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Indiana, PA 15705

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The Graduate School

1987-1989
Catalog

IUP

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IUP IS COMMITTED TO PROVIDING LEADERSHIP IN TAKING AFFIRMATIVE ACTION TO ATTAIN EQUAL EDUCATIONAL AND EMPLOYMENT RIGHTS FOR ALL PERSONS, WITHOUT REGARD TO SEX, HANDICAP, OR OTHER LEGALLY PROTECTED CLASSIFICATION. THIS POLICY IS PLACED IN THIS DOCUMENT IN ACCORDANCE WITH STATE AND FEDERAL LAWS INCLUDING TITLE IX OF THE EDUCATIONAL AMENDMENT OF 1972 AND SECTION 503 AND SECTION 504 OF THE REHABILITATION ACT OF 1973. THIS POLICY EXTENDS TO DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA. PLEASE DIRECT EQUAL OPPORTUNITY INQUIRIES TO: DIRECTOR OF AFFIRMATIVE ACTION, 355 JOHN SUTTON HALL, IUP, INDIANA, PA 15705.

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: DECEMBER, 1986

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THE GRADUATE SCHOOL CALENDAR

SUMMER SESSION, 1987

- April 1 Students who plan to take graduate work during the 1987 Summer Session must have an application for graduate study approved on or before this date
- June 1 Prospective August, 1987 graduates must have filed an application for graduation

FALL SEMESTER, 1987

- 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 1987 graduates must have filed an application for graduation

SPRING SEMESTER, 1988

- 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 1988 graduates must have filed an application for graduation

SUMMER SESSION, 1988

- April 1 Students who plan to take graduate work during 1988 Summer Sessions must have an application for graduate study approved on or before this date
- June 1 Prospective August 1988 graduates must have filed an application for graduation

FALL SEMESTER, 1988

- 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, 1988, graduates must have filed an application for graduation.

SPRING SEMESTER, 1989

- 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, 1989, graduates must have filed an application for graduation.

SUMMER SESSION, 1989

- April 1 Students who plan to take graduate work during 1989 Summer Sessions must have an application for graduate study approved on or before this date.
- June 1 Prospective August, 1989, graduates must have filed an application for graduation

TUITION AND FEES

REGULAR SEMESTER TUITION (Fall & Spring)

Full-Time Tuition for Pennsylvania Residents

\$840 for 9-15 semester hours (s.h.), then \$93 for each additional s.h.

Part-Time Tuition for Pennsylvania Residents

\$93 per semester hour (s.h.) for fewer than 9 s.h.

Full-Time Tuition for Non-Pennsylvania Residents

\$936 for 9-15 semester hours (s.h.), then \$104 for each additional s.h.

Part-Time Tuition for Non-Pennsylvania Residents

\$104 per semester hour (s.h.) for fewer than 9 s.h.

SUMMER SESSION TUITION

All Graduate Students (in-state and out-of-state) \$93 s.h.

Application Fee (nonrefundable) \$1500

Activity Fee — Semester Full-Time Students

(9 s.h. or more) \$3600

Semester Part-Time Students

(8 s.h. or fewer) \$1200

Main Summer Session

All Graduate Students \$2800

Pre or Post Summer Session

All Graduate Students \$1200

Health Fee — Semester Full-Time \$3600

Pre Session \$ 700

Main Session \$1500

Post Session \$ 700

Late Fee \$10.00/day up to \$5000

Applied Music Fee per 1/2 hour private instruction \$5000

Audit Fee (Same as Tuition)

Graduation Fee \$2000

Master's or Doctoral Cap, Hood, and Gown Fee Nominal

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 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 Office.

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:

<u>Withdrawal on Calendar Day Basis</u>	<u>Percentage of Student's Total Semester Charges to be Forfeited</u>
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 refund)

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

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:

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

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 three weeks duration will be granted a 50 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 refund for the course(s) cancelled. No refunds 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:

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

During Summer Sessions, part-time students will forfeit fees as follows. The student will forfeit 50 percent of the course charges from the first class day through the fourth calendar day. On the fifth calendar day and beyond, the student will forfeit 100 percent (no refund).

Refunds will be granted only for instructional fees. No refund will be granted to students who drop and add like number of credit hours. Part-time students attending graduate courses at off-campus locations are advised to consult the appropriate section of this catalog.

WITHDRAWAL FROM UNIVERSITY SERVICES

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.

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

WITHDRAWAL	REFUND	FORFEITURE
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

Students who reduce their course credit load will receive a 50 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.

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.

IUP

Location — IUP, the largest state-owned university in Pennsylvania's State System of Higher Education, is located in Indiana, Pennsylvania, a community of 26,000 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 University Library Complex (Patrick J. Stapleton, Jr., Library and Rhodes R. Stabley Library) provides excellent facilities for graduate work with librarians readily available for assisting with specialized reference work. The library is an officially designated Federal Depository. The holdings in Patrick J. Stapleton, Jr., Library include over 575,000 volumes of books, 1,700,000 units of microform, 4,500 indexed periodicals subscriptions, and the government documents collection.

DIALOG on-line computer service for searching periodicals as well as other sources are available through the Reference Department of the library. Altogether, 180 data banks are searchable by DIALOG. A \$5.00 deposit is required of students using this service.

The Rhodes R. Stabley Library houses 50,000 units of media material and software together with facilities for listening and viewing. These services consist of the development of instructional systems, such as student response, and personal self-instructional materials. In addition, the library provides photographic services and sound recording and reproduction; designs and produces conventional instructional materials; procures, inventories, and maintains university multimedia equipment; and develops and maintains a film library.

Graduate students and faculty conducting research may apply for interlibrary loans to supplement the library's holdings. Individual study carrels are available for graduate students conducting library research.

STAPLETON/STABLEY LIBRARY HOURS

Monday thru Thursday	7:45 a.m. - 10:30 p.m.
Friday	7:45 a.m. - 9:30 p.m.
Saturday	9:00 a.m. - 5:00 p.m.
Sunday	1:00 p.m. - 10:30 p.m.

Schedules for summer sessions and vacation periods are posted. The telephone number for the Reference Desk is 357-3006.

The Computer Center - The Computer Center, established in July, 1963, 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. Typewriter terminals, located both in the Computer Center and in various locations on campus, permit the use of the computer on a time-sharing basis. Key punching facilities and a full complement of tabulating equipment are available in the Computer Center for student use. Remote job entry stations are located in the Computer Science Department and the College of Business, along with a large number of time-sharing terminals. Aid in the use of the computer and facilities may be obtained from user assistants on duty at the Computer Center and from the center's professional staff.

IUP's Computer Center plays an active part in the daily functioning of the university. It is the principal laboratory facility for computer-oriented courses and is used as a teaching aid in many classes involving statistical and numerical analyses and computer simulations. In addition, over eighty organizations outside the university make extensive use of IUP's computing facilities. The staff at the center is actively involved in continuing work aimed at making computers a more effective and readily accessible tool for both the academic and administrative segments of the university community.

University Testing Services IUP is formally recognized as an official testing site by several national testing agencies. These include American College Testing, Educational Testing Services, Psychological Corporation, the Law School Admissions Council, and the 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 a 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 the University Testing Service on a frequent schedule - usually monthly on a weekday afternoon. To register, contact the Office of Career Services (412) 357-2235. All Graduate School applicants with a GPA of 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 the University Testing Service 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 MBA 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 It is used generally by participating school systems for qualification and/or selection of instructional staff This test is used at IUP in admissions to the Supervisor of Guidance Certificate Program

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

The 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 (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 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 a privilege and opportunity for each student Employment is not guaranteed by the university but IUP graduates have established an outstanding reputation of success in the working world

THE GRADUATE SCHOOL AT IUP

GENERAL INFORMATION

Graduate work was inaugurated at IUP in September 1957

Master of Arts, Master of Science, Master of Business Administration, Master of Education, 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 chairperson and graduate studies coordinators of departments offering graduate course work.

