigned as follows: A - 4; B - 3; C - 2. No quality points are carried by the notations F, I, R, and W.

The notation "I" is used to record work which, as far as it has progressed, is of passing grade but is incomplete because of accident, illness, pregnancy, or extreme personal disturbance. "I" grades must be made up within 180 calendar days after the grade was issued; otherwise, the "I" grade will be converted to an "F." The "R" notation pertains only to thesis and dissertation research credits when such research is in progress as a semester or summer terms ends, or in certain practicum-type courses approved for this notation by the Graduate School dean. All "R" grades are replaced by the grade eventually assigned when the research is completed. The "W" notation applies to certain withdrawals from courses. Withdrawals from the university and discrete course withdrawals are discussed in other sections of this catalog. Note that an "F" is entered in the student's permanent academic record if a withdrawal of either type has not been processed in accordance with established procedures.

Graduate Student Assembly

Each IUP department offering a graduate program is required to establish a graduate studies committee and is urged, but not required, to form an association for its graduate students. On a universitywide basis, the Graduate Student Assembly (GSA) is the graduate students' organization. GSA is composed of two representatives (and frequently an alternate) elected by the full-time and part-time graduate students of the department. GSA serves graduate students through voting representation on the Graduate Council and the University Senate, by making recommendations about graduate student affairs to the Graduate Council and/or the Graduate School dean, and by working through university channels to improve the social, intellectual, and cultural life of graduate students.

Graduate Study Beyond the Master's Degree

It is not unusual to find graduate students enrolling in more courses than they need to meet the requirements of a master's degree. Such action can be beneficial beyond the personal satisfactions which accrue, because the added studies may be well received by employers whether in business, government, or the school system in such matters as certification.

However, students should understand that most graduate schools have residency requirements at the doctoral as well as master's level and frequently will accept no more than thirty graduate semester hours earned elsewhere as applicable to a doctorate.

Graduation

Early in their final semester or summer session, students must file an application for graduation. Forms are in the Graduate School and require departmental and Graduate School approvals. Applications must be filed by the deadlines shown on the Graduate School calendar. If all requirements have been met, the degree will be awarded at the next established diploma-award date. An official diploma will be presented to the student at that time. Deadline dates are published in the back of this catalog.

Independent Study/Individualized Instruction Maximum

Only six credits of Independent Study and/or Individualized Instruction work may apply toward a graduate degree unless prior written authorization for hours in excess of six is obtained from the student's graduate coordinator and the Graduate School dean, in that order.

Internship Policy

To qualify for a graduate internship appointment, the graduate student must have a minimum of twelve IUP graduate credits earned and a minimum 3.0 grade point average; must have been in full-time enrollment (nine graduate credits or more) during the semester or summer sessions (the latter taken as a whole) immediately preceding the academic period for which internship is requested;* and must meet departmental internship criteria. No more than six internship credits may apply to a graduate degree unless written approval of the student's department chair or graduate coordinator and the Graduate School dean (in that order) is obtained. Continuation in an internship experience by a given graduate student is contingent upon the student's maintenance of satisfactory performance in all aspects of his/her degree program. Programmatic exceptions to the foregoing policy can be made only with the approval of the Graduate Council.

*For graduate students active during summers only, or during fall-spring semesters only, the phrase "immediately preceding the academic period," etc., refers to the student's last preceding active semester or summer session.

Principal Certification

IUP offers a performance-based school principal certification program in elementary and secondary education. Those who wish to pursue this program must first be granted admission to the Graduate School. Before applying, however, potential applicants should consult with the director of the principal's certification program (Dean's Office, College of Education, Stouffer Hall).

Program Changes

To insure their quality and relevance, graduate programs at IUP are subject to review and change by duly appointed and responsible university groups. Because of this, the university recognizes that provisions must be made to prevent hardship to students already enrolled in programs if changes later occur in specific or general program requirements. Students affected by changes in programs, policies, and regulations are therefore given the option of following those requirements in effect when the student was first admitted to the program or those in effect at the time of expected graduation. The student cannot, of course, combine chosen elements of the two. Should a question of rule interpretation arise with respect to changes, the student, the student's adviser, or both should petition the Graduate School dean for a decision about which requirements apply.

Residency

Master's degree candidates have no formal residency requirements, but all credits applied toward the degree (except a possible six transfer credits) must be taken through IUP. In addition, all candidates must complete their programs's final six credits of graduate work in courses offered by IUP.

Student Rights and Responsibilities

Upon admission to the Graduate School, students assume responsibility for knowing program requirements and following departmental advising requirements when selecting and registering for courses. Students are also responsible for knowing the procedures for paying fees, processing class drop-adds and withdrawals, and applying for and meeting all requirements for graduation. Conversely, students have the right to expect that program requirements will be made clear, that course requirements—including grading criteria and procedures—will be made known early in a course, and that course grades will represent the instructor's professional and objective evaluation of performance. Students have the right to instruction that encourages the free and open discussion of ideas and that respects reasonable student needs and aspirations. Students share with instructors the

responsibility for creating a classroom atmosphere that encourages maximum learning and exhibits a more intense scholarly zeal than that expected in undergraduate studies.

Teacher Certification

Students admitted to the Graduate School who wish to work toward certification in a specific field(s) should check the descriptions of certification programs found in this catalog for requirements related to their program(s) of interest. If a given certification program requires completion of a master's degree, the master's degree procedures and regulations set forth in this catalog apply. The Graduate School does not, however, certify students; certification is processed by the dean of the College of Education. For specific information about all certification requirements, please contact the Office of Professional Laboratory Experiences, 104A Stouffer Hall, (412) 357-2485.

Time Limitations

Program credits earned at IUP or accepted by transfer are applicable to IUP master's degrees over a period not to exceed five years from the date of their earning unless the period is extended through student petition approved by the student's department and the Graduate School dean. Doctoral candidates must complete degree requirements no later than seven years after beginning IUP doctoral program course work unless an extension similarly is authorized.

Withdrawals from the University

Graduate students withdrawing from the university (from all courses) for any reason must process such withdrawals through the office of the dean of the Graduate School. The official withdrawal date to be recognized will be established by the Graduate School dean.

Please refer to the early pages of this catalog for a detailed description of the university's refund policy and related matters.

Official notification of course withdrawal will be sent by the Graduate School dean to the student's course instructor(s) and graduate studies coordinator.

No person shall be considered withdrawn from the university unless the withdrawal process described herein has been employed.

Workshops and Special Credits

The following policy governing workshop and other special-offering credits was passed by the University Senate on May 8, 1979:

The individual master's degree candidate may submit for credit for his or her degree no more than six (6) semester hours of workshop and other special-credit offerings approved by the department offering the degree. Doctoral candidates may submit a further six (6) semester hours of such work beyond the master's or its equivalent if approved by the degree-granting department. Should the workshop(s) or special credit offering(s) later become a catalog-listed course which is part of the degree program, while the student is still working toward his/her degree, the student may request of the department a retroactive reclassification of credits so earned and upon approval may again use workshop or special offering credits, up to the above maximum, toward a degree. However, the graduate transcript will continue to show the original special topics number and course title under which the course was registered.

Course Abbreviation Key

The following departmental abbreviations are used to identify courses referred to in the catalog:

Adult Education	AC	Foundations of Education	FE
Accounting	AG	Geography and Regional	GE
Administrative Services	AD	Planning	
Art History	AH	Geoscience	GS
Applied Music	AM	Graduate School	GR
Anthropology	AN	Health and Physical	
Art	AR	Education	HP
Art Education	AT	History	HI
Business Education	BE	Home Economics	
Biology	BI	Education	HE
Chemistry	CH	Industrial and Labor	
Communications Media	CM	Relations	LR
Computer Science	CO	Management	MG
Consumer Services	CS	Marketing	MK
Counselor Education	CE	Mathematics	MA
Criminology	CR	Music	MU
Distributive Education	DE	Nursing	NU
Education Administration	EA	Philosophy	PH
Economics	EC	Physics	PY
Early Childhood Education	EE	Political Science	
Education	ED	(Public Affairs)	PS
Educational Psychology	EP	Psychology	PC
Elementary Education	EL	Religious Studies	RS
Elementary Mathematics	EM	Safety Sciences	SA
Elementary Science	ES	Science	SC
English	EN	Social Science	SS
Fine Art	FA	Sociology	SO
Finance/MIS	FS	Special Education	
Food and Nutrition	FN	Education of Exceptional	EX
Foreign Language:	FL	Children	
Critical Language	CL	Speech-Language	SH
French	FR	Pathology	
German	GM	Student Affairs in Higher	ST
Greek	GK	Education	
Latin	LA	Theater	TH
Spanish	SP		

General Service Courses

The following Graduate School courses are taught by selected departmental faculty and are open to all qualified graduate students independent of degree or certification program. The student should check program applicability with his/her adviser, department chairperson, or graduate studies coordinator.

Research

GR 615 Elements of Research

3 s.h.

Selection of a research problem, data collection, types of research, research reports, and use of the library and computer in connection with research problems are studied. Elements of statistics are introduced. This course provides background for preparation of the thesis and enables the student to become an intelligent consumer of products of academic research. Required of all students working toward the M.Ed. degree.

*XX 850 Thesis

1-6 s.h.

For students writing the thesis. XX 850 should be scheduled for the semester in which the student plans to complete his/her work.

*XX 851 Recital

2-4 s.h.

Required for students enrolled in the program Master of Arts in Music-Performance. Graduate students in music education have the option to prepare and perform a formal recital in their major performing area under the guidance of their private teacher. Approval is granted from the area faculty of the student's performance major. XX 851 should be scheduled for the semester in which the student plans to give the recital.

*XX 950 Dissertation

1-12 s.h.

Students preparing a doctoral dissertation for credit must register for this course. The number of credits assigned and the extent of time for which research activity is scheduled depend upon the nature and scope of the individual student's research problem and his/her general doctoral program.

*Each academic department utilizes its own two-letter prefix.

Note: Credits for both thesis and dissertation if not completed during the semester scheduled are recorded as “R,” *research in progress*. They remain so until the paper is approved. *They do not automatically revert to the grade of “F”* in a specific length of time. Also, thesis and dissertation can be programmed above the regular load.

Statistics

GR 516 Statistical Methods I

3 s.h.

Measurement and statistical techniques as used in administration and educational research. Basic descriptive statistics, including measures of central tendency, variability, and correlation are developed. Reliability and validity of test scores with emphasis on use of statistical techniques studied and their interpretation.

GR 517 Statistical Methods II

3 s.h.

Using computer programs, a wide array of statistical procedures for research workers are explored. Basic concepts of statistical inference and prediction are reviewed, including regression analysis and prediction, hypothesis testing, analysis of variance and covariance, and partial and multiple correlation. Emphasis on use of computer and interpretation of computer print-outs along with understanding techniques employed. No computer knowledge is necessary. Prerequisite: GR 516 or equivalent.

Other Courses

GR 681 Special Topics

1-3 s.h.

Group study of course material not offered in other graduate courses.

GR 699 Independent Study

1-3 s.h.

Individualized in-depth study of an approved topic directed by a participating faculty member and approved administratively.

Note: Neither GR 681 nor GR 699 may be scheduled without prior written approval of the Graduate School dean.

SS 599 Contemporary Europe

3 s.h.

A study/tour program in Europe, commonly of three weeks' duration each summer. Itinerary varies but normally includes London, Paris, and Rome, Florence, Austria, and Switzerland, among others. Program atmosphere is informal and always fun and tiring (lots of walking). Informal lectures on site, guided tours. Academic work includes reading before departure and keeping a daily log.

ED 595 International Study Tour in Education

3 s.h.

Provides an analysis of educational programs and methodology in selected countries. Introduces students to series of diverse educational experiences. Special attention to teaching techniques, innovative curricula, and school organizational patterns. Teaching takes place on site in selected countries.

Supervised Laboratory Experience (Teaching)

The following course, designed for cooperating teachers and others working with student teachers, is open to persons having a teaching certificate and teaching experience.

ED 540 Supervision of Student Teaching

Designed for cooperating teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluating procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from a theoretical and applied viewpoint. Prerequisites: teaching certificate and teaching experience.

Graduate Programs and Courses

Anthropology

Anthropology is the study of human biological and cultural evolution. The discipline is organized into four subfields: sociocultural anthropology, physical anthropology, linguistics, and archaeology. The breadth of anthropology gives the discipline wide applicability to a variety of careers and lifetime undertakings.

Although there is presently no graduate degree program in anthropology, courses in anthropology may be used as electives for M.A. degrees in other programs.

Course Descriptions

AN 514 Native Americans

3 s.h.

Survey of culture history and culture area characteristics of the Indians of North America. Detailed study of representative groups related to historical, functional and ecological concepts.

AN 520 Archaeological Field School

6 s.h.

Introduction to archaeological survey, field excavation, and laboratory processing. Field school students participate in one or more of the ongoing research projects of the IUP Archaeology Program.

AN 694 Anthropology Seminar

3 s.h.

Considers conceptual problems and definitions in anthropology. Formulations of a variety of research problems central in anthropology emphasized.

Art

The two advanced studio degrees offered by the Department of Art, the Master of Arts and the Master of Fine Arts, focus on breadth and depth of knowledge in the visual arts, emphasize performance and competency as an artist, and foster artistic growth and maturity across a wide range of creative endeavor.

Admission may be granted for the Master of Art degree in studio only. This degree program requires the successful completion of a minimum of thirty graduate credits that are distributed across a number of required categories. A thesis/exhibition is the culminating requirement within the degree program.

Those students who intend to teach studio in higher education settings, or those who wish to become professional artists, will usually seek admission to the Master of Fine Arts degree. The overall M.F.A. degree program at IUP requires the successful completion of a minimum of sixty credits of course work distributed across several required categories of study. An M.F.A. work exhibition marks the final formal step in degree completion. The Department of Art has structured the overall M.F.A. degree as an initial thirty-credit program (culminating in an M.A. degree in studio) and the final thirty credits focusing on the completion of the terminal degree in the visual arts, the Master of Fine Arts.

The Master of Fine Arts degree program at IUP follows the guidelines and standards that have been adopted by the College Art Association and the National Association of Schools of Art and Design. Nationally, the M.F.A. is used as a guarantee of a high level of professional competence in the visual arts.

Admission Requirements

Individuals seeking admission to graduate study within the Department of Art must meet the general admission standards and adhere to academic policies set by the Graduate School at IUP. The specific policies of the Graduate School are set forth in this catalog.

Standard Departmental Admission Requirements

A. The applicant must either be a graduate of an accredited B.F.A., B.A., or equivalent degree program with a major in one of the studio concentrations offered by IUP or be judged by the Graduate Committee of the Department of Art to possess necessary prerequisite studio proficiency. Admission to study in graduate studio is based upon the nature, extent, and quality of preparation in art history, studio, criticism, and related academic and art-related content areas.

B. If the applicant is deemed to be deficient in a particular area of under-

graduate preparation (art history, studio, or a related area) the Graduate Committee of the Department of Art may recommend and require satisfactory completion of undergraduate credits that will eliminate any areas of deficiency. *Undergraduate credits will not count toward any segment of graduate course work at either the M.A. or M.F.A. degree levels.* The sole purpose of the completion of the recommended undergraduate course work is to ensure entry-level competency and ability to engage in serious scholarly and creative studies.

C. Those seeking admission at either the Master of Arts level or the Master of Fine Arts level must declare upon application the studio areas that will constitute the major and minor areas of studio concentration.

D. A slide portfolio of twenty slides reflecting the best and most recently completed work in the applicant's major and minor areas of concentration must be submitted with materials that are required by the Graduate School. Students will not be admitted into the M.A. or the M.F.A. programs unless the portfolio requirement has been met at the point of application.

E. A goal statement must be submitted by the applicant specifying the areas of concentration and articulating substantive reasons for seeking a graduate degree in the visual arts at either the M.A. or M.F.A. level.

Master of Arts: Initial Degree

Major Studio Concentration: Minimum	12 s.h.
Minor Studio Concentration: Minimum	6 s.h.
Graduate Seminar (AR 615)	3 s.h.
Art History	3 s.h.
Elective	3 s.h.
M.A. Thesis/Exhibition (AR 850)	3 s.h.
	<hr/> 30 s.h.

Master of Fine Arts: Terminal Degree

Major Concentration: Minimum	15 s.h.
Minor Concentration: Minimum	6 s.h.
Art History	9 s.h.
M.F.A. Exhibition	
	<hr/> 30 s.h.

The total minimum number of credits for the M.F.A. degree: 60 s.h. IUP brackets the (M.A./M.F.A.) as a means of building toward the minimum sixty-credit standard. Those with an M.A. from other accredited institutions of higher learning may be considered for the M.F.A. degree at IUP.

Residency Requirement: Master of Fine Arts Degree

The residency requirement for the M.F.A. is the same as that for a student within a doctoral program at IUP. Please refer to that section of the catalog for details.

In addition to the information that appears in this catalog, applicants are encouraged to request a copy of the *Program Overview and Admission Procedures* document from the Department of Art that describes in slightly more detail the policies and procedures relative to the Master of Art and Master of Fine Arts degree program.

Course Descriptions

AH 506 Ancient Migratory Art 3 s.h.

Survey of painting, architecture, and sculpture of Prehistoric Man; Egypt and the Near East; as well as Art of Primitive Man of later times—the American Indian, African Art, and Art of the Oceanic.

AH 507 Medieval Art 3 s.h.

Art and architecture of Europe during Middle Ages, beginning with the study of Early Christian and Byzantine Art and concluding with art of the Romanesque and Gothic periods. Prerequisite: Art History majors or by special arrangement.

AH 508 Italian Renaissance Art 3 s.h.

Art History majors, by special arrangement. Covers span of Italian art from 1400s through 1850 and Mannerist movement. Special attention paid to great masters of the period.

AH 509 Baroque and Rococo Art 3 s.h.

General survey of art from 1575 to 1775. Will include architecture, sculpture, painting, and other arts.

AH 519 Museology 3-6 s.h.

The student will work in the University Museum under the supervision of the museum director. Museum techniques and practices will be stressed in an “on-the-job” training situation. The role of the graduate student will be that of “acting curator” of specific areas of his/her choice; the student will supervise selection and hanging of shows.

AH 522 Art in America 3 s.h.

Surveys American art and its relation to the development of American ideas and ideals.

AH 523 Seminar in Art Criticism

3 s.h.

Explores philosophic theories of art and art products. An attempt to relate these theories to senses and form itself—and to technical, psychological, and cultural values. Primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity, and experience. Time will be given to forms of art that are not primarily visual, including music, dance, literature, and poetry.

AH 524 Art of the East

3 s.h.

Nature of Eastern art's meaning and place in contemporary world culture.

AH 625 Architectural Influences in a Contemporary Society

3 s.h.

Experimental problems in structure and aesthetics as related to architecture. Attempts are made to search out the historical roots of many contemporary styles of architecture.

AH 626 Pre-Columbian Art

3 s.h.

Art of Mezo-American cultures, Mayas, Aztecs, and Incas, as influenced by Oceanic migrations.

AH 628 World Art Since 1875

3 s.h.

Discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts.

AR 615 Art Seminar

3 s.h.

Opportunities for students to discuss problems in art related to studio interests. Thesis/show proposals will also be prepared. For M.A. candidates only.

AR 616 Directed Studies

3-6 s.h.

Offered in instances where a particular course is needed by a student but is not on the regular schedule rotation. Approval must be secured from the adviser, the instructor involved, and the graduate coordinator.

AR 640 Graduate Studio in Ceramics

3-18 s.h.

All aspects of handforming, decorating, glazing, and firing will be dealt with. This may include body and glaze formulation and reduction, oxidation, salt, wood, and raku firing, as well as thrown, coiled, or slab construction or combinations thereof. Includes historic and contemporary ceramics and philosophies of the craft. Prerequisite: at least one year of undergraduate ceramics.

AR 644 Graduate Studio in Fibers

3-18 s.h.

Fundamentals of fiber construction and processes. Emphasis on experimental approaches to fiber design and construction. Designed to meet the needs of beginning as well as advanced students.

AR 647 Graduate Studio in Jewelry and Metal Work

3-18 s.h.

Advanced study dealing with specialized problems in design and execution of metal work and jewelry. A thesis may be developed depending on research in one of the areas relating to this field: history, materials, tools, processes, or teaching techniques of the craft.

AR 650 Graduate Studio in Sculpture

3-18 s.h.

An advanced course in which students are expected to work on challenging problems in sculpture. A student may explore one or several sculpture or modeling media.

AR 653 Graduate Studio in Woodworking

3-18 s.h.

Specialized study and experiences in the design and execution of problems relating to wood as a crafts material. Opportunity is presented to more intensively explore materials and processes of this craft employing both hand and power tools.

AR 661 Graduate Studio in Drawing

3-18 s.h.

Drawing as a language and continued development of skill in communication and expression in all kinds of materials and media. Drawing as an intimate work of the artist will be expressed.

AR 662 Graduate Studio in Oil Painting

3-18 s.h.

Traditional and contemporary methods and techniques in the area of plastic painting media. Composition, in relation to modern painters' problems. Opportunity is presented for exploration and specialization in depth as well as breadth.

AR 665 Graduate Studio in Watercolor Painting

3-18 s.h.

Painting in transparent watercolor, gouache, mixed media, and with new water-soluble paints, such as casein and acrylic polymer tempera. Traditional, current, and experimental approaches with emphasis on design and emotional content.

AR 668 Graduate Studio in Printmaking

3-18 s.h.

Modes, media, material, techniques, and processes of graphic arts and their use in expression. The student may concentrate on intensive exploration of one media in depth or explore a number of media for breadth of experience. Prerequisite: AR 217 or its equivalent.

Studio courses may be taken for a total of eighteen semester hours in one studio. No more than six semester hours in one studio may be taken during one semester.

AT 610 Art and the Exceptional Child

3 s.h.

Designed to consider characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on art aspects of the child's education.

AT 611 Art Curriculum Development in Art Education

3 s.h.

A seminar and study of curriculums at all levels. Particular attention given to individual needs of class participants in development of curriculums pertinent to their own teaching situations. For those students who have not yet taught, theoretical and practical problems will be examined.

AT 612 Supervision and Administration in Art Education

3 s.h.

Responsibilities, functions, and duties of art supervisors and administrators.

AT 613 Research in Art Education

3 s.h.

Required of all Art Education majors. Reviews past and present research focusing upon the methodologies pertinent to the field. Prerequisite for this course, GR 615, is to be scheduled within the first four to eight semester hours. AT 613 must be taken as soon thereafter as possible but within the first twelve semester hours.

AT 614 History and Philosophy of Art Education

3 s.h.

Considers art education in Europe, the United States, and Canada. Designed to give the student background.

Biology

Requirements for admission: To be admitted to the Department of Biology, the applicant must have completed the requirements for a bachelor's degree from an accredited college or university. These requirements should

include a major in Biology, one year of inorganic chemistry, one semester of organic chemistry, and one semester of calculus or statistics. Applicants with undergraduate deficiencies may be required to register for appropriate courses.

The requirements for candidacy for the M.S. degree are

- Satisfactory completion of 15 semester hours of graduate work, with at least 8 hours in core courses.
- The selection of a thesis adviser and a committee of at least two additional faculty members (in the case of the thesis student) or a research adviser (in the case of non-thesis student) to guide the candidate in completing the program.
- An official application to candidacy, including a research proposal which has been approved by the adviser, must be submitted to the Biology Department Graduate Committee.

Candidates are expected to maintain an average not lower than 3.0. Continuance in the graduate program for those receiving two individual course grades below a "B" is contingent upon favorable review of the Graduate Committee.

Master of Science in Biology

Students working for this degree will complete 35 semester hours of work in accordance with the following divisions. Students may pursue either a thesis or a non-thesis option.

I. Core Courses

Thesis option - 20 semester hours

Non-thesis option - 17 semester hours

A. Required Courses

Thesis option (11 semester hours)

BI 602 Biometry (3 cr)

BI 610 Seminar (2 cr)

BI 850 Thesis (2-6 cr)

Non-thesis option (8 semester hours)

BI 602 Biometry (3 cr)

BI 610 Seminar (2 cr)

BI 699 Independent Study (3 cr)

B. Core Elective Requirement

For both options, the 9 remaining hours of course credit are to be selected from biology electives and must include one cell/molecular course, one organismal course, and one ecology course.

II. Elective Courses — 15-18 hours

Thesis option: 15 semester hours

Non-thesis option: 18 semester hours

Courses to be selected with the approval of the adviser from the 500- and 600-level biology elective courses or from related science and mathematics courses.

III. Competency Exam

Every student must take a competency exam administered by the candidate's advisory committee. The purpose of this examination is to assure that all graduates have a broad-based knowledge of biology, as well as a mastery of their subject matter pertaining directly or indirectly to their research project.

This examination must be scheduled after completion of 18 semester hours but before completion of 27 semester hours. If a student fails this exam, a second exam will be administered which, at the discretion of the committee, can be oral or written. This exam must be taken within a four-month period following the first exam. Failure of the second exam will result in dismissal from the program.

IV. Research Requirement for the M.S.

A. Non-thesis option - The candidate must conduct an original research project under the direction of a faculty adviser. A report in the format of a journal article must be submitted at the conclusion of the study. This requirement is programmed as BI 699, Independent Study.

B. Thesis option - The candidate must conduct original research under the direction of the thesis advisory committee and present a research thesis at the conclusion of the program. The candidate registers for BI 850, Thesis, while engaged in research and preparation of the thesis. The candidate will present a public seminar reporting results of the research to be followed by an oral defense before the thesis committee.

Course Descriptions

In many courses in the Department of Biology, additional laboratory time may be required beyond the regularly scheduled periods.

BI 525 Herpetology 3 s.h.

A comprehensive survey of the classes of Amphibia and Reptilia, including their classification, structure, origin, evolution, phylogenetic relationships, distribution, and natural history. Special emphasis is placed on the herpetofauna of Pennsylvania.

BI 532 Comparative Vertebrate Anatomy

3 s.h.

Discussion of anatomy of representative vertebrates from a comparative point of view. Stresses major organizational changes observed in vertebrate history. Two-hour lecture, three-hour lab per week.

Prerequisite: BI 120.

BI 546 Dendrology

3 s.h.

Identification and the study of taxonomy, distribution, silvics, wood properties, mensuration, and utilization of woody plants. Two-hour lecture and three-hour lab per week. One or more Saturday and/or weekend field trips.

BI 551 Taxonomy of Plants

3 s.h.

Includes collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny.

Prerequisite: Plant Biology.

BI 553 Physiology of Plants

4 s.h.

A comprehensive study of physiological bases for organization and function of living plants. Current literature is emphasized. Prerequisite: Biochemistry. Closed to students with undergraduate BI 351 Plant Physiology.

BI 563 Limnology

3 s.h.

An investigation into the physical, chemical, and biological aspects of inland waters and their interrelationships. Saturday or Sunday labs may be required. Prerequisite: Ecology.

BI 575 Mammalogy

3 s.h.

General discussion of mammals, emphasizing systematics, distribution, and structure-function modifications related to their evolution. A paper is required.

BI 576 Parasitology

3 s.h.

The parasitic protozoa, flatworms and roundworms. Major emphasis is on species infesting man and includes their structure, physiology, ecology, life cycles, and pathogenicity. Arthropods involved in parasite transmission included. Prerequisites: one year Biology, Vertebrate and Invertebrate Zoology.

BI 578 Mycology

3 s.h.

The systematics, morphology, and physiology of fungi, with emphasis on economically important and experimentally useful Myxomycophyta and Eumycophyta. Not open to students with undergraduate BI 381 Mycology.

BI 597 Introduction to Rocky Mountain Ecology

4 s.h.

Flora and fauna of each of the life zones described, collected, and identified. Takes place in Bridger-Teton National Forest, Wyoming. Tents, food, horses, etc., are provided by a professional outfitter. Offered only in the summer. No prerequisites.

BI 602 Biometry

3 s.h.

The choice and application of standard, efficient, and practical statistical techniques for data analyses in common biological research situations.

BI 603 Advanced Techniques in Biology

1-3 s.h.

Introduction to advanced techniques and procedures used in biological research. Topics vary. Students may take up to 3 s.h. for credit toward the degree. Prerequisite: Permission.

BI 610 Biology Seminar

1 s.h.

An opportunity to become acquainted with current research in biology. One-hour meeting per week.

BI 622 Advanced Ornithology

3 s.h.

A detailed study of bird populations, behavior, and movement, including the annual cycle. Prerequisite: ability to identify local birds visually and by their songs.

BI 623 Animal Morphogenesis

3 s.h.

Factors that influence and control the differentiation of organs, tissues, and cells. Emphasis placed on experimental procedures and methods. Prerequisites: Embryology or Comparative Anatomy, Organic Chemistry, and Genetics.

BI 624 Advanced Entomology

3 s.h.

Insect morphology, including external and internal organization of different species of insects. Comparisons between species included. An independent research study and seminar presentation required.

BI 631 Plant Ecology

3 s.h.

Nature and distribution of vegetation in relation to environmental factors. Field investigations of local plant communities constitute bulk of lab work. Prerequisites: Field Botany, Plant Taxonomy, or general knowledge of local flora.

BI 635 Taxonomy and Ecology of Bacteria

3 s.h.

Isolation, cultivation, classification, and ecology of major groups of bacteria. Special emphasis on principles of bacterial taxonomy and ecology. Prerequisite: Microbiology.

BI 640 Animal Ecology

3 s.h.

Effect of environmental factors on animals, animals as members of communities, their trophic relationships, their ecological distribution, population dynamics, and aspects of animal behavior. A field or lab problem is required.

BI 652 Microbial Physiology

4 s.h.

Physiological reactions involved in growth, reproduction, and death of microbes. Energy production, substrate transport, metabolism, and regulatory and control mechanisms are discussed. Prerequisites: Microbiology and Biochemistry.

BI 653 Animal Physiology

4 s.h.

Digestion and molecular transport of nutrients, gaseous exchanges, excretion, muscular activity and control, and endocrine and neural elements. Prerequisite: Animal Biology.

BI 654 Endocrinology

4 s.h.

Phylogeny, embryology, microanatomy, and physiology of the endocrine tissues. Prerequisites: course in Anatomy and Physiology.

BI 662 Molecular Genetics

3 s.h.

Study of chemical structure of the gene in relation to its molecular function in control of specific protein biosynthesis. Emphasis will be placed on genetic systems of bacteria, fungi, and viruses. Prerequisites: Genetics, Organic Chemistry, and Biochemistry or permission of the instructor.

BI 663 Immunology

3 s.h.

Study of anatomy and function of immune system, physical and chemical properties of antigens and antibodies, nature of antigen-antibody interactions, humoral and cell mediated immune responses, and immunopathology. Prerequisites: Biochemistry and Microbiology.

BI 664 Pathogenic Microbiology

3 s.h.

Study of disease caused by microorganisms with emphasis on human pathogens. Both epidemiology and aspects of host-parasite relationships.

Lab stresses methods of isolation and identification of pathogens. Prerequisite: Microbiology.

BI 699 Independent Studies

1-3 s.h.

Individual or small group instruction, by tutorial and intensive literature survey, in a particular area not covered by a student's course work or thesis research. By arrangement with instructor and approval of graduate director. Maximum of six hours to be used toward the degree.

MI 500 Problems in Marine Science

3 s.h.

Independent study for the advanced student in marine sciences. Topics are selected from areas offered by the Marine Consortium, and studies are directed by the instructor in that area. Prerequisite: consent of instructor.

BI 850 Thesis

2-6 s.h.

NOTE: Summer courses offered at the Pymatuning Laboratory of Ecology may be taken for biology elective credit.

Business

The College of Business offers three separate graduate programs: The Master of Business Administration (M.B.A.), the Master of Education in Business (M.Ed.), and the Master of Science in Business (M.S.).

Master of Business Administration (M.B.A.)

The Master of Business Administration degree program is designed to serve the needs of junior- and intermediate-level business executives who are seeking additional knowledge and skills to do a more efficient job of problem solving and decision making. Also, the program is structured to give recent college graduates advanced training in business management prior to entry into a business career. The M.B.A. may be taken on either a part-time or full-time basis. Courses are scheduled for both day and night sessions, including a full schedule of course offerings in the summer.

Core I of the program consists of ten undergraduate prerequisite courses (31 s.h.) that are designed to provide a foundation in the basic concepts and techniques used in today's business world and prepare the student for the graduate courses in business administration.

Core II of the program consists of 33 credit hours in courses that provide advanced knowledge in the functional and applied areas of business. The 33 credit hours consist of eleven graduate courses (eight required courses

and three elective courses chosen by the student from an approved list). Students are not required to have a specific major in the M.B.A. program. The objective of the program is to offer the student either the opportunity to sample a variety of fields of business or to develop depth in one special area of interest. Students who wish to develop a stronger concentration than the M.B.A. program allows should consider the Master of Science in Business degree.

Normally, a student with a recent bachelor's degree in Business Administration from a fully accredited university will have completed all of the Core I courses. This will enable the student to complete the M.B.A. program in one year of full-time study, whereas a nonbusiness major will require two years—one year for the Core I or undergraduate courses and one year for the Core II or graduate course requirements. Part-time students typically require between two and five years to complete the program.

Students who have been admitted to the M.B.A. program and who have Core I prerequisites remaining may receive special permission to take some of the courses elsewhere. Students must receive specific permission for all such courses from the College of Business graduate coordinator. Also, it is possible to complete some of these courses by examination only. Again, advance permission is required.

Students seeking enrollment in the M.B.A. program or the M.S. in Business program must take the Graduate Management Admission Test (GMAT) before admission to the degree program and the graduate classes. Information about the GMAT can be obtained from the Educational Testing Service, Princeton, NJ 08540 or from IUP University Testing Services, which is located in Career Services ([412]357-2235).

Course Requirements for the M.B.A. Degree

Core I

Thirty-one s.h. in the following undergraduate courses with a grade of "C" or better: AD 235, AG 201, AG 202, EC 122, FI 310, IM 241, MA 121, MG 360, MK 320, QB 215.

Students will be given credit for Core I undergraduate prerequisite courses taken at IUP or at other appropriate institutions with prior permission. See the IUP undergraduate catalog for course descriptions. Students should contact the College of Business graduate coordinator to ascertain the appropriateness of prior undergraduate work and any special requests for prerequisite waivers. Prior written permission is required to take courses at any other institutions.

Core II

Thirty-three credit hours in the following graduate courses:

- A. Required: AG 607*, EC 634, FI 630, IM 640, MG 613, MG 695, MK 603, and QB 601. *Not open for students with credit for AG 311 Cost Accounting or its equivalent.
- B. Three courses chosen by the student in the following elective graduate courses:
- Accounting:* AG 501, AG 512, AG 531, AG 608, AG 610, AG 612, AG 613.
- Administrative Services and Business Education:* AD 610, AD 633.
- Finance:* FI 510, FI 520, FI 522, FI 631, FI 632, FI 635.
- Management Information Systems:* IM 550, IM 551, IM 570, IM 580, IM 641, IM 642.
- Management:* MG 623, MG 630, MG 631, MG 635, MG 636, MG 642, MG 645.
- Marketing:* MK 521, MK 530, MK 531, MK 610, MK 611, MK 621.
- Quantitative Business:* QB 602, QB 604.
- Other:* 581/681 Special Topics courses offered by AD, AG, BE, FI, IM, MG, MK, and QB departments; other business-related courses with prior approval of the College of Business graduate coordinator.

Students may take one 500-level course without permission of the College of Business graduate coordinator. Additional 500-level courses require prior written approval. Students may elect one graduate-level course outside the College of Business in related fields as an elective with prior approval of the College of Business graduate coordinator. Examples of other such areas may include Labor Relations, Economics, and other related fields.

Master of Education in Business (M.Ed.)

The Master of Education in Business degree is designed to permit business teachers to broaden their understanding of business, to study current teaching procedures, and to update their knowledge in the new technologies used in business.

Business Education teachers with appropriate prerequisites can earn, at the graduate level, certification in accounting, data processing, marketing, and distributive education while pursuing the Master of Education degree program.

Distributive Education teachers seeking to broaden their background in marketing, merchandising, and management may emphasize these areas in the Master of Education degree program.

While the program was designed for students who have completed the undergraduate curriculums in Business Education or Distributive Education, including certification requirements, other students may apply but will be

required to complete the undergraduate Business Education requirements as a prerequisite. Individuals without an undergraduate degree in business may pursue graduate work leading to certification in Distributive Education.

Cooperative education certification may be earned by teachers holding a valid Pennsylvania teaching certificate or its equivalent.

Upon admission to the Graduate School, each student is assigned an adviser who will assist the student in scheduling his/her program of studies. Prior to admission to candidacy for the degree of Master of Education in Business, the student must take the Graduate Record Examination aptitude test. Information about this examination can be obtained from the Educational Testing Service, Princeton, NJ 08540 or from IUP University Testing Services, which is located in Career Services ([412]357-2235).

Course Requirements for the M.Ed. Degree

Students must complete 30 semester hours with no less than fifty percent of the courses taken at the 600 level for the degree distributed as follows:

- I. Professional Development Area — 3 courses (9 s.h.)
 - A. Humanistic Studies (3 s.h. — One of the following: FE 611, FE 612, FE 613 or FE 514.
 - B. Behavioral Studies (3 s.h.) — One of the following: EP 604, EP 573, EP 576, EP 578, CE 639, or EX 631.
 - C. Research (3 s.h.) — GR 615.
- II. Specialized Core — 3 courses (9 s.h.) AD 610, BE 650, and either BE 660 or BE 661. (Note: Students seeking certification in Distributive Education may substitute DE 510 or DE 513 for BE 660 or BE 661.)
- III. Subject Area and/or Thesis — 4 courses (12 s.h.)
BE 850 Thesis (3 s.h.) (optional) and/or any additional graduate courses listed in this catalog under AD, AG, BE, DE, FI, IM, MG, MK, or QB. Other related courses may be allowed with the consent of the College of Business graduate coordinator.

Courses in Specialized Core Area and Subject Area should be scheduled early in the student's program.

For description of FE courses, see section on Foundations of Education; for EP courses, Educational Psychology; for CE courses, Counselor Education; for EX course, Special Education.

For description of GR courses, see entry under "General Service Courses."

Master of Science in Business (M.S.)

The Master of Science in Business degree is designed to provide students with the mastery of one functional area of business administration in detail, as well as a solid background in the necessary supporting areas. The student will elect to concentrate in one of the following: Accounting, Finance, Management, Marketing, Management Information Systems, or Office Administration. The Master of Science in Business program differs from the M.B.A. program, which is designed to provide a more general background.

The student is required to take a series of undergraduate prerequisite courses that provide a foundation in the basic concepts and techniques used in today's business world. These prerequisite courses are identical to those required by the M.B.A. program. If the student has not had these courses at the undergraduate level, they will be taken at IUP. With prior permission, some of the courses may be taken at other accredited institutions. In some instances, course credit may be given by examination for these prerequisite courses. Please contact the College of Business graduate coordinator for information concerning the prerequisite courses. Also, please see the section of the M.B.A. program for additional discussion on these prerequisite or Core I undergraduate level courses. Required prerequisite courses are AD 235, AG 201, AG 202, EC 122, FI 310, IM 241, MA 121, MG 360, MK 320, and QB 215. Students must have achieved a grade of no less than "C" in each of these courses.

Prospective M.S. in Business students must submit a written statement to the College of Business graduate coordinator explaining career goals and the area of specialization or functional field in which concentration is desired. The graduate coordinator and the student will develop a program tailored for the student's specific needs. The program will include a listing of courses to be taken for completion of the degree requirements.

Students seeking enrollment in the M.S. in Business program must take the Graduate Management Admissions Test (GMAT) before admission into the degree program. This test is administered by the Educational Testing Service, Princeton, NJ 08540, and may be taken in conjunction with IUP University Testing Services, which is located in Career Services, ([412] 357-2235).

Course Requirements for the M.S. Degree (36 credits)

- I. Required Courses (9 hours): AG 607, IM 640, MG 695
- II. Research Area (9-12 hours): QB 601, MK 621, and Thesis (3-6 s.h.)

- III. Area of Concentration or Specialty (12-15 hours):
Functional area of business selected by student. Courses to be specified by the department and College of Business graduate coordinator from courses listed in "Areas of Concentration" section.
- IV. Elective Area (0-6 hours)
Business electives to be selected by student from available graduate courses in business administration or related fields.