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 one month 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 opening 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.
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 MBA and MS in Business program applicants, the latter must submit General Manager Admission Test (GMAT) scores (These tests are described in detail earlier in this catalog).
4. Most applicants requesting admission to programs leading to an MEd degree are required to have a Provisional Pennsylvania Teachers Certificate or its equivalent; all MEd degree applicants should be sure to inquire at their program's sponsoring department. MEd applicants who do not already have such certification where required must complete a planned program leading to certification **prior** to applying for MEd candidacy at IUP.

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 including IUP if the applicant is an IUP graduate 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 three individuals who are familiar with his/her background At least two of the individuals must be persons familiar with the applicant's academic background
- 4 All applicants must submit Graduate Record Examination (GRE) scores except MBA and MS in Business degree applicants who 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 \$1000 must accompany the application Please pay by check and make 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 Pre-Candidacy status is given to an applicant who plans to work toward a graduate degree program and whose application file with the Graduate School is both complete and satisfactory The pre-candidacy student may program under departmental guidance six to twelve graduate hours toward the degree being sought Pre-Candidacy status does not guarantee subsequent admission to candidacy
- 2 Special Graduate Standing is 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 Credits earned by a student having Special Graduate Standing may be applied to an IUP degree after the reclassified student has been awarded degree candidacy provided 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 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 The following programs also require that the Examination's ADVANCED section be taken

Biology
Educational Psychology (MEd and School Psychology Programs)
Elementary Education (EdD)
English (PhD)
Spanish (MA)
Music (MA)
Psychology (MA, PsyD)

Applicants with undergraduate GPAs below 2.6 will be required to submit MAT (Miller Analogies Test) scores. Both GRE and MAT examinations are administered by IUP's Testing Center. Specific information about test availability can be obtained from the center's 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.

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 desiring information about the TOEFL should write to TOEFL, Educational Testing Services, Princeton, NJ, 08540, USA.)

TOEFL scores are only one of several criteria considered for the admission of foreign students to the Graduate School at IUP. However, as a broad indicator, applicants should be aware of the Council of Graduate Schools' finding that, among American universities, the TOEFL scores most widely expected for admission are 500 and above.

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, USA. 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 International Student Adviser, IUP, Indiana, PA 15705.

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 MBA or MS programs must take the GMAT regardless of foreign status.

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 has Special Graduate Standing, 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.

Pre-registration

Prior to each semester or summer session, enrolled graduate students receive the graduate class schedule and pre-registration materials by mail. (These materials will be sent upon request to prospective new students.) The student should return all completed registration forms to the Graduate Office by the date published in the graduate class schedule.

Final Registration

After students have returned their registration materials to the Graduate School they will receive from the Business Office a bill for tuition and fees. Students registering at "walk-in" registration may arrange for housing and meals, parking, and "I" cards. Mail-registered students should make arrangements independently with the office involved.

"Walk-in" registration is for students who have not pre-registered by 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.

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 adjustment 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.

APPLICANTS FOR SPECIALIST OR SUPERVISORY CERTIFICATION PROGRAMS

IUP offers specialist or supervisory certificate programs in Instructional Media Specialist (communications media department), Elementary School Counselor, Secondary School Counselor, Supervisor of Guidance Services, Supervisor of Pupil Personnel Services (counselor education department), School Psychology certification (educational psychology department), Reading Specialist, Reading Supervisor (professional 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.

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. 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.

Payment of financial aid awards is done on a semester basis. All financial aid, with the exception of the private scholarships, work-study, and guaranteed student loans are credited to the student's bill in advance.

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 assistance with teaching, supervised teaching, research or assistance with research, and university service activities. Duties are under the supervision of a graduate faculty member. 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 a 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 vary from year to year, potential applicants should check with the Graduate School for current stipend levels.

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

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 in graduate courses during each semester of the appointment. A tuition waiver includes up to nine hours of graduate credits during the summer following the appointment. Activity and health fees 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 graduate 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 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

A. 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 fifteen hours per week when classes are in session and forty hours per week during vacation periods. Work-study jobs not only help defray the cost of education but can add valuable practical experience to 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.

- B. State University Employment (UE)
The State University Employment Program also provides an opportunity for students to work as an accompaniment to their studies program. Maximum UE hours are twenty per week when classes are in session and forty per week during vacation periods. No application is necessary.
- C. Special funded grant employment opportunities are also available to graduate students from time to time. Interested students should check with the Graduate Office.

Loan Programs

- A. Guaranteed Student Loan (GSL)
Applications for the GSL, known in Pennsylvania as the PHEAA Loan, are obtained from private lending institutions such as banks and credit unions and are administered in conjunction with the state and federal governments. There are no cancellation privileges. Up to \$5,000 per academic year may be borrowed with a total limit of \$15,000 for graduate study or \$25,000 for graduate and undergraduate years combined. For new borrowers, repayment at eight percent interest per year starts after the six-month grace period. Previous borrowers will continue at the same interest rate (seven percent, eight percent, or nine percent) and the same grace period (six or nine months). Minimum monthly repayment is \$50.00.
- B. PHEAA Supplemental Loan
Eligibility for a Supplemental Loan will be based on the credit qualifications of you and your co-applicant, the cost of attendance, and the amount of other financial aid you will be receiving. The interest rate is 9.5 percent subject to change in June, 1988. The maximum loan is \$10,000 per year. Repayment of interest and principal begins within thirty days of receipt of the loan proceeds. Applications are available from Pennsylvania lending institutions.
- C. PLUS Loan
PLUS loans are an alternative source of funds. The interest rate is twelve percent, and the maximum loan amount per year is \$3,000. Total indebtedness cannot exceed \$15,000 for graduate study. Principal may be deferred while you are enrolled. Applications are available from lending institutions.

Veterans

IUP is approved to offer training under the various GI 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. The telephone number is (412) 357-2234.

INSURANCE

IUP provides an opportunity for full-time graduate students to purchase accident and illness insurance. Coverage normally begins on a date near the end of August and ends on the same date the following year.

However, shorter coverages are available, based on the date a graduate student enrolls at IUP. Since the range of items covered and benefit maximums change from time to time, no policy details can be listed here. For further details and/or policy purchases, please contact the Accounts Receivable Office, Administrative Annex, IUP, Indiana, PA 15705.

Foreign students enrolled at IUP must purchase the insurance described above unless they can demonstrate that they already have comparable coverage.

GENERAL GRADUATE SCHOOL PROCEDURES AND REGULATIONS

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 a 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.

Program Changes

To insure their quality and relevance, graduate programs at IUP are subject to constant review and change by duly appointed and responsible university groups. Because of this, the university recognizes that provision 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.

Graduate 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, applying for degree candidacy, and applying for and meeting all requirements for graduation. Conversely, students have the right to expect that program 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

The 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 university-wide 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.

Academic Good Standing

IUP graduate students must maintain a minimum of 30(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.

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 work 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.

WORKSHOPS AND OTHER 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 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.

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. 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.

DEGREE CANDIDACY/MASTER'S DEGREE

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 end of the semester or summer in which they complete 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 30 or higher in all graduate course work, have completed their admissions file, including GRE or GMAT scores, and have met all departmental 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 completed twelve graduate hours. At the end of this additional term,

students will either be granted candidacy or be asked to drop out of 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 recordkeeping, some academic departments may require those students not granted candidacy at admissions time to file an application within the department.

DEGREE CANDIDACY/DOCTORAL DEGREES

Candidacy requirements vary from program to program, and doctoral students should check candidacy requirements with their departments at the outset of their doctoral studies.

GRADING SYSTEM

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

A—Excellent	I—Incomplete
B—Good	R—Research in Progress
C—Fair	W—Withdrawal
F—Failure	

No "D" grade is recognized in IUP graduate work.

Quality points are assigned as follows: A - 4, B - 3, C - 2. No quality points are carried by the notations of 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 term ends or in certain practicum-type courses approved for this notation by the Graduate School dean. All "Rs" are replaced by the research 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 detail 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.

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 - but only if so - 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 of 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.

Graduate Course Numbering

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

Dual-level Courses

The number of 500-599 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 course.