Areas of Concentration/Electives (12 to 15 semester hours selected from the following areas by the student and approved by the College of Business graduate coordinator): Accounting: AG 501, AG 512, AG 531, AG 608, AG 610, AG 612, AG 613. Finance: FI 510, FI 520, FI 522, FI 630, FI 631, FI 632, FI 635. Management Information Systems: IM 550, IM 551, IM 570, IM 580, IM 641, IM 642. Management: MG 613, MG 623, MG 630, MG 631, MG 635, MG 636, MG 642, MG 645. Marketing: MK 521, MK 530, MK 531, MK 603, MK 610, MK 611. Office Administration: AD 512, AD 515, AD 610, AD 612, AD 633.

Course Descriptions

Course Scheduling Restrictions: Students may not take courses for graduate credit at the 500 level if they already have undergraduate credit for the same course.

Students taking courses for which they do not have appropriate prerequisites will not receive graduate credit toward completion of the M.S. in Business or the M.B.A. for such courses.

Accounting

AG 501 Advanced Accounting
3 s.h.

Study of business combinations and consolidations as well as accounting problems of specialized nature such as goods on consignment, installment sales, receivership accounts, agency and branch accounting. Prerequisite: AG 302 or equivalent (9 s.h. of Accounting).

AG 512 Advanced Cost Accounting
3 s.h.

Theory, preparation and use of budgets, analysis of cost variances, direct costing, and extensive analysis of various cost control and profit planning programs. Prerequisite: AG 311.

AG 531 Auditing
3 s.h.

A study of auditing theory and practical application of auditing standards and procedures to the verification of accounts and financial statements, working papers, and audit reports. Prerequisite: AG 301.

AG 581 Special Topics in Accounting

3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending on specific topics. May be repeated by specific approval. Prerequisite: permission of the instructor and College of Business graduate coordinator.

AG 607 Management Accounting

3 s.h.

Designed for management personnel who are not accountants but who need to understand the accounting process and the use of accounting information by management in making decisions and in performance evaluation. Prerequisite: AG 202. Not open for credit for students with constructive credit for AG 311.

AG 608 Seminar in Accounting Issues

3 s.h.

Designed to offer students the opportunity to explore the conceptual framework for accounting and reporting and to study, research, and debate various controversial issues of current interest to the accounting profession as well as any other accounting area of mutual interest to them and their instructor. The theme of the seminar will be different every time it is offered. Prerequisite: AG 302 or instructor's permission.

AG 610 Accounting Systems

3 s.h.

Accounting principles applied to constructing accounting systems. Special attention is given to problems of management as they relate to accounting systems by developing a system to give management the information desired for effective operation of business. Prerequisite: AG 301.

AG 612 Advanced Tax Accounting

3 s.h.

Develops further knowledge of federal income tax laws as they apply to corporations, estates, and trusts. Federal estate tax and gift tax are also explored. Prerequisite: AG 421.

AG 613 Financial Statements Analysis

3 s.h.

Detailed analysis and interpretation of financial statements using the various purposes and coverage of the accounting principles underlying the data to be analyzed. Prerequisite: AG 202.

AG 681 Special Topics in Accounting

3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of the instructor and the College of Business graduate coordinator.

AG 699 Independent Study in Accounting

1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: consent of instructor, departmental chairperson, and dean, College of Business.

AG 850 Thesis

1-6 s.h.

For students writing the thesis, AG 850 should be scheduled for the semester in which they plan to complete their work. The thesis may be a noncommittee thesis (1-3 s.h.) with one faculty member serving as the student's adviser or a committee thesis (4-6 s.h.) for which the student's adviser, two additional faculty members, the College of Business graduate coordinator, and/or the representative of the dean, College of Business, may constitute the committee.

Administrative Services and Business Education

AD 512 Administrative Office Services

3 s.h.

Presentation of fundamental principles and practices used in the development of an office. Specialized areas such as systems analysis, work simplification, forms design, word processing, office machines and equipment, records management, office design and layout, office location and physical environment, office supervision, office manuals, and development of office personnel will be discussed.

AD 515 Records Administration

3 s.h.

Development of the principles of records administration, including creation, use, maintenance, and destruction. Storage facilities, records classification, forms analysis, control of records, as well as micro-image systems, will be discussed.

AD 610 Business Communications and Report Writing

3 s.h.

Study and comparison of effective communications. Emphasis is on positive approach, clear statements, good form, and structure. Organization and preparation of reports used in business, government, and education. Techniques of collecting, interpreting, and presenting information useful to executives.

AD 612 Office Organization and Management

3 s.h.

Duties and responsibilities of office manager, principles of practical office management and their application. Includes survey and analysis of manuals and their use; selection, training, pay, and promotion of office employees; controlling expenses and measuring office efficiency; quality and quantity standard; purchase and use of equipment; and report writing.

AD 614 Executive Secretarial Training

3 s.h.

Stresses application of secretarial skills and knowledge and importance of good human relations in offices. Develops methods of complementing secretarial training so that high school graduates may become competent, proficient, and well-adjusted secretaries.

AD 632 Current Business Economic Problems

3 s.h.

Provides opportunity for students to gain insights into relationship of business to many facets of society, impact of major societal groups upon business, and nature of obstacles that businesspeople face in day-to-day operations. Review and analysis of basic economic concepts and principles will serve as a basis for study of selected economic problems of current interest and concern to business and society.

AD 633 Case Problems in Business Law

3 s.h.

Deals with solution of case problems as applied to various topics in the field of business law. Prerequisite: AD 235 or equivalent.

AD 634 Consumer Economic Problems

3 s.h.

Program for the education of intelligent consumers in how to gain the maximum satisfaction from goods and services. An effort will be made to develop an appreciation of the problems of the producer and distributor as well as of the consumer.

AD 670 Economic Backgrounds of Business

3 s.h.

Overview of economic environment in which business and other agencies operate. Students will gain a broad perspective of business operations through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting, and investments. Not open to business majors but is designed as a general studies course for other programs.

AD 699 Independent Study in Administrative Services

1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: consent of instructor, departmental chairperson, and College of Business dean.

BE 650 Principles and Problems of Business Education

3 s.h.

Surveys basic principles and practices of business education. Among the topics considered are history of the high school business program, purposes, attitudes of management and labor toward education, relationship of general education to business education, trends in the field.

BE 660 Improvement of Instruction in Secretarial Courses
3 s.h.

Provides business teachers with a working philosophy and practical approach to teaching of secretarial subjects—shorthand, typewriting, transcription, and office practice. Teaching procedures basic to development of vocational proficiency in shorthand, typewriting, transcription, and office practice. Covered are content, methods, teaching aids, available instructional materials, measurement of skills, and standards of achievement.

BE 661 Improvement of Instruction in Accounting and Basic Business Courses
3 s.h.

Problems and techniques in teaching accounting and basic business courses including objectives, place and purpose of accounting and basic business courses, curricular organization, teaching techniques, instructional materials, resource materials, course standards, testing, and evaluation. For experienced or prospective high school, vocational-technical school, and community college teachers of accounting, general business, consumer economics, business mathematics, economics and business principles and management.

BE 676 Special Studies in Business and Distributive Education
1-6 s.h.

Special topics in business and distributive education. Topics will be announced well in advance of registration.

BE 699 Independent Study in Business Education
1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: consent of instructor, departmental chairperson, and College of Business dean.

BE 850 Thesis
1-6 s.h.

For students writing the thesis, BE 850 should be scheduled for the semester in which they plan to complete their work. The thesis may be a noncommittee thesis (2 s.h.) with one faculty member serving as the student's adviser or a committee thesis (4-6 s.h.) for which the student's adviser, two additional faculty members, the College of Business graduate coordinator, and/or the representative of the dean of the College of Business may constitute the committee.

DE 510 Methods and Evaluation in Distributive Education I
3 s.h.

To acquaint prospective teacher-coordinators with objectives of vocational distributive education, including state plan and curriculum. To understand programs in organizing, administering, and supervising a complete cooperative program.

DE 513 Methods and Evaluation in Distributive Education II

3 s.h.

Acquaints students with basic principles of group and individual instruction in various subject matter areas, as well as methods of presentation. Students prepare unit plans, lesson plans, demonstrations, and evaluations. Prerequisite: DE 510 or DE 413.

DE 620 Retail Organization and Management

3 s.h.

Directed toward problems of retail management. Includes present-day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control.

DE 640 Internship in Office and Distributive Occupations

4 s.h.

Students who do not have extensive business experience are given the opportunity to work full time for six weeks in a business position under supervision. Evening seminars are held weekly to discuss problems related to work experience program. A written report of the experience will be required. Individualized instruction course.

DE 653 Administration and Supervision of Vocational Education

3 s.h.

An introductory course in administration and supervision of vocational education. Historical background and problems connected with budgeting procedures and practices, teacher qualifications, certification, selection and assignments, in-service programs, rating and evaluating vocational techniques, classroom and personnel supervision, vocational teachers' conferences, curriculum construction and revision, selection and maintenance of equipment, establishing and using standards of achievement, guidance selection, placement, and follow-up programs will be covered.

DE 654 Cooperative Vocational Education

3 s.h.

To develop administrative procedures necessary for planning, organizing, and coordinating cooperative vocational education programs. Major topics include historical background of cooperative vocational education programs, program development, supervision, public relations, the teacher-coordinator and the job, labor laws governing such a program, and desired educational outcomes. Leads to Cooperative Education Teacher certification. Prerequisite: DE 653.

DE 699 Independent Study in Distributive Education

1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: consent of instructor, departmental chairperson, and College of Business dean.

Finance/Management Information Systems

FI 510 Financial Institutions and Markets

3 s.h.

Review of entire structure of financial institutions, money and capital markets (of which the business enterprise is both a supply and demand factor), and the structure and dynamics of interest-rate movements.

Prerequisites: EC 325, FI 324, or permission of College of Business graduate coordinator.

FI 520 Investment Analysis

3 s.h.

Integrates the work of various courses in the finance areas and familiarizes the student with the tools and techniques of research in the different areas of investments. Prerequisites: AG 301, FI 310, FI 324, or permission of College of Business graduate coordinator.

FI 522 Seminar in Finance

3 s.h.

A course primarily for the senior finance major, covering topics in all areas of finance by using recent articles, cases, discussions, speakers, and a financial simulation game. Prerequisites: FI 310, FI 320, FI 324, or permission of College of Business graduate coordinator.

FI 581 Special Topics in Finance

3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of instructor and College of Business graduate coordinator.

FI 630 Financial Management

3 s.h.

An extension of basic managerial finance, dealing with theory and practice of analyzing companies, financial planning, capital budgeting, management of working capital, and obtaining funds for the corporation. Prerequisite: FI 310

FI 631 Advanced Financial Management

3 s.h.

Purpose is to provide the business manager with various approaches and methods for solving capital budgeting decisions and evaluating investment proposals. Topics will include capital budgeting techniques and applications, decisions under certainty and uncertainty, capital rationing, and methods of evaluating and classifying investments. Prerequisite: FI 630.

FI 632 Seminar in Finance

3 s.h.

Covers topics in all areas of finance by using recent articles, cases, discussions, speakers, and a finance simulation game. Designed to bring together all aspects of finance. Prerequisite: FI 630.

FI 635 Principles of Investments in Securities

3 s.h.

Introduces many forms of existing investment policies. Attention is given to operation of stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs, and problems involved in making investments through brokers, bankers, and stock promoters. Prerequisite: FI 630.

FI 681 Special Topics in Finance

3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary, depending upon the interests of instructor and students, with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of the instructor and the College of Business graduate coordinator.

FI 699 Independent Study in Finance

1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: consent of instructor, departmental chairperson, and College of Business dean.

FI 850 Thesis

1-6 s.h.

For students writing a thesis, FI 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a noncommittee thesis (1-3 s.h.) with one faculty member serving as the student's adviser or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, the College of Business graduate coordinator, and/or the representative of the dean of the College of Business may constitute the committee.

IM 550 Database Theory and Application

3 s.h.

The analysis of data structures and database, management systems and their implementation in COBOL. Prerequisite: CO 220 or IM 255, and IM 350.

IM 551 Systems Analysis

3 s.h.

Develops understanding of concepts and techniques, involving conventional and structured approaches to analyzing problems of business information systems and systems definition feasibility, as well as quantitative and evaluative techniques of business information systems analysis. Prerequisite: IM 255 or CO 220.

IM 570 Systems Design

3 s.h.

Students learn tools and techniques for design of a business system. Along with classroom discussions of principles and techniques for analyz-

ing, designing, and constructing the system, students will formulate system teams to analyze the problems of an existing business information system, to design an improved system, and to control implementation of new system. Prerequisites: IM 451/551, IM 450/550.

IM 580 Distributed Business Information Systems

3 s.h.

Study of the techniques involved in planning, design, and implementation of distributed processing systems. Distributed marketing, financial, and corporate accounting systems are included. Prerequisite: IM 451/551 or by instructor's permission.

IM 581 Special Topics in Management Information Systems

3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and student, with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of instructor and College of Business graduate coordinator.

IM 640 Management Information Systems

3 s.h.

This course introduces MIS concepts and theories to the graduate student. It deals with information processing and communication as they relate to the development and design of effective business applications. Computer system hardware, software, and database management concepts are discussed in terms of the integration of specific business subsystems into a comprehensible organizational management information system. Managerial involvement in the planning, utilization, and control of information systems is emphasized. Prerequisite: IM 241.

IM 641 Business Data Processing I

3 s.h.

Covers the theory operation of remote computer terminals. The BASIC language is used to write computer programs for business mathematics and bookkeeping problems for the business education and distributive education teacher. Interactive programs utilizing the computer will be used for the training. Not open for students with credit for IM 451/551.

IM 642 Business Data Processing II

3 s.h.

Develops the principles of COBOL language programming with specific applications for the teachers of business and distributive education. The course builds upon the basic concepts of data processing developed in IM 641. Special emphasis placed on computer-based instruction and programmed instruction as used with the remote terminals. The value of library programs will be demonstrated. Prerequisite: IM 641 or equivalent. Not open for students with credit for IM 470/570.

IM 681 Special Topics in Management Information Systems
3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of the instructor and the College of Business graduate coordinator.

IM 699 Independent Study in Management Information Systems
1-3 s.h.

Individual research and analysis of contemporary problems and issues in a concentrated area of study under the guidance of a senior faculty member. Prerequisite: consent of instructor, departmental chairperson, and College of Business dean.

IM 850 Thesis
1-6 s.h.

For students writing a thesis, IM 850 should be scheduled for the semester in which the student plans to complete his/her work. The thesis may be a noncommittee thesis (1-3 s.h.) with one faculty member serving as the student's adviser or a committee thesis (4-6 s.h.) for which the student's adviser, two additional faculty members, the College of Business graduate coordinator, and/or the representative of the dean of the College of Business may constitute the committee.

QB 601 Quantitative Methods
3 s.h.

Introduction to the concepts and methods of scientific problem solving in management. Students will learn to formulate mathematical models of complex decision problems and to solve these problems using quantitative methods. Topics covered include linear programming, inventory models, network models, waiting line models, and simulation. Prerequisite: QB 215, MA 121.

QB 602 Seminar in Management Science
3 s.h.

Builds upon the basic concepts developed in QB 601 dealing with the theory and application of mathematical models in an organizational environment. This course is intended for the student who will actually be working with such models in his/her future occupation. Topics to be covered include more advanced methods of linear programming, nonlinear programming, dynamic programming, and simulation. Prerequisite: QB 601.

QB 604 Seminar in Methodology of Business Research
3 s.h.

Designed to help students acquire a basic understanding of the research process and a knowledge of the research methods needed in the design and execution of a competent applied behavioral research. Emphasis will be on measurement and scaling, survey research, and data analysis. Prerequisite: QB 601.

Management

MG 613 Organizational Analysis

3 s.h.

An integrative course oriented toward an empirical analysis of the phenomena and theories of large, complex, formal organizations. Inter-group phenomena are also treated as they pertain to the larger organization. Special study is made of the organization as an economic, decision-making, bureaucratic, and political system. The analysis and design of organizations is viewed from a number of perspectives, including classical theory and case analysis, to illustrate and extend the major topics of the course. Prerequisite: MG 360.

MG 623 Seminar in Personnel

3 s.h.

Designed to offer the M.B.A. student the opportunity to research, study, and discuss various theories, principles, concepts, and issues of current interest to business and personnel managers. The case method will be emphasized, and the focus or theme of the seminar may be different each time it is offered. Prerequisite: MG 613.

MG 630 Management Theory

3 s.h.

Study of development, nature, and meaning of basic functions of management. Emphasis will be placed upon functional activities of an organization at all levels of management and the application of these principles. Prerequisite: MG 613.

MG 631 Management Development and Training

3 s.h.

A survey of the major aspects, trends, and methodologies in management development and training as these specializations are being practiced in enterprises in the advanced Western nations. Prerequisite: MG 613.

MG 635 Seminar in Management and Organizational Leadership

3 s.h.

Studies of theory and research in the leadership of groups and organizations with application to the management fields of business, industry, and labor. The debate, research, and study of controversial leadership issues of current interest to management and preparation of a research paper by the student in his/her occupational interest area are required. Prerequisite: MG 613.

MG 636 The Evolution of Management

3 s.h.

This course examines the backgrounds, roles, and influences of major contributors and analyzes the various movements in management thought. Prerequisite: MG 613.

MG 642 Organizational Behavior

3 s.h.

Study of human motivations and their constructive application to all aspects of business. Psychological basis of human relations will be developed as it applies in the business world. Major topics include employer-employee relations, labor relations, stockholder relations, customer relations, community relations, and public relations. Prerequisite: MG 613.

MG 645 Case Problems in Business Human Relations

3 s.h.

Application of principles of personnel management in solution of problems in human relations. Students will be required to solve realistic problems in human relations found at all echelons of management. Emphasis will be placed on actual problems encountered in day-to-day work activities. Prerequisite: MG 642 or equivalent.

MG 681 Special Topics in Management

3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary depending upon the interests of instructor and students, with instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of the instructor and of the College of Business graduate coordinator.

MG 695 Business Policy

3 s.h.

Provides the graduate student an opportunity to utilize, integrate, and apply the theories, concepts, principles, and tools acquired during his/her business education (accounting, finance, marketing, management, management information systems, statistics, etc.) to real-world business problems and situations. Utilizes lectures, case studies, library research, field research, simulations, role playing, group decision making, and other strategic planning exercises. Prerequisite: 15 hours of graduate business courses.

MG 699 Independent Study in Management

1-3 s.h.

With the approval of the department, students will select one or more topics of critical importance in the field and will meet with faculty for independent reading, analysis, and evaluation. Prerequisite: approval of department chairperson and College of Business graduate coordinator.

MG 850 Thesis

1-6 s.h.

For students writing the thesis, MG 850 should be scheduled for the semester in which they plan to complete their work. The thesis may be a noncommittee thesis (1-3 s.h.), with one faculty member serving as the student's adviser or a committee thesis (4-6 s.h.), for which the student's adviser, two additional faculty members, the College of Business graduate coordinator, and/or the representative of the dean of the College of Business may constitute the committee.

Marketing

MK 521 Marketing Research 3 s.h.

Research procedures and techniques applicable to problem solving in the marketing field. Critical analysis of research techniques with considerable emphasis placed on the use of information gathered. Prerequisite: MK 320.

MK 530 International Marketing 3 s.h.

International marketing is analyzed with consideration given to the significance of government regulation, organization structures of export and import enterprises, and credit policies. Prerequisite: MK 320.

MK 531 Industrial Marketing 3 s.h.

Considers major activities involved in marketing of industrial goods and services. Prerequisite: MK 320.

MK 603 Marketing Management 3 s.h.

An analytical and quantitative approach to decision making and the planning, development, implementation, and control of a marketing program. Prerequisite: MK 320.

MK 610 Marketing Behavior 3 s.h.

Study of risks, costs, and methods of distribution, pricing, laws, and product design as interpreted by different segments of consumers, as differentiated by income levels, age, marital status, and other demographic measures. Prerequisite: MK 603.

MK 611 Marketing Communications 3 s.h.

Basic principles of marketing communications, such as sales promotion and advertising, together with a consideration of the major problems encountered in the management of those activities. Emphasizes the determination of basic promotional strategy, selection of advertising media, determination of advertising appropriations, and advertising research. Prerequisite: MK 603.

MK 621 Marketing Research 3 s.h.

Methodologies and strategies for the conduct of marketing research, including the applicability of decision theory; analysis of univariate, bivariate, and multivariate data; survey research; observation; experimentation; panels and other forms of primary and secondary data collection; multivariate techniques of multidimensional scaling; and factor, cluster, and discriminant analysis. Prerequisite: MK 603.

MK 681 Special Topics in Marketing
3 s.h.

Covers advanced or exploratory topics within the discipline. Specific content developed by instructor. Content will vary, depending upon the interests of instructor and students, with the instructor choosing specific topics. May be repeated by specific approval. Prerequisite: permission of the instructor and of the College of Business graduate coordinator.

MK 699 Independent Study in Marketing
1-3 s.h.

With the approval of the department, students will select one or more topics of critical importance in the field and will meet with faculty for independent reading, analysis, and evaluation. Prerequisite: approvals of department chairperson and College of Business graduate coordinator.

MK 850 Thesis
1-6 s.h.

For students writing the thesis, MK 850 should be scheduled for the semester in which they plan to complete their work. The thesis may be a noncommittee thesis (1-3 s.h.), with one faculty member serving as the student's adviser or a committee thesis (4-6 s.h.) for which the student's adviser, two additional faculty members, the College of Business graduate coordinator, and/or the representative of the dean of the College of Business may constitute the committee.

Chemistry

The Chemistry Department offers two different degree programs on the master's level: the Master of Science and the Master of Arts degrees.

The Master of Science degree is for the chemist who intends to pursue further graduate work leading to a Ph.D. or who intends to work as a professional chemist and desires to become more competent in chemistry. This degree is research oriented, and successful completion of an experimental thesis is required. Also, two consecutive semesters of residency are required.

The Master of Arts degree is designed to meet the needs of the chemist who is currently a full-time employee of a chemical or academic institution and who wishes strengthening in those areas relevant to the professional position. The emphasis here is on course work. The student may also pursue this degree on a full-time basis.

Four core courses, one in each of the areas of inorganic, organic, analytical, and physical chemistry, are required in the M.S. and M.A. programs.* Beyond this point, the programs separate, with the M.S. and M.A. student taking more specialized work in chemistry along with an experimental research problem.

The M.A. candidate will take more specialized work in chemistry and will be encouraged to take courses outside the sciences if they are relevant to the particular area of employment.

General admissions requirements: Students should have completed one year each of general chemistry, analytical chemistry, organic chemistry, physical chemistry, general physics, and calculus. Students wishing to specialize in biochemistry should also have had an undergraduate course in biochemistry. A student deficient in the above areas of study may also be admitted provided these deficiencies are made up concurrently with the student's graduate studies.

*An exception to this is afforded the student wishing to specialize in biochemistry.

Master of Arts in Chemistry

- I. Industrial/teaching experience: Before the degree of M.A. in chemistry can be granted, the applicant must have had three years of full-time employment in an approved area of chemistry. Only those years of employment after obtaining the bachelor's degree may be counted. This experience meets the university residency requirements.
- II. Course requirements include 14 hours in the following: CH 540, 600*, 610, 620, and 630.
- III. Course electives (10 to 16 semester hours)—Any graduate-level courses selected from the natural sciences and mathematics with the permission of the candidate's adviser. Special permission from the Chemistry Department's Graduate Committee will be required for courses outside the sciences.
- IV. Thesis requirements (0, 2, or 4 semester hours)
The student has three options:
 - A. Thesis not required—A total of 30 semester hours in suitable courses are acceptable.
 - B. No-Committee thesis (CH 850-2 s.h.)—Refer to the steps in satisfying the research requirement for submitting a "Two-Hour, No-Committee Thesis."
 - C. Committee thesis (CH 850-4 s.h.)—If the candidate is doing research as part of full-time employment, that research may be submitted as a thesis, provided approval is given in advance by the employer and the chemistry Graduate Committee. The candidate's employment supervisor may serve as an ex-officio member of the thesis committee.

* The M.A. candidate is not required to attend all daytime seminars but is required to present two seminars and is expected to attend the evening seminars.

Master of Science in Chemistry

- I. Residence requirements: The student shall be in residence a minimum of two consecutive semesters of full-time work. Students working as graduate assistants and/or making up deficiencies can expect to be in residence for at least two years.
- II. Course requirements: For those specializing in analytical, inorganic, organic, or physical chemistry:
 - A. Required courses (15 s.h.): Four core courses; CH 620, CH 610, CH 630, and CH 540, and one additional three-hour course designated by a chemistry 600 number selected from one of the four areas of analytical, inorganic, organic, or physical chemistry.
 - B. Electives (6 s.h.): The electives may be selected from the areas of chemistry, physics, biology, and mathematics by the student with the advice and approval of the adviser. CH 500, Special Studies, can provide a maximum of 3 semester hours toward the 30 semester hours necessary for the degree.
- III. Course requirements: For those specializing in biochemistry:
 - A. Required Courses (12 s.h.), including CH 646, 623, 630 and BI 662.
 - B. Electives (at least 9 s.h.), including at least one of the following: BI 663, 553, 652, 653 or 654 and any graduate courses in the natural sciences and mathematics mutually agreed upon by the student and adviser.
- IV. Research and thesis requirements:
 - A. The research work must lead to an acceptable thesis, approved by the student's adviser and the supervisory committee and defended in a final oral examination.
 - B. Seminar—2 s.h. required in CH 600.
 - C. CH 690 for at least 3 hours.
 - D. CH 850 Thesis — 4 s.h., taken during the term in which student is writing the M.S. thesis.

For description of BI courses, see section on Biology.

Course Descriptions

General

CH 500 Special Studies

1-6 s.h.

Intensive survey of literature in a particular area as well as individual instruction on recent advances in chemical instrumentation, methods of research, and specialized subject areas. To be arranged with instructor.

CH 502 Chemistry in Manufacturing Process

3 s.h.

A course on the applications of chemistry to manufacturing processes. Lecture and field trips. Lecture—3 hours.

CH 503 Glassblowing Techniques

1 s.h.

Introduces science student to techniques necessary for construction and modification of scientific glass apparatus. Two-hour lecture instruction.

CH 576 Radiochemistry

3 s.h.

Basic aspects of nuclear structure, phenomena of radioactive isotopes, and chemical effect on such isotopes. Concurrent lab work utilizing instruments for detection and measurement of radioactive nuclides used in chemical experimentation. Four-hour lecture/laboratory.

CH 600 Seminar

1 s.h.

A study of modern chemical research and research techniques. Scientific communication, including the role of the science laboratory in research. The student will present one oral report. Lecture—1 hour.

CH 605 Experimental Techniques in Chemistry

3 s.h.

Experimentation, observation, and application of scientific concepts. Classroom and lecture demonstrations will be prepared, presented, and evaluated by students and instructor. Prerequisites: Chemistry I,II; Physics I,II. Four-hour lecture/laboratory.

CH 633 Chemical Literature

3 s.h.

Periodicals, encyclopedias, handbooks, abstracting journals, and other sources dealing with various divisions of chemistry will be studied. Students are required to conduct a literature search on a selected topic. Lecture—3 hours.

CH 690 Research

1-6 s.h.

Laboratory and literature investigation of student's thesis problem done under the direction of a faculty member. Within the first 15 hours of course work, the student must schedule at least 1 credit of research for which the student performs the literature review and writes a research proposal.

CH 699 Independent Study

1-6 s.h.

Available to students who seek to deepen their knowledge in some specific aspect of chemistry. The student must discuss the nature of the in-

dependent study with a faculty member having expertise in the area prior to registration. Special attention to development of new ideas and new ways of presenting scientific principles.

CH 850 Thesis

2 or 4 s.h.

For students writing the thesis. Should be scheduled for the semester in which the student plans to complete work. May be a noncommittee thesis (2 semester hours), with one faculty member serving as adviser, or a committee thesis (4 semester hours), for which the student's adviser, two additional faculty members, and the dean of the College of Natural Sciences and Mathematics constitute the committee.

Inorganic

CH 512 Inorganic Preparations

3 s.h.

Preparation of inorganic compounds expressing different techniques of synthesis. Designed for those students who have chosen to do inorganic research but who have never had a prep course. Four-hour lecture/laboratory.

CH 610 Inorganic Chemistry (core course)

3 s.h.

Theoretical inorganic chemistry and, in particular, structure, periodicity, coordination chemistry, bonding, and chemistry of nonaqueous solvents. Lecture—3 hours.

CH 611 Coordination Chemistry

3 s.h.

Chemistry of transition metals, their compounds and complex ions. Lecture—3 hours.

CH 615 Current Topics in Inorganic Chemistry

3 s.h.

Representative elements, chemistry of rare earth elements, inorganic spectroscopy, group theory, or any other special areas of chemical interest.

Analytical

CH 521 Advanced Instrumental Methods of Analysis

3 s.h.

Modern instrumental analysis, including electrical, spectrophotometric, x-rays, gas chromatography, and other methods. (Open to M.S. and M.A. candidates by permission only.) Four-hour lecture/laboratory.

CH 620 Analytical Chemistry (core course)

3 s.h.

Theoretical principles of analytical chemistry. Lecture—3 hours.

CH 621 Electroanalytical Chemistry
3 s.h.

Theoretical and practical considerations of polarographic, amperometric, coulometric, and conductometric methods of chemical analysis. Lecture—2 hours; laboratory—4 hours.

CH 622 Spectrochemical Methods of Analysis
3 s.h.

Study of instrumentation and analytical applications of ultraviolet and visible absorption, atomic spectrometry, fluorescence, x-ray spectrometry, and nuclear magnetic resonance. Lecture—2 hours; laboratory—4 hours.

CH 623 Physical and Chemical Methods of Separation
3 s.h.

Application of chromatographic methods to the quantitative separation and analysis of chemical systems. Topics will include gas, column, paper and ion exchange chromatographic methods, and other methods of separation as time permits. Lecture—2 hours; laboratory—4 hours.

Organic

CH 531 Organic Qualitative Analysis
3 s.h.

Gives student experience in systematic identification of various classes of organic compounds by both chemical and physical methods. Four-hour lecture/laboratory.

CH 535 Current Topics in Organic Chemistry
3 s.h.

With selections to meet the needs of the students, possible topics may include reaction mechanisms, molecular spectroscopy, stereochemistry, natural products, heterocyclics, polymer chemistry, and organic synthesis.

CH 630 Organic Chemistry (core course)
3 s.h.

Principles of physical chemistry will be applied to the study of organic reaction mechanisms. Lecture—3 hours.

Physical Chemistry

CH 540 Physical Chemistry (core course)
3 s.h.

An introduction to spectroscopy and molecular structure. Lecture—3 hours.

CH 641 Statistical Thermodynamics
3 s.h.

The application of statistical mechanics to chemical systems. Lecture—3 hours.

CH 643 Quantum Chemistry

3 s.h.

An introduction to quantum theory and its application to atomic and molecular structure and spectroscopy. Lecture—3 hours.

CH 645 Current Topics in Physical Chemistry

3 s.h.

With selection to meet the needs and interests of the student, possible topics include quantum mechanics, molecular structure, chemical thermodynamics, statistical mechanics, and chemical kinetics.

Biochemistry

CH 646 Biochemistry

3 s.h.

Topics covering and emphasizing most recent developments in the areas of biochemistry, such as amino acids, carbohydrates, lipids, nucleic acids, proteins, enzymes, metabolism, and metabolic control. Lecture—3 hours.

CH 651 Biochemistry Topics

3 s.h.

A discussion of areas such as carbohydrates, lipids, amino acids, proteins, nucleic acids, kinetics, and metabolism. Lecture—3 hours.

CH 652 Enzymes

3 s.h.

A study of enzymes to include isolation, kinetics, classification, specificity, mechanisms, cofactors, structure, and formation. Lecture—3 hours.

Communications Media

Admission to the Master of Education program in Communications Media is currently suspended. Individual course descriptions are included in this catalog for students already admitted who are completing this degree.

Course Descriptions

CM 503 Scriptwriting

3 s.h.

Provides an introduction to scriptwriting for films and filmstrips. Various styles and techniques of writing will be analyzed, and each student will be expected to experiment with the techniques presented. Emphasis on writing and in-class criticism of student script.

CM 504 Foundations of Broadcasting

3 s.h.

An examination of the historical, legal, and economic aspects of modern broadcasting. Extensive readings in fundamental theory and a

study of current station and network practices, educational as well as commercial.

CM 505 Radio Production

3 s.h.

Instruction in the various techniques and applications of sound production and programming for radio. Emphasis on planning, scripting, and producing broadcast-quality radio programs, as well as commercial-type announcements and station promotional devices.

CM 540 Communications Graphics

3 s.h.

Provides basic experience in planning and producing commonly used television studio, industrial display, and classroom graphics which are applicable in educational, industrial, and medical training programs. Experiences include layout and lettering; color; mounting and laminating techniques; copying techniques such as Thermofax, photography, and Xerography; photo silk screening; and photo sketching.

CM 544 Beginning Motion Picture Production

3 s.h.

Emphasis on effective use of motion picture camera editing tools to make useful, locally produced teaching films. No previous experience is necessary, but student should own or have access to an 8mm or 16mm camera and an acceptable exposure meter.

CM 545 Applications and Techniques of Motion Pictures

3 s.h.

Production planning for motion pictures, directing, advanced picture and sound editing techniques, and use of sound recording and lab facilities. In addition to live-action cinematography, titling, animation, and special effects photography will be investigated. Prerequisite: CM 544.

CM 549 Basic Audio Recording

3 s.h.

Theory and practices of recording sound and developing an understanding of language of sound recording and the ability to make sound recordings. Exposure to recording for various media, including radio, music, motion pictures, television, multi-image, and slide and tape production. Students will gain hands-on experience through labs and projects to be completed outside class.

CM 550 Advanced Audio Production

3 s.h.

Theory and practice of recording sound for motion pictures, videotapes, audiotapes, sound filmstrips, etc. Will use sound and other special techniques.

CM 551 Basic TV Production and Direction

3 s.h.

Intensive lab course circuit facilities designed to develop skills in program production and direction. Theory and practice of production are examined with each student expected to produce a television program during the course.

CM 552 Electronic Field Production

3 s.h.

For advanced graduate students with prior training and experience in television. Advanced television production techniques, set design, lighting, special effects, and advanced editing techniques. Prerequisite: CM 551.

CM 561 Learning Systems Design

3 s.h.

Introduction to elements of systems approach to learning systems design. For people involved in any level of instruction such as teachers and industrial, government, and social trainers. Participants will have the opportunity to study and carefully plan a learning system according to accepted phases of analysis, design, and evaluation.

CM 571 Beginning Photography

3 s.h.

Emphasis on using still picture camera and the darkroom for instructional purposes, the making of black-and-white negatives, 35mm slides, copy work, developing black-and-white film, and black-and-white contact printing and enlarging. Each student must have manual focusing and manual exposure setting capability. No previous photographic experience is necessary.

CM 572 Photography II

3 s.h.

Helps students develop their camera and printmaking skills to the extent that they can employ those processes to communicate an intended message with their photographs. The students explore the characteristics and uses of a variety of films. They learn several skills, such as copy work, basic techniques of portrait lighting, and altering film development to suit high- or low- contrast subjects. Prerequisites: CM 571 and permission of instructor.

CM 573 Creative Darkroom Techniques

3 s.h.

Introduces the student to a variety of photographic manipulations. Specific assignments are chosen from such techniques as high-contrast imagery, tone line, bas-relief, posterization, texturization, paper negatives, hand coloring, multiple printing, and photomontage. Prerequisites: CM 571 and permission of instructor.

CM 577 Slide and Sound Production

3 s.h.

Emphasizes techniques of color and black-and-white slide preparation, duplication, titling, and binding. Examines techniques necessary to produce color filmstrips on a commercial basis, and students will participate in making of a filmstrip through all stages, from script to screen. Techniques for making homemade filmstrips will also be explored. Each student must furnish own 35mm camera and an acceptable exposure meter. Prerequisite: CM 571.

CM 578 Multi-Image Production

3 s.h.

Introduction to scripting, storyboarding, and production of multi-image presentations. Major emphasis on students' producing their own three-screen, six-projector program through the use of computer programming equipment. Prerequisites: CM 571 and 503.

CM 581 Special Topics

3 s.h.

Advanced topics, offered on an experimental basis, within the discipline of communications but not dealt with in other courses. Prerequisite: permission of the instructor.

CM 600 Seminar in Learning Resources

3 s.h.

Major emphasis on differences in learning materials, and learning and teaching methods. The student will do literary research for a better understanding of how learning resources are related to learning processes in our society.

CM 601 The Classroom Use of Motion Pictures

3 s.h.

Develops a basis for critical evaluation of films for various educational purposes. Emphasis on understanding of production techniques, stereotypes, prejudices, and misconceptions which influence the quality of educational films.

CM 602 Programming Systematic Instruction

3 s.h.

Covers historical development of theory and philosophy, audio instructional equipment, programmed texts, theories of programming, types of programs available, and analysis and evaluation of research.

CM 615 Role of Learning Resources

3 s.h.

Examines role of perception as it pertains to sensory experiences and inner cognitive processes in relationship to maturation, goals and drives, and environment. Seeks to relate psychological processes to learning resources, with emphasis on newer media.

CM 630 Classification and Cataloging of Learning Resources

3 s.h.

Principles of classifying and cataloging learning resources such as motion pictures, videotapes, filmstrips, slides, transparencies, disk and tape recordings, microfilm, microcard and microfiche, flat pictures, etc. For learning resources administrators and librarians.

CM 660 Media Management

3 s.h.

Considers the problems in setting up and managing an integrated program, including production, selection, utilization, and management of learning resources centers; problems of finance and organization of the different services; relationships among school systems, colleges, and community adult groups; and evaluation standards for various services.

CM 669 Internship

2-6 s.h.

Supervised professional work experience in communications media. Location, duties, length of internship, and hours are individually tailored to student career goals. Sites represent wide application of process and technology of communications in business, education, allied health, or other agencies.

CM 681 Special Topics

3 s.h.

Intensive study of a specific area of communications beyond the scope of other courses. Offering depends upon instructor and student interest. Prerequisite: permission of the instructor.

CM 699 Independent Study

1-3 s.h.

The student may elect, with approval of adviser, to do several different independent study projects. University facilities and equipment are provided, but student must supply materials and pay for processing and production costs. Prerequisites: successful completion of the basic course in the medium selected; the professor's approval.

Computer Science

The Computer Science Department does not currently offer a program leading to a master's or doctoral degree. Graduate courses are offered as dual level with undergraduate courses.

Course Descriptions

CO 510 Processor Architecture and Microprogramming

3 s.h.

The logical description of computer processor structure (architecture), with emphasis on the microprogramming approach. Project assignments

using the Microdata 1600 minicomputer at microlevel. Prerequisite: permission of instructor.

CO 520 Modern Computer Languages

3 s.h.

Comparative study of the properties and applications of a range of modern higher level programming languages, including APL, SNOBOL, PL/1, ALGOL 60, PASCAL, LISP, and TRAC. Comparison with older languages such as BASIC, FORTRAN, COBOL, and RPG. Prerequisite: permission of the instructor.

CO 530 Introduction to Systems Programming

3 s.h.

Concepts and techniques of systems programming with an emphasis on assembly and compilation of user programs. Representation of source language so as to facilitate the needed translation process. Exercises using the university computer and the departmental minicomputer and microcomputer. Prerequisite: permission of the instructor.

CO 541 Data Base Management

3 s.h.

Review of database concepts. Detailed study of database management approaches. Comparative presentation of commercially available database management systems. Prerequisite: permission of the instructor.

CO 550 Applied Numerical Methods

3 s.h.

Polynomial approximations using finite differences; applications in numerical integration and differentiation. Numerical solution of initial value ordinary differential equations; boundary value problems; difference methods for partial differential evaluations. The APL language will be introduced and used, along with FORTRAN, in programming selected algorithms. Prerequisites: Computer Programming, Linear Algebra, and Ordinary Differential Equations.

CO 560 Theory of Computation

3 s.h.

Formal methods for describing and analyzing programming languages and algorithms; Backus-Naur forms; productions; regular expressions; introduction to automata theory; Turing machines; recent concepts in algorithm theory. Prerequisite: permission of instructor.

CO 581 Special Topics in Computer Science

3 s.h.