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	
Administrative Services	AD	Planning	GE
Art History	AH	Geoscience	GS
Applied Music	AM	Graduate	GR
Anthropology	AN	Health and Physical Education	HP
Art	AR	History	HI
Art Education	AT	Home Economics Education	HE
Business Education	BE	Industrial and Labor	
		Relations	LR
Biology	BI	Management	MG
Chemistry	CH	Marketing	MK
Communications Media	CM	Mathematics	MA
Computer Science	CO	Music	MU
Consumer Services	CS	Nursing	NU
Counselor Education	CE	Philosophy	PH
Criminology	CR	Physics	PY
Distributive Education	DE	Political Science	
Education Administration	EA	(Public Affairs)	PS

Economics	EC	Religious Studies	RS
Early Childhood Education	EE	Safety Sciences	SA
Education	ED	Science	SC
Educational Psychology	EP	Social Science	SS
Elementary Education (Professional Studies in Education)	EL	Sociology	SO
Elementary Mathematics	EM	Special Education Education of Except Children	EX
Elementary Science	ES	Speech and Hearing	SH
English	EN	Student Personnel	ST
Fine Arts	FA	Theater	TH
Finance/MIS	FS		
Food and Nutrition	FN		
Foreign Language	FL		
Critical Language	CL		
French	FR		
German	GM		
Greek	GK		
Latin	LA		
Spanish	SP		

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.

A maximum of six credits of transfer work may be accepted. 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.

Graduate 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 QPA.

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. Exceptions to this limit may be made by the Graduate School dean in consultation with the appropriate department.

Independent Study Maximum

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

Graduate 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 of 3.0 GPA, must have been in full-time enrollment (nine graduate credits or more) during the semester or summer session (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 studies 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, "immediately preceding the academic period," etc., refers to the student's last preceding active semester or summer session.

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 according to the following time schedule: for Pre and Post Sessions within the first six class days; for Main Session, within the first twelve class days

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

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 Graduate School Dean. 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 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

Graduate 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 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 to a graduate degree should the student be admitted to an IUP graduate program

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

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 following established diploma-award date. An official diploma will be presented to the student at that time.

DOCTORAL DEGREE PROGRAMS

The Graduate School offers work leading to the doctorate through the following departments: counselor education, educational psychology, elementary education (professional studies in education), English, and 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 Education in Counselor Education (Currently inactive; no new applicants being accepted)

Doctor of Education in Elementary Education

Doctor of Education in School Psychology

Doctor of Philosophy in English

Doctor of Psychology in Clinical Psychology

The doctoral programs in counselor education and school psychology 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, the petition first having 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

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 up to twelve graduate credits through approved interinstitutional agreements

Admission to Candidacy — Each student admitted to a doctoral program must apply for 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 GPA may be set higher than the foregoing Graduate School requirement by the program's 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. 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 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. The notation "R," to indicate research in progress, is made in the candidate's academic record.

Dissertation Review Meeting — 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.

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 college dean. 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, 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 through the department to the Graduate School no later than two months prior to the university's next published degree-granting date.

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 and Master of Education. 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 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	Psychology
English	Public Affairs
Geography	Sociology
Geography	Spanish Language and Literature
	Student Personnel Services

Master of Science degrees are offered in

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

A Master of Business Administration degree (MBA) is offered

Master of Education degrees are offered in the following

Business	Elementary Mathematics
Communications Media	Elementary or Secondary School Counseling
Educational of Exceptional Children	Home Economics
Educational Psychology	Mathematics
Elementary Education	Reading
	Speech-Language Pathology

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 sh) 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 part of the four if requested by the department and approved by the Graduate School dean.

DEPARTMENT	DEGREE	THESIS	CREDITS	COMMENTS
Adult/Community Education	M A	Optional	36	AC645 may be substituted for the thesis
Art	M A	Required	30	

DEPARTMENT	DEGREE	THESIS	CREDITS		COMMENTS	
Biology	MS	Required	32	—	Thesis	
Business	MBA	No thesis				
	MEd	Optional	30			
	MS	Optional	30			
Chemistry	MA	Optional	30	—	Thesis	
	MS	Required	30	—	Thesis	
Communications Media	MEd	Optional	30	—	Thesis	
			36	—	No thesis	
Counselor Education	MEd	Optional	33			
		MA	Optional	36	—	Thesis
			39	—	No thesis	
Criminology	MA	Optional	36	—	Thesis	
			36	—	No thesis	
Educational Psychology	MEd	Optional	33	—	Thesis	
			36	—	No thesis	
Elementary Education (Professional Studies in Education)	MEd	Optional	30	—	Thesis	
			36	—	No thesis	
Elementary Mathematics	MEd	Optional	30	—	Thesis	
			30	—	No thesis	
Emotionally Disturbed	MEd	Optional	33	—	Thesis	
			36	—	No thesis	
English	MA	Optional	30	—	Thesis	
			30	—	No thesis	
Exceptionality	MS	Optional	33	—	Thesis	
			36	—	No thesis	
Food and Nutrition	MS	Optional	30	—	Thesis	
			33	—	No thesis	
Geography	MA	Optional	30	—	Thesis	
			36	—	No thesis	
		MS	Optional	30	—	Thesis
			36	—	No thesis	
		MEd	Optional	33	—	Thesis
			36	—	No thesis	
Health and Physical Education	MS	Optional	30	—	Thesis	
			36	—	No thesis	
History	MA	Optional	30	—	Thesis	
			36	—	No thesis	
Home Economics	MEd	Optional	30	—	Thesis	
			33	—	No thesis	
Industrial and Labor Relations	MA	Optional	42	—	Thesis (3-6 crs)	
Learning Disabilities	MEd	Optional	33	—	Thesis	
			36	—	No thesis	

DEPARTMENT	DEGREE	THESIS	CREDITS	COMMENTS	
Mathematics	MEd	Optional	30	—	Thesis
			30	—	No thesis
	MS	Optional	30	—	Thesis
			30	—	No thesis
Mental Retardation	MEd	Optional	33	—	Thesis
			36	—	No thesis
Music in Music Performance in Theory or Musical Composition	MA	Recital	31		
	MA	Optional	31	—	Musical composition
in Music History in Music Education	MA	Required	31		
	MA	Optional	30	—	Course work or thesis or recital
Nursing	MS	Optional	45	—	Thesis
			45	—	No thesis
Physics	MS	Required	30		
	MA	Optional	30	—	Thesis
			33	—	No thesis
Political Science International Studies	MA	Optional	30	—	Internship required if thesis option not chosen
Public Affairs		No thesis	36	—	Internship required
Professional Growth	MEd	Required	30	—	4-credit thesis required
	MS	Required	30	—	4-credit thesis required
	MA	Required	30	—	4-credit thesis required
Psychology Applied Research and Evaluation General Experimental	MA	Required	42		
		Required	33		
Reading	MEd	Optional	33	—	Thesis
			36	—	No thesis
Safety Sciences	MS	Optional	36	—	3-6 credits of thesis option included
Sociology	MA	Optional	30	—	Thesis
			36	—	No thesis
Spanish	MA	Optional	30	—	Thesis
			33	—	No thesis

<u>DEPARTMENT</u>	<u>DEGREE</u>	<u>THESIS</u>	<u>CREDITS</u>	<u>COMMENTS</u>	
Speech-Language Pathology	MEd	Optional	36	—	Thesis
			36	—	No thesis
	MS	Optional	36	—	No thesis
			36	—	No thesis
Student Personnel Services	MA	Optional	33	—	Thesis
			33	—	No thesis

MASTER OF EDUCATION CURRICULUM REQUIREMENTS

All Master of Education degrees at IUP are patterned as indicated below. The goal is to assure the student strength in humanistic and behavioral areas as well as professional development in selected subject specialty areas. Specific course descriptions are presented by department in the catalog section which follows.