Seminar in advanced topics from computer science; content will vary depending on the interests of the instructor and students (consult department for currently planned topics). May be repeated for additional credit. Prerequisite: permission of instructor.

Consumer Services

Graduate courses in consumer services are primarily designed to provide in-depth study in particular areas of home economics.

Course Descriptions

CS 533 Consumer Services Study Tour

1-6 s.h.

Offered to broaden the scope of experience and understanding in clothing, textiles, and interior design. Historic costumes, textiles, and decorative arts are viewed. Fashion houses, designer salons, cottage industry centers, retail stores, and museums are visited.

CS 553 Flat Pattern Design

3 s.h.

Garment design achieved by use of flat patterning techniques. An understanding is developed of the interrelationships of garment design, fabric, fit, and construction processes. Two major projects required. One-hour lecture, three-hour laboratory.

CS 554 Tailoring

3 s.h.

Various tailoring methods are studied and applied in the selection, fitting, and construction of a tailored garment. Consumer problems in the selection of ready-to-wear apparel are investigated. A research study or project is required. One-hour lecture, three-hour laboratory.

CS 555 Draping

3 s.h.

In-depth study of the principles involved in fashion design, draping principles, and the manipulation of fabric to conform to the human figure. Student will pad a form to individual measurements and will design garments that are both individual and original. Two major projects required. One-hour lecture, three-hour laboratory.

CS 556 Historic Costume

3 s.h.

Chronological study of historic costume from ancient times to the present day, emphasizing style details as well as social, economic, political, religious, and aesthetic influences on design of clothing. Three lecture hours.

CS 561 Microwave Cooking Technology

3 s.h.

Study of the electronic technology, selection, care, and use of the microwave oven. Basic physical and chemical concepts related to microwave cooking will be included. Individual investigative research problems will be required. Two lecture hours plus two lab hours per week.

CS 562 Historic Interiors

3 s.h.

Chronological study from ancient times to the mid-nineteenth century of the dominant influences and characteristics of historical interiors, furniture, and ornamental design. Emphasis placed upon style detail and its relationship to social, economic, political, religious, and aesthetic influence and to the contemporary scene. Paper required. Three lecture hours.

CS 563 Modern Interiors

3 s.h.

Chronological study from mid-nineteenth century to the present of the dominant influences and characteristics of twentieth-century interiors, furniture, and ornamental design. Emphasis placed upon style detail and its relationship to social, economic, political, religious, and aesthetic influence and to the contemporary scene. Paper required. Three lecture hours.

CS 564 Interior Planning and Drawing

3 s.h.

Lifespace analysis and design as related to residential applications. Presentation, appropriate media, equipment, and techniques will be stressed. Freehand and mechanical methods will be employed to depict floor plans, elevations, and construction details. A research project related to professional interests is required. One-hour lecture, three-hour lab per week.

Counselor Education

Department offerings include Master of Arts and Master of Education degree programs. Commonwealth-approved programs leading to certification as elementary school counselor, secondary school counselor, supervisor of guidance services, and supervisor of pupil personnel services are also available. Applicants to the counseling services, school counseling, and certification programs are required to attend an admissions workshop as a part of the admissions process. Workshops are scheduled during each semester. Applicants who successfully complete the initial screening process are invited to attend the admissions workshop.

Master of Arts in Adult and Community Education

The Master of Arts in Adult and Community Education (ACE) is a program designed to develop leaders in the fields of adult and community education. Graduates from the program work in business and industry, hospitals and health-related institutions, schools, universities, colleges, and other educational institutions, community agencies, the military, religious organizations, volunteer associations, and many other types of organizations. The program assists professionals in acquiring skills to develop and implement educational programs in a wide variety of settings.

The ACE program addresses the needs of each student through individual programming and flexible scheduling. Students are encouraged to relate theory and course content to their areas of interest. The program offers a balance of academic preparation, practical field experience, and individual research.

A minimum of 36 credit hours are required for the M.A. in Adult and Community Education. These include a core requirement of thirty hours: AC 620, AC 621, AC 622, AC 623, AC 625, AC 735, AC 740, GR 615, and AC 745 or AC 850. There are also 6 credit hours of electives. Students may take a thesis (AC 850) or non-thesis (AC 745) option. Students electing the non-thesis option will be required to complete a comprehensive examination.

Master of Arts in Counseling Services

The Master of Arts degree program in Counseling Services is designed for students seeking preparation leading to counseling-related employment in community and business settings. Degree programs are individually designed to prepare students to work in a variety of settings, including mental health centers, drug and alcohol treatment programs, specialized community agencies, vocational or rehabilitation programs, correctional institutions, health care settings, social services, and business and industry.

Students enrolled in the Master of Arts degree program will complete 36 (includes thesis) or 39 (without thesis) hours of credit for the degree. The program requires the following courses or their equivalents: CE 620, CE 633, CE 637, CE 639, CE 741, CE 755, GR 516, and GR 615. Students are also required to take from 9 to 12 hours in supporting courses.

Master of Arts in Student Affairs in Higher Education

Professional preparation in this program is designed for students who seek employment in student affairs in higher education. All students are required to complete an internship in their potential area of employment. Students in the program complete 33 credit hours for the degree. The following courses or their equivalent are required for the degree: CE 633, CE 637, CE 741, GR 516, GR 615, ST 626, ST 627, ST 728, ST 629, and ST 730. Students must take a minimum of 3 credit hours in electives. Students electing the non-thesis option will be required to complete a comprehensive examination.

Master of Education

Students seeking the Master of Education degree who do not plan to obtain commonwealth certification as a school counselor must complete 33 credit hours for the degree. The following courses are required: CE 629 or

CE 639, CE 631, CE 633, FE 611, 612 or 613, GR 516, and GR 615. In addition to the required courses, students may take 15 additional credit hours. Twelve of these credit hours must carry an AC, CE, or ST prefix. Courses are selected on the basis of the student's personal needs and vocational goals.

Master of Education - School Certification Programs

Elementary and Secondary School Counselors—To qualify for institutional endorsement and commonwealth certification, the student must complete a 45 credit-hour competency-based program to include supervised practicum, advanced practicum, and field experience.

While teaching experience is not a prerequisite for admission, students should have or obtain an understanding of educational philosophy, child or adolescent growth and development, objectives, and practices. They should also understand the basic principles of psychology, sociology, and related fields and possess sufficient background in mathematics to comprehend the statistical concepts and methods with which the counselor must be familiar. Students seeking commonwealth School Counseling certification will take the following (27 credit hours): CE 631, CE 633, CE 638, CE 730, CE 755, FE 611 or FE 612 or FE 613, GR 516, and GR 615.

In addition, students pursuing commonwealth certification in Elementary School Counseling are required to take (18 credit hours): CE 625, CE 626, CE 627, CE 629, CE 740, and two three-credit approved electives.

In addition, students interested in the Secondary School Counseling certification program must enroll for CE 635, CE 636, CE 637, CE 639, CE 741, and two three-credit approved electives.

Supervisor of Guidance Services and Supervisor of Pupil Personnel Services—These two areas in which a certificate of advanced study is awarded are competency-based, management-oriented programs. They are designed for the preparation and certification of guidance services supervisors or pupil personnel services supervisors in grades K-12. Applicants for both certificates must have suitable academic credentials, to include the master's degree. The supervisor of guidance services applicant must have at least one year of experience as a school counselor. The supervisor of pupil personnel services applicant must have at least one year of experience as a pupil personnel specialist.

Students in both certificate programs will take the following core courses or their equivalents: CE 645, CE 646, CE 647, CE 730, CE 743, CE 744, CE 751, CE 798, CO 502, FE 515, and MG 630.

Students in the Supervisor of Guidance Services program will also take CE 650.

Students in the Supervisor of Pupil Personnel Services program will take CE 749 in addition to the core courses.

Both certificate programs require the completion of a minimum of 48 credit hours, which includes a 12-hour internship.

Course descriptions for required courses outside the department may be found in the following areas: CO courses, see Computer Science; FE courses, Foundations of Education; GR courses, General Service Courses; and, MG courses, Business Management.

Course Descriptions

AC 620 Introduction to Adult and Community Education

3 s.h.

A survey course which examines the fields of adult and community education philosophically and historically and in terms of current programs and processes. The course includes the study of adult and community education principles and concepts as well as available literature and resources.

AC 621 The Adult Learner

3 s.h.

This course focuses on the adult as a learner: physiological, psychological, sociological, and intellectual characteristics and how they affect learning.

AC 622 Program and Process Development in Adult and Community Education

3 s.h.

A knowledge and skill-building course designed for present and future adult and community education practitioners. This how-to course examines concepts and practices relevant to program development in traditional and nontraditional educational settings.

AC 623 Organization and Administration in Adult and Community Education

3 s.h.

This course introduces the student to basic theories of educational administration and management and organizational structure. It includes a study of and application of the tasks, tools, strategies, and leadership role of the adult and community education administrator. Prerequisites: permission.

AC 625 Teaching and Learning in Adult and Community Education

3 s.h.

This course examines teaching-learning theories as they relate to adults, the teaching-learning process in a variety of educational learning settings, instructional methods, techniques and devices which are effective

with adults, and instructional designs and evaluative methods effective in the teaching-learning process. Prerequisites: permission.

AC 735 Seminar in Adult and Community Education
3 s.h.

This course has a research emphasis. It involves an intensive study of special topics in adult and community education. Research content varies according to student interest. Prerequisites: permission.

AC 740 Internship in Adult and Community Education
6 s.h.

This is an individually designed field project in which students work with a site project adviser and a university adviser. The six-credit internship is a single project designed in two phases, each earning three credits. Prerequisite: permission.

AC 745 Practical Research in Adult and Community Education
3 s.h.

Practical research in adult and community education is designed to have students conduct and report a formal research study in their field of interest. Students formulate a research problem and design a plan of inquiry that will provide an answer(s) to their stated research problem. Students must be able to interpret their research findings and communicate them both orally and in writing at a professional level. Prerequisite: permission.

AC 850 Thesis
3 s.h.

CE 620 Community Counseling
3 s.h.

Provides an introduction to the work of the community counselor in a variety of roles in many different settings.

CE 625 Individual Analysis (Children under 12)
3 s.h.

Principles, problems, methods, and content involved in understanding the child and his/her developing self-concept.

CE 626 Career Education
3 s.h.

Study of how education and the community help all individuals become familiar with the values of a work-oriented society and the integration of these values into their personal value structure.

CE 627 Consultative and Counseling Theory
3 s.h.

Theories, objectives, principles, and practices of consulting and counseling with individuals and groups are covered. Emphasis is placed on techniques and practices related to children.

CE 629 Group Procedures

3 s.h.

Emphasis is placed upon understanding and developing group techniques related to the development and growth of children counseling with individuals and groups are covered. Emphasis is placed on techniques and practices related to children.

CE 631 Introduction to Guidance Services

3 s.h.

Overview of genesis and development of guidance in American education, including philosophical concepts, psychological theories, cultural and social influences, and current practices.

CE 633 Evaluation Techniques

3 s.h.

Basic statistical and measurement concepts utilized in testing and test interpretations, emphasizing data concerning purposes and types of tests, test administration, scoring, validity and reliability, and principles of test selection for school and community settings.

CE 635 Individual Analysis

3 s.h.

Principles, problems, methods, and content involved in understanding the adolescent and adult and their developing self-concepts. Prerequisite: CE 633.

CE 636 Career Development

3 s.h.

Emphasizes how individuals acquire self and vocational knowledge, skills, and abilities, which lead to effective career decisions. Considers career education, vocational development, decision-making skills, and the processing and use of information.

CE 637 Counseling and Consultative Theory

3 s.h.

Theories, objectives, principles, and practices of counseling and consulting with individuals are covered. Counseling skills and interviewing techniques are presented and practiced to prepare the student for the practicum experience.

CE 638 Management of the Guidance Services

3 s.h.

Helps the school counselor acquire necessary competencies to manage guidance services. Emphasis placed upon planning, organizing, actuating, and controlling functions of management as applied to the guidance services. Prerequisites: CE 631, 633, 636, 637, and 639 or their equivalents.

CE 639 Group Procedures

3 s.h.

Emphasis will be placed upon the nature of groups, techniques involved in the development of group dynamics, formation and operation of groups, organization and structure of groups, and the influence of the group. Prerequisite: CE 637.

CE 645 Human Relations and Communications

3 s.h.

Emphasis will be placed on the development of human relations and communications skills in human service organizations. Human relations theories, principles, and techniques to elicit cooperation from personnel participating in the organization will be developed.

CE 646 Interpersonal Sensitivity

3 s.h.

Participants will explore their interpersonal interaction style in groups and individually. Human potential of the students will be developed as they enter into authentic, honest, and trusting relationships within the context of a small-group experience, encouraging an examination and understanding of oneself and one's impact on others.

CE 647 Pupil Services

3 s.h.

Philosophy, objectives, and roles of each of the pupil services will be considered. Emphasis will be placed on the team approach to services. Pupil services will be viewed as a facilitating function contributing to the development of individual pupils and to the success of the instructional and management processes of the school.

CE 652 Skills Approach to Decision Making

3 s.h.

Decision making is viewed as a multidimensional life process which integrates all facets of self in life planning and goal settings. Games, role play, group work, and related experiences are utilized in providing experiential exposure to a diversity of decision-making models which can be applied to a variety of work settings.

CE 699 Independent Study

1-3 s.h.

Topic pertinent to the individual's program of study. By permission of department chairperson and adviser only.

CE 730 Professional, Ethical, and Legal Considerations

3 s.h.

Emphasis is placed on professional, legal, and ethical issues associated with the human services. It analyzes the function of ethics in the profession and the study of legal rights, duties, and liabilities of human service practitioners.

CE 740 Supervised Practicum - Child

3 s.h.

Practice in developing and using individual and group techniques for those who work with children. Observing, interviewing, and consulting procedures will be developed. Prerequisite: CE 627.

CE 741 Supervised Practicum - Adolescent/Adult

3 s.h.

Practicum experience in counseling and consulting techniques, including interviews, observations, written reports, and group interaction. Techniques for working with adolescents and adults are emphasized. Emphasis is placed on the development of effective interpersonal relationship skills. Prerequisite: CE 637.

CE 742 School Services

3 s.h.

Examines how the educational philosophies and objectives of elementary and secondary schools are related to the development of the philosophy and objectives of the school services—instructional, management, and pupil.

CE 743 Planning Human Services

3 s.h.

Students will critically analyze the written philosophies and objectives of the human service field in which they plan to practice. Students will develop plans based on the philosophy and objectives of the organization that include personnel, facilities, materials, and money.

CE 744 Organizing Human Services

3 s.h.

Students will identify tasks necessary to execute plans which will fulfill the objectives of the organization. Personnel qualified to perform the tasks will be identified. Techniques to relate tasks to personnel will be examined and appropriate organizational patterns developed. Prerequisite: CE 643.

CE 748 Advanced Research in Counselor Education

3 s.h.

Research literature in counselor education and research design are covered. The student will develop and present a trial dissertation proposal.

CE 749 Principles of Supervision

3 s.h.

Designed to permit the student to study theory, research, and evolving concepts of supervision.

CE 750 Supervision of Human Development Specialists

3 s.h.

A practicum designed to provide allied experience in supervision of the human development practitioner. Focus is placed on assisting others in the process of developing interpersonal counseling relationship skills.

CE 751 Evaluation Principles
3 s.h.

Student will evaluate programs of services as related to the objectives of the student's potential fields of practice. Emphasis will be placed on the development of appropriate research and preparation and reporting of recommendations based upon findings. Prerequisites: CE 643 and 644.

CE 755 Field Experience
3 s.h.

Provides a supervised field placement for students in the counselor education programs. The plan and scope of the field experience will be determined by the student and supervising faculty on an individual basis. Prerequisite: Certification, core courses, and specialty required courses.

CE 798 Internship in Counselor Education
12 s.h.

The internship provides an opportunity to apply didactic experiences in an actual work setting. Sites must be approved by the department.

CE 950 Dissertation
12 s.h.

ST 626 History of Higher Education in the United States
3 s.h.

Growth and trends in higher education with emphasis on the twentieth century. In addition to the traditional modes of postsecondary education, continuing education programs, community colleges, and adult education will also be examined. A secondary focus will be the evolving role of student affairs.

ST 627 Student Personnel Services in Higher Education
3 s.h.

Overview of student personnel work in higher education, highlighting functional areas of student personnel, organization, philosophy, and the role of the services applied to the institution and the profession.

ST 629 Student Development in High Education
3 s.h.

Provides an overview of student development theories and the student development model. Includes the application of assessment, goal setting, intervention strategies, environmental management, and evaluation in higher education settings. Explores issues such as changing sex roles, sexual identity, life planning, and needs of special student groups.

ST 728 Internship in Student Personnel Services
3 s.h.

Affords the student an opportunity to gain practical experience in dealing with theories of his/her specialties. Includes one or two semesters in one of the student personnel offices at IUP or another institution under the leadership of a departmental director or coordinator.

ST 730 Management of Student Personnel Services

3 s.h.

The course teaches managerial concepts and skills for managing student personnel programs or services. Concepts covered include the Process School of Management, Situational Leadership, Ethics, and Management Theory models.

Criminology

The Department of Criminology offers a program of study leading to a Master of Arts and a Doctor of Philosophy degree in Criminology. The programs are designed to prepare graduate students for careers in academia as well as upper-level administrative positions in various fields of justice. The programs allow the student to choose from a wide selection of courses within the Department of Criminology as well as elective courses in related departments.

Master of Arts in Criminology

Department Admission Requirements

In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Arts in Criminology will be required to have the following prerequisite academic and/or professional preparation:

- A. Students should be able to demonstrate a sound understanding of criminological theory and the criminal justice system (generally satisfied by a B.A. degree in criminology, criminal justice, or related field); or,
- B. Students should have knowledge gained through experience within the system of justice system or by specialized training or completed graduate or undergraduate studies in a related field.*

*All applicants for the Master of Arts degree in Criminology program must possess the essence of knowledge offered in the undergraduate (B.A.) program core courses. These courses are

- CR 102 Survey of Criminology
- CR 210 Criminal Law
- CR 300 Theory of Complex Criminal Justice Organizations
- CR 306 Criminological Research Methods
- CR 400 Theoretical Criminology
- CR 401 Contemporary Issues in Criminology

If, upon the consideration of the Department of Criminology Graduate Committee, an applicant is deemed to be deficient, the department, through the master's coordinator, will require appropriate undergraduate courses to remove these deficiencies.

Master of Arts in Criminology

Students must choose between a thesis or no-thesis curriculum:

Thesis Degree Requirements — A total of 36 semester hours is required, including CR 600, CR 601, CR 605, CR 610, CR 630, CR 631, CR 849, and CR 850. Courses required from other disciplines include Philosophy of Ethics and Statistics. A student may be exempt from either of these requirements if he/she has demonstrated competency as determined by the master's coordinator. Students who elect the thesis option must also complete 6 hours of elective courses for a total of 36 hours.

No-Thesis Degree Requirements — A total of 36 semester hours is required, including CR 600, CR 601, CR 605, CR 610, CR 630, CR 631, and CR 849. Courses required from other disciplines include Philosophy of Ethics and Statistics. A student may be exempt from either of these requirements if he/she has demonstrated competency as determined by the master's coordinator. Students who elect the no-thesis option must also complete 12 hours of elective work for a total of 36 hours.

Doctor of Philosophy in Criminology

Department Admission Requirements

It is expected that most students entering the Ph.D. program in Criminology will have already completed a master's degree in either Criminology or a closely related discipline. However, in select cases a highly qualified applicant may enter the doctoral track only with a baccalaureate degree. Such students would obtain the M.A. degree enroute to the Ph.D.

Applicants must meet all Graduate School admission requirements. Additionally, the doctoral coordinator, after consulting with the department screening committee, will submit a recommendation regarding applicants to the Graduate School. The following criteria are reviewed:

1. all college transcripts
2. three letters of recommendation
3. statement of goals
4. example of written work (thesis, articles, reports, etc.)
5. GRE scores (A combined score of 900 on the verbal and quantitative sections is expected. Some flexibility may be granted at the discretion of the screening committee.)
6. skill requirement (foreign language; computer or statistical ability; or other skills approved by the screening committee or the department's graduate curriculum committee)
7. personal interview (may be requested by department screening committee or by applicant)

Deficiencies in the skill requirement may be satisfied after admission. The screening committee may request an interview with the applicant, or such may be initiated by the applicant. Students may begin doctoral studies in either semester or in some cases during the summer.

Curriculum

The Ph.D. program in Criminology is designed to be completed in approximately three calendar years of full-time study beyond the master's. The curriculum requires a minimum of 54 semester hours of acceptable graduate credit. Each student must complete requirements for (a) course work; (b) special proficiency requirements; (c) comprehensive examinations; (d) skill requirement, if needed; and, (e) dissertation.

- A. Required Course Work
 - A1. Core Courses (18 semester hours): CR 710, CR 717, CR 720, CR 730, CR 740, and CR 750.
 - A2. Criminology Electives: 6 semester hours minimum
 - A3. Advanced Applied Research: 9 semester hours minimum
 - A4. Other Electives: 9 semester hours from Criminology or related disciplines (to include graduate-level statistics)
- B. Qualifying Examination: Upon completion of the core courses a student must arrange with the doctoral coordinator to take the qualifying examination to be based upon the core subject areas. After successful completion, a student may proceed toward fulfillment of remaining degree requirements.
- C. Special Proficiency Examination: Areas of Concentration—Each student must decide upon one subspecialty within criminology. Upon consultation with the student, the student's advisory committee, and the doctoral coordinator, a proficiency exam will be administered.
- D. Skill requirement: (0-6 semester hours) A deficiency in this area may be remedied by completing one of the following alternatives:
 - foreign language competency
 - computer language skills
 - advanced competency in statistics
 - other appropriate courses/subjects as approved by the doctoral coordinator

Further details regarding any of these skill requirements can be obtained from the doctoral coordinator.

- E. Dissertation: In accordance with university guidelines, successful completion of a doctoral dissertation is required (12 semester hours).

Residency

The following options are available to doctoral students for satisfying residency requirements:

1. completion of a minimum of nine graduate credits at IUP in each of at least two consecutive semesters
2. completion of a minimum of nine graduate credits at IUP for at least one semester immediately preceding or following a summer of 9 semester hours of study

3. completion at IUP of at least nine graduate credits in each of two consecutive summers plus six graduate credits during the intervening academic year

Part-Time Study

This program may admit each year some students whose intention is to complete the program on a part-time basis. Course offerings can be expected to fluctuate, especially in the expansion of new course offerings. A complete and updated description of any changes can be obtained from the Department of Criminology.

Course Descriptions

CR 600 Criminological Theory 3 s.h.

An examination of criminological theories with emphasis on origins and applications of relevant theoretical approaches to crime and criminally deviant behavior. Required of all master's students.

CR 601 Proseminar 3 s.h.

Survey of current research, critical issues in the administration of justice, and criminological theory. Designed to acquaint the student with recent developments in the discipline of criminology. Required of all master's students.

CR 605 Research Methods 3 s.h.

Methods and techniques of research in criminology. An in-depth examination of the role of research in the analysis, interpretation, and clarification of problems in criminology and the administration of justice. The development of a thesis prospectus will be the end product of the course. Required of all master's students.

CR 610 Legal Issues in Criminology 3 s.h.

An in-depth study of contemporary legal issues faced by criminal justice professionals. Emphasis is placed on criminal constitution problems as well as the judicial review of administrative decisions made by criminal justice organizations. Required of all master's students.

CR 630 Seminar in Administration and Management in Criminal Justice 3 s.h.

The study of bureaucracy and complex organization with emphasis on the concepts and practices of the organization and management of agencies in the administration of justice. Required of all master's students.

CR 631 System Dynamics in the Administration of Justice
3 s.h.

A study of dynamic systems and analytical techniques relevant for understanding new perspectives of the administration of justice. Required of all master's students.

CR 650 Seminar in Advanced Criminological Thought
3 s.h.

An in-depth examination of select criminological thought.

CR 660 Seminar in Advanced Criminal Law
3 s.h.

A study of the theory of law as a means of social control, advanced problems and issues in the use of the criminal sanctions and alternative legal means of controlling deviant conduct.

CR 665 Criminal Justice Planning and Evaluation
3 s.h.

The study of planning and evaluation in criminology and the administration of justice and of the literature and practices, including problems and issues and tasks confronting planners and evaluators.

CR 670 Seminar in Contemporary Corrections
3 s.h.

An examination of current issues and problems in contemporary corrections.

CR 675 Seminar in Contemporary Law Enforcement
3 s.h.

A social psychological examination of current issues and problems in contemporary law enforcement.

CR 681 Special Topics
3 s.h.

Special topics courses are offered at the discretion of the department in a wide area of subjects directly related to law enforcement, courts, corrections, or security.

CR 685 Seminar in Contemporary Juvenile Justice and Delinquency
3 s.h.

An examination of current issues and problems in contemporary juvenile justice and delinquency.

CR 690 Seminar in the Contemporary Judicial System
3 s.h.

An examination of current issues and problems in the contemporary judicial system.

CR 698 Graduate Readings in Criminology
3 s.h.

With faculty supervision, students will read at least six major criminological texts and participate in a seminar situation for the purpose of discussing the reading materials.

CR 699 Independent Study
3 s.h.

Research of a significant issue or problem in criminology or the administration of justice. Instructor, coordinator, and chair approval required. May be taken twice for a maximum of 6 semester hours.

CR 710 Advanced Theoretical Criminology
3 s.h.

An intensive examination and critical analysis of the original works of selected theorists. Major theorists will be chosen each semester based on the interests of the professor and students.

CR 717 Advanced Qualitative Methods
3 s.h.

Explores the criminological research enterprise from the qualitative perspectives. Focuses on the relationship among all components or research design, including problem formulation, theory, data collection, analysis, and presentation of findings. Students will individually design a project and carry out preliminary stages of data collection. Permission required.

CR 718 Quantitative Strategies for Analysis in Criminology
3 s.h.

Computer analysis of quantitative data to the behavioral science of criminology: the logic of data analysis, fundamentals of statistical procedures commonly used in criminological analysis. Students also will learn to critique published criminological research.

CR 720 Advanced Quantitative Methods
3 s.h.

An in-depth analysis of the logic and uses of advanced criminological research models. Emphasis will be given to the use of quantitative research techniques and perspectives as they relate to formal theory construction.

CR 722 Measuring Outcomes in Criminology
3 s.h.

In this course students will be challenged to address the important issues associated with appropriately conceptualizing and measuring important outcomes in Criminology/Criminal Justice. Topics to be covered include, but are not limited to, understanding the measurement process, measuring crime through official records, measuring delinquency and criminal victimization, measuring punishments, sentencing, incarceration and recidivism, and comparisons of UCR, NCS, and Self-Report measures.

CR 730 Ethical and Philosophical Issues in Criminology

3 s.h.

An intensive examination of selected ethical and philosophical issues currently facing the field of criminology. Issues for analysis will be drawn from (but not limited to) such categories as the function of law; integrating theory and practice; ethical issues surrounding research strategies; punishment forms; social control strategies; and crime and justice in the future.

CR 740 Advanced Criminal Justice Policy

3 s.h.

A study of the impact of government crime policies on individuals and groups. An examination of criminal justice policy formulation and analyses of specific policies relevant to crime and the administration of justice.

CR 745 Comparative Justice Systems

3 s.h.

An examination of criminological field research in diverse cultural settings around the world. Special focus given to problem formulation, theory construction, and general research design in comparative justice systems.

CR 748 Criminal Violence: Theory, Research, and Issues

3 s.h.

An overview of general theories of violence and their applications to criminal violence. A variety of research and policy/programmatic issues will be explored, with attention given to issues relating to predicting dangerousness.

CR 749 Victimology: Theory, Research, and Policy Issues

3 s.h.

The course will examine theoretical perspectives and research methods as they impact on the research questions and findings in the field of victimology. Class, race, age, and gender will be applied to analyze issues regarding the role of the victim, kinds of victimization, fear of crime, victimization of offenders and victims by the criminal justice system, and victim's compensation and human rights.

CR 750 Doctoral Colloquium in Criminology

3 s.h.

Provides an academic setting for graduate students to present research and theoretical papers for group discussion. Special topics in criminology will be selected each semester.

CR 781 Special Topics

3 s.h.

CR 801 Advanced Applied Research I

3 s.h.

The application of selected principles of criminological theory and research methods toward understanding and resolving specific problems of justice processing.

CR 802 Advanced Applied Research II

3 s.h.

The application of selected principles of criminological theory and research methods toward understanding and resolving specific problems of justice processing.

CR 803 Advanced Applied Research III

3 s.h.

The application of selected principles of criminological theory and research methods toward understanding and resolving specific problems of justice processing.

CR 804 Advanced Applied Teaching Techniques

3 s.h.

A review of prominent models of effective teaching and the applications of selected models of teaching theory to specific criminological courses.

CR 849 Comprehensive Examination

0 s.h.

Written and/or oral examination to determine competency. Required of all students during the semester in which they are enrolled for their last graduate course.

CR 850 Thesis

3-6 s.h.

CR 950 Dissertation

1-12 s.h.

Economics

The Economics Department does not currently offer a graduate degree. The graduate courses offered by the department are a component of master's degree programs offered by other departments and colleges.

Course Descriptions

EC 501 Foundations of Modern Economics

3 s.h.

Not open to students who have credits of "C" or better in undergraduate EC 121-122 sequence. Survey of micro and macroeconomics designed for the student who is not already well grounded in the field.

EC 520 History of Economic Thought

3 s.h.

Examination of social, political, intellectual, and economic origins of work of prominent past economists and the content and impact of their work. Prerequisite: EC 501, or credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 521 Macroeconomic Analysis

3 s.h.

Covers national income theory with emphasis on causes and cures of inflation and unemployment. Includes study of consumption and investment theories, fiscal and monetary policy, national income accounts, and growth analysis. Prerequisite: EC 501, or credits of "C" or better in 6 semester hours of Principles of Economics or permission of instructor.

EC 522 Microeconomic Analysis

3 s.h.

Analysis of the theories of consumer demand, the firm, exchange, market structures, distribution, and welfare economics. Prerequisite: EC 501, or credits of "C" or better in EC 122 Principles of Economics II or permission of instructor.

EC 525 Monetary Economics

3 s.h.

Structure and function of monetary institutions, including the Federal Reserve System, commercial banks, and financial intermediaries, theory of monetary economy, and monetary policy. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 530 Labor Economics

3 s.h.

History, structure, and operations of trade unions and employer organizations; major federal labor legislation; collective bargaining theory; wage determination; current labor problems. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 534 Economics of Corporate Decisions

3 s.h.

Applies economic theory to corporate decision making. Covers mathematical solutions to various profit-maximization and cost-minimization problems and examines statistical estimation of demand and cost functions. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 536 State and Local Finance

3 s.h.

Analysis of the character and consequences of state and local government revenue procurement, expenditures, and fiscal systems. Prerequisite:

EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 541 Contemporary Economic Issues

3 s.h.

Problem areas of domestic economy. Primary focus in each semester is determined by student-instructor interest. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 545 International Economics

3 s.h.

Nature of world economy, international trade, international investment, current international institutions, and foreign economic policy of the United States. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 550 Comparative Economic Systems

3 s.h.

Basic economic issues in capitalism, socialism, communism, and fascism and their relationship to political and social problems. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 560 Economics of Health Service

3 s.h.

Analysis of the allocation of resources in the health sector using demand and supply techniques. Pricing and output by physicians, hospitals, and their health agencies are considered, along with national health insurance and current policy issues. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 571 Economics of Labor Legislation

3 s.h.

Economic background and effects of governmental regulation of labor relations, with emphasis on a detailed examination of the National Labor Relations Act as amended. Prerequisite: EC 501 or permission of instructor.

EC 572 Economics of Wages and Employment

3 s.h.

Analysis of wages and employment under various market structures. Also, an analysis of the impact of labor market forces on wages, prices, and distributive shares. Prerequisite: EC 501 or permission of instructor.

EC 573 Economics of Human Resources

3 s.h.

Analysis of the development and utilization of human resources with an emphasis on the income and employment situation of minorities. Man-

power policy options designed to increase the value and use of human resources are also explored. Prerequisite: EC 530 or permission of instructor.

EC 574 Economics of Education

3 s.h.

Analysis of the costs and benefits of education on economic growth, the public and private process of determining investment in education, and planning at the institutional level. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 580 Seminar

3 s.h.

Seminar in selected economic issues or problems. Prerequisite: EC 501, grade of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 582 Urban Economics

3 s.h.

Analysis of the structure of urban economy; goals, processes, problems, and policy in urban economic development. Prerequisite: EC 501, grade of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 583 Regional Economics

3 s.h.

Process of regional economic growth, location theory, basic techniques of regional analysis, public and private area development programs. Prerequisite: EC 501, grade of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 634 Economics of Corporate Decisions

3 s.h.

Applies economic theory to corporate decision making. Covers mathematical solutions to various profit-maximization and cost-minimization problems and examines statistical estimation of demand and cost functions. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

EC 699 Independent Study

1-6 s.h.

Directed readings, written assignments, and research on a specific topic determined by the student and the instructor. Prerequisite: EC 501, credits of "C" or better in 6 semester hours of Principles of Economics, or permission of instructor.

Educational Psychology

The Educational Psychology Department offers programs leading to a Master of Education, school psychology certification, and Doctor of Education degree. The Master of Education programs may be taken with an emphasis on school psychology, human development and learning, or education evaluation and research. The Doctor of Education is in the area of school psychology.

In addition to applying to the Graduate School, the candidate must secure the department application packet, which includes further information from the educational psychology department. Potential candidates will be interviewed by the Program Admissions Committee after the departmental application, copies of transcripts from the Graduate School, and official Graduate Record Examination scores, including the Educational Psychology subject test, are received. An adviser will be assigned, and no course work may be scheduled without the adviser's approval. The adviser may approve alternate courses to meet required competencies.

Admission to the programs will be based on evidence of previous scholarship and/or potential for academic success, personal and professional qualities deemed necessary for adequate functioning as a specialist in education, and motivation for professional excellence. Continued enrollment, once begun, is expected. Exceptions to this policy must be filed in writing and approved by the student's program committee.

Candidates for admission to master's degree programs must have a bachelor's degree from an accredited institution. Candidates for admission to the post-master's certification program must have a master's degree from an accredited institution. Candidates for admission to the doctoral degree program must have completed the 33 semester-hour certification in School Psychology.

Master of Education in Educational Psychology

The Master of Education degree in the Educational Psychology Department (33 to 36 semester hours, depending upon choice of thesis or non-thesis option) has been designed to give the interested student a broad theoretical and practical background in the areas of education and psychology. The program will be of interest to those planning to pursue certification in school psychology after the master's degree, those wishing to broaden their understanding of human development and learning, or those who want to learn more about educational evaluation and research.

General Requirements: All students must complete course work in the following areas: Professional Development (9 semester hours), Humanistic Studies (3 semester hours), Behavioral Studies (3 semester hours), Subject Area (6 semester hours), Research (6 semester hours), and Electives (6 semester hours, non-thesis option). These areas will include (EP 578, EP 604, EP 618); (FE 611 or FE 612 or FE 613); (EP 576, EP 573, EX 500

or EX 631); (GR 615, GR 516, or EP 616*); and three electives approved by the student's departmental adviser and chosen to enhance the student's interest in school psychology, human development and learning, or educational evaluation and research.

Certificate of Advanced Study in School Psychology

Post-Master's Degree Program

A certificate of advanced study in school psychology may be issued to those students who have completed a minimum of 66 to 69 graduate hours, 33 of which should be approved graduate hours in the university beyond the master's degree, and who have met all the requirements for certification as a school psychologist.

The School Psychology Program is designed for those individuals who are seeking certification as school psychologists. The objectives of the program are to train competent individuals who will demonstrate (1) an ability to evaluate students and prescribe interventions, (2) an understanding of individual and group dynamics, (3) an understanding of the educational system and learning process, and (4) an ability to apply all acquired professional competencies. There is a required comprehensive exam, practicum, and internship experience. Certification as a school psychologist is recommended when all of the indicated role competencies are demonstrated by the candidate. Completion of a plan of study may be pursued on either a full-time or part-time schedule of course work. The Professional Specialization Studies courses for the program include EP 712, EP 713, EP 762, EP 763, EP 750, and EP 751 (12 semester hours). The other approved courses for 3 semester hours to meet competency requirements are either EX 666 or EP 742. For final certification, other courses and/or additional internship hours may be required by the School Psychology Committee to satisfy competency requirements.

For descriptions of EX courses, see section on Special Education.

Cooperative Doctorate in School Psychology

The Doctor of Education (Ed.D.) in School Psychology is designed as a 69 to 72 semester-hour program beyond the master's degree. Thirty-three hours of the program involve post-master's preparation for certification as a school psychologist in the Commonwealth of Pennsylvania completed at either IUP, California University of Pennsylvania, Edinboro University of Pennsylvania, or Millersville University of Pennsylvania. The remaining 36 to 39 semester hours, designated as the doctoral sequence, may be implemented to complete the plan of study for the doctorate in School Psychology at IUP.

Students will be able to enter the doctoral sequence only after completing the 33 semester-hour certification in School Psychology. Since the Ed.D. is a practitioner-oriented degree, it will be recommended that the students who apply to the program have at least one year of experience as practicing school psychologists, part of which may be an internship. Completion of a plan of study is pursued on a summer-only schedule of course work.

Course Descriptions

EP 573 Psychology of Adolescent Education

3 s.h.

Concerned with study of significant characteristics of adolescence and with understanding the role of cultural influences on formation of behavior.

EP 576 Behavior Problems

3 s.h.

Explores behavior problems encountered in classroom situations and gives causes, characteristics, and some remedial techniques.

EP 578 Learning

3 s.h.

Explores learning theories and educational application in working with learning problems in the classroom.

EP 604 Advanced Educational Psychology

3 s.h.

An upward extension of educational psychology with a systematic review of current research and learning theory with emphasis on classroom application.

EP 616 Applied Educational Research Methods

3 s.h.

In this course students develop skills needed to engage in applied educational research using standard experimental research and evaluation designs, typical measurement approaches, and parametric statistical procedures. A practical problem presentation mode enhances an integrated holistic approach to design, sampling, measurement, statistics, hypothesis testing, and interpretation of results. A microcomputer statistical package is used to assist in the analysis of data.

EP 618 Interpretation of Educational and Psychological Tests

3 s.h.

Designed to provide the individual with information necessary to understand, evaluate, and interpret results of educational and psychological tests accurately and meaningfully.

EP 681 Special Topics in Educational Psychology

3 s.h.

Designed for those students who wish to do independent research in special areas. Prerequisite: departmental chairperson permission.

EP 711 Introduction to School Psychology

3 s.h.

Designed for those students who are preparing to function as school psychologists; includes role concepts and other responsibilities of a school psychologist.

EP 712 Individual Evaluation I

3 s.h.

Individual testing and professional competency in Stanford-Binet Scale, Wechsler Scales for children, and related tests of intelligence.

EP 713 Individual Evaluation II

3 s.h.

Individual testing and professional competency in Stanford-Binet Scale, Wechsler Scales, and other pertinent individual diagnostic tests.

EP 715 Doctoral Seminar in Applied Educational Research

3 s.h.

In this course students develop skills needed to engage in applied educational research using clinical and practical research/evaluation designs, measurement approaches, and nonparametric statistical procedures. A practical problem presentation mode enhances a consolidation of design, sampling, measurement, nonparametric statistics, hypothesis testing, and interpretation of results. Microcomputer statistical package use assists in the analysis of data. Prerequisite: EP 616.

EP 716 Doctoral Seminar in Advanced Educational Research

3 s.h.

This course provides an overview of complex educational research and evaluation designs, measurement approaches, statistical procedures, hypothesis testing, and interpretation of results. Topics include the philosophy and ethics of research, mixed hierarchical design, profile analysis, factorial validity estimation, factor analysis, multivariate analysis of variance, discriminant function analysis, path analysis, meta-analysis, power, robustness, and randomization tests. Statistical packages will be used to assist data manipulation and analysis. Prerequisite: EP 715.

EP 742 Neuropsychology of Children's Learning Disorder

3 s.h.

A neuropsychological approach to the identification of children with learning disorders will be discussed. Such factors as etiology, epidemiology, subtyping, diagnoses, and remediation will be considered. Students will learn the theoretical framework necessary to understand the factors underlying learning disorders in children. Prerequisite: EP 712 or permission.