I. Professional Development Area (9 s h)

A. Humanistic Studies (3 s h.)

One of the following courses:

- FE 611 Historical Foundations of Education
- FE 612 Philosophical Foundations of Education
- FE 613 Social Foundations of Education
- FE 514 Comparative Foundations of Education

B. Behavioral Studies (3 s h)

One of the following courses:

- EP 604 Advanced Educational Psychology
- EP 573 Psychology of Adolescent Education
- EP 576 Behavioral Problems
- EP 578 Learning
- EP 580 Pupil Adjustment
- CE 629 Group Procedures (Elementary)
- CE 639 Group Procedures
- EX 631 Psychology of the Exceptional Child

C. Research (3 s h.)

- GR 615 Elements of Research

II. Specialization Core (6 s h.)

- FE 515 Curriculum Development
- CM 600 Seminar in Learning Resources

OR

Department Methods or Curriculum Course(s)

III. Subject Area and/or Electives (11-15 s h. maximum)

TEACHER CERTIFICATION

Students admitted to the Graduate School who wish to work toward certification in a specific field(s) should check the description 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.

Principal Certification

IUP offers a competency-based school administrative 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 certification program (Dean's Office, College of Education, Stouffer Hall).

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 for 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 at the master's level and frequently will accept no more than thirty graduate semester hours earned elsewhere as applicable to a doctorate.

Degree Eligibility of IUP Teaching Staff

Please check with the Graduate School dean to determine current policy.

GENERAL SERVICE COURSES

The following Graduate School courses are taught by selected departmental faculty members 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 sh

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 MEd. degree.

*XX 850 THESIS 1-6 sh

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

*XX 851 RECITAL 2-4 sh

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. MU 851 should be scheduled for the semester in which the student plans to give the recital.

*XX 950 DISSERTATION 1-12 sh — Hours to be arranged

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 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 sh

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 are examined, with emphasis on use of statistical techniques studied and their interpretation.

GR 517 STATISTICAL METHODS II 3 sh

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 is 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 sh

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

GR 699 INDEPENDENT STUDY 1-3 sh

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 sh

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

ED 595 INTERNATIONAL STUDYTOUR IN EDUCATION 3 sh

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 evaluate procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from a theoretical and applied viewpoint. Prerequisite: 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 are a component of the M.Ed. degree in Social Sciences and may be used as electives for M.A. degrees in other programs.

COURSE DESCRIPTIONS

AN 514 ETHNOLOGY OF NORTH AMERICAN INDIANS 3 sh

Review of culture history and culture area characteristics of Indians of North America. Representative groups at different levels of economic, social, and political complexity chosen for more detailed study related to historical, functional, ecological, and psychological concepts. Current living conditions of Native Americans ranging from lifestyles on the reservation to urban settings examined in view of recent theories of social and cultural change.

AN 520 FIELD SCHOOL IN ARCHAEOLOGY 6 sh

Current strategies and techniques in archaeological excavation research applied to prehistorical and/or historic sites in Indiana and adjacent areas. Relationships of archaeological and social science paradigms of archaeological data, national and state conservation policies, and archaeological study of culture change examined in excavation context.

AN 522 CULTURE AND PERSONALITY 3 sh

Studies personality traits unique to prescribed or institutional settings. Subject matter includes socialization, emotional expression, kinesics, deviant roles, cultural aspects of mental disturbance, and value orientation. Some attention given to research methods employed in the discipline.

AN 571 CULTURAL AREA STUDIES 3 sh

Analysis of prehistoric and contemporary aspects of ethnological studies in a culture area. Examines social organization, linguistic ties, cultural ecology, folklore, mythology, artistic expression, and world view in a particular culture area. This course may be repeated according to selection of culture areas by instructors responsible for the course. The following culture areas are initially available: AN 571A CULTURAL AREA STUDIES JAPAN; AN 571C CULTURAL AREA STUDIES THE CARIBBEAN.

graduate studio and academic course work. Graduate credit is not given for undergraduate courses that may be required.

4. Students seeking admission without an appropriate undergraduate degree in art will be required to take undergraduate studio and art history credits that raise the candidate's background to the equivalent standards that are in place for those possessing undergraduate degrees in art.

Research: Thesis/Exhibition

A student may select a specific problem for three semester hours and pursue it in off-campus study with the help of an adviser. The student will present a thesis proposal to the adviser of his/her choice and to the director of graduate studies. The study will be reviewed by the advisory committee and juried at the end by the same committee.

M.A. Thesis/Exhibition

The thesis/exhibition is developed after the acceptance and approval of the thesis proposal. The thesis proposal will be reviewed by the student's thesis adviser and advisory committee. The thesis adviser and advisory committee will also serve as jurors for the final, one-person thesis/exhibition which culminates in the M.A. in art. The thesis/exhibition will include appropriate written statements, sketch books, catalogues, notes, or other methods which document the exhibition. All graduates will leave a permanent record of their thesis/exhibition with the Department of Art through the above documentary materials, along with slides, photographs, videotapes, programs, catalogs, or other primary documents that the advisory committee deems appropriate.

MASTER OF ARTS IN ART

Studio Major (AR 640 through AR 668) no less than	12
Studio Minor (AR 640 through AR 668) no less than	6
Art Seminar (AR 615)	3
Thesis (AR 850)	3
Electives	<u>6</u>
TOTAL	30

GRADUATE MINOR IN MEDIA

Graduate students may, with the approval of their adviser, obtain a minor in media at IUP. The minor consists of a minimum of six semester hours of work in graduate-level courses in media and may include as many hours in media as are approved by the student's graduate program adviser.

The minor may include any combination of courses offered by the communications media department except CM 630 Classification and Cataloging of Learning Resources, CM 660 Management of Learning Resources Programs and CM 699 Internship. These courses are designed for the professional media center manager rather than for the person minoring in communications media. All courses are three semester hour credits.

The number of semester hours in each of these programs represents the minimum. The student's committee reserves the right to recommend more.

COURSE DESCRIPTIONS

- AH 506 ANCIENT MIGRATORY ART 3 sh
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 sh
Prerequisite art history majors, by special arrangement. 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
- AH 508 ITALIAN RENAISSANCE ART 3 sh
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 sh
General survey of art from 1575 to 1775. Will include architecture, sculpture, painting, and other arts
- AH 519 MUSEOLOGY 3-6 sh
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 and will include supervising selection and hanging of shows
- AH 522 ART IN AMERICA 3 sh
Surveys American art and its relation to the development of American ideas and ideals
- AH 523 SEMINAR IN ART CRITICISM 3 sh
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 sh
Nature of Eastern art's meaning and place in contemporary world culture

AH 625 ARCHITECTURAL INFLUENCES IN
A CONTEMPORARY SOCIETY 3 sh
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 sh
Art of Mezo-American cultures, Mayas, Aztecs, and Incas, as influenced by
oceanic migrations

AH 628 WORLD ART SINCE 1875 3 sh
Discoveries and advances in artistic expression in modern times Subject matter
for study may be found in any or all of the arts

All art history courses are open as electives to all students

AR 615 ART SEMINAR 3 sh
Opportunities for students to discuss problems in art related to studio interests.
Thesis/show proposals will also be prepared For MA candidates only

AR 616 DIRECTED STUDIES 3-6 sh
Offered in instances where a particular course is needed by a student but is no
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 sh
Prerequisite — at least one year of undergraduate ceramics 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

AR 644 GRADUATE STUDIO IN FIBERS 3-18 sh.
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 sh
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 sh
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 sh
Specialized study and experiences in the design and execution of problems
relating to wood as a crafts material Opportunity is presented for more intensive
exploration of materials and processes of this craft employing both hand and
power tools

AR 661 GRADUATE STUDIO IN DRAWING 3-18 sh
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 sh
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 sh
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 sh
Prerequisite — AR 217 or its equivalent. 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.

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

AT 611 ART CURRICULUM DEVELOPMENT IN ART EDUCATION 3 sh
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 sh
Responsibilities, functions, and duties of art supervisors and administrators.

AT 613 RESEARCH IN ART EDUCATION 3 sh
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 sh
Considers art education in Europe, the United States, and Canada, designed to give the student background.

AT 654 INTRODUCTION TO ART THERAPY 3 sh
A survey of the concepts and theories, applications, and procedures of art therapy. Consideration of selections of materials and media for various diagnostic and therapeutic problems, rehabilitative and psychiatric settings, and limitations of the art therapist. Prerequisite is admission to the Graduate School. Basically the course will serve individuals with clinical backgrounds (psychology, social workers, child care, speech therapy, special education, art education and art therapy) and those with a primary identity in one or more of the arts.