EP 750 Internship I

3 s.h.

Supervised experiences in educational psychology. Prerequisite: for approved candidates.

EP 751 Internship II

3-12 s.h.

Clinical and field experience with mentally and physically handicapped and emotionally disturbed children. Prerequisite: for approved school psychologist candidates.

EP 752 Doctoral Internship

3 s.h.

Supervised field experience in psychological procedures and practices in an educational setting and/or facility appropriate to the special professional interests of the student. Prerequisite: school psychology major; permission of instructor.

EP 753 Child Neuropsychology

3 s.h.

Examines brain-behavior relationships and neurodevelopmental functioning in children. The neuropsychological principles necessary to assess the educational, cognitive, and behavioral functioning of children in relation to the development of remedial programs will be discussed. Prerequisite: EP 712 or permission.

EP 762 Crisis Counseling and Consultation in Instructional Settings

3 s.h.

A systematic study of major techniques of counseling and psychotherapy and application of principles of group dynamics to educational settings.

EP 763 Assessment of Personality and Behavior Problems of Children

3 s.h.

An introduction to various personality and behavior assessment techniques currently used. Prerequisite: for approved school psychologist candidates.

EP 764 Seminar in School Psychology I

3 s.h.

An examination of practices, trends, and issues in a specialized area of diagnosis. The areas to be examined will be based on the predetermined interests of the students and the expertise of the available faculty. Prerequisite: permission of instructor.

EP 765 Seminar in School Psychology II

3 s.h.

An examination of practices, trends, and issues in a specialized area of treatment or remediation. The areas to be examined will correspond to those covered in EP 664. The focus of the seminar will be to develop the student's understanding and skills in implementing appropriate treatment

and remedial strategies in home, school, and clinic settings. Prerequisite: permission of instructor.

EP 766 Doctoral Seminar: Research Issues in Child Neuropsychology
3 s.h.

Examines research issues related to the application of neuropsychology in the school setting. Specifically, students will critique research articles, identify contemporary research issues, and write a research paper on a relevant educational issue. Prerequisite: EP 742 or equivalent.

EP 777 Seminar in Family-School Relations
3 s.h.

This course will focus on selected aspects of a wide range of issues related to the contemporary American family as they affect the behavior of children and their functioning within the public schools. Parent consultation and training strategies will be emphasized.

EP 960 Dissertation
9 s.h.

English

Master of Arts in English

The M.A. in English at IUP was revised in early 1989 to respond to the specific needs of four groups: students interested in gaining a generalist background in graduate English studies, students wanting to concentrate on literature, students seeking secondary English certification or desiring to enhance their existing skills in teaching English, and students concerned with teaching English to speakers of other languages. For every kind of student, this degree at IUP is an M.A. in English requiring 36 hours of course work (twelve courses). As you will see below, each of the four options within this M.A. has its own set of requirements for the distribution of those 36 hours, and each has its own admissions committee. When applying for admission, it will be crucial to indicate which option within the degree you wish to pursue.

Considered together, the options outlined below meet the needs of every major kind of English graduate student in the U.S. today but in more focused ways than the typical M.A. in English, which often lacks specific definition guiding particular kinds of students toward meeting particular professional requirements. The generalist (M.A./Gen) option is designed to suit the needs of students who wish to experience course work in several areas of English, attaining a balanced background in the discipline and gaining preparation either for more advanced doctoral work, for teaching at the community-college level, or for careers in professional fields such as publishing or translation. The literature (M.A./Lit) option is for active professionals who wish to further their expertise in literature and for stu-

dents who wish to prepare for work on a Ph.D. in British and American literature and criticism. The teaching English (M.A./TE) option is for in-service secondary English teachers who wish advanced in-depth study in the teaching and learning of English and for students with the equivalent of the bachelor's degree in English who wish to pursue initial certification. The teaching English to speakers of other languages (M.A./TESOL) option meets the requirements of the international professional TESOL organization and is designed to prepare students within these guidelines for employment in the variety of settings both within and outside of the United States.

In addition to its focused meeting of the needs of different kinds of students, the M.A. in English also stands apart from degree offerings at other schools because its courses are available in very active summer as well as academic-year programs. There is no specific residency requirement for the M.A. at IUP, so students are free to attend only in the summer, only in the academic year, or during the entire year, as well as either full-time or part-time. Students can complete the M.A. in English in as little as a single year or may choose to spread their work out over two or three years, depending on individual circumstances and needs. Thus, the M.A. in English offers the best advantages of both professional focus and personal flexibility.

M.A. Program Descriptions

M.A./Generalist

The Master of Arts/Generalist (M.A./Gen) option is designed to suit the needs of students who wish course work in several areas of English. This track provides preparation for more advanced doctoral work, for teaching at the community-college level, or for careers in professional fields such as publishing or translation.

M.A./Generalist Course Requirements 15 s.h.

A. Core Courses: EN 674, EN 676, EN 630, EN 692, and EN 740

B. Literature/Linguistics Electives 12 s.h.

Twelve additional semester hours, selected from the following list and approved by the director of Graduate Studies in Rhetoric and Linguistics and the director of Graduate Studies in Literature and Criticism: EN 675, EN 720, EN 721 (Prerequisite: EN 720), EN 722 (Prerequisite: EN 720), EN 761, EN 762, EN 763, EN 764, EN 765, EN 766, EN 771, EN 772, EN 773. International students are required to take EN 675 as part of the 12 semester hours unless it is waived by the director of Graduate Studies in Rhetoric and Linguistics.

C. Open Electives 9 s.h.

Nine additional semester hours of electives approved by the director of Graduate Studies in Rhetoric and Linguistics and by the director of Graduate Studies in Literature and Criticism. Up to 6 of these semester hours may be taken outside the English department.

Total Credit Hours

36 s.h.

M.A./Literature

The Master of Arts/Literature (M.A./Lit) is designed for two main groups: active professionals who wish to further their expertise in literature and students who wish to prepare for work on a Ph.D. in British and American literature and criticism. Both of these groups have a clear need to fill in gaps in their knowledge about literature to increase their competence in the discipline. This track, M.A./Lit, is an academic reading degree that addresses these needs by offering students the opportunity to gain historical breadth through intense study of traditional works, authors, periods, and genres.

M.A./Literature Course Requirements

- A. Core Courses: EN 674 and EN 676 6 s.h.
 - B. Period Courses: EN 761, EN 762, EN 763, and EN 764 12 s.h.
 - C. Courses in Approaches to the Literary Canon 3 s.h.
- (One course in approaches to literary canon, chosen from among the following offerings): EN 766, EN 771, EN 772, and EN 773
- D. Literature Electives 9 s.h.
- Nine semester hours of literature electives chosen from among the following offerings. International students are required to take EN 675 as one of these unless exempted by the director of Graduate Studies in Literature and Criticism: EN 675, EN 761, EN 762, EN 763, EN 764, EN 765, EN 766, EN 771, EN 772, EN 773.
- E. Open Electives 6 s.h.
- Six semester hours approved by the director of Graduate Studies in Literature and Criticism from other graduate offerings in Literature (excluding Ph.D.-level core courses or Ph.D.-level advanced seminars), courses in Rhetoric and Linguistics, or courses outside of the department in a related and appropriate field.

Total Credit Hours

36 s.h.

M.A./Teaching English

The Master of Arts/Teaching English (M.A./TE) responds directly to the recent national studies of teacher training. The M.A./TE track involves the study of the research on teaching literature, composition, and language, through both academic course work and supervised internship experiences. This track in the M.A. in English is for inservice secondary English teachers who wish advanced in-depth study in the teaching and learning of English and for students with the equivalent of the bachelor's degree in English who wish to pursue initial certification. Students applying for initial certification should contact the director of Graduate Studies in Rhetoric and Linguistics before completing the Graduate School application process.

M.A./Teaching English Course Requirements

- A. Core Courses: EN 630, EN 676, EN 692, EN 693, and EN 730. 18 s.h.

And one additional course from the following, approved by the director of Graduate Studies in Rhetoric and Linguistics: EN 762, EN 763, EN 772, and *EN 773

*Students seeking initial certification should take EN 773 to assist them in preparing for the Pennsylvania Department of Education Certification Examination.

- B. Electives in Teaching, Learning, and Schools: 6 s.h.
EL 644, EP 604, EP 618, EX 524, EX 631, FE 611, FE 612, and FE 613 (Students seeking initial certification as a secondary English teacher must take EX 631, EP 604, EP 618, and one of either FE 611, FE 612, or FE 613 to satisfy Pennsylvania Department of Education certification standards. Since this list constitutes 12 semester hours, no professional electives will remain for these students. The PDE requirement for EX 631 may be met by examination available from the Department of Special Education. Students using the examination option may take 3 semester hours of professional electives as described below.)
- C. Professional Electives: 6 s.h.
Six semester hours to be chosen from graduate courses in the English department or the College of Education approved by the director of Graduate Studies in Rhetoric and Linguistics after discussion with adviser
- D. Professional Practice: EN 694 and EN 697 6 s.h.
(Students seeking initial certification as secondary English teachers must also student teach as required by the Pennsylvania Department of Education before the director of Graduate Studies in Rhetoric and Linguistics will recommend approval for certification to the certifying officer at IUP, the dean of the College of Education.)

Total Credit Hours 36 s.h.

M.A./Teaching English to Speakers of Other Languages

The Master of Arts/Teaching English to Speakers of Other Languages (M.A./TESOL) is designed to prepare students within the guidelines established in the *Statement of Core Standards for Languages and Professional Preparation Programs: Guidelines for the Certification of Teachers of English to Speakers of Other Languages in the United States* for employment in the variety of settings both within and outside of the United States.

M.A./Teaching English to Speakers of Other Languages Course Requirements

- A. Core Courses: EN 641, EN 692, EN 694, EN 740, and EN 742 15 s.h.
- B. Internship 3 s.h.
EN 696, Internship in TESL/TEFL
This requirement will be waived by the director of Graduate Studies in Rhetoric and Linguistics for experienced TESL/TEFL teachers. Students receiving a waiver for EN 696 must take an additional 3 semester hours of open electives.

- C. Program Electives 9 s.h.
 Nine semester hours, approved by the director of Graduate Studies in Rhetoric and Linguistics, from the following list: EN 720, EN 721, EN 722, EN 730, EN 736, EN 741, and EN 743.
- D. Open Electives 9 s.h.
 Nine additional semester hours of electives approved by the director of Graduate Studies in Rhetoric and Linguistics. Six of these semester hours may be taken outside of the English Department.
- Total Credit Hours 36 s.h.

Doctor of Philosophy Programs

There are two distinct doctoral programs in English, one in Literature and Criticism and the other in Rhetoric and Linguistics. Both programs lead to a Doctor of Philosophy in English.

- I. Literature and Criticism
 The Literature and Criticism program of the Doctor of Philosophy in English is designed for present or future teachers at the college or university level. In addition to the traditional academic-year student, established teachers often elect the summer program for their course work. The program in Literature and Criticism emphasizes three inter-related areas: traditional literatures, special literatures (such as minority, women's, and postmodern literatures), and the application of literary theory to teaching and writing about literature.

Upon matriculation in the program, a student is assigned to a faculty mentor in an appropriate field of interest; the mentor helps to guide the student through the program and to suggest ways to be active in submitting papers for conference presentation and publication. A minimum of 30 hours of course work is required. In addition, two courses are prerequisites for some students: EN 675 is required of international students (unless exempted by the program director), and EN 674 is required of any student who has not had a recent equivalent course in the M.A. program. Within the 30 hours, four courses are required of all students: the two core courses, EN 751 and EN 752, and two of the three advanced seminars, EN 783, EN 784, and EN 785. The other six courses may be elected from all 700-level courses in literature, with the stipulation that at least two courses be in traditional literatures (EN 761, EN 762, EN 763, EN 764, EN 765, and EN 766) and at least one course in special literatures (EN 771, EN 772, and EN 773). The program director may give permission to students with particular programmatic needs to take up to 6 hours within the 30 hours in a closely related field such as rhetoric and linguistics or history.

After the completion of 12 to 18 hours of course work, the student must take a generalist literary essay examination before proceeding to further elective courses and advanced seminars. Candidacy is granted upon satisfactory completion of this examination and fulfillment of the Graduate School requirements of a 3.5 grade point average and an official copy of the general section (morning tests) of the Graduate Record Examination (usually submitted with the initial application). M.A. graduates from foreign universities submit TOEFL rather than GRE scores.

Following the completion of the 30 hours of course work, a student must pass comprehensive essay examinations in three fields arranged with a committee of three faculty members (who will usually also constitute the dissertation committee)—with the understanding that the fields will involve literary theory as applied to a generalist of literary text, a broad literary area, and a focused field of study—followed by an oral defense of the essays. Each student must demonstrate proficiency in a language other than English and also fulfill the Research Skills Requirement in an area related to dissertation-level research (either proficiency in a second language other than English or a grade of A or B in two additional graduate rhetoric, linguistics, writing for publication, history, philosophy, other humanities, or computer courses). The final requirement for graduation is successful defense of the student's dissertation and approval of its archival copies. Further and more detailed information about the program may be obtained in the *Literature and Criticism Program Handbook* or from the director of Graduate Studies in Literature and Criticism, whom prospective applicants are encouraged to contact at 110B Leonard Hall, IUP, Indiana, PA 15705 or (412) 357-2264.

II. Rhetoric and Linguistics

The Rhetoric and Linguistics track of the Doctor of Philosophy in English is designed for teachers of English in secondary schools and in two-year and four-year colleges. Different emphases in the program allow students to focus upon the native speaker of English or upon international students who are learning English as a second language. Students without demonstrable teaching experience are expected to complete an internship experience in order to demonstrate the ability to teach effectively. Students with teaching experience must file a waiver of this requirement with the director of Graduate Studies in Rhetoric and Linguistics.

After completion of 9 semester hours of course work and before completion of 15 semester hours, the Rhetoric and Linguistics Program Committee will review the student's status for admission to candidacy. Candidacy requirements include a minimum grade point average of 3.5 on a 4-point scale and completion of the general section (morning tests) of the Graduate Record Examination. Students who have not received the M.A. from an American college or university will be required to submit TOEFL scores instead of the GRE. The program committee may request other information it deems pertinent to review

of the student for candidacy as outlined in the *Rhetoric and Linguistics Program Handbook* (obtainable from the director of Graduate Studies in Rhetoric and Linguistics).

After completion of course work, the student will request the assignment of a Doctoral Advisory Committee which will prepare and administer the student's comprehensive examinations and supervise the student's dissertation research. Students may request changes to the committee after completion of the comprehensive examination to allow for a more focused approach to the dissertation project.

The following courses are required of all students: EN 710, EN 720, EN 721 or 722, and EN 730. EN 698 will be required of all students without demonstrable teaching experience. Students are encouraged to plan the remainder of their course work to help develop interdisciplinary interests. In addition to further courses in rhetoric, composition, TESOL, and applied linguistics, students are encouraged to explore literature and criticism, psychology, sociology, and communications media among disciplines available at IUP. In addition to the 30 required semester hours of course work, students must complete a research skills requirement related to the proposed dissertation project. This requirement includes options in foreign languages, computers, research methodology and design, or additional applied linguistics. (Further information on the research skills requirement may be obtained from the director of Graduate Studies in Rhetoric and Linguistics.)

All students must complete a dissertation which investigates an original application of research in rhetoric and linguistics to the teaching of English. (Further information about the dissertation requirement may be obtained from the director of Graduate Studies in Rhetoric and Linguistics.)

Prospective applicants are encouraged to contact the director of Graduate Studies at 110B Leonard Hall, IUP, Indiana, PA, 15705 or (412) 357-2263.

Course Descriptions

EN 581 Special Topics in Language and Literature
3 s.h.

Allows students to pursue subjects such as textual criticism, prosody, and computers and literature not covered in existing courses.

EN 592 History of the English Language
3 s.h.

Development of phonology, syntax, and lexicon as well as rhetorical theories from Old English through Modern English.

EN 630 Research on the Teaching of Literacy and Literature

3 s.h.

Examines theory and research in literacy, reading and responding to literature and other forms of writing, and the teaching of young adult and other relevant works of literature. Includes application of theory and research to classroom practices.

EN 641 Topics in ESL Pedagogy

3 s.h.

Explores a single topic in depth. Topics, announced in advance, include such areas as ESL Testing, Teaching Listening Comprehension for ESL Students, Teaching English for Specific Purposes, and Teaching Writing for ESL Students.

EN 674 Bibliographical Methods in English

3 s.h.

Practical training in special methods and materials of research in English. Required of all majors in English, except those taking the Ph.D. in Rhetoric and Linguistics. Should be taken early in the program.

EN 675 Literature and the International Student

3 s.h.

Develops the reading, writing, listening, and speaking skills needed for success by the international student in the graduate study of literature in the American university. The course examines the principles of literary analysis, research, and documentation in the United States and orients the student to the American library system and the American college classroom.

EN 681 Special Topics

3 s.h.

Courses relating to specialized interests in literature, rhetoric, or linguistics which fulfill special needs or interests. May become permanent course offerings.

EN 689 Orientation and Field Experience in the Community College

3 s.h.

Examines the community college from historical and philosophical perspectives. Includes observations of classes and interviews with staff at community colleges. Specifically for students preparing for careers in the community college. To be taken early in the program.

EN 692 American English Grammar

3 s.h.

The study of phonology, morphology, syntax, and semantics of present-day American English, using various approaches to the analysis of grammar and usage.

EN 693 Seminar in Teaching English in the Secondary School

3 s.h.

Explores recent developments in teaching of language, compositions, and literature.

EN 696 Internship in ESL/EFL

3 s.h.

Consists of one semester of supervised teaching, tutorial activities, and materials preparation for non-native or limited English-speaking students. The purpose of the practicum is to demonstrate the candidate's preparation for teaching English as a second or foreign language. Prerequisite: permission of the director of Graduate Studies in Rhetoric and Linguistics.

EN 698 Internship

3 s.h.

Practical experience in the student's area of interest, working under professional supervision on the job. Special permission only, dependent upon needs of student's program as well as personal and academic qualifications.

EN 699 Independent Study

1-3 s.h.

Study in depth of topics not available through regular course work. Student works with supervising professor on carefully planned, student-initiated project. Prior approval necessary.

EN 710 Research Methodology in Rhetoric and Linguistics

3 s.h.

Interdisciplinary dimensions of the transmission of literacy and its position as a domain for scientific inquiry, including bibliographical resources for the study of rhetoric and linguistics.

EN 720 Linguistics and the English Teacher

3 s.h.

Introduces the principles and uses of linguistics for the teaching of English.

EN 721 Psycholinguistics

3 s.h.

Studies the psychological bases and processes of language acquisition and use, with emphasis on the relevance of current research for language learning and teaching. Prerequisites: EN 710 and EN 720.

EN 722 Sociolinguistics

3 s.h.

Studies language in its social context, including such topics as social and regional variations, language change, and language planning and the implications of language variety for the transmission of literacy. Prerequisites: EN 710 and EN 720.

EN 730 Teaching Basic Writing

3 s.h.

Studies characteristics of the writing process and of the basic writer, methods for the evaluation of writing, and approaches to the teaching of writing.

EN 731 The Rhetorical Tradition and the Teaching of Writing

3 s.h.

Surveys the rhetorical tradition from classical Greece to the present day, with emphasis on continuing philosophical and professional issues.

EN 732 Advanced Seminar in Composition Theory

3 s.h.

Explores a single topic in depth. Topics, announced in advance, include such areas as approaches to the teaching of style, writing across the curriculum, the evaluation of composition instruction, the development of the writing process in children, computers in composition, writing in the professions, and discourse analysis. May be taken more than once. Prerequisites: EN 730 and EN 731.

EN 736 Reading Theory and the College English Teacher

3 s.h.

Examines the psycholinguistic and ethnographic research on the fluent reading process of native and non-native college readers, relevant to the teaching of reading and writing for academic and literary purposes.

EN 740 TESL/TEFL Methodology

3 s.h.

Surveys current theory and practice in teaching English to non-native speakers. Includes traditional and innovative approaches, methods, and techniques for teaching all the language skills at various educational levels.

EN 741 ESL Materials and Media

3 s.h.

Treats current principles of syllabus design, instructional materials, and systems for observing and evaluating the ESL-EFL classroom. Emphasis is placed on preparing or adapting language lessons as well as producing materials in audio, visual, and computer-assisted media for particular language learners and situations and demonstrating their effectiveness. Prerequisite: EN 740.

EN 742 Cross-Cultural Communication

3 s.h.

Investigates cultural behaviors, assumptions, values, and conflicts surrounding communication across cultures in the context of teaching English as a second or foreign language at all levels.

EN 743 Second Language Acquisition

3 s.h.

Introduces current research in second language acquisition especially of English. Focuses on prominent research trends in the study of the lan-

guage learner, the process of acquisition, and the interaction of learner, language, and context. Prerequisites: EN 720 and EN 740.

EN 751 The History and Theory of Criticism

3 s.h.

Studies the major cities of the Western tradition from classical times through twentieth-century structuralism. The course examines the texts and issues central to criticism in relation to the contemporary concerns and practices of the literature teacher-scholar.

EN 752 Literary Theory for the Teacher and Scholarly Writer

3 s.h.

Focuses on contemporary literary theory and its applications to the professional concerns of English teachers and scholars. Examines theoretical and critical approaches as they are currently practiced and considers how today's English teacher and scholar apply them, both in the classroom and in writing for publication and professional presentation.

EN 761 Topics in American Literature Before 1870

3 s.h.

Studies major figures, movements, or topics in American literature from the Colonial Period through 1870. The content of the course will be determined by the individual instructor and announced in advance.

EN 762 Topics in American Literature Since 1870

3 s.h.

Studies major topics, authors, and movements in American literature from 1870 to the present. Specific course content is chosen by the instructor and announced in advance.

EN 763 Topics in British Literature Before 1660

3 s.h.

Studies major figures, movements, or topics within the period. The specific content of the course is determined by the instructor and announced in advance.

EN 764 Topics in British Literature Since 1660

3 s.h.

Studies major figures, movements, and topics in British literature within the period 1660 to the present. Content of the course will be determined by the instructor and announced in advance.

EN 765 Topics in Literature as Genre

3 s.h.

Examines one literary genre (such as novel, drama, or film), its development, and its current practice and theories. The course also surveys the major recent critical approaches to the genre.

EN 766 Topics in Comparative Literature

3 s.h.

Introduces the theory and methods of comparative literary analysis. Topics include the relationships between literatures of different countries, between literary genres, and between literature and other related fields. The specific course content is chosen by the instructor and announced in advance.

EN 771 Topics in Postmodern Literature

3 s.h.

Investigates the postmodern reaction to the modern literary tradition and the experimentation it engendered. Focuses on how postmodern critics and writers have responded to modernist manifestations of character, narrative, and theme and explores the critical, pedagogical, and philosophical implications and assumptions of postmodern literature, assessing its role in contemporary culture and thought.

EN 772 Topics in Women's Literature

3 s.h.

Reexamines nineteenth-century works by women in light of feminist perspectives. Studies twentieth-century works within and outside feminine and feminist traditions. Also considers works by black, Chicano, Native American, and Asian-American women.

EN 773 Topics in American or British Minority Literature

3 s.h.

Examines the literature of one or more American or British minorities (for example, Native Americans, immigrants, blacks, Chicanos). The focus and subject matter of the course will be chosen by the faculty member and announced in advance.

EN 783 Seminar: Literary Theory Applied to Major American Author or Theme

3 s.h.

Advanced, independent work in a seminar format. The course will emphasize the production of a research paper of publishable quality. Specific content for the course—a major author or specific theme in American Literature—will be chosen by the instructor.

EN 784 Seminar: Literary Theory Applied to British Author or Theme

3 s.h.

Draws on knowledge and critical skills from core courses and traditional and special literature courses for advanced, independent work. Focus is on a single major author or well-defined theme in British literature chosen by the instructor. Each student conducts practice teaching and produces a research essay suitable for submission for publication or presentation at a conference.

EN 785 Seminar: Comparative Literary Theory Applied to Traditional and Special Literature

3 s.h.

Explores and applies literary theory, criticism, and the theories and methods of comparative literature to traditional and special literatures. Students may expect to investigate, from various critical perspectives, conflicting social and literary values. The specific course content is chosen by the instructor and announced in advance.

EN 799 Independent Study

1-3 s.h.

An in-depth investigation of topic or area related to the student's doctoral program but not available through regular course work. Independent study is initiated by the student and supervised by a faculty member in the area of study. Prior approval by the director of the student's doctoral program is required.

EN 850 Thesis

1-6 s.h.

EN 950 Dissertation

1-12 s.h.

Note: Special Topics in Language and Literature and Major Writers, as well as seminars, may be scheduled more than once, because subject matter will change with each offering of the course. More complete course descriptions are available from the department.

Food and Nutrition

The Master of Science degree program in Food and Nutrition is designed to increase the student's depth of knowledge in food and nutrition, continue professional growth through development of leadership ability, and increase the student's capacity for independent action in scholarly and professional pursuits. Courses in intermediate nutrition (FN 458/558* Advanced Human Nutrition) and biochemistry are required for entrance into the program. A faculty adviser will be assigned to each student. Prospective students apply for admission through the Graduate School. Applicants are then referred to the Food and Nutrition Department Graduate Studies Committee for acceptance. All relevant transcripts, Graduate Record Examination scores, and letters of recommendation must be on file with the Graduate School prior to any department decision. At the completion of fifteen hours of graduate course work, including a research course, as well as statistics, all food and nutrition majors must qualify for degree candidacy. Qualification for degree candidacy means that the student has taken and passed a qualifying examination.

*If taken for graduate credit cannot count toward degree credits.

Graduate School requirements: GR 615 and GR 516 or BI 602.

Department requirements: All students must take FN 713 (course to be taken twice for two credits) and eleven credits from courses FN 544, FN 642, FN 645, FN 646, and FN 711. Students may choose a thirty-credit degree program to include a four-credit thesis (FN 850) or a thirty-three-credit program with a non-thesis paper.

All students may elect 4 to 10 semester hours from the IUP Graduate Catalog with approval of their adviser.

An American Dietetic Association-approved preprofessional practice program is available in conjunction with the master's program.

Students may choose the thesis or non-thesis curriculum depending upon individual preferences and needs.

- I. Thesis Degree Requirements (30 s.h.)
 - A. Professional Core Courses include: GR 615, GR 516, FN 713 and FN 850.
 - B. Department Core Courses: Students must elect eleven credits from the following: FN 544, FN 642, FN 645, FN 646, and FN 711.
 - C. Electives: Students will elect additional courses from the IUP Graduate Catalog with the approval of their adviser.
- II. Non-thesis Degree Requirements (33 s.h.)
 - A. Professional Core Courses include: GR 615, GR 516, and FN 713.
 - B. Department Core Courses: Students must elect eleven credits from the following: FN 544, FN 642, FN 645, FN 646, and FN 711.
 - C. Electives: Students will elect additional courses from the IUP *Graduate Catalog* with the approval of their adviser.

Course Descriptions

FN 510 Food, Nutrition, and Aging
3 s.h.

How food relates to health maintenance and special dietary problems during the middle and later years. Nonmajors only.

FN 544 Food Composition and Biochemistry
3 s.h.

Covers basic chemistry and biochemistry of essential components of food originating from plant and animal sources. Prerequisite: CH 355.

FN 547 Nutritional Aspects of Food Processing
3 s.h.

Studies current known effects of food processing techniques on the nutritional value and safety of food. Prerequisites: FN 212 and BI 241.

FN 558 Advanced Human Nutrition

3 s.h.

In-depth study of the nutrients and their functions within the cell. Incorporation of the principles of physiology and biochemistry in the study of nutrition. Emphasis on current research. Prerequisites: FN 212, CH 355, and BI 151.

FN 561 Microwave Cooking Technology

3 s.h.

Examines the electronic technology, selection, care, and use of the microwave oven. Basic physical and chemical concepts related to microwave cooking are included. Individual research problem required. Two lectures/ two lab hours per week.

FN 562 Advanced Experimental Foods

3 s.h.

An experimental approach to the many factors influencing the chemical and physical properties of food. Use of scientific method in developing an individual project combining an evaluation of current literature and appropriate sensory and analytical methodology. Prerequisites: FN 362 and CH 231.

FN 564 Food and Nutrition Research Methods

3 s.h.

Introduction to research methodology in food and nutrition. Includes theory and techniques of physical, chemical, and instrumental analysis. Applications of these methods to food and animal models with statistical analysis of data. Prerequisites: FN 362, FN 458, CH 351, and MA 217.

FN 612 Administration of Food Service Systems

3 s.h.

Addresses food service as a system of interrelated parts and of controlling management resources. Analysis of different types of food service delivery systems and legal responsibilities of a food service administrator will be covered. Prerequisites: FN 358, FN 259, FN 313, FN 356, or three years' work experience in a food service management position.

FN 641 Eating Behaviors and Food Habits

3 s.h.

Investigation and analysis of historical, political, religious, ethnic, environmental, and social influences which affect food consumption patterns. Prerequisites: PC 101 and SO 151.

FN 642 Contemporary Issues in Food and Nutrition

s.h.

Current information in foods and nutrition is investigated, analyzed, and evaluated for practical implementation.

FN 645 Proteins, Carbohydrates, and Fats in Nutrition

4 s.h.

Nutritional considerations of protein, carbohydrates, and fat metabolism. In vitro and in vivo analysis as well as physiologic and biochemical function of these nutrients.

FN 646 Vitamins and Minerals

4 s.h.

Biochemical role of vitamins and minerals as cofactors in macro-nutrient metabolism. Focus on biochemical and physiologic functions, research and analytical methods.

FN 698 Internship

1-6 s.h.

Supervised work experience for food and nutrition majors. Permission: department chairperson.

FN 711 Nutrition in the Life Cycle

3 s.h.

Studies bodily functions at different stages of development under differing environmental conditions and at various levels of biological organization.

FN 713 Seminar in Food and Nutrition

3 s.h.

Preparation and presentation of written scientific reports and/or current departmental research. Course to be taken twice. Prerequisites: GR 615, GR 516, and two courses from the department requirement.

FN 743 Seminar in Clinical Dietetics

3 s.h.

Examines nutritional management of the hospitalized patient with emphasis on the role of the dietitian. Research for a paper and seminar presentation are required.

FN 799 Independent Study in Food and Nutrition

1-3 s.h.

Prerequisites: completion of two courses in the department requirement. Advanced study and/or selected research problems from the field of food and nutrition. May be taken for a maximum of three credits.

FN 850 Thesis

1-4 s.h.

Foreign Languages

The programs leading to the M.A. and M.Ed. degrees in German and in Spanish have been placed on inactive status. No applications are being ac-

cepted for either of these programs. Workshops and Special Topics courses may be offered during the summer sessions. Please check the summer schedule for specific offerings.

Course Descriptions

FL 521 Language and Society

3 s.h.

Salient facts of language and its fundamental role in development and continuity of society and culture, including language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, psycholinguistics, and systems of writing (open to majors and nonmajors).

FL 525 Foreign Study-Valladolid (optional)

6 s.h.

Intensive study of Spanish language and culture at the University of Valladolid, Spain, from approximately July 7 to August 20. Credits subject to approval of the director of the program.

SP 580 Foreign Study-Jalapa (optional)

1-3 s.h.

Intensive study of Spanish language and Mexican culture at the University of Veracruz in Jalapa, Mexico, from approximately July 7 to August 20. Credits subject to approval of the director of the program.

Foundations of Education

The Foundations of Education Department seeks to expose its students to a systematic inquiry into educational theories and practices through a philosophical, sociological, historical, and comparative analysis. Foundations study generates criteria for judgment and helps to formulate a gestalt of various subjects. It also helps to develop an integral cross sectional view of educational goals necessary for development of effective methods of instruction. Furthermore, it broadens perspectives and deepens analysis of policies and programs which help educational personnel find meaning and value in all educational activities.

Course Descriptions

FE 514 Comparative Foundations of Education

3 s.h.

Educational theories and practices in different nations will be studied. Educational purposes, curriculum, methods, administration, school systems, teacher education, and other educational features in America will be analyzed, evaluated, and compared.

FE 515 Curriculum Development

3 s.h.

Analysis of philosophical, sociological, and psychological basis for creation of curriculum patterns, K-12. Includes utilization of technological devices, critical examination of basic concepts underlying determination of objectives, selection and organization of subject matter, and learning experiences in general. Current curriculum research will be analyzed, as well as existing instructional materials and programs.

FE 595 International Education Studies Program

3 s.h.

A travel-seminar conducted in a foreign country and designed to afford educators and students of education the opportunity to investigate teaching-learning process in cultural settings other than their own. Particular attention to such current educational issues as theories of curriculum development, methodology, teacher education, and changing value systems.

FE 611 Historical Foundations of Education

3 s.h.

Study of historical development of American education. European influences on philosophies and practices of American schools will serve as a background. Emphasis on development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education.

FE 612 Philosophical Foundations of Education

3 s.h.

Analysis and evaluation of basic philosophies and their impact upon education. Nature, value, means, and ends of education and some other fundamental phases of schooling will be thoroughly examined. Stress on essentials enhancing an individual working philosophy of education and on basic ideas heightening a sound philosophy for American schools.

FE 613 Social Foundations of Education

3 s.h.

Social and cultural forces which influence education. Particular stress on current problems as they relate to entire educational systems and to curricular problems and practices in today's schools.

FE 616 Professional Negotiations in Education

3 s.h.

Study of dimensions of professional negotiations process in educational sector. Instructional tools will be case studies, lecture-discussion, and reading assignments. Guidelines of public policy affecting public employer-employee relations will also be evaluated and analyzed.

FE 699 Independent Study

1-6 s.h.

Geography and Regional Planning

IUP's Department of Geography and Regional Planning offers graduate programs leading to the degrees of Master of Arts and Master of Science. (The M.Ed. in Geography is currently inactive, and no applications are being accepted for this program.) The M.A. and M.S. programs are designed to prepare students for a variety of careers as geographers in business, government, research, and planning organizations or for entry to a doctoral program at another university. Emphasis is placed upon developing a professional competence in the tools, substance, methodology, and theory of geography.

Graduates of the program are employed by the state and federal government, city, county, and regional planning commissions, private consultant firms, business and industry, and colleges and universities. Knowledge of major subject areas is of value to the graduate in the job search. The subject areas are spatial location patterns, environmental processes, organization and operation of the planning field, and cartographic skills, including computer applications.

Students who enter the program usually hold a bachelor's degree in geography or one of the social sciences. Persons with degrees in education, science, or business also may qualify and often find a degree in geography of value.

Geography graduate students at IUP may pursue traditional geographic themes of study or research such as economic-urban and cultural-historical geography. The department also offers faculty strength in regional development and planning and in cartography/remote sensing/geographic information systems. Thus, the student may choose between two plans. The M.A. student may design his/her program in consultation with a faculty adviser.

The M.S. program requires that the student complete a twelve-credit concentration in regional development, planning, or cartography. In either program, selected courses in related fields may be applied toward the degree.

All graduate degree programs require a minimum of 30 semester hours of credit for the thesis option or at least thirty-six hours for the non-thesis option. These include three core courses: GE 511, GE 610, and GE 612. Graduate students have the option of incorporating an internship as part of the M.S. program.

Master of Arts and Master of Science in Geometry

I. Core Program (9 s.h.): GE 511, GE 610, and GE 612.

II. Electives and/or Thesis (21-27 s.h.)

- A. The M.A. candidate elects 15 to 20 semester hours in geography and related fields with the thesis (1 to 6 semester hours) and 27 semester hours without the thesis.
- B. The M.S. candidate takes a concentration in regional development, regional planning, and cartography (12 semester hours minimum), elects 3 to 9 semester hours in geography and related fields with thesis (1 to 6 semester hours) and 15 semester hours without thesis. A 6 semester-hour internship may be included.

Course Descriptions

GE 511 Thought and Philosophy in Geography and Planning
3 s.h.

History of the disciplines, great ideas, leading professionals, and unresolved issues are studied.

GE 513 Cartography
3 s.h.

Develops ability to map and diagram human and environmental phenomena. Special maps, charts, and diagrams will be considered as required by students. Recommended for all master's candidates.

GE 514 Map and Photograph Interpretation
3 s.h.

Develops skill in extracting information and synthesizing data from maps and aerial photographs as applied to geologic, land use, economic, and transportation problems.

GE 515 Remote Sensing
3 s.h.

Methods of remote sensing such as thermal sensing, multispectral scanning, satellite imagery, side-looking airborne radar imagery, and additive color analysis and their applications, particularly as applied to geographic and planning problems, are studied.

GE 516 Computer-Assisted Cartography
3 s.h.

Automated cartographic production techniques: the use of cartographic hardware and software, vector and raster representations, databases, the cartographer-machine interface, and designing computer-generated maps. Prerequisite: GE 513 or equivalent.

GE 531 Population Geography
3 s.h.

Spatial variations in numbers, characteristics and dynamics of human population, models, and theoretical constructs relevant to demographic structures and processes are studied.

GE 532 Urban Geography

3 s.h.

Analysis of city types, patterns, and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized.

GE 533 Geography of Transportation and Trade

3 s.h.

Transportation systems and their use: accessibility, circulation, time and distance concepts, and trade patterns. Empirical and theoretical approaches are examined.

GE 534 Political Geography

3 s.h.

Geographic factors and conditions are analyzed as they relate to character and function of states. Political institutions in light of geographic conditions.

GE 540 Conversation: Environmental Analysis

3 s.h.

Problems of exploitation and utilization of regional resources, (e.g., soils, minerals, forests, and wildlife) in relation to population growth and regional planning and development.

GE 560 Introduction to Planning

3 s.h.

Introduction to field planning on city, metropolitan, regional, and county levels. Included are intergovernmental context and legislative basis for planning; the comprehensive plan; plan implementation; and the planning agency.

GE 561 Planning: Basic Studies and Analysis

3 s.h.

Research, analytical design, and plan-making techniques in urban and regional planning. Examines basic items necessary to prepare urban and regional comprehensive plans. Prerequisite: GE 560.

GE 562 Planning: Development of Principles and Theory

3 s.h.

Examines process of city planning during ancient, medieval, Renaissance, and modern periods. A review of early planning in America, as well as present city planning, is included.

GE 563 Planning: Design

3 s.h.

Presents concepts of city, subdivision, and transportation design in relation to topography, natural resources, and other physical elements. Prerequisite: GE 560.

GE 564 Land Use Policy
3 s.h.

Basic concepts of land use policy at the national, regional, county, and local levels are treated. Analysis is made of the various land use policies.

GE 610 Research in Geography and Regional Planning
3 s.h.

Elements and techniques of scientific research, as applied to geographic and planning problems, are studied. A research proposal is developed.

GE 612 Quantitative Techniques in Geography and Planning
3 s.h.

Descriptive and inferential statistical techniques applied to spatial distribution and spatial association of physical and cultural phenomena and testing of spatial theoretical constructs.

GE 617 Field Techniques in Geography and Planning
3 s.h.

Field tools and techniques are evaluated and used in the study of a specific area. Interpretation of spatial patterns of phenomena is emphasized.

GE 620 Spatial Structure of the Economy
3 s.h.

The spatial organization of economic systems is studied. Processes that give rise to these systems and their spatial interdependencies are explored. Topical and regional examples of spatial structure are used as case studies.

GE 622 Industrial Geography
3 s.h.

Spatial aspects of industry are considered. Emphasis is placed on empirical study of patterns of industry and on location theory.

GE 623 Regional Development
3 s.h.

Theory and policy implications of the spatial aspects of development in various regions of underdevelopment.

GE 630 Cultural Development
3 s.h.

Literature and methods of cultural geography. Topics include population, settlements, human ecology, culture areas, and related features.

GE 633 Settlement Geography
3 s.h.

Settlement patterns and processes; origins, diffusion, classification, pioneer, settlement planning, and agricultural colonization.

GE 650 Regional Geography

3 s.h.

Various regions of the world may be dealt with, such as Latin America, Africa, or South Asia, when there is sufficient student demand. Physical, environmental, cultural, and population patterns are considered.

GE 665 Plan Implementation

3 s.h.

Considers zoning, improvement programs, housing codes, building codes, methodology and application of administrative procedures, federal and local urban renewal programs, site selection, and program administration. Prerequisite: GE 560.

GE 581/681 Special Topics

3 s.h.