AT 655 ART THERAPY SEMINAR 3 sh
Provides practical considerations in therapy to prepare student to enter a practicum experience. Prerequisite is Introduction to Art Therapy 654 or its equivalent.

AT 656 ART THERAPY PRACTICUM 6 sh
A professional supervisory team will guide students in a semester experience in settings where they will practice art therapy. Discussion, analysis, planning and data gathering will be in the students' area of interest. Minimum required courses for the art therapy degree are the prerequisites.

AT 657 METHODOLOGY IN ART THERAPY 3 sh
This course will be a lecture/experiential situation in which the art therapy major will become involved with treatment approaches for use with individuals and groups in various clinical and agency settings.

MASTER OF ARTS IN ART THERAPY

The M.A. degree in Art Therapy has been placed on inactive status. No new applicants are being accepted into the program.

BIOLOGY

Requirements for Admission To be admitted to the biology department, the applicant must have completed the requirements for a bachelor's degree from an accredited college or university which should include a major in biology, one year of inorganic chemistry, one semester of organic, and one semester of calculus or statistics. Applicant with undergraduate deficiencies may be required to register for appropriate courses.

The Requirements for Candidacy for the MS degree are

- satisfactory completion of fifteen semester hours of graduate work, with at least eight hours in core courses
- the selection of an adviser and a committee of at least two additional faculty members to guide the candidate in completing a tentative program and selecting a thesis problem
- an official application to candidacy, including tentative program which has been approved by the adviser, submitted to the biology department graduate committee

Candidates for all degrees are expected to maintain an average of not lower than B. Continuance in the graduate program for those receiving two course grades below the minimum is contingent upon favorable review by the graduate committee.

MASTER OF SCIENCE IN BIOLOGY

Students working for this degree will complete thirty-two semester hours of work in accordance with the following divisions

- I Core Courses — 18-20 s.h. BI 601 (Instrumentation), BI 602 (Biometry), BI 610 (Seminar — two s.h.), and BI 850 (two to four credits in thesis) are required courses. The remaining hours of course credit include one morphology-taxonomy course (chosen from BI 532, 546, 551, 575, 576, 578, and 620 through 625), one physiology course (chosen from BI 553, 652, 653, or 654), and one ecology course (chosen from BI 563, 631, 635, or 640).
- II Elective Courses — 12-14 semester hours to be selected with the approval of the adviser from the 500 and 600 level Biology course (with the exception of BI 661) or from related science and mathematics courses
- III Resident Requirements for the MS — the candidate must take a minimum of twenty-six of the semester hours required for graduation at IUP
- IV Research Requirements for MS — every candidate must present a research thesis on an original topic approved by the candidate's advisory committee. This is programmed as BI 850 (thesis) for two to four credits.
- V Requirements for Completion of the MS
 - A
 - 1 All students in the MS program in the biology department must pass a competency examination administered by the department graduate committee. The purpose of this examination is to assure that all of our graduates have a well-proportioned knowledge of the field of biology. The examination will also help point out the student's major area of inadequate knowledge or training
 - 2 This examination is offered at a specific time twice each year. The student may signify intentions of taking the examination by informing the graduate committee
 - 3 The student should plan to complete the entire exam by the end of the second semester of full-time course work (or the equivalent). A second attempt, if necessary, should come in the student's third full-time semester. A third and final attempt is permitted only after petition to, and approval of, the Graduate Committee
 - 4 This will be the only departmental examination for Master of Science degree
 - B After the thesis has been accepted in its final written form by the candidate's committee and the Graduate School, the candidate will present a public seminar reporting the results of his/her research

For descriptions of GR courses, see entry in the index under "GENERAL SERVICE COURSES"

COURSE DESCRIPTIONS

In many courses in the biology department, additional laboratory time may be required beyond the regularly scheduled periods

BI 525 HERPETOLOGY 3 sh

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 herpefauna of Pennsylvania.

BI 532 COMPARATIVE VERTEBRATE ANATOMY 3 sh

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 sh

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 sh

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 sh

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

BI 563 LIMNOLOGY 3 sh

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 572 RADIATION BIOLOGY 3 sh

Basic aspects of nuclear physics, phenomena of radioactive isotopes, and biological effects and uses of such isotopes. Lab work utilizes instruments for detection and measurement of radioactive nuclides. Prerequisites: two years of Biology, one year of Physics, and General Organic, and Biochemistry.

BI 575 MAMMALOLOGY 3 sh

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

BI 576 PARASITOLOGY 3 sh

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 are included. Prerequisites: one year of Biology, Vertebrate and Invertebrate Zoology.

BI 578 MYCOLOGY 3 sh

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 sh

Flora and fauna of each of the life zones are described, collected, and identified.

- BI 601 INSTRUMENTATION 3 sh.
Introduction to the variety of techniques and procedures of instrument-assisted data gathering appropriate to common biological research situations
- BI 610 BIOLOGY SEMINAR 1 sh.
An opportunity to become acquainted with current research in biology. One-hour meeting per week
- BI 621 PRINCIPLES OF ANIMAL TAXONOMY 3 sh.
Study of classification system and its application to identification of animals. Basic principles of taxonomy rules of nomenclature a synoptic history of classification and the old and new taxonomy rules will be included. A taxonomic field study is required
- BI 622 ADVANCED ORNITHOLOGY 3 sh.
A detailed study of bird populations behavior and movement including the annual cycle. Prerequisite: identification by site and song of local birds
- BI 623 ANIMAL MORPHOGENESIS 3 sh.
Factors that influence and control the differentiation of organs tissues and cells. Emphasis placed on experimental procedures and methods. Prerequisites: Embryology of Comparative Anatomy Organic Chemistry and Genetics
- BI 624 ADVANCED ENTOMOLOGY 3 sh.
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 sh.
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 sh.
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 sh.
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 sh.
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 sh.
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 sh.
Phylogeny embryology microanatomy and physiology of the endocrine tissues. Prerequisites: course in anatomy and physiology

BUSINESS

The College of Business offers three separate graduate programs: the Master of Business Administration (MBA), the Master of Education in Business (MEd) and the Master of Science in Business (MS).

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 MBA 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 session.

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

Core II of the program consists of thirty-three credit hours in courses that provide advanced knowledge in the functional and applied areas of business. The thirty-three 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 MBA 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 MBA 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 MBA program in one year of full-time study, whereas a non-business 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 MBA 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 director of Graduate Studies in Business. Also, it is possible to complete some of these courses by examination only. Again, advance permission is required.

Students seeking enrollment in the MBA program or the MS 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 Educational Testing Service, Princeton, NJ 08540 or from IUP University Testing Services, which is located in Career Services (phone 412-357-2235).

COURSE REQUIREMENTS FOR THE M.B.A. DEGREE

Core I: 31 sh in the following undergraduate courses with a grade of "C" or better: AG 201, AG 202, FS 310, MK 320, AD 235, EC 122, MG/FS 360, MA 121, FS 215, and FS 241. 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 director of Graduate Studies in Business to ascertain the appropriateness of prior undergraduate work and any special requests for prerequisite waivers. Permission is required to take courses at any other institutions.

Core II: 33 credit hours in the following graduate courses:

A. Required: AG 607*, EC 634, FS 601, FS 640, MG 613 (formerly MG 633), MG 695, and MK 603. *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: IS 550, IS 551, IS 570, IS 580, QB 602, QB 604, IS 641, IS 642. Management: MG 623, MG 630, MG 631, MG 632, MG 635, MG 636, MG 642, MG 645. Marketing: MK 521, MK 530, MK 531, MK 610, MK 611, MK 612, MK 621.

Other: 581/681 Special Topics courses offered by AG, FI, IS, MG, and MK departments; and other business-related courses with prior approval of the director of Graduate Studies in Business.

Students may take one 500-level business course without permission of the director of Graduate Studies in Business. Additional 500-level courses require prior approval. Students may elect one graduate-level course outside the College of Business in related fields as an elective with prior approval of the director of Graduate Studies in Business. Examples of other such areas may include labor relations, economics, computer science, 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 backgrounds 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 Educational Testing Service, Princeton, NJ 08540 or from IUP University Testing Services, which is located in Career Services (telephone 412-357-2235).