Topical courses offered on an experimental basis. Check department schedule for these offerings.

GE 670 Professional Problems in Geographic Education

3 s.h.

Classroom problems and discussion centered about new viewpoints in geography. Individual reports, group discussion, and research included.

GE 680 Seminar

3-6 s.h.

Seminars on various topics will be offered occasionally. Topics might be new trends in planning, cartographic theory, or spatial aspects of service industries.

GE 689 Independent Study

1-6 s.h.

Independent research and study under faculty direction. Interested students should apply to director of graduate studies.

GE 850 Thesis

3-6 s.h.

Registration for thesis must be approved by the department's graduate coordinator and chairperson ahead of time.

Geoscience

The Master of Arts degree program in Geology is presently inactive. Graduate-level geoscience courses will continue to be offered for those students who can utilize them as electives in other degree programs or who desire to supplement their undergraduate training.

Course Descriptions

GS 511 Sedimentary Petrology 3 s.h.

Determination and interpretation of grain size parameters; an introduction to clays and clay mineralogy; hand lens and petrographic microscope study of marine phosphorites, carbonates, siliceous sediments, heavy minerals, and sandstones with emphasis on interpreting ancient depositional environments. Prerequisite: GS 321.

GS 512 Stratigraphy 3 s.h.

Study of layered rocks with emphasis on the guiding principles of stratigraphy, the evaluation of unconformities, the principles and problems of correlation, and selected stratigraphy problems. Prerequisite: GS 411.

GS 520 Pennsylvania Geology 3 s.h.

Diversity and abundance of geologic phenomena within the state will be used to apply basic geologic concepts of time, rock types and structures, and geomorphic processes. Extensive field trips will be an integral part.

GS 522 Igneous and Metamorphic Petrology 3 s.h.

Study of rock phyla and their chemical and spatial relationships in the earth. Special attention to the genesis, mineral composition, and classification of rock types. Ecology of igneous, sedimentary, and metamorphic rocks is studied in detail. Prerequisite: GS 321.

GS 524 Glacial Geology 3 s.h.

Study of phenomenon of glaciation, including study of glacial movement and glacial deposits and an investigation of possible causes of glaciation. A working acquaintance with glacial forms is provided by means of field trips to glaciated regions of Northwest Pennsylvania. Prerequisites: GS 121 and GS 131.

GS 526 Structural Field Geology 3 s.h.

Includes techniques of geologic field work, such as measuring sections, use of aerial photographs, and a field project involving compilation of a geologic map, cross sections, and geologic report. Prerequisite: GS 325.

GS 527 Geomorphology 3 s.h.

Landforms and the processes and principles that govern both their origin and their subsequent development. Prerequisite: GS 325.

GS 530 Paleontology

3 s.h.

A morphological study of major invertebrate life forms of geologic past and their distribution in space and time. Prerequisite: GS 131 or BI 120.

GS 535 Economic Geology

3 s.h.

Study of earth's metallic and nonmetallic mineral resources with regard to processes of formation, methods of extraction (mining and drilling methods), methods of treatment, uses, and economic and environmental factors. Prerequisite: GS 321.

GS 536 Geology of the Northern Rockies

3 s.h.

A field study of the major geologic features and relationships involved in the development of the northern Rocky Mountains. National Park and Monument areas of South Dakota, Wyoming, and Montana are included among the areas investigated. Prerequisite: permission of the instructor.

GS 540 Petroleum Geology

3 s.h.

An introduction to the geology of petroleum, its origin, migration, entrapment, and production. The laboratory is designed to provide practical experience in subsurface mapping techniques and the use and evaluation of geophysical logging devices. Prerequisite: minimum twenty credit hours of Geology.

GS 541 The Solar System

3 s.h.

Characteristics and behavior of planets and their satellites, asteroids, meteors, comets, and other phenomena of the solar system. One of the major topics will investigate and criticize several of the theories of origin. Will require some treatment of celestial mechanics.

GS 542 The Sidereal Universe

3 s.h.

Characteristics and classification of the stars, their assemblage groups and galaxies, and their evolution. Techniques of gathering data are examined to gain an understanding of the role of the telescope, spectroscope, and photometer in astronomical research. Lab exercises and night observations are part of the course. Credit will be given only to those for whom the course represents an area of study for which credit has not previously been recorded. Prerequisites: MA 121 and PY 111.

GS 543 Carbonate Geology of Florida

3 s.h.

Two weeks of field study in the Florida Keys. Will be conducted from base camp in Florida Keys and consist of both land and water works as

the different carbonate environments in the Keys, Florida Bay, and the Atlantic reef tract are studied.

GS 550 Operation of the Planetarium

1-2 s.h.

Designed to acquaint student with the operation and use of the Spitz Planetarium. A satisfactory instructional program or show for a public group will demonstrate accomplishment of course objectives. Prerequisite: GS 110 or GS 341 or GS 342.

GS 561 Physical Oceanography

3 s.h.

Introduction to physical, chemical, geological, and biological nature of ocean; topography, submarine geology, and bottom deposits. Prerequisites: PY 111 and MA 121.

GS 562 Marine Geology and Plate Tectonics

3 s.h.

A continuation of physical oceanography. Emphasis upon marine geology, coastal geomorphology, and structure and sedimentary environments of the continental shelf, slope, and ocean basin. Prerequisites: PY 111, PY 112 and Geology courses.

GS 571-572 Meteorology I and II

3-6 s.h.

Basic and advanced consideration of physical processes to the atmosphere. Lectures, readings, term paper, lab. Prerequisite: one year of Physical Science or Physics GS 581.

GS 681 Special Topics

1-3 s.h.

As student demand and circumstances may dictate, special graduate courses may be offered by any member of the geoscience graduate faculty.

GS 614 Carbonate Petrology

3 s.h.

Involves the study of ancient and recent limestones and dolomites. Topics include classification, recognition of constituents of calcareous rock, cementation processes, and diagenesis of calcareous deposits.

GS 619 Crystallography

3 s.h.

Designed for the geologist, chemist, or physicist. Minerals are studied utilizing common field and x-ray notation. External and internal morphology is examined. Stereographic projection techniques are applied. Prerequisites: Fundamentals of Mathematics plus Mineralogy or Physical Chemistry or permission of instructor.

GS 621 Optical Mineralogy

3 s.h.

Workshop in study and identification of minerals, theory of mineral formation and structure, and mineral relationships. Simple chemical and physical techniques will be used in mineral identification. Prerequisite: Physical Geology or General Chemistry.

GS 630 Paleocology

3 s.h.

Application of paleontologic, sedimentologic, and geochemical approaches to the interpretation of ancient environments. Field and laboratory research leading to term paper. Prerequisite: GS 330.

GS 699 Independent Study

1-3 s.h.

Independent research under faculty direction.

Health and Physical Education

Admission to the Master of Science program in Sports Sciences is currently suspended. Individual course descriptions are included in this catalog for students who are already admitted and are completing this degree.

Course Descriptions

HP 510 Exercise Prescription

3 s.h.

The course is designed to teach individuals to write exercise prescriptions based upon a subject's tolerance for physical activity. Special emphasis will be given to risk factors, techniques of evaluation, drugs, injuries, environmental factors, and motivation with respect to their role in physical activity assessment. In-depth experiences working with qualified medical personnel will be provided. Prerequisite: HP 343.

HP 512 Physical Activity and Stress Management

3 s.h.

Acquisition of necessary understandings of anxiety and stress with respect to the nature, the place they hold in our society, and the intervention strategies related to physical activity. A paper relating the utilization of these techniques is required.

HP 513 Physical Activity and Aging

3 s.h.

The goals of the course are to present the major aspects of physical activity, its importance to the older adult, and the organization of an activity program. Specific attention will be given to the physiology of activity, effects of activity on growth and aging, exercise prescription, flexibility, overweight and obesity, and motivational strategies. A paper is

required that deals with analysis of problems of the aged as observed from visitations to nursing homes, senior citizens' organizations, and social service agencies.

HP 550 Curriculum and Programming in Sexuality Education

3 s.h.

Designed to provide and share information that will be helpful to current and future school personnel in developing sexuality education programs in their schools and local communities.

HP 600 History of Philosophy of Sport

3 s.h.

A functional approach to an understanding of sport and human movement during the course of civilization with emphasis on formation of a constructive philosophical approach to present-day problems.

HP 601 Sport and Society

3 s.h.

Designed to acquaint the student with the reciprocal relationships between sport and physical activity as it affects man's development in the societies and cultures out of which sport emerges.

HP 602 Sport Psychology

3 s.h.

Study of the psychological effects and implications of man's participation in sport and physical activity. Emphasis on personality and motivational dynamics as they relate to sport involvement in human behavior.

HP 603 Physiological Basis of Sport

3 s.h.

An examination of the physiological factors that influence performance in sport with emphasis on the analysis of various training techniques.

HP 631 Motor Learning

3 s.h.

Psychological principles of learning are applied to the learning of motor skills. Focuses on integration of the learning process, the individuality of the learner, and task and instructional procedures.

HP 632 Assessment of Human Physiological Functions

3 s.h.

Study of various physical fitness components and their contribution to a person's well-being and how to measure and evaluate physical fitness.

HP 633 Kinesiological Principles

3 s.h.

Scientific study of human motion with particular attention to analysis of sport techniques and discussion of kinesiological concepts.

HP 634 Current Literature in Sport

3 s.h.

Review of current literature in physical education and sport. Requires the submission of an article for publication.

HP 635 Sport Management

3 s.h.

Theory and practice of human management with applications to sport; formal structure of organizations, goal setting, organizational personality, group processes, and leadership styles.

HP 637 Sport Facilities Management

3 s.h.

An administrative and management course designed to prepare sport managers to develop and operate competitive, recreational, instructional, therapeutic, and multifaceted sport complexes. Course work includes planning, design, construction, budgeting, programming, staffing, equipping, administration, maintenance, safety, and rehabilitation. Three lecture hours.

HP 641 Administration of Aquatic Facilities

3 s.h.

Examines the organizational procedures, administrative techniques, and practices employed in aquatics with special emphasis on adapted, competitive, instructional, recreational, social, and water safety programs.

HP 642 Design and Operation of Aquatic Facilities

3 s.h.

Elements and principles of planning, design, and operation of swimming pools, waterfront facilities, and related equipment necessary for the aquatic administrator.

HP 680 Seminar

3 s.h.

Specific subjects will be considered through readings, reports, discussions, and guest presenters. A paper will be required. A specific title will be listed in the schedule of classes. May be repeated.

HP 698 Internship

3-6 s.h.

Prospectus must be presented by student. Objective is to provide an in-depth experience in an area of interest to the student under the guidance of a faculty member and a cooperating supervisor. Prerequisite: faculty approval.

HP 699 Independent Study

1-3 s.h.

Students may study intensively a subject of their interest under the guidance of a faculty member with the appropriate expertise. Prospectus must be presented by the student. Prerequisite: approval of faculty member, department chairperson, college dean, and associate provost.

HP 850 Thesis

3-6 s.h.

History

A minimum of 30 semester hours is required, or 36 semester hours for those electing not to write a thesis. Within these general requirements is a 9-semester-hour research requirement consisting of HI 614 (or a substitution approved by the department) and a combination of seminars and/or thesis hours. The remaining hours are selected from the subject matter courses. Six semester hours may, with approval, be from related disciplines. Failure to consult the department prior to registering for courses may delay the completion of a master's degree.

Course Descriptions

HI 501 History of Ancient Greece

3 s.h.

Will analyze major political, social, economic, and cultural developments in ancient Greek civilization from the Bronze Age to the death of Alexander.

HI 502 History of Ancient Rome

3 s.h.

Will trace Roman history from early Republic to fall of Empire. A study of a civilization from its inception to its collapse.

HI 503 Medieval Europe I, 400-900

3 s.h.

History of early Medieval Europe, from decline of Rome to beginnings of High Middle Ages; emphasis on political, social, economic, religious, and intellectual developments.

HI 504 Medieval Europe II, 900-1350

3 s.h.

History of late Medieval Europe, from High Middle Ages to Renaissance period; emphasis on political, social, economic, religious, and intellectual developments.

HI 505 Renaissance and Reformation

3 s.h.

History of Europe from ca. 1250; rise of commercial city, kings, and pressures on the Christian Church to 1600. Some consideration of technology and voyages.

HI 506 Early Modern Europe

3 s.h.

Greatness of France under Louis XIV; Sweden; Thirty Years' War; emergence of modern society; French Revolution.

HI 507 History of Europe, 1815-1914

3 s.h.

Study of Europe in nineteenth century, with emphasis on the emergence of major thought patterns, Romanticism, Socialism, and Positivism.

HI 508 Twentieth-Century Europe

3 s.h.

Political, economic, and diplomatic trends of Europe since 1900, with major emphasis on causes and results of war and search for security.

HI 520 History of England to 1688

3 s.h.

Survey of growth of English nation, with emphasis on political, social, and economic developments leading to seventeenth-century conflict between Crown and Parliament.

HI 521 History of England, 1688-Present

3 s.h.

Survey of growth of England as a democratic constitutional monarchy. Attention directed to colonial America and English-U.S. relations, as well as to imperial expansion and England's role in the twentieth-century world. Cultural history is included.

HI 522 French Revolution and Napoleon

3 s.h.

Development of the Grand Monarchy, brief sketch of Old Regime, concentration on the Revolution and Empire, with emphasis on politics, diplomacy, and economics. Readings and brief papers.

HI 524 History of Germany to 1848

3 s.h.

Study of evolution of German nation from its prehistoric origins, emphasizing medieval and early modern phases to 1848.

HI 525 History of Germany, 1849-Present

3 s.h.

Study of development of modern Germany from the Revolution to 1848, including imperial, republican, and totalitarian phases, to postwar formation of East and West Germany.

HI 526 History of Russia

3 s.h.

General survey of Russian history, culture, and institutions. Special consideration given to study of historical forces formative of revolution in 1917.

HI 527 History of Soviet Russia

3 s.h.

General survey of contemporary Soviet history, culture, and institutions. Special emphasis given to study of communist theory and its place in current Russian historiography.

HI 530 History of Islamic Civilization

3 s.h.

An approach to learning about non-Western culture; Mohammed, Arabs, Muslims as creators to a great civilization from the rise of Islam to 1800; emphasis on cultural institutions and their interrelationships within the Middle East.

HI 531 Modern Middle East

3 s.h.

Survey of changes that have taken place in the Middle East and in Islam since eighteenth century and of contemporary problems in that region.

HI 540 Colonial America

3 s.h.

Survey of original thirteen states from their inception within the British Empire to 1763, the eve of independence. Attention given to their political development, economic position within the empire, relations with Indians, and evolution of their social, educational, and religious lives.

HI 541 The American Revolution

3 s.h.

Study of United States history from beginnings of revolutionary crisis in 1763 through adoption of the Constitution and the administration of John Adams. Special emphasis is given to the causes and civil war aspects of the revolution and the constitutional-political development of the new nation.

HI 542 The Early Republic

3 s.h.

Survey of United States history from 1783 to 1850, with special attention on constitutional, political, and social trends.

HI 543 Civil War and Reconstruction

3 s.h.

Study of failure of American democracy to cope with issues of mid-nineteenth century, followed by political, economic, military, and social developments during war and reconciliation of North and South.

HI 545 The Age of Ragtime: American History, 1900-1929

3 s.h.

Using the nation's cultural development as its thematic foundation, this course analyzes the transitional character of the Progressive Era, World War I, and the 1920s.

HI 546 Recent United States History

3 s.h.

Study of political, economic, and cultural changes in American life since 1929; examines roots of social problems facing us today. Some recent foreign policy trends also studied.

HI 550 History of Latin America: Colonial Period, 1450-1820
3 s.h.

Study of life of people, Indian cultures, conquest by Spaniards and Portuguese, government during Colonial Period, and Wars of Independence.

HI 551 History of Latin America: National Period, 1820-Present
3 s.h.

Study of history of nations which have emerged since independence; emphasis on economic, political, cultural, and social developments of these nations, as well as relations of these nations to others in the hemisphere.

HI 560 History of Pennsylvania
3 s.h.

Emphasizes the cultural, economic, political, and social development of our state in various periods from colonial to today. Special attention given to diversity of Pennsylvania's people and their institutions and problems.

HI 561 History of American Diplomacy, 1775-1900
3 s.h.

Traces foreign relations of United States from independence to emergence as a world power. Topics concentrate on themes of commercial relations, political isolation, expansion, and debate over imperialism.

HI 562 History of American Diplomacy, 1900-Present
3 s.h.

Treats primarily our twentieth-century involvement of U.S. in world affairs and domestic debate over that involvement. Special emphasis will be placed on the role of interest groups and increasing power of Executive Department over foreign affairs.

HI 563 Thought and Culture in Early America
3 s.h.

Selected topics in early American intellectual and cultural growth, with emphasis on Puritanism, Enlightenment, Cultural Nationalism, and Romantic Movement.

HI 564 Thought and Culture in Modern America
3 s.h.

Selected treatment of historical development of modern American movements in social and political thought, religion, philosophy, fine arts, and literature.

HI 565 History of Black America Since Emancipation
3 s.h.

Description and analysis of role of blacks in history of the United States since the Civil War; emphasis on key leaders, major organizations, leading movements, and crucial ideologies of blacks in modern America.

HI 567 Economic History of United States

3 s.h.

Historical development of economic institutions in American life since independence; emphasis on farming, labor, transportation, banking, and manufacturing.

HI 569 Women in History

3 s.h.

Surveys of religious, legal, political, social, and popular culture perspectives of womanhood in America from colonial times to present.

HI 572 History of the Early American Working Class

3 s.h.

Description and analysis of nature and significance of the U.S. working class in eighteenth and nineteenth centuries. Work settings and communities of workers will be examined as well as unions such as the National Labor Union and Knights of Labor.

HI 573 History of the Modern American Working Class

3 s.h.

Description and analysis of the nature and significance of the U.S. working class in the twentieth century. Work settings and strikes will be examined and analyzed as well as unions such as the United Mine Workers and United Auto Workers and leaders including Samuel Gompers, John L. Lewis, and George Meany.

HI 581 Special Topics in History

3 s.h.

Each semester courses are offered in interest areas which are not part of the regular course offerings.

HI 591 Film as Cultural, Intellectual, and Social History

3 s.h.

This course deals with the cinema as social, cultural, and intellectual history from its origins to the present day.

HI 592 Crimes and Punishments in History

3 s.h.

Explores how historical methodology is applied to crimes; how the historical settings have influenced the commission of crimes, as well as the nature and extent of punishment for crimes on individual, societal, and governmental levels.

SS 599 Contemporary Europe

3 s.h.

A study/tour program in Europe, commonly of three weeks' duration each summer. Itinerary varies but normally includes the cities of London, Paris, Florence, and Rome and the countries of Austria and Switzerland. Program atmosphere is informal and always fun and tiring (lots of walking). Informal lectures on site, guided tours. Academic work includes reading before departure and keeping a daily log.

HI 600 Readings in History

3-6 s.h.

Directed readings of historical materials, focused on a general topic.

HI 601 History Seminar

3-6 s.h.

Area research, culminating in a formal paper.

HI 614 Research Methods

3 s.h.

Investigation of library systems, reference works, bibliographies, how to compile a bibliography, organizing research, use of statistics, style systems in printing.

HI 698 History Internship

1-6 s.h.

With departmental approval, students are attached to local or national government or private agencies doing directive, bibliography, archival, or museum work. Advising professor meets with intern regularly and determines what papers or reports will be required.

HI 699 Independent Study

3 s.h.

Student selects topic for individual study with an instructor.

HI 850 Thesis

3-6 s.h.

Home Economics Education

The program leading to the M.Ed. degree in Home Economics has been placed on inactive status. No applications are being accepted for this program. Individual course descriptions are included in this catalog for students who are already admitted and are completing this degree.

Course Descriptions

HE 533 Tour in Home Economics

1-6 s.h.

Aspects of home economics are studied in relation to the culture of areas toured. Consult brochures, summer sessions schedules, or chairperson for special offerings.

HE 675 Special Problems in Home Economics

3 s.h.

Specific problems with curriculum, teaching, learning experiences, and evaluation of a subject matter area are stressed. Each student will research a special problem or area of interest.

HE 698 Internship

1-6 s.h.

Supervised work experience for majors.

HE 677 Seminar in Home Economics

1-3 s.h.

Seminars in selected topics.

HE 697 Workshop in Home Economics

1-6 s.h.

Provides opportunities for experienced educational personnel to concentrate their study on common professional problems.

HE 699 Independent Study in Home Economics

1-6 s.h.

Student will pursue an independent study in area of home economics not previously studied and for which the student and adviser identify a need.

Human Development and the Family

HE 517 Infant Development

3 s.h.

Study of characteristic developmental changes of human infants from birth to approximately two and one-half years.

HE 526 Techniques of Parent Education

3 s.h.

Focuses on scope and aims of parent education movement. Methods of helping families become more effective in their parent-child relationships are examined.

HE 527 Administration of Child Development Centers

3 s.h.

Development of competencies needed to administer child care programs. Focuses on program philosophy, curriculum materials, parent and community involvement, staff selection and training, admissions and grouping, proposal writing, budgeting and finance, government regulations, reporting, and record-keeping.

HE 556 Independent Living for Individuals With Special Needs

3 s.h.

Home management and work simplification techniques for individuals with special needs. Includes adaptations and modifications for housing, clothing, foods, child care, and consumer problems of handicapped individuals.

HE 620 Problems in Family Living

3 s.h.

Emphasis is placed on solving problems created by social change. New knowledge from science, medicine, sociology, economics, art, and

psychology is utilized to improve family living. Problems concerned with food, clothing, shelter, management, and family relationships are investigated.

HE 621 Field Work in Family Life or Human Development

3 s.h.

Designed to study individual and family interaction. Methods of working with various types of families through an analysis of research, scientific literature, and community programs are studied. Advanced graduate students plan and participate in laboratory-type work with individual families. Prerequisite: permission of instructor for nonmajors.

Education

HE 555 Home Economics Programs for Individuals with Special Needs

3 s.h.

Application of vocational regulations and public laws in relation to individuals with special needs in home economics programs. Planning, methods, strategies, and resources for individuals with special needs in home economics programs in school and nonschool settings.

HE 670 Home Economics in American Education

3 s.h.

Present status of home economics is reviewed in terms of profession's history and philosophy. Role and contribution of home economics at the elementary, secondary, and postsecondary levels are reviewed and evaluated; trends and issues are investigated.

HE 671 Home Economics in Higher Education

3 s.h.

Contemporary programs at the college level are evaluated in terms of major issues, trends, and problems in higher education. Emphasis is placed on problems of curriculum development, effective teaching, guidance, and evaluation in professional home economics.

HE 672 Evaluation in Home Economics

3 s.h.

Evaluative methods and techniques designed to measure a comprehensive range of home economics educational objectives are studied. Special attention to use and construction of teacher-made tests and evaluative devices.

HE 673 Supervision and Administration in Home Economics

3 s.h.

Deals with principles, methods, and techniques of supervision in home economics. Special attention is given to basic concepts in supervision such as human relations, communication process, decision making, and leadership strategies.

HE 674 Advanced Methods of Teaching Home Economics

3 s.h.

Various models of classroom teaching are studied with emphasis on procedure, equipment, and materials used in the improvement of instruction. Implications of current trends and issues relevant to classroom education are discussed.

HE 676 Curriculum Development in Home Economics

3 s.h.

Special attention is focused on realistic curriculum decisions and using innovative procedures.

HE 690 Research in Home Economics

3 s.h.

Methodology is introduced and studied in terms of research problems. Reports by home economics, behavioral science, and education researchers are analyzed and evaluated. Designed to assist the student in defining a thesis. Student should complete HE 676 before scheduling this course.

Industrial and Labor Relations

The Master of Arts in Industrial and Labor Relations is a multidisciplinary graduate degree program designed to prepare professional practitioners in the field of industrial and labor relations in public and private management, unions, government agencies, and neutral and service organizations. The 42-semester-hour program consists of a required core of 27 semester hours and elective course offerings totaling 15 semester hours.

In consultation with the adviser, each student will individually build the elective sequence of the program of study by choosing 15 elective semester hours from among industrial and labor relations courses and courses approved by the adviser offered by other departments.

Students are strongly encouraged to elect an internship to integrate theory and practice in the field. Certain students with exceptional background in relevant work experience or previous course work may qualify for exemption from some courses. As part of their professional growth, students may also participate in the research and training activities of the Pennsylvania Center for the Study of Labor Relations.

Course Requirements for the M.A. Degree

- I. Required Core: 27 semester hours in LR 610, LR 611, LR 612, LR 613, LR 615, LR 619, LR 625, LR 641, and EC 530 (or approved substitute).
- II. Elective Area: 15 semester hours chosen from other elective courses in industrial and labor relations or from related departments with the approval of student's adviser.

Course Descriptions

LR 526 Case Studies in Labor-Management Relations

3 s.h.

Study of labor-management relationships in a variety of organizational settings through utilization of the case study technique.

LR 557 Labor and Business in Politics

3 s.h.

Analysis of labor and business involvement in politics with special attention to the involvement of labor and business in Pennsylvania and national politics.

LR 581 Special Topics in Industrial and Labor Relations

3 s.h.

According to student demand, special graduate course on selected topics.

LR 610 Employee Rights Under Law

3 s.h.

A review of the legislated rights and benefits of employees in terms of their impact on labor and management in the collective bargaining process.

LR 611 Development and Theories of the Labor Movement

3 s.h.

Institutional and theoretical overview of the development of the American labor movement with special emphasis on major labor movement theorists. (Alternative: HI 566)

LR 612 Labor Relations Practice and Administration

3 s.h.

Practice and administration of labor relations focusing on the operation and internal relationships of the individuals involved and upon the application of labor relations skills.

LR 613 Fundamentals of American Industrial and Labor Relations

3 s.h.

Introduction to terms, theories, and practice of industrial and labor relations in the United States.

LR 615 Dispute Settlement

3 s.h.

Review of the theories underlying and legislation supporting labor arbitration, emphasizing development of advocacy skills through simulations of actual disputes. Prerequisite: LR 613.

LR 618 Seminar: Current Issues in Industrial and Labor Relations

3 s.h.

Detailed examination of current professional issues in the field.

LR 619 Research Methods in Industrial and Labor Relations
3 s.h.

Nature of and major outlets for contemporary research in labor relations, as well as the historical development of research in the field. Elements of statistics and quantitative interpretations are introduced.

LR 620 Internship
3 s.h.

Field experience in industrial and labor relations. An internship log and term paper are required.

LR 621 Labor Relations in the Public Sector
3 s.h.

Developments in federal, state, and local labor relations including: presidential orders and federal agencies; survey of the states; Pennsylvania Acts 111 and 195; effects of public sector fact-finding and arbitration.

LR 622 Discrimination in Employment
3 s.h.

Investigation of employment discrimination in the United States with special attention to the roles of government, industry, and labor and the impact of federal intervention since 1960.

LR 623 Structure and Government of Unions
3 s.h.

The union examined as an institution, with focus on its organizational structure; administration; relationships with the employer, its members, and its state and national affiliates. Particular unions will be chosen for case study.

LR 624 Comparative Labor Relations
3 s.h.

International dimensions of labor relations are explored by examining the labor-management relations in a foreign country or region. Prerequisite: LR 613.

LR 625 Processes of Collective Bargaining
3 s.h.

Survey of current laws, principles, and procedures in use in modern collective bargaining and evolving trends.

LR 631 Human Resources Management in the Public Sector
3 s.h.

Human resource management systems with a special examination of public sector organizations.

LR 632 Compensation and Benefit Administration
3 s.h.

Study of the field of compensation management and benefits administration in the public and private sectors. Special emphasis on the input of collective bargaining in the development and administration of compensa-

tion and benefit systems and the necessary skills to function as a professional in the field.

LR 640 Negotiations

3 s.h.

A course on negotiations theory and practice which applies negotiations strategies from a variety of fields in hands-on simulations of collective bargaining in labor relations. Prerequisite: LR 613.

LR 641 Contract Administration

3 s.h.

Analysis of the practices and responsibilities of labor and management in the mutual performance of a collective bargaining agreement with primary attention given to the process of grievance resolution. Prerequisite: LR 613.

LR 642 Concerted Activity

3 s.h.

Examines the various strategies and tactics that are available to the parties in confrontational situations. Emphasizes the statutory limitations set forth in the Labor Management Relations Act relating to topics such as picketing, consumer appeals, and boycotts.

LR 650 Alternative Work Styles

3 s.h.

Review of efforts to increase worker participation in certain levels of managerial decision making in private and public production or service enterprise, through shares in ownership, seats on boards, quality circles, and other participative structures. Results will be considered from the point of view of productivity, worker satisfaction, and social utility. Prerequisite: LR 613.

LR 651 Conflict Resolution

3 s.h.

An applied course focusing on the resolution of conflict between groups by a third party. Specifically examined are the techniques of negotiation, mediation, and conciliation. Simulation and role play are utilized as well as readings in theory and case study.

LR 681 Special Topics in Industrial and Labor Relations

3 s.h.

According to student demand, special graduate courses on selected topics.

LR 699 Independent Study

3 s.h.

Students will select one or more topics of critical importance in industrial and labor relations and will meet with faculty for independent reading, analysis, and evaluation. Prerequisites: approval of department chairperson, college dean, and provost.

LR 850 Thesis
3 s.h.

For students writing the thesis, LR 850 should be scheduled for the semester in which they plan to complete their work. The thesis may be a noncommittee thesis (1 to 3 semester hours), with one faculty member serving as the student's adviser, or a committee thesis (1 to 6 semester hours).

Mathematics

The Mathematics Department offers the Master of Science degree, the Master of Education degree with a major in mathematics, and the Master of Education in Elementary and Middle School Mathematics Education.

The Master of Science degree program in Mathematics is designed for those students who plan to pursue careers in business, industry, and government. It emphasizes applied mathematics in the areas of operations research and statistics so that its graduates are highly marketable in either business or government. Course requirements are flexible enough and course offerings are timely enough to allow appropriate choices for persons preparing for employment or already employed in areas of applied mathematics, for students who will pursue further graduate work in mathematics, and even for those who are engaged in mathematics education at the secondary or postsecondary levels. The option of either writing a thesis or participating in an internship is designed to fit the needs of the individual graduate student.

The Master of Education with a major in mathematics is specifically designed for secondary mathematics teachers; its purpose is to provide an opportunity for students to increase their knowledge of mathematics and to become aware of research and innovations in mathematics education.

The program leading to a Master of Education degree in Elementary and Middle School Mathematics Education is designed to give elementary school and middle school educators both depth and breadth in the mathematical content and pedagogy essential for providing leadership in contemporary school mathematics programs.

Each graduate student will be assigned an academic adviser to aid in selecting the most appropriate program. Approval of the adviser is required for all courses leading to the master's degree.

Master of Science in Mathematics

One of the following options is to be selected:

1. a minimum of 30 hours of graduate work, which includes a 3-hour committee supervised thesis or

2. a minimum of 33 hours of graduate work, which includes a 6-hour internship.

In either option, fifty percent of the credit hours must come from 600-level (or higher) courses.

Unless comparable courses have been taken at the undergraduate level, the following requisite courses must be completed: MA 525, MA 545, MA 546, MA 563, and MA 564.

In addition, at least five of the following courses must be taken, four of which must come from 600 level: MA 547, MA 571, MA 641, MA 643, MA 645, MA 661, MA 663, MA 665, MA 684, MA 685, and MA 688.

Other graduate level mathematics courses may be selected with the approval of the student's adviser. Also, with the adviser's approval, up to 6 hours of graduate work in other disciplines such as Chemistry, Computer Science, Economics, Finance/MIS, and Physics may be taken.

Course Descriptions

MA 518 Sampling Survey Theory and its Applications

3 s.h.

Directed to the student who is or will be doing quantitative research, commissioning large-scale surveys, and evaluating the results. Sampling techniques and statistical principles underlying their use will be introduced. Consideration will be given to the practical problems associated with implementation. Prerequisite: (for non-Math majors) MA 214, MA 216, MA 217, or GR 516.

MA 521-522 Advanced Calculus I, II

3,3 s.h.

A rigorous investigation of continuity, differentiation, and integration on real p -dimensional space. The Riemann-Stieltjes integral, infinite series, and infinite series of functions are also studied. Prerequisite: permission of the adviser.

MA 523 Complex Variables I

3 s.h.

Introduces fundamental concepts of complex analysis and includes the following topics: complex numbers, functions, sequences, analytic functions, elementary functions, complex integration, power series, Laurent series, singular points, calculus of residues, infinite product and partial fraction expansion, conformal mapping, and analytic continuation. Prerequisite: permission of the adviser.

MA 525 Applied Mathematical Analysis I

3 s.h.

This course provides the necessary background for an understanding of mathematical programming, proofs of convergence of algorithms, con-

vexity, and factorable functions. It also develops necessary concepts in matrix theory which are required to develop efficient algorithms to solve linear and nonlinear programming models. Prerequisite: Calculus sequence, introductory linear algebra, or permission of the instructor.

MA 527 Topology

3 s.h.

Basic topological concepts, including some topological invariant relationships between topology and other disciplines of mathematics, are discussed. Prerequisites: Differential and Integral Calculus.

MA 545 Programming Models in Operations Research

3 s.h.

Development of deterministic mathematical models for managerial and social sciences with relevant computational techniques. Three hours' lecture per week. Prerequisites: two semesters of calculus.

MA 546 Probabilistic Models in Operations Research

3 s.h.

Development of probabilistic mathematical models for managerial and social sciences with relevant computational techniques. Three hours' lecture per week. Prerequisites: two semesters of calculus, MA 563 or equivalent.

MA 547 Simulation Models

3 s.h.

This course considers the types of models that are basic to any simulation and methods for building and using such models. It includes discrete and continuous system simulations, their applications, and an introduction to SLAM II (Simulation Language for Alternative Modeling). Prerequisites: completion of the calculus sequence, background in statistics and probability, and familiarity with concepts of programming (knowledge of a particular programming language not required).

MA 553 Theory of Numbers

3 s.h.

Elementary properties of divisibility, congruences, Chinese remainder theories, primitive roots and indices, quadratic reciprocity, diophantine equations, and number theoretic functions. Prerequisites: Differential and Integral Calculus.

MA 563 Mathematical Statistics I

3 s.h.

Probability theory necessary for an understanding of mathematical statistics is developed; applications of the theory are given, with emphasis on binomial, Poisson, and normal distributions. Sampling distributions and the central limit theorem are developed. Prerequisites: Differential and Integral Calculus.

MA 564 Mathematical Statistics II

3 s.h.

Multivariate distributions, properties of the moment generating function, change of variable technique. Chi-square distribution, estimation, confidence intervals, testing hypotheses, contingency tables, goodness of fit. Many practical applications. Use of calculating machines and computers where appropriate. Prerequisite: MA 563.

MA 565 Topics in Statistics

3 s.h.

Correlation and regression from applied and theoretical points of view, bivariate normal distribution, small sample theory. Student's t and F distributions, analysis of variance, nonparametric methods. Many practical applications. Calculating machines and computers used as appropriate. Prerequisite: MA 564.

MA 571 Linear Algebra

3 s.h.

Theory of vector spaces and linear transformations, applications to linear equations, determinants, and characteristic roots are studied.

MA 576-577 Abstract Algebra I, II

3,3 s.h.

Basic algebra structures such as groups, rings, integral domains, and fields. Designed to develop ability to construct formal proofs and work within an abstract axiomatic system. Polynomial rings, factorization, and field extension leading up to Galois theory.

MA 581-583 Topics Seminars in Mathematics

3 s.h.

Special topics going beyond the scope of regularly offered courses. Offered per student interest/available staff. Students may take more than one topic seminar with approval of adviser. Prerequisite: consent of instructor.

MA 600 Methods of Research in Mathematics

3 s.h.

Review of literature and recent research in mathematics. Emphasis on use of periodicals, other library resources. Each student completes an independent study of an approved topic, including a written report.

MA 631 Foundations of Mathematics I

3 s.h.

Designed to acquaint students with logical techniques used in proof and set theory. Topics include symbolic logic, rules of inference, validity of arguments, algebra of sets, cardinal numbers, the well-ordering property, and the Axiom of Choice.

MA 64I Differential Equations

3 s.h.

Special solvable nonlinear equations with solutions based on operator

techniques, Laplace transform, or infinite series. Applications to physical problems. Three hours' lecture per week. Prerequisite: Differential and Integral Calculus.

MA 643 Graphs, Networks, and Combinatorics
3 s.h.

This course presents a study of arrangements and counting through the use of classical and analytical techniques. Properties of arrangement and measure of graphs are also examined. Emphasis is on computation and application. Prerequisites: Calculus sequence.

MA 645 Nonlinear Programming Models
3 s.h.

This course examines algorithms for solving nonlinear programming (optimization) models. It is also concerned with the theory of nonlinear optimization and with the characteristics of optimal points. Optimization models of real-world problems which can be solved by nonlinear programming methodology are also presented. Prerequisites: MA 525 and MA 545 or equivalent courses.

MA 650 History of Mathematics
3 s.h.

People and ideas that have shaped the course of events in mathematics. Major attention given to developing activities for secondary school mathematics classroom which incorporate the historical viewpoint.

MA 651 Seminar in Teaching Junior High School Mathematics
3 s.h.

Explores problems of teaching mathematics at junior high level. Emphasis on a discovery, lab-oriented approach to teaching. Prerequisite: permission of instructor.

MA 652 Seminar in Teaching Senior High School Mathematics
3 s.h.

National and international forces shaping today's mathematics programs, curriculum development and research, art of generating interest, formation of concepts, proof, problem solving, generalization, and evaluation. Special attention to teaching topics from algebra and calculus and modern approaches to teaching geometry and trigonometry. Prerequisite: permission of instructor.

MA 654 Curriculum and Supervision in Mathematics
3 s.h.

Basic principles underlying effective mathematics curriculum from both a theoretical and experimental viewpoint. Investigates supervisor's role as source of stimulation, leadership, and expertise in teaching mathematics.

MA 655 Projective Geometry

3 s.h.

Introduces Klein's formulation of geometry of the invariant theory of a given set under a given group of transformations and develops projective spaces of one and two dimensions and conics and quadratic forms. Prerequisites: undergraduate courses in linear algebra and geometry.

MA 656 Affine Geometry

3 s.h.

Examines affine and metric geometries based on axiom system stated in terms of linear algebra, which leads to important theorems of classical geometry. Prerequisites: undergraduate courses in linear algebra and geometry.

MA 661 Advanced Sampling Theory

3 s.h.

Sampling techniques and the statistical principles underlying their use are introduced along with some of the more difficult nonsampling problems that arise in the design and implementation of large scale sample surveys. Topics include simple random sampling, stratified random sampling, systematic sampling, cluster sampling, ratio estimation, use of supplementary information, sampling from wildlife populations, and sample size determination. Computer software will be used to facilitate arithmetic calculations. Prerequisite: MA 564 or consent of the instructor.

MA 663 Nonparametric Statistics

3 s.h.

This course examines statistical procedures valid under unrestrictive assumptions, scales of measurement, efficiency comparisons, signed rank procedures, two-sample rank tests, zero ties, order statistics, k-sample procedures, nonparametric measure of correlation. Prerequisite: MA 564 or consent of the instructor.

MA 665 Applied Regression Analysis

3 s.h.

Regression analysis and its interfaces with multivariate methods are presented in this course. The student is introduced to least squares, a matrix approach to linear regression, an examination of residuals, dummy variables, the polynomial model, best regression equations, multiple regression and mathematical model building, and multiple regression applied to analysis of variance and covariance. Computer programs for multivariate analysis will be used. Prerequisites: Introductory Linear Algebra and MA 564 or consent of the instructor.

MA 681-683 Special Topics in Mathematics

3 s.h.

Special topics in graduate mathematics beyond the scope of regularly offered graduate classes. Offered as student interest and available staff permit. With approval of the adviser more than one special topics class may be taken. Prerequisite: consent of the instructor.

MA 684 Topics in Operations Research
3 s.h.

Special topics in operations research beyond the scope of regularly offered graduate courses. Offered as student interest and available staff permit. Prerequisite: consent of the instructor.

MA 685 Topics in Statistical Methods
3 s.h.

This variable content course is designed for the student who has knowledge of basic statistical principles including analysis of variance and covariance, regression,, and nonparametric statistics. Advanced, innovative, or exploratory topics in applied statistics will be introduced. Content will vary according to the interests of the instructor and students. Prerequisites: MA 661, MA 663, and MA 665.