COURSE REQUIREMENTS FOR THE M.Ed. DEGREE

Students must complete thirty semester hours for the degree, distributed as follows:

- I Professional Development Area — 3 courses (9 sh)
 - A Humanistic Studies (3 sh) — One of the following FE 611, FE 612, FE 613, or FE 514
 - B Behavioral Studies (3 sh) — One of the following EP 604, EP 573, EP 576, EP 587, CE 639, or EX 631
 - C Research (3 sh) — GR 615 Elements of Research
- II Specialized Core — 3 courses (9 sh)
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 661)
- III Subject Area and/or Thesis — 4 courses (12 sh)
AD 850 (3 sh), Thesis (optional), and/or any additional graduate courses listed in this catalog under AD, AG, BE, DE, FS, MK, or MG. Other related courses may be allowed with the consent of the director of Graduate Studies in Business.

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 director of Graduate Studies in Business for information concerning the prerequisite courses. Also, please see the section of the M.B.A. program for additional discussion on these prerequisites or Core I undergraduate level courses. Required prerequisite courses are: AG 201, AG 202, FS 310, MK 320, AD 235, EC 122, MG or FS 360, MA 121, FS 215, and FS 241. Students must have achieved a grade of no less than "C" in each of these courses.

The prospective MS in Business student must submit a written statement to the director of Graduate Studies in Business explaining career goals and the area of specialization or functional field in which concentration is desired. The director and the student will develop a program tailored to the student's specific needs, including a list of courses to be taken for completion of the degree requirements.

Students seeking enrollment in the MS in Business program must take the Graduate Management Admissions Test (GMAT) before admission into the degree program. The 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, (phone 412-357-2235).

The Master of Science in Business program consists of the following:

I. REQUIRED COURSES (9 hours)

AG 607	Management Accounting	3 hours
IS 640	Management Information Systems	3 hours
MG 695	Business Policy	3 hours
		<u>9 hours</u>

II. RESEARCH AREA (9-12 hours)

QB 601	Quantitative Methods	3 hours
MK 621	Marketing Research	3 hours
AD, AG, FI, IS, MK, or MG 850	Thesis	3-6 hours
		<u>9-12 hours</u>

III. AREA OF CONCENTRATION OR SPECIALTY (12-15 hours)

Functional area of business selected by student. Courses to be specified by the department and director of Graduate School in Business from courses listed in "Areas of Concentration" section. 12-15 hours

IV ELECTIVE AREA (0-6 hours)	
Business electives to be selected by student from available graduate courses in business administration or related fields	0-6 hours
TOTAL	36 hours

Areas of Concentration (12 to 15 credits selected from the following areas by the student and the director of Graduate Studies in Business)

- A Accounting
 - AG 501 Advanced Principles of Accounting
 - AG 512 Advanced Cost Accounting
 - AG 531 Auditing
 - AG 600 Accounting Systems
 - AG 602 Advanced Tax Accounting Systems
 - AG 603 Financial Statements Analysis
 - AG 607 Management Accounting
 - AG 608 Seminar in Accounting Issues
- B Finance
 - FI 510 Financial Institutions
 - FI 520 Investment Analysis
 - FI 522 Seminar in Finance
 - FI 630 Financial Management
 - FI 631 Advanced Financial Management
 - FI 632 Seminar in Finance
 - FI 635 Principles of Investments in Securities
- C Management Information Systems:
 - IS 550 Data Base Theory and Application
 - IS 551 Systems Analysis
 - IS 570 Systems Design
 - IS 580 Distributed Business Information Systems
 - IS 640 Management Information Systems
 - IS 641 Business Data Processing I
 - IS 642 Business Data Processing II
- D Management
 - MG 623 Seminar in Personnel
 - MG 630 Management Theory
 - MG 631 Management Development and Training
 - MG 633 Organizational Analysis
 - MG 635 Seminar in Management and Organizational Leadership
 - MG 636 The Evolution of Management
 - MG 642 Human Relations in Business
 - MG 645 Case Problems
- E Marketing
 - MK 521 Marketing Research
 - MK 530 International Marketing
 - MK 600 Marketing
 - MK 601 Sales Promotion
 - MK 603 Marketing Management
 - MK 621 Marketing Research

F. Office Administration

- AD 512 Administrative Office Services
- AD 515 Records Administration
- AD 610 Business Communications and Report Writing
- AD 612 Office Organization and Management
- AD 633 Case Problems in Business Law

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 PRINCIPLES OF ACCOUNTING 3 sh.

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

AG 512 ADVANCED COST ACCOUNTING 3 sh.

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 sh.

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 sh.

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 director of Graduate Studies in Business.

AG 607 MANAGEMENT ACCOUNTING 3 sh.

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 sh.

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 (Formerly AG 600) 3 sh
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 (Formerly AG 602) 3 sh
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 (Formerly AG 603) 3 sh
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 301
- AG 681 SPECIAL TOPICS IN ACCOUNTING 3 sh
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 director of Graduate Studies in Business
- AG 699 INDEPENDENT STUDY IN ACCOUNTING 1-3 sh
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 sh
For students writing the thesis, AG 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 sh) with one faculty member serving as the student's adviser or a committee thesis (4-6 sh) for which the student's adviser, two additional faculty members, the director of Graduate Studies in Business, 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 sh
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 of personnel will be discussed.
- AD 515 RECORDS ADMINISTRATION 3 sh
Development of the principles of records administration including creation, use, maintenance, and destruction. Storage facilities, records classification, forms analysis, and control of records as well as microimage 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 and 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.

AG 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 business people 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 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 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 dean, College of Business.

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 sh
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, including 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 sh
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 sh
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 sh
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
- BE 850 THESIS 1-6 sh
For students writing the thesis, BE 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 sh), with one faculty member serving as the student's adviser, or a committee thesis (4-6 sh), for which the student's adviser two additional faculty members, the director of Graduate Studies in Business, and/or the representative of the dean of the College of Business may constitute the committee
- DE 510 METHODS & EVALUATION IN DISTRIBUTIVE EDUCATION I 3 sh
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 & EVALUATION IN DISTRIBUTIVE EDUCATION II 3 sh
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 sh
Directed toward problems of retail management Includes present-day trends in retailing, personnel management, merchandise control pricing promotion services, accounting, and expense control

- FS 551 SYSTEMS ANALYSIS** 3 sh
 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 Prerequisites FS 352 or CO 220
- FS 570 SYSTEMS DESIGN** 3 sh
 Students learn tools and techniques for design of a business system Along with classroom discussions of principles and techniques for analyzing 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 FS 451/551 FS 450/550
- FS 580 DISTRIBUTED BUSINESS INFORMATION SYSTEMS** 3 sh
 Prerequisite FS 451/551 or by instructor's permission
- FS 581 SPECIAL TOPICS IN FINANCE OR MANAGEMENT INFORMATION SYSTEMS** 3 sh
 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 director of Graduate Studies in Business
- FS 601 QUANTITATIVE METHODS** 3 sh
 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 Prerequisites FS 215 MA 121
- FS 602 SEMINAR IN MANAGEMENT SCIENCE** 3 sh
 Builds upon the basic concepts developed in FS 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 Prerequisites FS 601
- FS 604 SEMINAR IN METHODOLOGY OF BUSINESS RESEARCH** 3 sh
 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 GR 516 or FS 601
- FS 630 FINANCIAL MANAGEMENT** 3 sh
 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 FS 310

FS 631 **ADVANCED FINANCIAL MANAGEMENT** 3 sh.

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: FS 630

FS 632 **SEMINAR IN FINANCE** 3 sh

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: FS 630

FS 635 **PRINCIPLES OF INVESTMENTS IN SECURITIES** 3 sh

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.

FS 640 **MANAGEMENT INFORMATION SYSTEMS** 3 sh

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 comprehensive organizational management information system. Managerial involvement in the planning, utilization, and control of information systems is emphasized. Prerequisite: FS 241

FS 641 **BUSINESS DATA PROCESSING I** 3 sh

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 this training. Not open for students with credit for FS 451/551.

FS 642 **BUSINESS DATA PROCESSING II** 3 sh

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 FS 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: FS 641 or equivalent. Not open for students with credit for FS 470/570.

FS 681 **SPECIAL TOPICS IN FINANCE AND MANAGEMENT
INFORMATION SYSTEMS** 3 sh.

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. Prerequisites: permission of the instructor and director of Graduate Studies in Business.

FS 699 **INDEPENDENT STUDY IN FINANCE OR MANAGEMENT
INFORMATION SYSTEMS** 1-3 sh.

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.

FS 850 THESIS 1-6 sh
 For students writing a thesis, FS 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 sh), with one faculty member serving as the student's adviser, or a committee thesis (4-6 sh), for which the student's adviser, two additional faculty members, the director of Graduate Studies in Business and/or the representative of the dean of the College of Business may constitute the committee.

Management

- MG 613 ORGANIZATIONAL ANALYSIS (Formerly MG 633) 3 sh
 An integrative course oriented toward an empirical analysis of the phenomena and theories of large, complex, formal organizations. Intergroup 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 sh
 Designed to offer the MBA 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 or MG 633
- MG 630 MANAGEMENT THEORY 3 sh
 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 or MG 633
- MG 631 MANAGEMENT DEVELOPMENT AND TRAINING 3 sh
 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 or MG 633
- MG 635 SEMINAR IN MANAGEMENT &
 ORGANIZATIONAL LEADERSHIP 3 sh
 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 or MG 633
- MG 636 THE EVOLUTION OF MANAGEMENT 3 sh
 This course examines the backgrounds, roles, and influences of major contributors and analyzes the various movements in management thought. Prerequisite: MG 613 or MG 633
- MG 642 ORGANIZATIONAL BEHAVIOR 3 sh
 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 or MG 633

MG 645 CASE PROBLEMS IN BUSINESS HUMAN RELATIONS 3 sh.

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 sh.

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 director of Graduate Studies in Business.

MG 695 BUSINESS POLICY 3 sh.

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: fifteen hours of graduate business courses.

MG 699 INDEPENDENT STUDY IN MANAGEMENT 3 sh.

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. Prerequisites: approvals of department chairperson and director of Graduate Studies in Business.

MG 850 THESIS 1-6 sh.

For students writing the thesis, MG 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 sh), with one faculty member serving as the student's adviser, or a committee thesis (4-6 sh), for which the student's adviser, two additional faculty members, the director of Graduate Studies in Business, and/or the representative of the dean of the College of Business may constitute the committee.

Marketing

MK 521 MARKETING RESEARCH 3 sh.

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 sh.

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 sh.

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

- MK 603 MARKETING MANAGEMENT** 3 sh
An analytical and quantitative approach to decisionmaking and the planning development, implementation, and control of a marketing program Prerequisite MK 320
- MK 610 MARKETING BEHAVIOR (Formerly MK 600)** 3 sh
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 (Formerly MK 601)** 3 sh
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 determining advertising appropriations, and advertising research Prerequisite MK 603
- MK 621 MARKETING RESEARCH** 3 sh
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 sh
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 Prerequisites permission of the instructor and director of Graduate Studies in Business
- MK 699 INDEPENDENT STUDY IN MARKETING** 1-3 sh
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 Prerequisites approvals of department chairperson and director of Graduate Studies in Business
- MK 850 THESIS** 1-6 sh
For students writing the thesis, MK 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 sh), with one faculty member serving as the student's adviser, or a committee thesis (4-6 sh) for which the student's adviser two additional faculty members, the director of Graduate Studies in Business, 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 the 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 MS and MA programs. Beyond this point, the programs separate, with the MS and MA student taking more specialized work in chemistry, along with an experimental research problem. The MA 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 Admission 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. Students deficient in the above areas of study may also be admitted, provided these deficiencies are made up concurrently with the student's graduate thesis.

The general requirements for admission to candidacy for a master's degree are discussed on page 15 of this catalog.

*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 fourteen hours in the following: CH 540, 600*, 610, 620, and 630.
- III. Course electives (10-16 s.h.)—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, 2-4 sh)
The student has three options
- A. Thesis not required—a total of 30 sh in suitable courses being acceptable.
 - B. No-Committee Thesis (CH 850-2 sh)—Refer to page 71 for the steps in satisfying the research requirement for submitting a "Two-Hour, No-Committee Thesis"
 - C. Committee Thesis (CH 850-4 sh)—If the candidate is doing research as part of the 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 MA candidate is not required to attend all of the 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 sh): The four core courses of analytical, CH 620, inorganic, CH 630; physical, 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 sh)
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 three semester hours toward the thirty semester hours necessary for the degree
- III. Course Requirements: For those specializing in biochemistry
 - A. Required Courses (12 sh), including CH 646, 623, 630, and BI 662.
 - B. Electives (at least 9 sh), including at least one of the following BI 561, 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 sh required in CH 600
 - C. CH 690 for at least three hours
 - D. CH 850 Thesis—4 sh, taken during the term in which student is writing the MS thesis

For description of BI courses, see section on BIOLOGY

COURSE DESCRIPTIONS

General

- CH 500 SPECIAL STUDIES 1-6 sh.
 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 PROCESSES 3 sh.
 A course on the applications of chemistry to manufacturing processes. Lecture and field trips Lecture—three hours
- CH 503 GLASSBLOWING TECHNIQUES 1 sh.
 Introduces science student to techniques necessary for construction and modification of scientific glass apparatus Two-hour lecture instruction.
- CH 505 NEW APPROACHES TO TEACHING HIGH SCHOOL CHEMISTRY 3 sh.
 Chem Study and C.B.A. approaches will be investigated Individualization of chemistry and application of various teaching materials and techniques used in individualizing chemistry Environmental chemistry and other relevant topics to better understand the chemical basis of our current environmental problems. Four-hour lecture/laboratory
- CH 576 RADIOCHEMISTRY 3 sh.
 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 sh.
 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—one hour
- CH 605 EXPERIMENTAL TECHNIQUES IN CHEMISTRY 3 sh
 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 sh
 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—three hours.
- CH 690 RESEARCH 1-6 sh.
 Laboratory and literature investigation of student's thesis problem done under the direction of a faculty member
 Within the first fifteen hours of course work, the student must schedule at least one credit of research for which the student performs the literature review and writes a research proposal

CH 699 INDEPENDENT STUDY 1-6 sh
Available to students who seek to deepen their knowledge in some specific aspect of chemistry. The student must discuss the nature of the independent 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 sh
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 sh), with one faculty member serving as adviser, or a committee thesis (4 sh), for which the student's adviser, two additional faculty members, and the dean of the College of Natural Science and Mathematics constitute the committee.

Inorganic

CH 512 INORGANIC PREPARATIONS 3 sh
Preparation of inorganic compounds expressing different techniques of synthesis. Designed for those students who have chosen to do inorganic research but have never had a prep course. Four-hour lecture/laboratory.

CH 610 INORGANIC CHEMISTRY (core course) 3 sh
Theoretical inorganic chemistry and, in particular, structure, periodicity, coordination chemistry, bonding, and chemistry of nonaqueous solvents. Lecture—three hours.

CH 611 COORDINATION CHEMISTRY 3 sh
Chemistry of transition metals, their compounds and complex ions. Lecture—three hours.

CH 615 CURRENT TOPICS IN ORGANIC CHEMISTRY 3 sh
Representative elements, chemistry of rare earth elements, inorganic spectroscopy, group therapy, or any other special areas of chemical interest.

Analytical

CH 521 ADVANCED INSTRUMENTAL METHODS OF ANALYSIS 3 sh
Modern instrumental analysis, including electrical, spectrophotometric, x-rays, gas chromatography, and other methods. (Open to MS and MA candidates by permission only.) Four-hour lecture/laboratory.

CH 620 ANALYTICAL CHEMISTRY (core course) 3 sh
Theoretical principles of analytical chemistry. Lecture—three hours.