MA 668 Problems in Applied Mathematics
3 s.h.

The purpose of this course is to involve the students in the solution of the mathematical problems which arise in real-world applications or to present topics which apply mathematics to real-world situations. Prerequisites: MA 525, MA 564, MA 545, MA 546, and permission of the instructor.

MA 698 Internship
1-6 s.h.

Positions with participating companies or agencies provide students with experience in mathematics-related work under the supervision of agencies and faculty.

MA 699 Independent Study in Mathematics
3 s.h.

Under the guidance of faculty member, a student may study some area of mathematics not included in the regular courses.

MA 850 Thesis
3 s.h.

Master of Education in Mathematics

A minimum of 30 semester hours must be completed by each candidate for the Master of Education degree, and the following requirements must be satisfied:

1. One course (3 semester hours) from FE 514, FE 611, FE 612, FE 613.
2. One course (3 semester hours) from EP 604, EP 573, EP 576, EP 578, CE 629, CE 639, EX 631.
3. GR 615, Elements of Research (3 semester hours).
4. Six semester hours from MA 650, MA 651, MA 652, MA 654. With special permission from the adviser, EM 651, EM 652 or EM 653 are acceptable for fulfillment of this requirement.

5. A minimum of 15 s.h. of mathematics content courses. MA 521 and MA 576 are required unless comparable courses have been completed at the undergraduate level.

For descriptions of FE courses, see section on Foundations of Education; for EP courses, see Educational Psychology; for CE courses, Counselor Education; for EX courses, Special Education; for EM courses, Mathematics for Elementary and Middle School Teachers; and for GR courses, see entry under General Service Courses.

Master of Education in Elementary and Middle School Mathematics Education

An integral part of the program will be to familiarize the students with recent developments in curriculum, instruction, and implementation of contemporary mathematics programs in elementary and middle schools. Upon completion of the program, the student will be prepared to serve as a resource teacher, mathematics teacher in a departmentalized situation, coordinator, or in other leadership roles in an elementary or middle school mathematics program. For teachers in public schools, the program meets the credit requirements for Instructional Level II certification. It does not provide 7-12 certification for those who hold a K-6 Level I certificate.

Students have three options for the completion of the program leading to a Master of Education Degree in Elementary and Middle School Mathematics Education.

- Option 1 Primarily designed for those who wish to pursue a degree after the master's degree. The requirements are 27 hours of course work and a three-hour committee thesis.
- Option 2 Primarily designed for those who will take a leadership role in the school. The requirements are 30 hours of course work and written comprehensive examination.
- Option 3 Primarily designed for the classroom teacher who wishes to update skills. The requirements are 36 hours of course work with no thesis or comprehensive examination required.

All students must satisfy the following course requirements.

I. Professional Development

9 to 12 semester hours required from EM 650 and EP 604.

The remaining 3 to 6 semester hours are to be chosen from the graduate course offerings of the Department of Professional Studies in Education and the Department of Special Education and Clinical Services. Students should consult their adviser concerning prerequisites and appropriateness before scheduling these courses.

II. Educational Research

3 semester hours GR 615

III. Curriculum and Instruction in Mathematics Education

6 to 9 semester hours required from EM 651, EM 652, EM 653, EM 654, EM 698, EM 699, and EM 850

IV. Subject Matter Concentration Area

9 to 18 semester hours required from EM 517, EM 520, EM 550, EM 556, EM 557, EM 558, EM 559, EM 571, EM 601, EM 602, EM 603, and EM 681.

Option 1: 9 to 12 semester hours

Option 2: 9 to 12 semester hours

Option 3: 15 to 18 semester hours

Subject Matter Concentration Areas will generally be chosen from those having the "EM" department label. Other courses may be substituted (such as MA 654) only if approved by the student's adviser.

Students will declare which option they are choosing when they are accepted in the program. In unusual circumstances (to be determined by the student's adviser and the Elementary Mathematics Graduate Program Committee), the student may petition the committee to change options.

Internship Program

IUP in cooperation with a selected school system offers a graduate-level internship program leading to the Master of Education Degree in Elementary and Middle School Mathematics Education. This program is intended to provide a limited number of well-qualified graduate students with teaching experience in a compensatory K-8 mathematics program while completing the requirements for the Master of Education Degree Program.

All interns will enroll in EM 698—Supervised Internship—and may earn 3 hours for professional work experiences that they perform in a cooperating school district. Credits earned for EM 698 will be counted as part of the curriculum and instruction component of the degree program.

Course Descriptions

MA 517 Introduction to Probability and Statistics

3 s.h.

Introduces students to elementary concepts of probability which will enable them to analyze data, make predictions, and determine what concepts may be used with children. Prerequisite: MA 152 or equivalent.

MA 520 Pre-Calculus Mathematics I

3 s.h.

Examines the function concept as applied to elementary real-number functions and graphing techniques for these functions. Topics include real-number functions such as absolute value, step, linear quadratic and other

polynomial functions, trigonometric and other periodic functions, exponential logarithmic functions, and all other inverse functions. Students will examine curricular materials that develop function concepts in grades K-8. Prerequisite: MA 152 or equivalent.

MA 550 Mathematics for Early Childhood

3 s.h.

Study of child-centered, activity-oriented, mathematics program for early childhood education. Students gather and construct manipulative materials and become familiar with commercially produced materials. Prenumbered activities, number activities, numeration, operations on whole numbers, fractional numbers, geometry, measurement, problem solving, study of related research. Prerequisite: MA 152 or equivalent.

EM 556 Principles of Geometry I

3 s.h.

Students become acquainted with an informal, intuitive approach to geometry. Activities and materials for teaching geometrical concepts to children are an integral part of the course. Prerequisite: MA 152 or equivalent.

EM 557 Introduction to Number Theory

3 s.h.

Introduction to topics in elementary number theory, including basic operations and properties of integers; divisibility properties of integers; modular arithmetic and congruences; diophantine equations; interesting relationships among numbers; applications of number theory in elementary school mathematics. Prerequisite: MA 152 or equivalent.

EM 558 Introduction to Logic and Logical Games

3 s.h.

Introduction to some basic ideas, terminology, and notation of logic. Topics considered: symbolic logic, with special emphasis on algebra of propositions; applications of Boolean algebra, such as algebra of sets and switching circuits; and introduction to quantification theory and its value in determining validity of mathematical arguments, inference schemes, and logical puzzles and a consideration of other topics in logic suitable for a K-8 mathematics curriculum. Prerequisite: MA 152 or equivalent.

EM 559 Computer-Related Topics in the Elementary and Middle School

3 s.h.

This course is intended to provide teachers with the concepts and techniques necessary to teach computer-related topics to children in the elementary and middle schools. Prerequisite: MA 152 or equivalent or consent of instructor.

EM 571 Basic Concepts of Algebra

3 s.h.

Concepts of basic algebraic structure such as group, ring, integral domain, field, and vector space are studied within the context of the mathe-

mathematical maturity of the student. Other topics include relations and functions, systems of equations, and inequalities. Consideration given to development of these concepts in the mathematics curriculum. Prerequisite: MA 152 or equivalent.

EM 581 Special Topics

3 s.h.

Special Topics which go beyond the scope of regular offered courses. Offered on basis of student interest and available staff. The student may take more than one Special Topics offering with the written approval of the adviser. Prerequisite: MA 152 or equivalent.

EM 601 Basic Concepts in Mathematics I

3 s.h.

For students who have not taken MA 151 or an equivalent course as undergraduates. Will give good understanding of development and structure of systems of numeration up to and including the set of real numbers.

EM 602 Basic Concepts in Mathematics II

3 s.h.

For students who, as undergraduates, have not taken MA 152 or an equivalent course. Will give a basic understanding of algebraic properties of different mathematical systems and help students to understand how properties of systems are interrelated. Prerequisite: EM 601 or equivalent.

EM 603 Teaching the Metric System

3 s.h.

A course designed for elementary and/or middle school teachers that will thoroughly acquaint them with the SI Metric System as the general public will use it and provide an opportunity to investigate and create activities suitable for their students. Secondary teachers familiar with the SI System or with methods of teaching the system will find this course very beneficial also. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 650 Curriculum and Instruction in Elementary School Mathematics

3 s.h.

The design of this course is to familiarize the elementary/middle school teacher with the philosophical and psychological issues that guide the development of mathematics curriculums. Topics include a history of the development of mathematics curriculum; innovative curriculums that have had impact on teaching and learning; ways of implementing a contemporary program; and criteria for textbook selection. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 651 The Laboratory Approach to Teaching Mathematics

3 s.h.

Development of the lab approach to the teaching of mathematics. Includes both an intensive study of techniques, organization and supervision

of laboratory activities, and the practical design, construction, and implementation of materials. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 652 Diagnosis and Remedial Teaching of Mathematics
3 s.h.

Examines why some children have difficulty in learning mathematical concepts and presents tools and techniques for diagnosing and remediating common difficulties in elementary and middle school mathematics. Course valuable for those teaching in elementary, middle school, or remedial programs. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 653 Mathematics for the Gifted Student
3 s.h.

The course will examine different approaches for mathematically gifted students. As a result, the students will become familiar with resources and elementary programs designed for use in either regular classrooms or special classes for the gifted. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 654 Teaching Problem Solving in the Elementary and Middle School
3 s.h.

This course is intended to teach teachers how to become better problem solvers and teaches problem-solving techniques appropriate for grades K-8. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 681 Special Topics
3 s.h.

Special topics which go beyond the scope of regular offered courses. Offered on basis of student interest and available staff. The student may take more than one Special Topics offering with the written approval of the adviser. Prerequisite: methods course in teaching mathematics or consent of instructor.

EM 698 Supervised Internship
3 s.h.

A professional work experience in a cooperating school district under the supervision of designated public school personnel, subject to review and evaluations by a university faculty member. Registration by permission only.

EM 699 Elementary Math—Independent Study
1-6 s.h.

Under the guidance of a faculty member, a student may study some area of mathematics or mathematics education not covered in the regular courses.

EM 850 Thesis
3 s.h.

Music

The Department of Music offers a Master of Arts in Music with a choice of concentration in one of the following areas: History and Literature, Theory, Performance, and Music Education.

The graduate program in music provides the student with opportunities to improve his/her skills as teacher, performer, or scholar beyond the bachelor's degree. Upon acceptance by the Graduate School, each student consults the director of Graduate Studies in Music who will help to plan the sequence of courses and who will be responsible for the formation of the thesis or recital committee.

Admission: Undergraduate degree with major in music or its demonstrated equivalent is required. Placement examinations will be required in theory, music history, piano proficiency, and principal performing medium. The adviser will use the results of the examinations to prescribe specific electives. Upon completion of course work, each student will schedule a comprehensive oral examination with a faculty committee.

Master of Arts in Music

Core Courses: MU 600, MU 516 (MU 618 if concentration is IV) and MU 632 (9 semester hours).

Major Concentration:

- I. Music History and Literature—Courses (four) are selected from the following: MU 503, MU 504, MU 505, MU 507, MU 508, MU 510, MU 618 (12 semester hours).
- II. Music Theory and Concentration—Courses (four) are selected from the following: MU 511, MU 512, MU 513, MU 514, MU 515, MU 618 (12 semester hours).
- III. Music Performance—Applied music courses in the major performance area AM 610-771 (12 semester hours).
- IV. Music Education—MU 619 and MU 620 are required; with recital or thesis, two or three additional courses are selected; without recital or thesis, up to four additional courses are selected from the following: MU 501, MU 502, MU 535, MU 628, MU 629, MU 631, MU 633, MU 634, MU 635, MU 636, MU 537, MU 540-550 (10 to 14 semester hours).

Elective Courses:

If major concentration is I, II, III, courses totaling 6 semester hours are selected according to student's needs and interests.

If major concentration is IV, select a music theory or history course (3 semester hours) and applied music study in the student's major or minor performance area (4 semester hours).

Thesis or Recital

MU 850 Thesis — if major concentration is I or II	3-4 s.h.
(Optional if major concentration is IV)	2-4 s.h.
GR 851 Recital — if major concentration is III 4 s.h.	
(Optional if major concentration is IV)	2-4 s.h.

For description of GR courses, see entry under “General Service Courses.”

Course Descriptions

MU 501 Advanced Choral Conducting
2 s.h.

Material will include large choral works with and without accompaniment. Student will be expected to develop skills in reading score.

MU 502 Advanced Instrumental Conducting
2 s.h.

An intensive study of large instrumental works. Skill development of each individual will be stressed.

MU 503 Music of the Baroque Era
3 s.h.

A survey of music from about 1600 to 1750.

MU 504 Music of the Classical Era
3 s.h.

A survey of music from about 1725 to about 1827.

MU 505 Music of the Romantic Era
3 s.h.

A survey of music from about 1800 to 1910.

MU 506 Voice Pedagogy
3 s.h.

Techniques in teaching voice.

MU 507 Music of the Twentieth Century
3 s.h.

A survey of the principal stylistic trends in music from 1900 to the present.

MU 508 Music of the Sixteenth Century
3 s.h.

A survey of music from about 1500 to 1600.

MU 509 Piano Pedagogy

3 s.h.

Survey of current and significant past developments in teaching of piano, both privately and in small and large classes. The various piano methods are analyzed, compared, criticized, and adapted to each individual's use.

MU 510 Seminar in Music

Subject matter will change each semester. Students will make presentations and write an extensive research paper. Seminar may be repeated (with departmental approval), provided subject matter is not. An in-depth study can be made of narrowly defined areas, such as life and/or works of a specific composer or group of composers.

MU 511 Composition

3 s.h.

Composition of music in various song forms through the rondos and the larger sonata allegro form. Careful analysis of similar forms of major composers. Instruction will be highly individualized and will depend considerably on personal interest of the student.

MU 512 Advanced Orchestration

3 s.h.

Consideration to problems of scoring for full symphony orchestra, string orchestra, and chamber orchestra. Students will produce a full score and orchestra parts so that orchestra may be tested by actual playing by the University Symphony.

MU 513 Advanced Band Scoring

3 s.h.

Problems of scoring for modern concert band. In addition, problems of scoring for brass band, woodwind choir, and percussion ensemble will be considered.

MU 514 Advanced Choral Arranging

2 s.h.

Four-part writing course. Five-, six-, seven-, and eight-part writing will constitute large part of the course. Special consideration will be given to problem of writing for men's and women's voices.

MU 515 Canon, Double Counterpoint, and Fugue

3 s.h.

Application of contrapuntal techniques, through analysis and creative writing. Included will be study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues.

MU 516 Analytical Techniques

3 s.h.

Study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. Student will develop basic analytical techniques necessary for analysis of music of any period.

MU 535 Music for the Exceptional Student

3 s.h.

Develops music education skills, techniques, and materials for the mentally, physically, or neurologically handicapped student and the gifted student. Designed for majors in music education, special education, or elementary education.

MU 637 Techniques of the Marching Band

2 s.h.

Theory and practical application of fundamentals of precision drill. This course also deals with building "half-time shows" and with materials and instrumentation of the marching band.

MU 540-550 Summer Music Workshop

1-3 s.h.

Concentration in special interest areas. Content varies.

MU 551 Italian/English Diction

2 s.h.

MU 553 French Diction

2 s.h.

MU 554 German Diction

2 s.h.

MU 600 Bibliography of Music

3 s.h.

Introduces graduate students to various types of music, music literature, and bibliographical tools which exist and which may be used in research in music. As a project, students will prepare an extensive annotated bibliography of a music subject within their special interest.

MU 618 Comprehensive Musicianship

3 s.h.

Combines undergraduate concepts and skills in music theory, literature, and performance at an advanced level using an integrated approach. Prepares student to function in a variety of musical roles.

MU 619 Methods for Comprehensive Musicianship

3 s.h.

Includes learning strategies, experiences, and activities appropriate for introducing comprehensive musicianship at elementary and secondary school levels.

MU 620 Foundations of Music Education

3 s.h.

Study of historical, philosophical, and social foundation of music education, including educational thought and implications for school music programs.

MU 622 Composition II

3 s.h.

MU 623 Composition III

3 s.h.

MU 628 Contemporary International Approaches to Elementary Education
2 s.h.

An introduction to new developments in elementary music education practices passed on techniques originated by Carl Orff in Germany, Zoltan Kodaly in Hungary, and Shinichi Suzuki in Japan. Authentic adaptations of music and materials in lecture, demonstration, and workshop situations.

MU 629 Advanced String Pedagogy

2 s.h.

Study of specific techniques and problems of teaching violin, viola, cello, and double bass in both individual and class situations.

MU 631 Administrative Problems in Music Education

2 s.h.

Review of conventional administrative organization of music education in public schools. Role of music director, music specialist, consultant, and music resources teacher will be carefully defined. Consideration of problems of scheduling in public school. Current issues concerned with music education and public education in general will be considered, including curriculum development.

MU 632 Research Techniques in Music

2 s.h.

Study of techniques appropriate for music and music education, including selection of research problem, collection of data, types of research, survey of current research studies in music, and use of library in connection with research problems. Elements of statistics are introduced as needed to interpret research reports. As part of requirements, student will prepare a written plan for research project or thesis.

MU 633 Comparative Choral Methods

2 s.h.

Materials and procedures of preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention to program building.

MU 634 Practicum in Instrumental Music

2 s.h.

Consideration of those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and critically analyzed by the class. Rehearsal techniques, efficient use of time, and basic motivation will be stressed.

MU 635 Psychology of Music Education

2 s.h.

An analysis of latest evidence produced by field of psychology in music education as applied in actual classroom situations.

MU 636 Advanced Technology of Music Education

2 s.h.

Examination and application of modern communications media and their role in music education. Development of an experimental sound lab and use of electronic devices, synthesizers, and computers. Application of systems approach and programmed learning to music education.

MU 699 Independent Study in Music

1-6 s.h.

MU 850 Thesis

2-4 s.h.

Applied Music (AM 601-771)

1-4 s.h.

The following courses will be taught in form of private lessons geared to individual student and aiming at maximum progress of each student, depending on background of the student and time available. The student should for any series of lessons use the first number in programming for the first time, the second number for the second time, etc.

- AM 601, 651, 701, 751 Private Piano
- AM 602, 652, 702, 752 Private Organ
- AM 603, 653, 703, 753 Private Harpsichord
- AM 605, 655, 705, 755 Private Voice
- AM 606, 656, 705, 756 Private Violin
- AM 607, 657, 707, 757 Private Viola
- AM 608, 658, 708, 758 Private Cello
- AM 609, 659, 709, 759 Private Bass Viol
- AM 610, 660, 710, 760 Private Flute
- AM 612, 662, 712, 762 Private Oboe
- AM 613, 663, 713, 763 Private Bassoon
- AM 614, 664, 714, 764 Private Saxophone
- AM 615, 665, 715, 765 Private Trumpet
- AM 616, 666, 716, 766 Private French Horn
- AM 617, 667, 717, 767 Private Trombone
- AM 618, 668, 718, 768 Private Baritone Horn
- AM 619, 669, 719, 769 Private Tuba
- AM 620, 670, 720, 770 Private Percussion
- AM 621, 671, 721, 771 Private Guitar

Nursing

The Master of Science degree in Nursing is designed to prepare the graduate for the role of nurse educator or nurse administrator and serves as a foundation for doctoral study. The nurse educator is prepared for a career in a nursing education program or a nursing staff development setting or as a patient educator. The nurse administrator is prepared for management positions in a variety of health care settings.

On completion of the degree the student is prepared to

- synthesize advanced knowledge and theories to support competent practice in nursing education or nursing administration
- provide leadership which influences nursing practice and contributes to the advancement of the nursing profession
- use advanced research knowledge and skills in the identification and resolution of nursing problems

The Adult Health Clinical Component is required of all students. It is designed as an adjunct to the study in leadership, nursing education, and nursing administration. The clinical component builds on the knowledge and skills of baccalaureate nursing education and provides for the attainment of advanced knowledge and related theories in nursing and their application to advanced practice. A variety of primary, secondary, and tertiary health care settings in a wide geographical area are utilized for clinical practice sites.

This forty-five credit program requires completion of twenty-four credits in a core of leadership courses which includes an emphasis in research, nine credits in Adult Health Nursing, and twelve credits in either the nursing education or nursing administration track. Thesis and non-thesis options are available. As a culminating activity, the student is required to pass a written comprehensive examination which requires the student to analyze and synthesize theory, concepts, and methodologies learned over the period of study for the degree.

Course Descriptions

NU 615 Advanced Nursing Research
3 s.h.

An exploration of various research methodologies and techniques will be the focus of this course. The students will be encouraged to develop a spirit of inquiry in response to nursing problems. Emphasis on the application and critique of selected research. Development of a research proposal will be a requirement. Prerequisite: GR 516.

NU 617 Issues in Health Care
3 s.h.

Study of the ethical, legal, and political dimensions of health care. Current social issues are addressed as they pertain to professional nurses and their constituency. Field trips are included.

NU 618 Professional Role Development

3 s.h.

Advancement of the discipline through the study of nursing history and trends. Analysis of the current and changing roles of the nurse. Individual career planning.

NU 619 Leadership Strategies in Nursing

3 s.h.

Characteristics and qualities of leadership in professional nursing. Effective leadership strategies for the nurse educator, administrator, and practitioner.

NU 620 Theoretical Foundation for Nursing

3 s.h.

Contemporary theories of nursing, concept formulation, fundamental theory development, application to nursing practice, and social and political issues.

NU 621 Nursing Inquiry

3 s.h.

A research course. Emphasis is placed on various strategies for data collection and analysis. Students will complete a research project investigating a nursing problem. Required course for all students electing a non-thesis option. Prerequisites: GR 516 and NU 615.

NU 640 Dynamics of Health in the Adult

3 s.h.

Study of factors which affect the health of adults. Emphasis on normal development, physiological and psychosocial changes as the adult moves through the life span.

NU 641 Nursing Management of Adults Under Stress

3 s.h.

Nursing interventions for adults with common health stressors. Focus on the most common health problems of our population. Clinical/laboratory component provides opportunity to develop advanced assessment and interview skills. Additional requirements: professional liability insurance, CPR certification, health screening. Prerequisite: NU 640.

NU 724 Curriculum Development for Nursing Programs

3 s.h.

Development of curriculum philosophy, conceptual framework, objectives, and course content essential to undergraduate education in nursing. Overview of curriculum philosophies. Prerequisites: NU 615 and NU 620.

NU 725 Teaching Strategies for Nursing Curricula

3 s.h.

Theories of learning, instructional modalities, teaching strategies, and methods of evaluation as pertaining to nursing education in the classroom setting. Prerequisites: NU 620 and NU 724.

NU 726 Clinical Instruction in Nursing
3 s.h.

Design of clinical instruction for nurses. Instructional modalities, teaching strategies, and methods of performance evaluation as they pertain to nursing education in various clinical and laboratory settings. Prerequisites: NU 620 and NU 724.

NU 727 Principles of Nursing Management
3 s.h.

Conceptual base for nursing management roles within health care organizations. Examination of the administrative role by relating behavioral sciences and organizational and administrative theories to the delivery of nursing services. Focus on the management process as well as on issues and trends that impact on nursing management. Prerequisites: NU 620 and MG 613.

NU 728 Administration of Nursing Services
3 s.h.

Administrative role of the nurse executive is examined. Content focuses on evaluation and quality control within the nursing division, organizational and division finances, as well as current issues and problems of concern to nurse administrators. Prerequisites: NU 620, NU 727, and MG 613.

NU 740 Administration Practicum
3 s.h.

Development of the role as a nurse administrator with guidance of the nursing faculty and a mentor in a nursing administrative position. Contact hours with the mentor and weekly conferences are designed to help the student synthesize previous course material in relation to the nurse administrator. Additional requirements: professional liability insurance, CPR certification, and health screening. Prerequisites: MG 613, NU 620, NU 727, and NU 728.

NU 741 Education Practicum
3 s.h.

Development of role as a nurse educator with the guidance of the nursing faculty and a mentor in a nursing education setting. Contact hours with the mentor and the weekly conferences are designed to help the student synthesize and apply previous course material. Additional requirements: professional liability insurance, CPR certification, and health screening. Prerequisites: NU 620, NU 724, NU 725, and NU 726.

NU 742 Adult Health Nursing Practicum
3 s.h.

Continued development of advanced clinical practice in adult health nursing. Clinical experience and conferences provide opportunity for synthesis of knowledge and skills necessary for advanced nursing practice in primary, secondary, and tertiary health care settings. Special emphasis on the nurse's role as coordinator of care. Additional requirements: profes-

sional liability insurance, CPR certification, and health screening. Prerequisites: NU 640 and NU 641.

NU 850 Thesis

3-6 s.h.

Thesis should be scheduled for the semester in which the student plans to complete degree requirements. A committee of faculty members will provide thesis supervision.

NU 699 Independent Study

3 s.h.

Under the guidance of a faculty member with necessary expertise, the student may study in depth some aspect of nursing or health care not included in required courses.

Philosophy and Religious Studies

The Philosophy and Religious Studies Department does not presently offer a graduate degree in either area. However, graduate students in other disciplines and public school teachers will find courses which relate directly to their fields on a theoretical level. And, in some cases, philosophy courses are accepted as electives in graduate programs in other disciplines (see adviser for further information). Research or thesis work may be done in philosophy or religious studies with approval of the student's major program adviser.

Course Descriptions

PH 505 Justice and Human Rights

3 s.h.

An analysis of a concept which is the focus of much moral, political, and legal dispute. Philosophical sources are supplemented by recent social science research concerning the comparative abilities of human and non-human animals and by environmental studies which prompt consideration of the possible rights of future generations.

PH 560 Philosophy of Language

3 s.h.

An investigation in the philosophy of language and related issues in linguistics (including anthropological linguistics, sociolinguistics, and psycholinguistics). Sample topics include the influence of language on perception, rationalistic/empiricist perspectives on language acquisition, language and political control, reference, meaning, and truth.

RS 580 Readings in Religious Thoughts

3 s.h.

An examination of religion as a vital human phenomenon. Treats both classical and contemporary themes, origin of Western theological

thinking, alienation, contemporary atheism, definitions of deity in Western and Eastern religions, the sacred, and origins of religion.

PH/RS 581 Special Topics
3 s.h.

PH 582 Problems of Ethics
3 s.h.

An investigation into the nature of morality by focusing on influential historical and contemporary ethical theories and issues.

PH 583 American Philosophical Thought
3 s.h.

Study of influential and original philosophies developed in America from colonial period to present. Topics include the American Enlightenment, Transcendentalism, Evolution, Idealism, Pragmatism, and Naturalism.

PH/RS 584 Philosophy/Religious Studies Seminar
3 s.h.

Area research in the discipline, considering various facets of a central problem. Students doing a thesis or research project in philosophy or religious studies will register for this course.

PH 585 Problems in Logic
3 s.h.

An investigation into issues in deductive and/or inductive logic, fallacy analysis, and the nature of critical thinking.

PH/RS 599 Independent Study
1-6 s.h.

Physics

The Department of Physics offers two graduate degrees at the master's level: the Master of Science and the Master of Arts. The Master of Science degree program is designed for students who plan to pursue further graduate work or to undertake research in an industrial position. The degree is research oriented, and a thesis is required. The Master of Arts program will generally be selected by students who wish to strengthen their physics background in preparation for more advanced graduate study or to fulfill teaching certification requirements. This program emphasizes course work, and a thesis is optional.

Because of the wide range of possible courses, students are required to have the consent of their graduate advisers before selecting a course. An adviser is assigned to students as soon as they are accepted into the degree program.

Master of Arts in Physics

This program is the more flexible of the two graduate degree programs offered by the Department of Physics. Each student's program is designed to meet his or her individual needs by the student and adviser working together.

The educational goals of students in many categories can be met while they are working to attain their degree. Several examples of the category of student who may select this degree program are

1. The student whose undergraduate training is in Physics Education or Physical Science Education, or Science Education with a strong professional education component. This student may need more content than professional education. In this program, the student may, with the concurrence of his or her adviser, enroll in exactly that ratio of content courses to professional education courses which is necessary to attain his or her goals.
2. The student who holds a teaching certificate in a field other than physics but is a secondary school physics teacher. These students often require formal course work in a number of areas of physics in order to have physics added to their certificates. This is normally a requirement of their school district and/or the commonwealth. This program allows students to meet this requirement while working toward a degree.
3. The student who wishes to enroll in a cooperative program, including those programs with internship components. Students may earn 8 to 15 semester hours during a semester while interning under one of the special programs instituted by the university.

Subject Matter — Fifteen semester hours minimum

Required course work in Physics is to be selected from the graduate physics courses with course numbers of 510 or greater. This selection must have the *prior* approval of the student's academic adviser, and a notation of such approval is to appear in the student's folder.

Electives — Eleven to eighteen semester hours

The student may complete the requirements for an M.A. by selecting, with the approval of his or her adviser, from among the offerings of the Graduate School. The number of credits selected for electives depends upon the option exercised under Research and Thesis.

Research and Thesis Option

Each Master of Arts student must complete degree requirements in one of the following two ways:

- A. Undertake an individual research problem and complete an acceptable thesis. For this option, the student must schedule PY 600 for 2 semester hours and PY 850 for at least 2 semester

hours. If the student selects this option, he or she will have completed a minimum of 30 semester hours including these two courses for the degree.

- B. Decide, with the approval of his or her academic adviser, that a research problem not be undertaken. If this option is exercised, the student will not do a thesis but must complete a minimum of 33 semester hours of course work.

Master of Science in Physics

I. Admission Requirements

Applicants must have a B.S. or B.A. degree with a major in Physics and meet the requirements of the Graduate School and the Department of Physics. Applicants having other degrees that provide sufficient preparation in physics and mathematics will also be considered for admission.

II. Subject Matter Concentration

The following courses (or their equivalent as approved by the Graduate Committee) are required of students pursuing the M.S. degree: PY 601, PY 641, PY 651, PY 661, and PY 634.

III. Research Requirement

Each Master of Science student is required to undertake an individual research problem and to complete an acceptable thesis under the supervision of one of the faculty members eligible to teach graduate courses. The student is expected to choose a research adviser by the beginning of the second semester in attendance and to submit a written thesis proposal to his or her Thesis Committee for approval by the end of the second semester. The Thesis Committee will be selected by the student in conjunction with his or her research adviser.

IV. Comprehensive Examination

The student must pass a comprehensive examination.

V. Free Electives

The student may complete the 30-hour requirement by choosing from among the offerings of the Graduate School, with the advice and approval of the student's graduate adviser.

Course Descriptions

PY 507 Introduction to Mathematical Physics I 3 s.h.

Designed to provide background needed for most 500-level courses. Student will acquire skills in problem solving in areas of mechanics and wave motion utilizing calculus and vectors. Prerequisite: permission of adviser.

PY 508 Introduction to Mathematical Physics II

3 s.h.

A continuation of PY 507. Develops skills in problem solving in areas of electricity and magnetism utilizing vectors and calculus. Prerequisite: permission of adviser.

PY 510 Introduction to Theoretical Physics

3 s.h.

Application of mathematical methods to physical theory in area of mechanics, electricity, and magnetism, including partial differentials, vector calculus, and non-Cartesian coordinate systems. Prerequisite: permission of adviser.

PY 511 Secondary School Physics Laboratory Practice

1-3 s.h.

Designed not only to give the student training in use of PSSC and Harvard Project Physics laboratory materials but also to increase his/her ability to make the lab a more effective teaching tool.

PY 512 Curriculum Development in Secondary School Physics

3 s.h.

Includes an intensive study of developments, such as PSSC and HPP. Philosophy, methodology, and cognitive theory behind each curriculum will be considered. The lab equipment, experiments, and visual aids for each will be studied in their proper setting.

PY 520 Advanced Laboratory Practice

3 s.h.

Experimental Physics. Experiments are made available to supplement student's previous training. Data interpretation and experimental techniques are emphasized. Topics can include but are not limited to various methods of measurement and analysis of radioactivity, interferometry, spectrometry, microwave optics, NMR, mechanical vibrating systems, and thermal properties.

PY 531 Modern Physics

3 s.h.

An introduction to particle and wave properties of matter, atomic structure, quantum mechanics, and the quantum mechanical model of the atom.

PY 533 Thermal and Statistical Physics

3 s.h.

A unified approach to the study of thermodynamics through use of statistical methods. Temperature, entropy, chemical potential, and free energy are introduced and applied to a monatomic ideal gas and systems of fermions and bosons in quantum and classical regions.

PY 535 Electronics

4 s.h.

DC and AC circuits, diode circuits, and transistor circuits, such as the common emitter and emitter follower amplifiers, are extensively covered. Negative feedback, operational amplifiers, oscillators, and digital logic are introduced. These topics are discussed in lecture and investigated by the student in the lab.

PY 536 Advanced Electronics

3 s.h.

Field effect transistors, noise problems, grounding and shielding, applications of digital logic, digital-to-analog-to-digital conversion techniques, transmission lines, and microprocessor applications. Two 1-hour lectures and one 3-hour lab. Prerequisite: PY 535.

PY 541 Analytical Mechanics I

2 s.h.

Kinematics, particle dynamics, gravitation, free and forced harmonic motion. Treatment of these topics utilizes vector calculus and differential and integral calculus.

PY 542 Analytical Mechanics II

2 s.h.

Central-force motion, high energy collisions.

PY 545 Optics

3 s.h.

Main concepts of modern optics utilized in areas of geometrical, wave and quantum optics. Includes presentation of illustrative examples in areas of laser technology, complex optical systems, interferometry, and spectroscopy.

PY 551 Electricity and Magnetism I

2 s.h.

Coulomb's law, electrostatic potential, Gauss's law, and dielectrics will be presented using vector calculus in a modern field formalism. Prerequisite: PY 510.

PY 552 Electricity and Magnetism II

2 s.h.

Biot and Savart's law, induced emf, vector potential, displacement current, special relativity, and electromagnetic radiation will be presented using techniques introduced in PY 551. Prerequisite: PY 551.

PY 561 Quantum Mechanics I

3 s.h.

Introduction to theory of linear vector spaces, linear operators, eigenvalues, eigenvectors and eigenfunction and their application to the harmonic oscillator, hydrogen atom, electron in a magnetic field, scattering, and perturbations. Prerequisites: PY 541 and PY 531 or equivalent.

PY 565 Introduction to Nuclear Physics

3 s.h.

Survey of introductory nuclear physics including nuclear size, mass, types of decay, models, forces, elementary particles, reaction theory.

PY 590 Solid State Physics

3 s.h.

Reciprocal lattice, crystal structure, the quantization of fields to produce quasiparticles such as phonons, magnons, and excitons. Fermi gas of electrons, energy bands, semiconductor crystals, and photo-conductivity. Prerequisites: PY 531 and 542.

PY 599 Special Studies

1-6 s.h.

A special topic may be offered at the discretion of the department to fulfill a special necessity.

PY 600 Methods of Research in Physics

2 s.h.

Offers the student practical training in special methods and materials of research in physics. Emphasis on types of research, use of physics and physics-related journals and library facilities. Prerequisite: permission of department.

PY 601 Theoretical Physics I

3 s.h.

Serves as a preparation in mathematical physics for graduate student. Included will be vector analysis, curvilinear coordinate systems, infinite series, complex variables and the calculus of residues, and ordinary and particle differential equations. Prerequisite: permission of department.

PY 602 Theoretical Physics II

3 s.h.

A continuation of PY 601, covering Tensor analysis, matrices, group theory, Sturm-Liouville theory, special functions, Fourier series, integral transforms, Green's functions, and integral equations. Prerequisite: PY 601.

PY 634 Statistical Mechanics

3 s.h.

A quantum approach to statistical mechanics. Fermi, Bose, ideal gas and imperfect gas systems are investigated. Special topics in kinetic theory of gases, transport phenomena, magnetic systems, and liquid helium. Co-requisite: PY 561 or its equivalent.

PY 641 Advanced Mechanics I

3 s.h.

Includes the following topics: Lagrange's equations, Hamilton's Principle. Two-body central force, Euler's Theorem, small oscillations, Hamilton's equations, canonical transformations. Prerequisite: PY 542 or its equivalent.

PY 642 Advanced Mechanics II

3 s.h.

Rigid body mechanics, including angular momentum, Euler's equations, precessions, special relativity, covariant four-dimensional formulation, Hamilton-Jacoby Theory, introduction to classical field theory.

Prerequisite: PY 641 or equivalent.

PY 651 Advanced Electromagnetic Theory I

3 s.h.

Solution of boundary value problems using Green's functions and separation of variables techniques. Cartesian and spherical coordinate systems, multipole expansions, macroscopic electrostatics and magneto-statics, Maxwell's equations, and plane electromagnetic waves.

Prerequisite: PY 552 or equivalent.

PY 652 Advanced Electromagnetic Theory II

3 s.h.

Solution of electrostatic problems using cylindrical coordinates. Green's function for time-dependent wave equation, conservation laws, wave guides and resonant cavities, Special Theory of Relativity, simple radiating systems, and diffraction. Prerequisite: PY 651.

PY 657 Solid State Theory

3 s.h.

Quantum approach to solid state. Topics include second quantization of fermion and boson systems, electron theory of metals, electron-phonon interactions, and superconductivity. Selected subjects in thermal transport, magnetic phenomena. Co-requisite: PY 561 or its equivalent.

PY 661 Quantum Mechanics II

3 s.h.

Fundamental concepts of quantum mechanics, theory of representations, and linear vector spaces. Approximation methods for stationary problems with applications to central potentials and for time-dependent problems with application to scattering and transition theory.

PY 662 Quantum Mechanics III

3 s.h.

Classical and quantum fields; interactions between Fermi and Bose fields; relativistic quantum mechanics; and Dirac theory. Introduction to propagators and Feynman diagrams with application to quantum electrodynamics and many-particle systems.

PY 690 Research Problems in Physics

1-6 s.h.

Introduction to advanced research problems through individual assignment. Prerequisite: permission of department.

PY 699 Independent Study

1-6 s.h.

Individualized in-depth study of an area of physics in the student's interest. Work is supervised by a physics faculty member but does not necessarily involve regular lecture or laboratory hours. The topic must be approved by the supervising faculty member and by the administration prior to the semester in which the course is to be taken.

PY 850 Thesis

1-6 s.h.

Sciences Courses

SC 575 The Growth of Science and Its Concepts I

3 s.h.

Traces the development of concepts of science in Western Civilization from early beginnings to time of Newton. Interaction of science and math and their impact on growing society of Western Civilization is treated in a nonmathematical manner. Three hours' lecture per week.

SC 576 The Growth of Science and Its Concepts II

3 s.h.

Influence and development of concepts of science in Western Civilization are studied from Newton to the present time. While the concurrent development of mathematics is considered, stress is placed on nonmathematical understanding of basic concepts. Three lecture hours per week.

Political Science

The Political Science Department offers the M.A. in Public Affairs degree, with concentrations in Public Administration and International Affairs.

Master of Arts in Public Affairs

The M.A. in Public Affairs program is designed for full-time and part-time students who are seeking or are currently engaged in professional careers as administrators, project directors, staff analysts, and supervisors in government and human service agency delivery systems, trade unions, and interest groups; teachers of the social studies; and those interested in international and comparative studies or in becoming foreign service professionals.

The M.A. in Public Administration requires a *minimum* of thirty to thirty-six graduate credits, including a research or internship requirement. The entering student should have sufficient preparation in the social sciences, or in equivalent professional experiences, necessary for satisfactory performance in the program. In some cases, this may require specific courses not for graduate credit. Preparatory requirements, if any, will be

determined by the Political Science Department and the Graduate School and may be completed after admission to the Graduate School but prior to admission to candidacy for the degree.

Degree Requirements: Student may elect to concentrate in one of two areas: (A) Public Administration (thirty-six* credits) or (B) International Affairs (thirty* credits plus foreign language competence).

- A. Public Administration (thirty-six* credits *minimum*)
 - 1. Research Methods (three to six credits minimum): PS 674 or other research methodology course as approved by the adviser and *GR 516 or 517.
 - 2. Required Core Courses (fifteen hours): **PS 570, **PS 671, PS 666, PS 668, PS 673, or PS 555.
 - 3. Directed Research Option (three to six credits):
 - a. Students must complete an *Internship* (PS 698), including a research project for three to six credits at an internship site appropriate for their specialization. The internship will, when appropriate, be supervised by the student's specialization adviser or department designee.
 - or
 - b. A *Field-Based Research Project*, usually as PS 699, Independent Study, may be substituted for the internship requirement upon prior approval by the department and the M.A. in Public Administration program director. This option is generally not appropriate for the International Affairs Concentration.
 - or
 - c. Students may opt to write a thesis (PS 850). The MAPA Directed-Research Manual may be consulted for requirements pertinent to each of these three options.
 - 4. Specialization (fifteen credits): Students must select one of the following with advice from a subfield concentration adviser: Criminal Justice Management; Planning and Regional Development; Human Services Administration; Public Personnel Administration; Municipal Management. (See M.A. in Public Administration program for current list of required courses and additional options for specialization.)
- B. International Affairs Concentration (thirty-credit minimum)
 - 1. Research Methods (three to six credits): See A1.
 - 2. Required Core Courses (twelve credits): PS 670, PS 672, and two of the following: PS 520, PS 521 and PS 589.
 - 3. Directed Research Option (three to six credits): See A3.
 - 4. Specialization (twelve credits): Students must select a specialization, with advice from a specialization adviser, from international, comparative, and public administration courses in this or other departments such as Comparative Administration, Developing Nations, and International Studies. (See director of M.A. in Public Administration program for current list of specializations and required courses.)
 - 5. Foreign Language Reading Competency, established by examination.

* If a student can demonstrate proficiency in statistics, the hours required to complete the degree will be reduced from thirty-nine to thirty-six or from thirty-three to thirty, depending on which concentration is selected.
** May be waived if taken as an undergraduate, and another course substituted.

Course Descriptions

PS 520 International Law

3 s.h.

Study of the development, nature, and function of international law, including recent trends.

PS 521 International Organizations

3 s.h.

Inquiry into purposes, structures, and actions of contemporary international political organizations, such as United Nations, regional, and functional organizations.

PS 544 Science/Technology and Public Policy

3 s.h.

Focuses on the interactions of science/technology and politics as they impinge on the public decision-making process. Technology-generated socio-political problems are investigated on local, state, national, and international levels; the adequacy of political processes and institutions for solving problems in the technological age is questioned.

PS 550 The Presidency

3 s.h.

Examines the office of President with attention to Constitutional foundations, evolution, structure, powers, and functions. Comparisons are made between Presidential and parliamentary systems and between offices of President and governor.

PS 551 The Legislative Process

3 s.h.

Legislative process in the U.S. with emphasis on Congress. Focus on organization and function of legislative bodies, with American legislative institutions compared with those of other nations.

PS 553 American Political Parties

3 s.h.

Role of people, parties, and pressure groups in politics of American democracy. Attention to sectional and historic roots of national politics, voting behavior, pressure group analysis, and campaign activities.

PS 554 Metropolitan Problems

3 s.h.

Analyzes multiplicity of problems facing our metropolitan areas, such as urban renewal, shrinking tax base, federal aid to cities, subsidized mass transit, municipal authorities, and political consolidation.

PS 555 Intergovernmental Relations

3 s.h.

Explores the characteristics of federal system of government with emphasis on theories, origins, institutions, and problems in intergovernmental relations in the U.S.; federal systems in other nations; and trends.

PS 556 Mass Media in American Politics

3 s.h.

Variant theories of the symbiotic relationship between American politics and the press are examined in the light of American colonial-national experiences. The special Constitutional rights given to media are explored, with particular attention to radio and television.

PS 557 Labor and Business in Politics

3 s.h.

An in-depth study and analysis of labor and business involvement in politics is the focus of the course. Special attention will be given to the involvement of labor and business in Pennsylvania politics as well as to the relationships between the two competing groups—conflict or cooperation.

PS 558 Judicial Process

3 s.h.

Explores nature and limits of judicial power, courts as policymaking bodies, selection of judges, decision process, external forces impinging on the courts, and role of Supreme Court in its relationship with Congress, the Presidency, and federalism.

PS 559 Constitutional Law and Civil Liberties

3 s.h.

Study of civil liberties and civil rights issues through leading Supreme Court decisions. Topics include First Amendment rights, procedural due process, and the Bill of Rights and equal protection problems.

PS 560 Classical Political Thought

3 s.h.

Evolution of Western political tradition of Constitutionalism from Plato and Aristotle to Locke and Montesquieu; religious and rational foundations; medieval theories of authority and representation; early modern theories of state and sovereignty. Concepts of law, natural rights, liberty, equality, and justice are treated in detail.

PS 561 Modern Political Thought

3 s.h.

Development of Western political thought since the mid-sixteenth century; classic liberalism; conservative thought; modern irrational ideologies such as fascism and national socialism; socialist thought; contemporary collectivist liberalism.

PS 562 American Political Thought

3 s.h.

Develops an understanding of American political thinkers from the Puritans through the current Afro-American writers. Political phenomena are examined relating to past writings, and inferences made for future political behavior.

PS 570 Introduction to Public Administration

3 s.h.

Examines the environment of public administration, organizational structure, executive functions, the politics and tools of administration, personnel processes, financial administration, and the problems of democratic control of bureaucracy.

PS 580 Soviet Politics

3 s.h.

Essential features of Communist party and government of U.S.S.R., including geographical and historical background and ideological and theoretical foundations.

PS 581 Special Topics

1-3 s.h.

In-depth study of a specific problem or topic not regularly treated in courses. May be repeated.

PS 582-587 Political Studies

3 s.h.

Comparative study of government and politics of a selected region.

PS 582 Africa

PS 583 Asia

PS 584 Middle East

PS 585 Central and Eastern Europe

PS 587 Latin America

PS 588 Political-Military Strategy

3 s.h.

Deals with national security problems, including decision-making and budgeting levels of strategy, the utility of force, and the impact of the military on American society.

PS 589 Developing Nations

3 s.h.

Deals with the political characteristics of emerging nations; the impact of economic and social change upon political structure; evolving patterns of political development; and techniques of nation-building.

PS 631 Human Resource Management in Public Sector

3 s.h.

In-depth study of human resources management systems with special focus on public sector organizations. Emphasized will be the development of an understanding of traditional functional systems as well as skills necessary to successfully manage such systems.

PS 666 Public Policy Analysis

3 s.h.

Examines public policy using analytical tools and policy models. Considered within this framework are values and resources, the cultural-political environment, the policy-making process, and evaluation methods and their application to major policy areas.

PS 668 Public Sector Financial Administration

3 s.h.

Concerned with the administration of fiscal and monetary processes of government on all three levels. Included are topics related to revenue and expenditure, how the former are calculated and provided for, and how the latter are prioritized and allocated via the budgetary process; control systems which are concerned with recordkeeping and the monitoring of the flow of revenues.

PS 670 Foreign Policy Studies

3 s.h.

Considers selected problems in international affairs. Emphasis on those problems and conflicts which have evolved in the postwar era, particularly as they related to position of the United States in world affairs. Specific problems are approached both in terms of countries involved and the existing balance in world economic, ideological, and power structure.

PS 671 Seminar in Public Administration

3 s.h.

Intensive study of role of agencies and their administrators in determining and developing public policy. Public administration in practice is emphasized by utilizing case studies.

PS 672 Comparative Political Studies

3 s.h.

Theory, structure, and function of state, county, and municipal governments are analyzed from a cooperative point of view. Special emphasis on comparing and contrasting ideas and institutions with those of the U.S.

PS 673 Regional Public Service Administration in Rural Areas

3 s.h.

Examines structure and function of state, county, and municipal governments. Emphasizes understanding and analysis of service delivery problems faced by government at local levels. Pennsylvania governmental forms are stressed and compared with those of other states.

PS 674 Analytical Techniques

3 s.h.

Exposes the student to approaches, methods, tools, focus, and boundary lines of political science study. As a research methods course in graduate political science, it should be scheduled early in the program.

PS 681 Special Topics

1-3 s.h.

In-depth study of a specific problem or topic not regularly treated in courses. May be repeated.

PS 698 Political Science Internship

3-6 s.h.

Practical experience in government and politics. Students are individually assigned to a cooperating local or state government agency, political party, or interest group or to a federal or international agency when arrangements can be made. Students report periodically to professor in charge and undertake reading assignments and write such reports and papers as the professor may require. Prerequisite: must have approval of instructor and department chairperson.

PS 699 Independent Study

1-3 s.h.

Readings and written assignments on a specific topic determined by student and instructor in charge. May be repeated.

PS 850 Thesis

3 s.h.

Note: No more than fifty percent of credits counted toward graduate degree may be in 500-level courses.

Professional Growth

The Professional Growth program leading to an M.A., M.S., or M.Ed. is a highly restricted and specially structured course of studies determined by the student and his/her advisory committee. A 4 semester-hour committee thesis is required, as well as the course GR 615, Elements of Research. An administrative member from the Graduate School is a mandatory thesis committee member in addition to at least two members of the faculty from related academic disciplines. For further information, write Professional Growth Degree, The Graduate School, IUP, Indiana, PA 15705.

Professional Studies in Education

The Professional Studies in Education Department offers the following graduate degrees: M.Ed. in Elementary Education, M.Ed. in Early Childhood Education, M.Ed. in Reading, and a doctorate in Education. A brief description of each degree is presented below. (Please see "Reading" for a description of the offerings in Reading.) Specific lists of courses and requirements can be obtained from the Professional Studies in Education Department in 303 Davis Hall.

Master of Education in Elementary Education

Students working toward a master's degree in Elementary Education should complete 30 semester hours of work (thesis option) or 36 credit hours of work (non-thesis option) from the following areas: 9 semester hours in Professional Development (including a Foundations of Education course), a Behavioral Studies course, and Elements of Research; 6 semester hours in a Specialization Core; 21 semester hours of Elementary Education electives. Students selecting the thesis option take 18 semester hours of electives and EP 616, Seminar in Applied Research, or EL 698, Reading Research Seminar. With approval of the coordinator, when appropriate, 6 semester hours of workshop credit or graduate electives may be applied to the master's degree.

Master of Education in Early Childhood Education

Students pursuing the M.Ed. in Early Childhood must complete 30 semester hours (thesis option) or 36 semester hours (non-thesis option) from the following areas: 9 semester hours in professional development (including a Foundations of Education course and a Behavioral Studies course) and Elements of Research; 6 semester hours in a Specialization Core; 21 semester hours of Early Childhood Education electives, including EL and EE courses. Students selecting the thesis option take 18 semester hours of electives and EP 616, Seminar in Applied Research, or EL 698 Reading Research Seminar. With approval of the coordinator, when appropriate, 6 semester hours of graduate electives may be applied to the master's degree from Sociology/Anthropology or Child Development/Family Relations. In addition, an internship in one of the above areas can be included with the subject area electives with the approval of the program coordinator.

The Doctorate in Elementary Education

The Doctor of Education degree in Elementary Education is designed for those who wish to teach at the college or university level or who desire to work in a teaching, supervisory, or administrative capacity. A candidate for this degree is expected to acquire a broad knowledge of various aspects of education and to demonstrate, through the completion of an acceptable dissertation, the ability to conduct an independent investigation on a topic approved by an advisory committee. The student will choose a concentration in one of the three following areas: elementary reading/language arts, early childhood education, or elementary curriculum. A doctorate requires 62 semester hours of advanced study beyond the master's degree program. Using this criterion, students who have already obtained a master's degree in education (30 semester hours) from an accredited institution of higher learning would be responsible for approximately 62 remaining semester hours of study and research. In most cases, approximately 47 semester hours would be allocated to classroom work.

The remaining fifteen credits would be allocated in the internship (six credits) and to the dissertation (nine credits). The exact number of hours in course work is determined by the director of the doctoral program and doctoral committee members. Each doctoral applicant's credentials are evaluated on an individual basis.

A complete description of the Doctor of Education program in Elementary Education can be obtained from the Department of Professional Studies in Education, 303 Davis Hall.

Course Descriptions

EA 656 School Administration 3 s.h.

Designed as a basic course in school administration, this course is intended to serve as an introduction to the principles and practices of school administration for students who aspire to a supervisory or administrative position in public schools. Human aspects of educational administration are emphasized.

EA 657 School Personnel Administration 3 s.h.

Designed to provide background for potential principals and supervisors in matters pertaining to functions of various types of personnel employed in schools. Provides knowledge of organizational practices for proper and effective utilization of personnel and recognition of administrator's role in providing services to both staff and pupils.

ED 631 Curriculum Development 3 s.h.

Students learn curriculum development by differentiating among educational goals, objectives, and learning activities. Sources of curriculum goals and objectives, such as needs assessment, philosophical models, and psychological models are studied. The design and selection of learning activities, as well as designs for evaluating the effectiveness of curriculum, are considered.

ED 632 Systematic Observation of Classroom Behavior 3 s.h.

Students learn how to code classroom verbal interaction through actual demonstration, videotapes, and audio recordings, with emphasis on various teaching strategies, monitoring verbal interaction, and supervisory sessions. Designed for elementary majors, curriculum supervisors, and students majoring in secondary and supervisory behavior.

ED 650 School and Community 3 s.h.

Development and maintenance of a purposeful program of communication between the school and the community through study of selection, organization, and functions of citizens advisory committees and cooperative use of various community services.

ED 651 Recent Issues and Innovations in Education

3 s.h.

Newer trends in classroom procedure, equipment, and materials, as well as problems involved in improvement of instruction. Whenever possible, sessions are held to demonstrate and use recently developed materials. Individual research and field trips involve many of the new programs in elementary education.

ED 652 School Evaluation

3 s.h.

Current models for both formative and summative evaluations are presented with emphasis on their application to school programs and other educational projects. Prior knowledge of curriculum development and/or project proposals is helpful but not required.

ED 658 School Law and Negotiations

3 s.h.

An understanding of legal principles as they pertain to functions of personnel in public school systems and to persons engaged in education. Study of statutory enactments, review of court actions through case studies, and analysis of collective negotiation laws and cases.

EE 660 Early Childhood Study Techniques and Assessment Tools

3 s.h.

Designed to provide the student with a specific method of studying children from three through eight years. Students learn to observe, record, and analyze pertinent information and to suggest ways to help children toward positive self-development.

EE 661 Early Childhood Philosophy, Curriculum, and Materials

3 s.h.

Introduces students to philosophy and historical background of pre-school education and their influences on current programs and curriculum. Curriculum patterns and strategies, including available materials, for schools for the younger child are introduced and evaluated.

EE 664 Early Childhood Curriculum in Primary Grades

3 s.h.

Based on developmental levels of children, students learn the appropriate concepts and strategies which should be included in the primary grade component of early childhood.

EE 665 Issues in Early Childhood Education

3 s.h.

Focuses on the major controversies facing the early childhood educator. Opposing viewpoints will be presented for review, reaction, and debate. Students are encouraged to establish priorities and clarify value systems to arrive at solutions to critical issues.

EE 762 Early Childhood Field Study Experiences

3 s.h.

Includes direct observation and teaching in early childhood programs. Seminar sessions are directed toward the study of appropriate strategies with immediate application to children. Students are expected to meet the individual needs of children they are teaching. Close supportive relationships with parents and community are stressed. Prerequisites: EE 660, EE 661, and EE 664.

EE 766 Evaluation of Programs for Young Children

3 s.h.

Analysis of extant early childhood programs. Examination of early intervention projects and materials; review of research findings and implications; cross-cultural comparisons of preschool programs. Prerequisites: EE 661, 664, or permission of the instructor.

EL 510 Seminar in Elementary School Evaluation and Accreditation

3 s.h.

In conjunction with the Assembly of Elementary Schools of the Middle States Association, provides instruction and field practicum in elementary school evaluation, planning, and accreditation. Books and supplies provided by Middle States Association. Provides leadership training for students interested in developing school evaluation plans and serving on accreditation teams.

EL 641 Recent Trends in Social Studies

3 s.h.

Specific problems with curriculum, teaching, and learning experiences and evaluation are stressed. Each student will research a special problem or area of interest.

EL 642 Mathematics in Elementary School

3 s.h.

Experiences with manipulative materials, games and puzzles, activity centers, and lab approach to mathematics. Inexpensive mathematics lab equipment will be constructed. Sources of literature and materials are presented and used. Opportunities are given to write activity and problem cards and to plan mathematics activity centers. Psychological foundations and mathematics structure are used as reference for suggested activities and curriculum studies.

EL 643 Resource Materials in Elementary Science

3 s.h.

An introduction to underlying philosophy and use of materials of several of the current national curriculum programs in elementary science. Emphasis is placed on the following programs: (1) Science: A Process Approach (SAPA), (2) Elementary Science Study (ESS), (3) Science Curriculum Improvement Study (SCIS), and (4) Conceptually Oriented Program in Elementary Science (COPES), including microteaching techniques and teaching strategies, monitoring verbal interaction, and supervisory sessions. Designed for elementary majors, curriculum supervisors, and students majoring in secondary and supervisory behavior.

EL 644 Recent Trends in Language Arts
3 s.h.

Designed to help students to direct more effective communication through study of problems, recent trends, and contributions of research in the broad fields of listening and oral and written communication.

EL 645 Experimental Studies in Art Education
3 s.h.

Teachers undertake art experiences in various media as they are adapted to provision of art experiences for the child. Emphasis will be placed on stages of growth, type of motivation, and ways of administering stimuli. Perceptual awareness and understanding and appreciation of visual art forms and their importance in the lives of people in our town and other cultures are developed, along with a study of the exceptional child to recognize and encourage evidences of art potentials and wholesome self-expression.

EL 646 Modern Procedures and Skills in Elementary Music
3 s.h.

New dimensions in thinking about elementary music for children. Emphasis is placed on the young student discovering interesting aspects of music sounds, rhythm through movement, use of percussive and simple method instruments, and music of countries. (Music staff)

EL 647 Resource Materials in Children's Literature
3 s.h.

Evaluation and selection of literature as a classroom resource for teaching and learning, including illustrations, folklore, poetry, modern and traditional fiction, and nonfiction.

EL 648 Creativity and the Elementary School Child
3 s.h.

Includes a study of creative thinking and ways to develop creativity in children, including strategies and techniques to use in the classroom. Ways of measuring creativity and analyzing the role of the teacher are included. Students are encouraged to develop their own creativity.

EL 659 Administration of the Elementary School
3 s.h.

Principles and techniques of elementary school administration. Administrators are viewed as leaders of teachers, children, nonprofessional staff, and the community to develop and maintain the best educational system possible.

EL 678 Seminar in Elementary Education
3 s.h.

Provides opportunities for in-depth study in special areas in elementary education. Designed primarily for doctoral and post-master's candidates. Registration by permission only.

EL 681 Special Topics in Education

3 s.h.

Designed for the students who wish to do independent research in special areas.

EL 698 Supervised Internship

6 s.h.

A carefully planned, field-based, internal work experience proposed by the advanced graduate student to extend professional competence, subject to approval by advisory committee. Registration by permission only.

EL 699 Independent Study in Elementary Education

1-3 s.h.

Students select one or more topics which are of critical importance in elementary education and meet staff members for independent reading, study, analysis, and evaluation. Registration only by permission of Graduate Committee.

EL 700 Writing for Professional Publication

3 s.h.

Designed to enhance the scholarly writing skills of doctoral students in education. Each student will write a book review, a conference proposal, and a professional journal article. Manuscripts authored by the students will be submitted for peer review and for presentation or publication.

EL 710 Critical Analysis of Issues and Innovations in Education

3 s.h.

Students analyze and evaluate current issues and innovations in the field of education. Reformers and their critics are analyzed in terms of their role as change agents. Programmatic and systematic reforms in education are studied and relationships drawn between research, policy making, and implementation. Prerequisites: two of FE 611, FE 612, or FE 613, or the equivalents.

EL 715 Recent Trends in Human Development and Learning

3 s.h.

Students synthesize, analyze, and evaluate developmental theory, participate in a research project dealing with human development, and author a publishable, high-quality manuscript in which developmental theory/research is used to address an educational issue.

EL 720 Curriculum Analysis

3 s.h.

Provides students with a framework for the systematic analysis of curriculum from the context of social, historical, and philosophical foundations and theory and research in the field. Emphasis will be on curricular evaluation in the context of the theoretical foundations of curriculum. Prerequisite: EL 631 or equivalent.

EL 725 Analysis of Effective Instructional and Supervisory Techniques
3 s.h.

Emphasizes critical review and analyses of relevant theory and research. Topics include theory and research on learning styles, observation of classroom behavior, analysis of teaching strategies, and knowledge of content.

EL 735 Elementary Education Doctoral Seminar
1 s.h.

A forum for the discussion of student/faculty research and contemporary issues in education. Students assume responsibility for presenting and critiquing research and facilitating a research-based discussion of contemporary issues in education. Taken for one credit in two different terms. Prerequisite: Candidacy for the degree.

EL 740 Pluralism, Culture, and the Elementary School Child
2 s.h.

Provides students with a philosophical and sociological understanding of a pluralistic society and how pluralism and the phenomenon of culture affect the education of elementary school children.

EL 741 Elementary Education in Urban Environments
1 s.h.

Develops understanding of particular social and cultural systems of urban settings and provides a systematic way of using knowledge to address educational problems that are unique to urban environments. Prerequisite or corequisite: EL 740.

EL 742 Elementary Education in Rural Environments
1 s.h.

Provides students with the opportunity to analyze ethnocentrism, cultural isolation, and belief systems typical of rural settings. Focus will be on implications for curriculum and instruction in rural settings. Prerequisite or corequisite: EL 740.

EL 743 Elementary Education in Bilingual/Multilingual Settings
1 s.h.

Examines educational models and research on bilingual and multilingual education. Students are encouraged to formulate a conceptual framework for bilingual or multilingual education in a designated school or district. Prerequisite or corequisite: EL 740.

EL 750 The Acquisition of Literacy
3 s.h.

Examines the concept of literacy and how it is acquired. Evaluation of research and theory regarding strategies used to support a developmental view of literacy. Emphasis given to whole language processes of literacy acquisition. Prerequisites: ED 600 and ED 601.

EL 755 Reading Theory and the Elementary School Reading Teacher
3 s.h.

Study of the psychological bases that affect and influence the process of reading. Cognitive processes in reading are analyzed along with their applications at various stages of learning. Prerequisites: ED 600 and ED 601.

EL 760 Issues and Processes in Curricular Change
3 s.h.

Provides students with processes to initiate and develop curriculum change. Course focuses on understanding of theory as applied through examination of relevant case studies and examples within particular school settings. Prerequisite: EL 720.

EL 770 Seminar in Special Problems in Reading
3 s.h.

Students explore such topics as reading disabilities, preschool reading instruction, adult literacy, evaluation of compensatory programs, implications of current reading research findings, reading in-service programs, whole language and reading, and the reading/writing connection. Prerequisites: ED 600 and ED 601.

EL 780 Seminar in Advanced Research Methods
3 s.h.

Doctoral students refine and apply advanced knowledge and skills toward the design of the doctoral dissertation. Emphasizes the application of quantitative and qualitative approaches within school or educational settings.

EL 798 Supervised Doctoral Internship
3 s.h.

Applied field experience chosen by doctoral students with the approval of the dissertation advisory committee. Prerequisite: permission only.

EL 850 Thesis
3 s.h.

For the student writing the thesis. Should be scheduled for the semester in which the student plans to complete his/her work. All thesis writing involves a committee composed of the student's adviser and two additional faculty members.

EL 950 Dissertation
1-12 s.h.

Students preparing a doctoral dissertation for credit must register for this course. Number of credits assigned and the extent of time for which research activity is scheduled depend on nature and scope of student's research problem and his/her general doctoral program.

Note: Credits for both thesis and dissertation, if not completed during the semester scheduled, are recorded as a grade of “**R**,” **research in progress**. They remain so until the project is approved. They **do not** automatically revert to the grade “**F**” in a specific length of time. Also, thesis and dissertation credits can be programmed above the regular load.

Psychology

The Psychology Department offers a Doctor of Psychology degree in Clinical Psychology (Psy.D.). The Psy.D. includes special emphasis in Behavioral Medicine, Child-Clinical, and Family Relations. The program is designed to meet the academic requirements of licensure and provide the background to immediately assume responsibilities in appropriate professional settings.

The department also offers a program of respecialization in clinical psychology for persons holding a doctoral degree in a nonclinical area of psychology. The training program follows a practitioner model of training with a generalist's approach. Psychologists wishing to enter the respecialization program must plan to acquire a broad base of knowledge, skills, and attitudes through an individualized plan of study including course work and practica. This program usually requires two years of campus course work and practica followed by a year-long internship.

Doctorate in Clinical Psychology

Admission to the Psy.D.

The following criteria are used in the evaluation of application materials: (a) overall grade point average and grades in psychology courses (3.0 minimum in both areas); (b) scores on the Aptitude and Advanced sections of the GRE (average of 500 on all sections); (c) training in research methodology; (d) prior clinical experience in practicum or employment; (e) the applicant's statement of goals; (f) letters of recommendation; and, (g) results of a personal interview.

Breadth of undergraduate training is preferable to narrow specialization. Weaknesses in one area may be offset by strengths in another area, although the Admissions Committee gives preference to applicants with some demonstrated strengths in all areas. Students may be required to make up deficiencies.

The deadline for receipt of all application materials is January 10. The Admissions Committee will then select a pool of qualified applicants who will be invited to the campus for personal interviews. Announcements of final admissions decisions will be made around April 1.

Philosophy

The Psy.D. program follows a practitioner or applied model of training of clinical psychologists. Emphasis is placed on professional applications of psychology to a wide variety of human problems. Students receive extensive supervision in the development of skills in interpersonal relations, psychological assessment, psychotherapy, community outreach, and program evaluation and a solid grounding in the scientific knowledge base of psychology.

Curriculum

The Psy.D. program can be completed in three calendar years of full-time study plus an additional year of full-time internship, although most students take five years. The curriculum requires a minimum of 93 semester hours of acceptable graduate credit. Each student must complete requirements for (a) core course work; (b) special proficiency requirements; (c) practicum, Internship and Professional Issues; (d) doctoral project; (e) comprehensive academic and professional examinations; and, (f) master's and doctoral candidacy. In addition, a course in History and Systems in Psychology is required for graduation.

A. *Core Course Work*

The core courses are required of all students. These courses cover several areas of psychology and provide the scientific basis for professional practice.

1. Methods of Behavior Change: PC 630, PC 631, PC 633, PC 634.
2. Methods of Assessment and Evaluation: PC 641, PC 642, PC 743.
3. Research and Methodology: PC 601, PC 704.
4. Individual Differences: PC 635, PC 636, PC 637.
5. Physiological Bases of Behavior: PC 646, PC 647.
6. Community and Systems Level of Intervention: PC 603.

B. *Special Proficiency: three courses*

Special proficiencies are available in Behavioral Medicine, Child Clinical, Family Relations, and general practice.

C. *Practicum, Internship, and Professional Issues:* (twenty-four credits) PC 770, PC 798, PC 799. Students will typically register for practicum experience throughout their program with sampling from diverse settings. During the final year, a full-time professional internship emphasizing depth and long-term involvement is required.

D. *Doctoral Project:* (nine credits) PC 950

E. *Comprehensive Academic and Professional Examinations:* (no credit)
At the end of each year, an evaluation of clinical and professional competence will be made. This evaluation data will be shared with the student as feedback, and a joint effort will be made to remediate any deficiencies.

Students must also pass a preliminary examination covering basic knowledge appropriate for a professional psychologist. This examination will cover material related to all of the core course work areas.

The Clinical Proficiency Evaluation is completed during the final year on campus. Students present assessment and therapy work samples to a committee of faculty members.

Satisfactory performance on both the preliminary examination and the professional evaluations must be achieved before candidacy for the doctorate will be recommended. Serious deficiencies may result in recommendations for remedial work, re-examination, delay of candidacy, or termination from the program.

F. Master's and Doctoral Candidacy

Students will routinely obtain the master's degree enroute to the doctorate. Requirements for candidacy for the M.A. degree include the successful completion of twenty-four credits of approved graduate course work with a grade point average of 3.0 and the recommendation of the Clinical Training Committee based on satisfactory academic and professional evaluations. The fifty-four credits for the M.A. must include 9 hours of practicum and 45 hours of the core course work of the Psy.D. degree.

The candidacy for the Psy.D. will be awarded following the completion of all M.A. requirements plus a minimum of an additional 9 credits, successful performance on the preliminary examination, and satisfactory annual academic and professional evaluations. A grade point average of 3.0 is required for candidacy.

G. Transfer of Graduate Credit

Applicants who have completed course work at other institutions may request transfer of credit. A maximum of 36 semester hours of credit may be approved. A portion, but not all, of the practicum requirements may be transferred for equivalent supervised experience.

H. Part-time Study and Residency

Students must complete two semesters or one summer plus one semester of full-time study to meet residency requirements. At other times students may complete part-time studies. All students complete a Plan of Study which will include a detailed semester-by-semester outline of proposed course work and completion dates for exams, doctoral project, and internship. An average of 15 semester hours must be completed each year, and all requirements must be completed within seven years.

Course Descriptions

PC 510 Historical Trends in Psychology
3 s.h.

Comprehensive overview of historical antecedents of contemporary psychology. Prerequisite: permission.

PC 554 Developmental Psychology

3 s.h.

A comprehensive study of human growth and development from conception to death. Major research findings and developmental theories will be considered.

PC 556 The Psychology of Personality

3 s.h.

An overview of the integration of the major theories of personality.

PC 557 Abnormal Psychology

3 s.h.

Theories of pathological behavior with reference to clinical and experimental data.

PC 561 Motivation

3 s.h.

A systematic study of how behavior is initiated, sustained, directed, and terminated. Lab projects are conducted. Prerequisite: permission.

PC 562 Physiological Psychology

3 s.h.

The relationship between behavior and the anatomy and physiology of the nervous system. Lab projects are conducted. Prerequisite: permission.

PC 563 Human Cognition

3 s.h.

The interaction of sensory and cognitive events in production of awareness of the world. Lab projects are conducted. Prerequisite: permission.

PC 564 Psychopharmacology

3 s.h.

Survey of the theoretical and empirical foundations of psychopharmacology. Topics include discussions of basic principles of pharmacology, theories of drug action, and structure and function of the nervous system with special emphasis on current findings on neurotransmitters and the site of action of psychoactive drugs. Prerequisite: permission.

PC 565 Conditioning and Learning

3 s.h.

The focus is on animal research with discussion of classical and operant conditioning, discrimination learning, and aversive control of behavior. Lab projects are conducted. Prerequisites: courses in experimental psychology or permission.

PC 566 Human Cognition: Memory and Thinking

3 s.h.

The methodology employed in areas of verbal learning and retention, encoding, storage, and retrieval processes. Lab projects are conducted. Prerequisite: permission.

PC 567 Animal Behavior

3 s.h.

Behavior of various animal species and humankind are examined from the position of evolution of behavior as adaptation to a changing ecology.

PC 569 Industrial/Organizational Psychology

3 s.h.

Study of psychological principles in an organizational setting of behavior; application of psychological principles to individual behavior and experience in organizations.

PC 574 Adult Development and Aging

3 s.h.

A review of theories and research which apply to young, middle, and later adulthood, with particular emphasis on old age.

PC 578 Psychology of Death and Dying

3 s.h.

Emphasizes the theories and research which delineate the psychological factors affecting the dying person as well as those people close to someone who is dying. Psychological, social, and cognitive factors affecting one's attitude toward death and approaches to coping with dying and death are studied. Prerequisite: permission.

PC 581 Special Topics

3 s.h.

Designed to examine a special topic in depth. Students prepare presentations representing selected research areas. Prerequisite: permission.

PC 600 Introduction to Human Cognition

3 s.h.

The methodology employed in areas of verbal learning and retention, encoding, storage, and retrieval processes. Lab projects are conducted. Prerequisite: permission.

PC 601 Research Methods in Psychology I

3 s.h.

The design, statistical analysis, and report of laboratory experiments will be studied. Prerequisite: permission.

PC 602 Research Methods in Psychology II

3 s.h.

An intuitive presentation of the methods, the use of computer programs, and applications of psychological research of selected multivariate techniques. Prerequisite: PC 601 or equivalent familiarity with analysis of variance and correlation or regression techniques.

PC 603 Evaluation Research

3 s.h.

Introduction to the methodological issues involved in validly assessing the effectiveness of intervention programs relevant to psychology (e.g., human service programs), including a consideration of how the results of evaluation research can be used to improve such programs. Students will participate in either actual or simulated evaluation research projects. Prerequisite: permission, PC 601 or equivalent.

PC 630 Methods of Intervention I

3 s.h.

Methods of studying and improving competency in interpersonal skills as a necessary ingredient of most models of therapy, such as psychoanalysis, client centered, and behavior modification. Emphasis is placed on theory, research, and personal competence in communication. Prerequisite: permission.

PC 631 Methods of Intervention II

3 s.h.

Emphasis is placed upon the systematic study and application of social influence techniques to the modification of clinical problems. A broad spectrum of cognitive, physiological, and behavior change procedures are studied and evaluated with regard to their cost and effectiveness. A general problem-solving model for decision making, case evaluation, and accountability is advanced. Prerequisites: PC 630 and permission.

PC 632 Models of Learning

3 s.h.

Several learning paradigms are described. Emphasis is on the theoretical assumptions underlying the models and their strengths and weaknesses. Applications of the models to changing maladaptive behavior are discussed. Prerequisite: permission.

PC 633 Clinical Group Techniques

3 s.h.

Provides instruction and experience in a variety of group techniques. Includes lectures, demonstrations, and participation in group exercises useful in the clinical psychology profession. Prerequisite: permission.

PC 634 Family Therapy

3 s.h.

Introduction to family and marital therapy. Both system theory approaches and behavioral approaches will be considered. Process and outcome research will be reviewed. Prerequisite: permission.

PC 635 Advanced Psychopathology

3 s.h.

An in-depth study of the description, causes, and treatment of behaviors considered abnormal by our society. The course integrates and extends previous materials in abnormal behavior, assessment, therapy,

research methodology, and professional practice. Prerequisites: previous undergraduate course in Abnormal Psychology and permission.

PC 636 Personality Theory and Systems of Psychotherapy

3 s.h.

Several major personality theories are reviewed in a comparative manner with emphasis placed upon issues such as the assumptions about the basic nature of man, personality development, normal and pathological development, and philosophy of treatment for each theory. Prerequisite: permission.

PC 637 Issues in Developmental Psychology

3 s.h.

The processes and structures of life span development are studied. Cognitive, emotional, social, and physical development will be explored, emphasizing the interactive effects of the person's environment, developmental level, and psychological state. Prerequisite: permission.

PC 641 Psychological Assessment I

3 s.h.

Beginning course in theoretical issues and development of skills in assessing psychological functioning and in report writing. Beginning emphasis on intellectual assessment, followed by the development of an increasing variety of assessment tools. Prerequisite: permission.

PC 642 Psychological Assessment II

3 s.h.

Continuation of PC 641 with increased emphasis on development of skills in areas of objective and projective tests, behavioral observations, self-report measures, and other assessment techniques. Prerequisites: PC 641 and permission.

PC 646 Drugs and Behavior

3 s.h.

Introduction to various aspects of drugs and behavior. Includes exploration of factors influencing drug effects, problems in drug research, therapeutic use of drugs, legal use and abuse of drugs, and social aspects of drug experience. Prerequisite: permission.

PC 647 Clinical Psychology

3 s.h.

The study of the relationship between human brain dysfunction and abnormal behavior. Includes assessment techniques used to diagnose brain damage. Prerequisite: permission.

PC 650 Community Psychology

3 s.h.

An introduction to community psychology as an ecological approach to the understanding and changing of behavior. Emphasizes prevention rather than treatment of disorders and a concern with the development of programs to deal with a wide variety of human problems.

PC 651 Planned Social Change

3 s.h.

Comparative evaluation of strategies for changing human behavior. Emphasis on techniques which alter the environmental context in which behavior occurs.

PC 652 Environmental Psychology

3 s.h.

The relationship between human behavior and its environmental context. Emphasis on the role of physical and social environments in creating and perpetuating social problems.

PC 654 Theory and Research in Organizational Psychology

3 s.h.

The study of the effects of the work situation and of personal, interpersonal, and structural variables upon individual behavior and experience in organizations. Prerequisites: industrial psychology or industrial sociology, introductory course work in psychology and in behavioral science statistics.

PC 660 Child Clinical Psychology

3 s.h.

Approaches unique to child psychopathology; assessment and intervention are explored. Ages from birth to adolescence are covered. Prerequisite: permission.

PC 661 Psychology and Medicine I

3 s.h.

The area of health psychology and its role in behavioral medicine are introduced. Psychophysiology, which provides much of the foundation for health psychology, is studied through readings, lectures, and hands-on experiences with psychophysiological recording equipment. Prerequisite: permission.

PC 699 Independent Study in Psychology

1-6 s.h.

Individual students develop and conduct research studies in consultation with a faculty member. Prerequisite: permission.

PC 704 Clinical Research Methods

3 s.h.

Introduction to data analysis techniques and methodological problems commonly encountered in clinical research. Methods appropriate for single subjects as well as groups are explored. Prerequisites: PC 601 and PC 641.

PC 743 Psychological Assessment III

3 s.h.

Continuation of PC 642 with emphasis on nontraditional assessment methods such as family observations, mental status ratings, and social

skills assessment. Topics in clinical judgment and inference and a combination of assessment data and report writing are covered. Prerequisite: PC 642 or permission.

PC 758 Advanced Social Psychology

3 s.h.

Advanced survey of the relationship between the social environment and human behavior. Topics include social influence, attitude formation and change, attribution and social cognition, interpersonal attraction, aggression, altruism, small group interaction, and environmental psychology. Prerequisite: permission.

PC 760 Advanced Psychotherapy with Children

3 s.h.

Theories and treatment interventions used in therapy with children are explored. Opportunities to practice basic psychotherapeutic skills in interviewing, treatment planning, and intervention provided under intensive supervision. Prerequisite: PC 660 or permission.

PC 761 Psychology and Medicine II

3 s.h.

The roles of psychological and environmental variables in the development, maintenance, and recovery from disease are studied. Approaches to studying relationships between stress, coping, and disease are emphasized. Prerequisite: PC 661.

PC 762 Biofeedback Procedures in Behavioral Medicine

3 s.h.

Procedures used to help individuals increase voluntary control of physiological activities are reviewed and evaluated as regards their clinical potential for treating a variety of psychosomatic and somasomatic illnesses. Theory and research from the fields of medicine, biomedical engineering, psychophysiology, and cognitive-behavior therapy are incorporated in developing therapeutic applications of biofeedback techniques. Prerequisite: permission.

PC 763 Advanced Family Therapy

3 s.h.

The course concerns current family therapy theories and methods with an emphasis on brief, problem-focused models of assessment and interaction. Integrative approaches and family systems consultation also will be considered. Prerequisite: PC 634 or its equivalent.

PC 770 Professional Issues

3 s.h.

An examination of professional problems in the field of clinical psychology. Includes topics such as training philosophies, licensure, legal issues such as involuntary commitment and expert witness, ethical standards, and professional organizations. Prerequisite: permission.

PC 781 Special Topics
1-6 s.h.

PC 791 Family and Couples Clinic
3 s.h.

Students will be assigned clients of the Family and Couples Clinic. All therapy will be carried out under the close supervision of the instructor. A team training model will be used, wherein students will observe the work of their peers and participate in pre-session and post-session conferences. Prerequisites: course work in family therapy, successful supervised clinical experience, and permission of the instructor.

PC 798 Advanced Psychological Practicum
1-18 s.h.

Provides supervised experience in applied settings. Variable credit depending on setting. Prerequisite: permission.

PC 799 Internship
3 s.h.

An in-depth supervised experience designed to assure a professional level of competence in several skill areas and to assist in developing an identity as a health care professional. May be taken full-time for twelve months or half-time for twenty-four months. Prerequisite: permission.

PC 850 Thesis
1-6 s.h.

A supervised research project approved by a committee of faculty members. A thesis proposal must be approved by the end of the third full semester of graduate work, and the finished thesis must be defended within the following year. Enrolled as three semester hours during two semesters.

PC 950 Doctoral Project (Dissertation)
3-9 s.h.

A culminating scholarly activity requiring the mastery of an area of professional interest. It requires a review of relevant literature and the collection and analysis of data. An oral presentation of the proposal and an oral defense of the finished product are required.

Other Policies

The Psychology Department has established guidelines for the registration and completion of the thesis and doctoral project, academic good standing, full-time student status, an appeals process, and other academic matters. These guidelines are explained in the *Psychology Graduate Student Handbook*.

Reading

IUP provides and directs the formal learning experiences of the reading specialist at the graduate level. These learning experiences entail classroom and clinical instruction and field experiences by faculty members. In addition, the faculty members represent a marked balance with a variety of backgrounds and areas of expertise—reading, elementary and secondary education, psychology, educational research, and computers in education.

Students seeking a Master of Education degree with a major in reading, and who desire certification as reading specialists, are required to complete a minimum of 36 semester hours of course work selected from the curriculum designed for the preparation of reading specialists.

A student who wishes to secure reading specialist certification and does not desire a Master of Education degree may do so by completing a minimum of 27 semester hours of course work. The program for each student will be formulated based on the student's needs and educational and teaching experiences. All students who desire certification are required to take either the required courses as outlined in Program for Reading Specialists or demonstrate or document the competencies required for the program.

Criteria for final recommendation for certification of program enrollees are as follows:

1. Overall grade point average of "B"; in both ED 702 and ED 703, a minimum grade of "B" is required.

2. Recommendation of reading faculty. Graduate students may also earn a doctorate in Elementary Education with an emphasis in Reading.

Procedure for Admission

An applicant must first be admitted to the Graduate School as a qualified student. As part of this process, applicants may be requested to report for an interview with the reading faculty. Upon admission to the Reading Program, each student should arrange to meet with his/her adviser to formulate an approved program of courses.

Masters In Reading/Reading Specialist Program

Certification Program: Courses

Students seeking certification as a Reading Specialist must complete a minimum of 27 semester hours or its equivalent.

A. Reading Required (21 semester hours)

(3 semester hours each) ED 508, ED 600*, ED 601, ED 605, ED 702, ED 703, EL 644

B. **Research—Required (3 semester hours)
ED 698

- C. Related Area—(3 semester hours)
EP 573 (or an approved substitute)
- D. ***Computer Literacy
Students who wish a master's degree in Reading must complete nine additional credits from the following areas:
- E. Research—(3 semester hours)
GR 615
- F. Humanistic Studies—Select one (3 semester hours)
FE 611, FE 612, FE 613, FE 514
- G. If thesis option is selected, no elective is required from F or G.

For description of FE courses, see section on Foundations of Education; for EP courses, Educational Psychology; for EL courses, Elementary Education; for EN courses, English; and, for GR courses, see entry under "General Service Courses."

* Students who have educational experiences teaching reading and completed undergraduate reading methods courses within the past five years and who achieved a minimum grade of "B" may have ED 600 waived. IF ED 600 is waived and students wish to pursue an M.Ed. degree, students must take an approved elective in order to fulfill the 33- or 36-semester-hour thesis or non-thesis requirements.

** ED 698 is not required for students doing a thesis.

***Students who do not have computer literacy either through undergraduate or graduate courses, in-service education, etc., will be required to complete a computer course.

Course Descriptions

ED 508 Reading in the Content Areas

3 s.h.

Provides techniques for reading specialists to work with teachers in both elementary and secondary schools for developing competencies in subject matter areas as part of the regular classroom instruction. Open, also, to classroom teachers—elementary and secondary levels.

ED 510 The Teaching of Reading in the Secondary School

3 s.h.

Emphases include reading improvement practices with developmental, corrective, and remedial readers in the middle and junior and senior high schools. Attention to both college preparatory students and those needing survival skills as well as to work with related professional personnel. A mini-practicum in developmental reading is included.

ED 600 Basic Foundations of Reading Education

3 s.h.

Emphases on nature of reading process, nature of learner, advancement of pupil's reading skills, how pupils learn to read, what teachers can do when pupils fail to learn to read.

ED 601 Diagnosis and Remediation of Reading Disabilities

3 s.h.

Students appraise reading difficulties of individuals with emphases on general principles and types of diagnosis appropriate to classroom and clinic. Examination and administration of diagnostic instruments as well as methods and materials used in remediation at the elementary and secondary level are presented and demonstrated. Prerequisite: ED 600 (applied to reading majors only).

ED 604 Remediation of Severe Reading Disability Cases

3 s.h.

Analysis and treatment of severely disabled readers under the supervision of specially prepared university personnel. Prerequisite: permission of coordinator.

ED 605 Organization and Administration of Reading Programs

3 s.h.

Emphasis on patterns of organization, approaches to instruction, and use of appropriate materials which can be adopted to operation of a total school reading program in meeting individual, group, and special needs of students.

ED 607 Instruction Materials in Reading for Children and Youth

3 s.h.

Designed to guide teachers, librarians, principals, reading specialists, and other curriculum workers in viable choices of appropriate materials for reading instruction.

ED 620 Reading Instruction for the Culturally Different

3 s.h.

Emphasizes the sociological, psychological, linguistic, and educational variables that affect the culturally and linguistically different reader.

ED 697 Seminar in Special Problems in Reading

3 s.h.

Topics such as reading disability, preschool reading instruction, and adult literacy programs are covered.

ED 698 Research Seminar in Reading

3 s.h.

Designed to ensure that students will be able to read and understand reading research and statistical applications related to the field of reading. Students will interpret "t" test, AOV, repeated measures, and correlations. Emphasis is on understanding and application of statistical information and not on solving mathematical formulas.

ED 699 Independent Study in Reading Education

1-3 s.h.

The student, with cooperation of the reading faculty member with whom he/she expects to work and his/her reading faculty adviser, en-

gages in a study individually or with a small group on some problem or field not clearly defined in existing courses. Prerequisite: permission of coordinator.

ED 702 Reading Practicum: Diagnostic Case Studies (Clinical Experience I)
3 s.h.

Students administer and interpret a battery of diagnostic instruments, both formal and informal, to a small group of children. Emphasis is on interview and observation techniques as well as on diagnostic teaching. A needs assessment for each child is completed. All work is done under the supervision of the Reading Specialist Program faculty. Prerequisites: ED 600, ED 601, and ED 508.

ED 703 Reading Practicum: Remedial Case Studies (Clinical Experience II)
3 s.h.

Students complete an in-depth needs assessment as well as design and implement a remedial program for a small group of children. Emphasis is on the application of specialized remedial techniques. All work is done under the supervision of Reading Specialist Program faculty. Prerequisites: ED 600, ED 601, ED 508, and ED 702.

Safety Sciences

The Department of Safety Sciences offers a program of studies leading to a Master of Science degree in Safety Sciences. A thesis or non-thesis curriculum is available.

Students have the opportunity to choose from a wide selection of course offerings or select a specialized area. In addition, students may choose elective courses, with approval of adviser, in fields directly related to safety sciences. The program is designed for individuals with relevant experience in safety sciences and those with appropriate undergraduate preparation who are interested in pursuing careers in the profession.

Department Admission Requirements

In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Science in Safety Sciences will be required to have the following prerequisite professional preparation:

Entry-level competency in the four subdisciplines: Safety Management, Occupational Safety, Occupational Health, and Fire Protection through relevant education, documented work experience, certifications, or other means acceptable to the Safety Sciences Graduate Committee.

Relevant education would include the student's undergraduate preparation which, in general, should include a minimum of six semester-hour credits in each of the following: Chemistry, Physics, and Mathematics.

When the Safety Sciences Graduate Committee determines that a deficiency in work experience or relevant education exists, a student will be required to complete additional studies to eliminate the deficiency.

Master of Science in Safety Sciences

All students are required to take a total of 36 hours, of which 18 hours are core courses: SA 601, SA 602, SA 603, SA 604, SA 605, and SA 606. The student must choose the remaining 18 hours in a specialized or generalized option. Students may choose between a thesis or non-thesis curriculum.

Degree Requirements (Thesis)—For the additional 18 required hours, 3 to 6 of these may consist of a thesis. Students in the specialized option must complete a minimum of 6 to 9 hours (not including thesis) in courses offered by the Safety Sciences Department, plus 6 hours of electives approved by the student's adviser. Students pursuing the generalist option must complete a minimum of 12 hours of safety sciences graduate course work (one 3-hour course in each subdiscipline). The remaining hours consist of electives which must be approved by the student's adviser.

Degree Requirements (Non-thesis)—Of the additional 18 required hours, students enrolled in a specialized option must complete 6 hours of safety sciences courses in one chosen subdiscipline. In addition, 12 hours of approved electives must be completed. Students pursuing the generalist option must complete 12 hours of safety sciences courses (one 3-hour course in each subdiscipline) and 6 hours of approved electives.

Course Descriptions

SA 541 Accident Investigation

3 s.h.

Focuses on the various aspects of accident investigation such as recent theories associated with accident causes, investigative techniques, data acquisition, structure of investigative reports, management responsibilities, and remedial actions. Particular emphasis is placed on determining sequence of events to develop management actions which will prevent recurrence of accidents. Prerequisite: permission of instructor.

SA 561 Air Pollution

3 s.h.

Focuses on the various major aspects of the air pollution problem. These include sources of pollution, evaluation and engineering control of pollutants, government regulations, atmospheric chemistry and dispersion,

and human and nonhuman effects. Particular emphasis is placed on information that is practical for the safety sciences and industrial health professionals. Prerequisites: CH 101 and 102 or equivalent and SA 301 or equivalent courses or permission of the instructor.

SA 562 Radiological Health

3 s.h.

This course involves the study of problems associated with ionizing radiation in the human environment. Emphasis is given to biological effects, radiation measurement, dose computational techniques, exposure control, and local and federal regulations. The study and use of various radiological instruments is included. Prerequisite: SA 301, PY 111, PY 112, or permission of instructor.

SA 581 Special Topics

3 s.h.

A dual-level elective offering in which the specific topic may vary from one term to the next. Prerequisite: permission of the instructor.

SA 601 Concepts of Risk Assessment

3 s.h.

The concept of risk is implicit in every justification for hazard control measures and is an important criterion in the evaluation of hazards. This course provides definitions and methods for risk measurement in various contexts. Rationale are developed for establishing acceptable risk levels and for safety management decision making.

SA 602 Quantitative Methods in Safety Management

3 s.h.

The objective of this course is to prepare individuals for the conduct of research in safety and its numerous subspecialties. Research paradigms, experimental design, data sources and collection, and statistical methods are covered in detail. The emphasis throughout is on quantitative approaches likely to produce valid new knowledge in the discipline of safety management. Prerequisites: SA 345 and MA 217 or permission of the instructor.

SA 603 Human Relations in Safety Management

3 s.h.

Integrates various behavioral science theories into the practice of safety management. Areas covered are motivation, communications, managerial interactions, and controlling worker behavior as it relates to accident causation. Prerequisites: PC 101 and MG 642 or permission of instructor.

SA 604 Industrial Toxicology

3 s.h.

Principles and techniques for evaluating toxicological properties of chemical substances are studied with particular emphasis on extrapolation of information to determine permissible exposure limits in the workplace. The student is acquainted with requirements for operating an animal toxicology laboratory.

cology facility as well as means of obtaining relevant human experience data. Prerequisites: CH 101, CH 102, MA 217, or permission of instructor.

SA 605 Advanced Principles of Safety Engineering
3 s.h.

This course prepares the student with a fundamental understanding of those hazards which can contribute to accidental injury and damage. These hazards are studied in an engineering context; their physical and chemical characteristics are studied in depth in order to make the appropriate hazard control measures better understood. Prerequisites: SA 111, SA 211, and PY 112, or permission of the instructor.

SA 606 Hazardous Materials Management
3 s.h.

This course offers the student a logical approach to the problem of hazardous materials management. Emphasis is on legislative controls with which industry must comply in shipping, storing, using, and disposing of hazardous materials. Program development in hazardous materials is covered in detail. Prerequisites: SA 311, CH 101, and CH 102, or permission of instructor.

SA 620 Safety Data Management
3 s.h.

Covered are design of loss incident source documents and code dictionaries; procedures to collect accident cost and cause data; accident cause analysis; and data for management accountability and decision making. Prerequisites: SA 412 and FS 241 or permission of instructor.

SA 623 Advanced Safety Administration
3 s.h.

Analyzes the management structure for its procedures, organizations, policies, and departmental competencies as they relate to safety. Ways to audit and improve management's safety effectiveness are covered. Prerequisites: SA 412 and FS 360, or permission of instructor.

SA 642 Advanced Mine Safety Engineering
3 s.h.

Provides an understanding of advanced subjects concerned with mine health and safety. Details the cost-benefit analysis of each phase of the mineral industry and the design features of various mining operations of the United States. Prerequisites: SA 232 and SA 401, or permission of instructor.

SA 643 Construction Safety
3 s.h.

This course provides an in-depth treatment of hazard recognition, evaluation, and control principles used in the construction industry. Extensive coverage of federal standards is given, together with the means by which a construction safety program can be developed and administered. Prerequisite: SA 211 or permission of the instructor.

SA 663 Industrial Hygiene Laboratory Methods

3 s.h.

Laboratory methods germane to industrial hygiene sampling and analytical methods are studied in depth. The student is introduced to a variety of laboratory procedures as well as biological monitoring. Sampling and analytical statistics are also emphasized. Prerequisites: SA 302 and SA 303, or permission of instructor.

SA 672 Process Safety in the Chemical Industries

3 s.h.

This course is designed to cover all important aspects of loss prevention as it is practiced in the chemical process industries. Its objective is to prepare the safety professional so that he/she may be able to work more effectively with chemists and chemical engineers in joint hazard identification, evaluation, and control projects. Prerequisite: SA 311 or equivalent, or permission of instructor.

SA 673 Disaster Preparedness

3 s.h.

Principles and techniques for preparing for various types of disasters. The students are acquainted with requirements necessary to develop workable plans for natural and industrial types of disasters. Loss prevention measures are discussed, directed toward preservation of organization resources. Prerequisite: SA 311 or equivalent, or permission of instructor.

SA 674 Fire Safety in Building Design

3 s.h.

The student is provided with the necessary concepts and principles for the safe design of buildings from a fire hazard standpoint. Emphasis is given to adequate understanding of fire properties as they influence selection of materials for construction, fire prevention facilities, and fire suppression considerations. Prerequisite: SA 311 or equivalent, or permission of instructor.

SA 681 Special Topics

3 s.h.

A graduate-only elective offering in which the specific topics may vary from one term to the next. Prerequisite: permission of instructor.

SA 699 Independent Study

3 s.h.

Study in depth of a topic not available through other course work. Student works with supervising faculty member on carefully planned, student initiated project. Prior approval is necessary. Prerequisite: permission of instructor.

SA 850 Thesis

3 s.h.

The thesis will require a committee review with one faculty member serving as the student's adviser. The committee will also include two addi-

tional faculty members and a representative of the dean of the College of Human Ecology and Health Sciences. Prerequisite: permission of instructor.

Sociology

Advanced training in sociology should enable students to think insightfully and critically about society and human relationships and more effectively to serve in a variety of professions. Sociology graduate students may be employed in human services, government agencies, corporate personnel departments, or social research organizations. The Master of Arts in Sociology is designed to prepare students for such opportunities with two programs of study: General Sociology and Applied Sociology in Human Services.

Students may also choose one of four specializations: Administration and Evaluation of Human Services, Community and Social Policy, Individual and Family Services, or Alcohol and Drug Abuse Studies. The specialization enables the student to select a combination of three to five courses from various departments focusing on a particular area of interest. Complementary courses are offered in Women's Studies, Clinical Psychology, Counselor Education, Criminology, Public Administration, and Adult and Community Education departments or majors. However, no more than nine credits may be selected from outside the Sociology-Anthropology Department, and no more than one-third of a student's total credit hours may be dual-level (500) courses. Furthermore, students who enrolled for dual-level courses while undergraduates at IUP may not repeat the same courses for credit as graduate students.

In addition to Graduate School admissions requirements, the applicants to the Sociology M.A. program should have completed at least 12 hours of undergraduate social science courses with an average of "B" or better. Students not meeting this requirement may be admitted if they agree to take additional undergraduate sociology courses designated by the department.

Master of Arts in Sociology

General Sociology

The General Sociology Program is designed especially for those students preparing for research professions, doctoral studies, or teaching in the social sciences. Students in the General Sociology Program are required to complete three basic core courses: SO 664, SO 665, and SO 667. In addition to these core courses, students have two options: Thesis or Non-Thesis. Those students electing to do a thesis (SO 850) will select an additional 15 credit hours, of which a maximum of nine credits may be selected from outside the sociology offerings. Students selecting the Non-Thesis

option will select an additional 27 credit hours, of which nine credits may be in subjects other than sociology. The Thesis option requires a total of 30 credit hours; the Non-Thesis option requires a total of 36 credit hours, plus the successful completion of a two-part comprehensive exam.

Applied Sociology in Human Service

The Human Services Program is designed to prepare students to work in a variety of human service fields and to offer advanced training to those already employed in a human service profession. The Human Services Program offers specializations for those interested in service delivery to special client groups like the aging, the abused, and the alcohol dependent. This program also offers a specialization for those interested in human service administration or evaluation. Students in the Human Services Program are required to complete five core courses: SO 610, SO 611, SO 664, SO 665, and SO 667. All students are also required to complete an internship in an approved human service of their choice.

Students may also select to take a Thesis or Non-Thesis option in the Human Services Program. Thesis students, besides completing a thesis under the supervision of department faculty, will select 9 credit hours from various departments in an area of specialization. Students in the Non-Thesis option will select an additional fifteen credits of courses of which no more than nine credits may be outside the department. The Non-Thesis option also requires successful completion of a two-part comprehensive examination. Both options amount to a total of 36 credit hours.

Course Descriptions

SO 527 Spouse Abuse 3 s.h.

Considers the range of theoretical explanations for the pervasive violence between husband and wife, cohabitating partners, or dating couples. Research on spouse abuse and its implications for treatment programs, criminal justice intervention, and social policy is discussed.

SO 528 Child Abuse 3 s.h.

The prevalence, etiology, and social implications of physical, sexual, and emotional abuse and child neglect are examined. Intervention strategies for individual perpetrator and victim and for the family unit and prevention strategies for the community are also presented and critiqued.

SO 542 Social and Cultural Aspects of Health and Medicine 3 s.h.

Review of fields of medical sociology and anthropology; focuses on such topics as social background of illness, folk medicine, cultural differences in perceptions of health, and social organization of health facilities.

SO 543 Development of Social Theory
3 s.h.

Examination of historical development of social theory with special attention to the classical theorists and theoretical ideas which have contributed most significantly to modern sociology.

SO 581 Special Topics in Sociology
3-6 s.h.
See SO 681 for course description.

SO 610 Sociology of Human Services
3 s.h.

Introduction to the theoretical and applied roles of human services in our society. Organizational theories, delivery systems models, and implementation issues are discussed.

SO 611 Human Services Administration
3 s.h.

Examines the management of human service agencies, including personnel supervision, financial planning, public relations, and social policy issues. Evaluation design, program monitoring, and social impact measurement are also discussed.

SO 621 Sociology of Health Care
3 s.h.

Examines the contrasting perspectives in the field of medical sociology, the structure of health care institutions, and the operation of health care providers. The social, environmental, and occupational factors in health and disease are considered as well.

SO 630 Seminar in Alcohol and Drug Abuse
3 s.h.

The social and personal problems associated with alcohol and drug abuse are considered. Attention will be given to the etiology, social factors, and economics of abuse, as well as to prevention and intervention issues.

SO 632 Addiction and the Family
3 s.h.

Assesses the impact of alcohol or drug addiction on the individuals and their families. Research on addiction patterns, codependency, and family treatment are discussed. Special attention is given to gender and racial difference in addiction and its impact on the family.

SO 640 Community Development and Social Policy
3 s.h.

Considers strategies to improve communities economically and socially. Social policy implementation, technical assistance, and community organizing are examined, along with conflict resolution.

SO 642 Industrial Sociology

3 s.h.

Examines structure and exercise of corporate power. Attention is given to relationships between industry, government, and communities and the transformation of the workplace in the twentieth century.

SO 654 Social Inequality

3 s.h.

Examines central theoretical perspectives on inequality. Considers such topics as nature of social classes and inequality in the U.S., characteristics of working class, poor, and super-rich, and sexual inequality.

SO 656 Social Change

3 s.h.

Explores nature and consequences of social change, types of changes individuals might want in U.S., and how these might be implemented. Also discusses lessons to be learned from various social change efforts.

SO 657 Aging and Society

3 s.h.

Focuses on the social problems encountered by aging individuals in various societies. The impact of sociological factors, such as social class, ethnicity, and technological change, on the lives of the elderly are studied. The institutional structures and services designed to cope with changing demographics are also discussed.

SO 662 The Sociology of Deviance

3 s.h.

Relationship between individual deviance and social and cultural factors is examined. How different groups set limits for acceptable behavior is analyzed in comparative and historical context.

SO 664 Research Seminar in Sociology

3 s.h.

Examination of diverse research designs in the social sciences. Focuses on understanding and critique of designs in the social sciences and on integration of theory and research. Special attention given to development of thesis proposal. Required for M.A. in Sociology.

SO 665 Microcomputing Applications in Sociology

3 s.h.

Analysis of data for human services management and research. Students develop database management systems for client information and spreadsheets for program budgeting, evaluation, and forecasting. The use of computed statistics for program decision-making is also discussed. Prerequisite: CO 200 or equivalent.

SO 667 Contemporary Sociological Theory

3 s.h.

Examination of major systems of sociological theory and major theoretical controversies vying for attention in contemporary sociology. Emphasis given to theories in macrosociology, especially functionalism, neo-Marxian conflict theory, and societal evolutionism. Required for M.A. in Sociology.

SO 681 Special Topics in Sociology

3-6 s.h.

Seminar focuses on specialized areas in the discipline not covered by regular courses. Students will do extensive reading in the area. Courses may be repeated under different subtitles.

SO 690 Readings in Sociology

3 s.h.

Students report and develop extensive bibliographies on assigned readings for in-depth understandings of a specific sociological concept, process, or problem.

SO 698 Internship

3-6 s.h.

Supervised experience in public or private organizations that extends and complements classroom instruction. Students apply their analysis and skills to human service agencies and gain practical experience. Prerequisite: permission.

SO 699 Independent Study in Sociology

1-3 s.h.

Students wishing to specialize beyond course work are encouraged to work on a one-to-one basis with faculty members in independent study. Students may elect up to a total of 6 semester hours of independent study.

Special Education and Clinical Services

The Department of Special Education and Clinical Services offers a graduate program leading to the Master of Education degree in Education of Exceptional Children. The department also offers the Master of Science degree in Exceptionality or in Speech-Language Pathology. A graduate level of competency in these major areas is in accord with national standards now emphasized by professional organizations such as the Council for Exceptional Children and the American Speech-Language-Hearing Association.

The M.Ed. degree requires a course in foundations of education and practicum experience in appropriate settings. The Master of Science degree is based upon an individual program which integrates academic as well as practicum experience with selected community agencies. For details on the supervisory certificate, applicants should contact the department chairperson.

Master of Education in Education of Exceptional Children

This graduate program offers majors Master of Education options in one of the following areas of concentration: (1) Mentally Retarded, (2) Emotionally Disturbed, (3) Learning Disabled. As a prerequisite for completion of the M.Ed. degree, the three majors require Pennsylvania comprehensive teaching certification in Education of Mentally and/or Physically Handicapped. Candidates with teaching certification in other fields will be required to complete additional undergraduate and/or graduate semester hours toward such certification, depending on individual background. All three concentration areas require 9 semester hours in Professional Development selected from the approved list, including 3 semester hours in foundations of education, 3 semester hours selected from the course list in Behavioral Studies, and 3 semester hours in research (GR 615). The degree programs also require 6 semester hours in Specialization Core, including EX 640, as well as specialization courses in each area: EX 623 for the Mentally Retarded, EX 655 for the Emotionally Disturbed, and EX 666 for the Learning Disabled.

Each degree requires a minimum of 21 semester hours in Subject Area course work unless the thesis option is selected. Advisement is required for course selection. The department does not accept credits earned in workshops toward graduation.

For description of GR courses, see entry under "General Service Courses."

Master of Science in Exceptionality

Professional training is provided for those who wish to gain competency for working with mentally and/or physically handicapped adults and their families in the community or in various agencies and organizations. Adviser recommendation should be obtained prior to enrollment. Course selection and degree candidacy are based upon individual background and employment goals. Candidates for the Master of Science degree will select a minimum of 21 semester hours in Subject Matter Concentration, including 6 semester hours in EX 685, Practicum, EX 630, EX 631, and PC 640 or EX 645. They will also complete a minimum of 3 semester hours in GR 615, Elements of Research, as well as 3 to 6 hours of Interrelated Study selected according to student needs.

For description of PC course, see section on Psychology. For description of GR courses, see entry under "General Service Courses."

Course Descriptions

EX 500 Education of Exceptional Children in Regular Classes
3 s.h.

Intended for graduate students who are teaching regular classes and other school personnel who do not have a background of formal course work in the general area of exceptionality. Included will be specific vocabulary and etiology of handicapping conditions as they relate to regular class teachers in understanding the nature of problems. Concepts of mainstreaming and resource room teaching will be included.

EX 524 Language Disabilities and the Language Processes
3 s.h.

Designed for students pursuing the concentration in learning disabilities. Skills are taught to help the student evaluate learning disabled children, with a major emphasis on language processes.

EX 530 Physical Disabilities and Psychological Handicaps
3 s.h.

Provides for in-depth study of the most prevalent physical disabilities, indicates coping mechanisms used by some of the afflicted, and shows how the physically disabled who do not develop coping strategies become psychologically handicapped. Adaptation of teaching materials, equipment, and facilities is discussed. Rationale for placements in the various educational environments is included.

EX 557 Severe and Profound Retardation and Multiple Disabilities
3 s.h.

Provides guidelines and methods for working with the extremely disabled in educational settings. Emphasizes methods of providing stimulation of basic skill development in areas of motor, perceptual, cognitive, language, and social skills.

EX 564 Preschool Education of the Handicapped
3 s.h.

Development of intervention strategies, assessment of prescriptive planning, and curricular problems of the preschool aged handicapped child from infancy to five years of age. Prepares needed teachers for preschool programs for the handicapped. Satisfies state and federal priorities where the emphasis is being placed on the education of preschool handicapped.

EX 580 Selected Problems and Research
1-3 s.h.

Students will review critically recent developments in the field. Opportunity is afforded for independent readings and limited research reports. A student may identify a topic for subsequent development as his/her thesis or research project. Prerequisites: EX 631, EX 639, and EX 640.

EX 599 Independent Study in Special Education

1-3 s.h.

Individual students develop research studies in consultation with a faculty member. Departmental consent required.

EX 623 Curriculum and Methods

3 s.h.

Designed to provide an in-depth understanding of current curriculum levels for all exceptional students. Curriculum guides are evaluated and analyzed in relation to present and future programs. Some consideration of subject matter at elementary and secondary levels and of relationship between academic subjects and vocational skills; emphasis on clinical and diagnostic approach in curriculum design.

EX 625 Vocational and Career Opportunities for the Handicapped

3 s.h.

Designed to develop competencies in the areas of pre-vocational education of the handicapped. Reviews career and occupational alternatives for the handicapped, as well as techniques and skills required for obtaining and maintaining employment.

EX 630 Organization and Administration of Programs for Exceptional Children

3 s.h.

Principles, practices, and problems of administration and supervision as they relate to developing and maintaining special education problems. Criteria are analyzed for use in evaluation of local programs. Functions of administrators and supervisors in school systems are compared according to rural, urban, or statewide responsibilities. Prerequisites: EX 623 and 640. (Required for administrators and supervisors.)

EX 631 Psychology of Exceptional Children and Youth

3 s.h.

Designed as a basic course in the psychosocial and psychoeducational adjustment of exceptional individuals. Consideration given to general needs assessment of all exceptional persons as well as to specific needs of those with unique mental and/or physical conditions.

EX 632 Guidance and Adjustment for Parents of the Exceptional

3 s.h.

Home, school, and community influences are analyzed in family adjustment to the presence of an exceptional child. Family reactions are considered in behavioral differences among children with various degrees of exceptionalities. Emphasis on guidance skills and knowledge needed by teachers and other professional workers in the field of exceptionality.

EX 638 Psychology of the Gifted Child

3 s.h.

Characteristics of the bright, fast-learning child along with implications for education. Emphasis on measurement techniques, motivational factors, and personality dynamics.

EX 639 Psychology of the Mentally Retarded
3 s.h.

Characteristics of the mentally retarded are analyzed with applications for educational, vocational, and personal adjustment. The various levels of mental retardation are considered in relation to etiology, learning and behavior, development, measurement, social factors, and interpersonal and family relations. Consideration given to changing outlook and recent trends in the field.

EX 640 Diagnostic Techniques in Special Education
3 s.h.

Diagnostic procedures and appropriate test materials are selected for use in assessment of pupils with mental, physical, emotional, and learning disabilities. Observations and demonstrations, reporting and interpreting results of diagnostic procedures are integrated with remedial or developmental recommendations in individuals case studies. Prerequisites: EX 631 and EX 639.

EX 641 Interpretation of Results of Psychological Tests
3 s.h.

Results of psychometric tests are analyzed and interpreted. Various standardized psychological instruments and test batteries are considered in the light of their purpose and usage. Both individual and group test results are examined.

EX 645 Community and Agency Planning for the Exceptional
3 s.h.

Selected professional, governmental, and community organizations are studied for their contributions to comprehensive planning toward educational, personal-social, and occupational adjustments. Social, educational, economic, and cultural aspects are analyzed.

EX 664 Curriculum Planning for the Gifted/Talented
3 s.h.

Utilization of existing hierarchal presentations to aid with curricular decision making by teachers, supervisors, and administrators for the gifted/talented, nursery school through twelfth grade. Emphasis on four major areas: social studies, mathematics and science, language arts, and creative arts. Considerations for integrating other disciplines and for going beyond the scope of the course will be presented. Prerequisite: EX 638.

EX 665 Education of Children with Social and Emotional Maladjustments
3 s.h.

Examines reactions of children in the schools who deviate in their emotional or social behavior. Consideration is given to children who habitually exhibit overcontrolled, undercontrolled, or immature reactions. Identification, characteristics, educational provisions, and preventative measures are emphasized.

EX 666 Education of Children with Learning Disabilities

3 s.h.

Emphasizes curriculum and remedial instruction for children with special learning disabilities who exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken and written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic.

EX 685 Practicum and Internship

3-9 s.h.

Advanced students are offered guided practicum experiences in selected schools, residential institutions, clinics, or agencies. Internships or supervised student teaching are planned individually. Students analyze, evaluate, and report on their experiences.

Speech-Language Pathology

The Speech-Language Pathology program culminates in a Master of Science degree. A minimum of 36 semester hours is required for the degree. The program provides for the completion of the academic and practicum requirements for the Certificate of Clinical Competence from the American Speech-Language-Hearing Association. Those students who have not completed an undergraduate major comparable to that offered by IUP in the discipline may be provisionally admitted and, upon completion of the deficiencies, may apply for full graduate status. Workshops are not to be considered applicable for degree requirements. The thesis option is available with approval of the adviser.

Master of Science in Speech-Language Pathology

Candidates for the Master of Science degree will select a minimum of 24 semester hours in the Subject Matter Concentration, including SH 610, SH 630, SH 640, SH 650, SH 661, SH 662, SH 663, and SH 681. They will also complete 3 to 6 semester hours of research and register for one elective (3 semester hours) approved by the adviser.

Course Descriptions

SH 512 Cleft Palate

3 s.h.

Problems associated with the phenomenon of cleft lip and palate with special emphasis in areas of speech, hearing, and language. Included in course will be human embryology, physical remediation, the effects of clefts on structure and function of speech and hearing mechanism, and the role of speech correctionist in the cleft palate team.

SH 604 Diagnostic Methods

3 s.h.

Evaluation of tests and techniques of diagnosis of speech and language disorders; interpretation of results and planning appropriate subsequent case management. Interviewing techniques appropriate to case history taking. Writing of diagnostic and case-history reports.

SH 610 Articulation

3 s.h.

Linguistic approach to articulatory process and analysis of misarticulation as symptoms of language dysfunction; variables related to articulatory mastery; programmed, traditional, and sensory-motor methods of modifying articulatory behavior.

SH 614 Neuropathologies of Speech

3 s.h.

Investigation of symptoms and etiologies associated with deviant neural transmission and muscular contraction. Examination of diagnostic techniques employed in neuromuscular conditions resulting from palsies, progressive degenerative diseases, dysarthrias, tumors, and paralytic or paretic involvement. Emphasis on treatment approaches.

SH 616 Stuttering

3 s.h.

Nature and causes of stuttering. Emphasis on diagnosis and management. Counseling and learning theory application as two main approaches to treatment. Consideration of the person as a stutterer. Review of pertinent and recent research topics.

SH 618 Voice

3 s.h.

Scientific principles of voice production and modification with emphasis on physiology, pathologies, or malfunctioning which produce voice defects; relationship between disorders of voice and personality; diagnostic and therapeutic considerations for both organic and psychogenic disorders, including the laryngectomized.

SH 624 Principles of Speech-Language Pathology in the Schools

3 s.h.

Advanced study of legal and social factors affecting service delivery in the public schools. Models of service delivery for classroom and individual programs. Models of supervision for staff, paraprofessionals, and trainees.

SH 630 Language Disorders of Children

3 s.h.

Anatomical, physiological, psychological, neurological, and environmental factors related to language delay or disordered language acquisition. An inventory of language skills and means of fostering their development or compensating for inadequacies; a holistic versus specific approach to programs of remediation.

SH 631 Seminar in Language Acquisition

3 s.h.

Advanced study of the processes and sequences of normal language acquisition. Special emphasis placed upon a comprehensive review of recent theories and research related to cognitive-perceptual and social-pragmatic variables. Trends in language acquisition will be studied in relationship to other developmental sequences.

SH 632 Aphasia

3 s.h.

Consideration of language, speech, and related problems resulting from neurological insult. Neurological functioning and dysfunctioning will be highlighted. Diagnosis and management of persons with aphasia, agnosias, or apraxias will be emphasized. Role of family in rehabilitation and family counseling.

SH 635 Seminar in Communication

1-3 s.h.

Intensive study of one or more areas of speech science, speech and language pathology, or audiology. Topics vary to meet the student's needs and interests. Course may be repeated for credit with a change in area considered. Prerequisites: Speech-Language Pathology major, admission to degree candidacy, and adviser approval.

SH 640 Diagnostic Audiology

3 s.h.

Identification and description of types of hearing impairment by standard audiometric procedures including pure tone, speech, and site of lesion batteries. Testing of special populations as well as evaluation for fitting of amplification.

SH 645 Pediatric Audiology

3 s.h.

Study of audiological procedures used from infancy through adolescence. Special emphasis on evoked response audiometry, impedance audiometry/tympanometry, and behavioral procedures in addition to standard audiological procedures. Interpretation of findings on children and their Students will review critically recent developments in the field. Opportunity is afforded for independent readings and limited research reports. A student may identify a topic for subsequent development as his/her thesis or research project. Prerequisites: EX 631, EX 639, and EX 640.

SH 650 Advanced Speech Science

3 s.h.

Physiologic, acoustic, and perceptual characteristics of speech with special emphasis on speech monitoring and controls. Major lab instrumentation and research techniques in current use are described and demonstrated. Status of present knowledge is summarized and discussed.

SH 661 Advanced Clinical Practicum I
2-6 s.h.

Supervised practicum experience in the University Speech and Hearing Clinic with individuals exhibiting speech, language, and/or hearing dysfunction. Planning and administration of programs of therapy plus interviewing, diagnosing, counseling, and report writing.

SH 662 Diagnostic Clinic
1 s.h.

Supervised practicum experience in performing in-depth diagnostic evaluations with individuals exhibiting any type of speech, hearing, or language dysfunction. Experience in taking case histories, conferring with patients, and report writing.

SH 663 Hearing Testing Clinic
1 s.h.

Supervised practicum experience in performing diagnostic audiological tests.

SH 681 Advanced Clinical Practicum II
1-6 s.h.

Similar to SH 661; students assume more responsibility, and experience may take place at approved off-campus sites.

SH 850 Thesis
3 s.h.

Theater

The Theater Department does not offer a graduate degree program.

TH 586 Practicum in Production
1-6 s.h.

An opportunity with academic credit for students to make significant contributions to campus productions augmenting theater course work in the areas of assistant directing or directing, stage management, technical direction, sound design, lighting, costuming, scene design, properties and set decoration, scene building, and painting and make-up design. May be repeated for a maximum of six credits. Prerequisite: permission.

TH 693 Internship
1-12 s.h.

Supervised working experience in the context of a professional theater environment in a company employing professional actors, directors, and/or designers. Prerequisite: permission.

The Graduate School Deadlines

The following dates are deadlines for application to graduate study, applications for graduation, and submission of thesis/dissertation materials.

Summer Session, 1991

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| April 1 | Students who plan to take graduate work during the 1991 Summer Session must have an application for graduate study approved on or before this date. |
| June 1 | Prospective August, 1991, graduates must have filed an application for graduation. |
| July 15 | Prospective August graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School. |

Fall Semester, 1991

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| July 1 | Students who plan to take graduate work during the fall semester must have an application for graduate study approved on or before this date. |
| October 1 | Prospective December, 1991, graduates must have filed an application for graduation. |
| November 15 | Prospective December graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School. |

Spring Semester, 1992

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| November 1 | Students who plan to take graduate work during the Spring Semester must have an application for graduate study |
|------------|--|

	approved on or before this date.
March 1	Prospective May, 1992, graduates must have filed an application for graduation.
April 15	Prospective May graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School.

Summer Session, 1992

April 1	Students who plan to take graduate work during 1992 Summer Sessions must have an application for graduate study approved on or before this date.
June 1	Prospective August, 1992, graduates must have filed an application for graduation.
July 15	Prospective August graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School.

Fall Semester, 1992

July 1	Students who plan to take graduate work during the Fall Semester must have an application for graduate study approved on or before this date.
October 1	Prospective December, 1992, graduates must have filed an application for graduation.
November 15	Prospective December graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School.

Spring Semester, 1993

November 1	Students who plan to take graduate work during the Spring Semester must have an application for graduate study approved on or before this date.
March 1	Prospective May, 1993, graduates must have filed an application for graduation.
April 15	Prospective May graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School.

Summer Session, 1993

April 1	Students who plan to take graduate work during 1993 Summer Sessions must have an application for graduate study approved on or before this date.
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- June 1 Prospective August, 1993, graduates must have filed an application for graduation.
- July 15 Prospective August graduates must have submitted archival copies of signed thesis/dissertation and necessary forms to Graduate School.
- Please note:** Dates for filing “Research Topic Approval Form” preparatory to writing a thesis/dissertation are listed in the *Thesis/Dissertation Manual* available in the Graduate School.

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Telephone Numbers

If you have a question concerning a specific graduate program at IUP, please contact the department chairperson. Telephone numbers are listed below for your convenience. The area code for IUP is 412.

Academic Departments:

Adult and Community Education	357-2470
Art.....	357-2530
Biology	357-2352
Business	357-2522
Chemistry.....	357-2361
Communications Media.....	357-2493
Computer Science.....	357-2524
Consumer Services	357-2336
Counselor Education	357-2306
Criminology.....	357-2720
Economics	357-2640
Educational Psychology	357-2445
English	357-2261
Food and Nutrition	357-4440
Foreign Languages	357-2325
Foundations of Education	357-2225
Geography and Regional Planning	357-2250
Geoscience	357-2379
Health and Physical Education	357-2770
History	357-2284
Home Economics Education	357-2563
Industrial and Labor Relations	357-4470
Mathematics	357-2608
Music	357-2390
Nursing.....	357-7647
Philosophy.....	357-2310
Physics	357-2370
Political Science	357-2290
Professional Growth	357-2222
Professional Studies in Education.....	357-2400

Psychology	357-2426
Reading	357-2400
Safety Sciences	357-3017
Sociology/Anthropology	357-2730
Special Education and Clinical Services	357-2450
Sport Sciences	357-2770
Student Affairs in Higher Education	357-2306
Theater	357-2965

Other Frequently Called Numbers:

(All numbers are within the 412 area code)

University Operator	357-2100
Graduate Admissions	357-2222
Campus Dining (ARA)	357-2570
Campus Police and Parking/Traffic Control	357-2141
Career Services	357-2235
Co-Op Store (Bookstore)	349-1194
Financial Aid	357-2218
Graduate School	357-2222
Office of Housing and Residence Life	357-5639
Pechan Health Center	357-2550
Registrar	357-2217
Stapleton Library	357-2330

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