CH 621 ELECTROANALYTICAL CHEMISTRY 3 sh
Theoretical and practical considerations of polarography, amperometric, coulometric, and conductometric methods of chemical analysis. Lecture—two hours, laboratory—four hours.

CH 622 SPECTROCHEMICAL METHODS OF ANALYSIS 3 sh
Study of instrumentation and analytical applications of ultraviolet and visible absorption, atomic spectrometry, fluorescence, x-spectrometry, and nuclear magnetic resonance. Lecture—two hours, laboratory—four hours.

CH 623 PHYSICAL AND CHEMICAL METHODS OF SEPARATION 3 sh
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—two hours, laboratory—four hours.

Organic

CH 540 ORGANIC QUALITATIVE ANALYSIS 3 sh

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 sh

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 sh

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

Physical Chemistry

CH 540 PHYSICAL CHEMISTRY (core course) 3 sh

An introduction to chemical bonding and molecular structure Lecture—three hours

CH 641 STATISTICAL THERMODYNAMICS 3 sh

The application of statistical mechanics to chemical systems Lecture—three hours

CH 643 QUANTUM CHEMISTRY 3 sh

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

CH 645 CURRENT TOPICS IN PHYSICAL CHEMISTRY 3 sh

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 sh

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

CH 651 BIOCHEMISTRY TOPICS 3 sh

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

CH 652 ENZYMES 3 sh

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

COMMUNICATIONS MEDIA

In the communications media department, the student may choose from these programs

Master of Education in Communications Media

Instructional Media Specialist Certification

Students pursuing careers in educational communications, business, or industrial training, as well as medical communications, have the opportunity to choose a course of study that most effectively prepares them for entry into that profession. The department's modern facilities and professional staff provide students the opportunity to do intensive work in photography, graphic production, radio, television, instructional design and development, media management, or such combinations of these areas as students may desire to accomplish their goals. In many of these courses, students gain experience in design, production, and evaluation of training, promotional, and educational materials. The culmination of the academic experience is an optional internship in which students have the opportunity to apply theory to practice.

Students are encouraged to consult their adviser and course instructors at frequent intervals, especially during the schedule planning stage prior to pre-registration. For current curriculum information, students should contact the department graduate coordinator.

All department offerings are distributed within the following course concentration blocks. The blocks serve only as guides for choosing those courses that are consistent with the student's goals. Students may elect courses from all three blocks or may choose to concentrate on only one. These blocks apply to both the Master of Education and the Instructional Media Specialist programs.

BLOCK I	MEDIA MANAGEMENT CM 630, CM 660, CM 669, CM 699, EA 656, MG 630, MG 642, MK 600
BLOCK II	MEDIA PRODUCTION CM 504, CM 505, CM 540, CM 544, CM 545, CM 549, CM 550, CM 551, CM 552, CM 561, CM 571, CM 572, CM 573, CM 577, CM 578, CM 615, CM 630, CM 660, CM 669, CM 699
BLOCK III	INSTRUCTIONAL DEVELOPMENT CM 561, CM 615, CM 669, CM 699, CO 502, EL 631, EL 655, FE 515, GR 516

MASTER OF EDUCATION IN COMMUNICATIONS MEDIA

Admission Requirements

(Subject to modification by departmental vote in individual cases of merit)

1. A 2.5 (4-point scale) undergraduate GPA
2. Passing the Graduate Record Aptitude Examination. An average of 470 on the verbal and math tests is required.

Students from other graduate schools and programs may transfer up to six semester hours of credit subject to the approval of the department and the Graduate School. Apply through your adviser, providing him/her with a copy of your graduate transcript and full course description.

To enter the IUP Graduate School, prospective students should request an application from:

Dean, Graduate School
Indiana University of Pennsylvania
101 Stright Hall
Indiana, PA 15705

By completing an application and by providing the appropriate transcripts, letters of recommendation, etc., you will be considered for admission to graduate study at IUP in the area of communications media. If you are accepted, the Department of Communications Media will notify you of your adviser's name. You should contact him/her immediately for the purpose of designing your program of studies.

While some basic media competencies as might be obtained in audiovisual courses are preferred of all applicants, such experience is not a requirement for acceptance into the program. Where lacking, these competencies will be built into the student's program of study. Other than the indicated required courses, students, in consultation with their advisers, will elect the additional courses needed to complete their individual program.

Admission to Candidacy

After completion of at least six semester hours and before twelve semester hours, the applicant will make formal application to the Graduate School for admission to candidacy for a Master of Education degree in Communications Media. The candidate must have at least a B average in graduate courses taken at IUP, including the behavioral studies elective, and have taken at least two courses from the communications curriculum. He/she may then be asked to appear before the departmental Graduate Committee.

When applying for admission to candidacy, the student must declare the terminal option he/she will follow to complete the degree. See Thesis/Non-Thesis option below.

Master of Education in Media Program

- A Professional Development Area (9 s.h.)
 - 1 Humanistic Studies (3 s.h.); one of FE 514, 611, 612, or 613.
 - 2 Behavioral Studies (3 s.h.); one of EP 572, 573, 576, 578, 604 or CE 629, CE 639, EX 631, or PC 636
 - 3 Research (3 s.h.); GR 615
- B Specialization Core (3 s.h.); CM 503
- C Subject Area
 - 1 Student elected concentrations from Blocks I, II, III. Dependent upon terminal option selected (see above), students will take 12-18 s.h. media courses specializing in one block or a variety of courses from Block I: Media Management, Block II: Media Production, or Block III: Instructional Development.

- 2 Thesis/Non-Thesis Option
 - a Thesis — 30 sh including thesis
 - b Course work — 36 sh total

For description of FE courses, see the section on FOUNDATIONS OF EDUCATION, for EP courses, EDUCATIONAL PSYCHOLOGY for CE courses, COUNSELOR EDUCATION, for EX courses, SPECIAL EDUCATION, for PC courses, PSYCHOLOGY

For description of GR courses, see entry under "GENERAL SERVICE COURSES"

Certification as an Instructional Media Specialist

The specialist certificate in instructional media may be awarded to students who hold at least a Pennsylvania Level 1 or equivalent certificate valid for elementary or secondary education and who complete twenty-four semester hours of graduate work in the curriculum of communications media and related subjects. With the approval of an adviser, each student will select a balance of courses from the three concentration blocks described earlier, however, CM 503, 615, 630, and 660 must be included in the courses selected. Application is made through the communications media department to the Pennsylvania Department of Public Instruction.

By careful structuring of their program, it is possible for students to obtain both the MEd degree and the instructional media specialist certification concurrently. Usually this will require slightly more than the thirty semester hours of minimum credits required for the MEd, but students often find it to their advantage to fulfill the requirements for both programs.

Students not in the educational profession (i.e., business or industry) and who otherwise meet the admission requirements of the Graduate School may pursue the program for instructional media specialist and upon completion of the requirements may be granted a special Certificate of Proficiency in Instructional Media by the university.

Graduate School admission does not automatically ensure acceptance into the certification program. Successful applicants will present evidence of 1) the intellectual ability to do acceptable graduate work, 2) satisfactory scores on the GRE, and 3) the requisite personal qualifications of character, health, and professional background. The department faculty will make the necessary determinations.

Placement

Early in the final semester of work, the student is encouraged to register with the Career Services Office of the university in Pratt Hall Room 302.

In addition, the Department of Communications Media makes every effort to keep a current listing of job vacancies in business, industry, education, and medical communications. Consult your adviser or the department chairperson frequently. Vacancies are also regularly posted on the bulletin board outside Stouffer Hall G-16.

COURSE DESCRIPTIONS

- CM 503 SCRIPTWRITING 3 sh
 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 scripts.
- CM 504 FOUNDATIONS OF BROADCASTING 3 sh.
 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 sh.
 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 sh
 Provides basic experiences 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 sh
 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 sh
 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. CM 544
- CM 549 BASIC AUDIO RECORDING 3 sh
 Theory and practices of recording sound, developing an understanding of language of sound recording as well as 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 sh
 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 sh
 Intensive lab course circuit facilities designed to develop skills in program production and direction. Theory and practice of production is examined, with each student expected to produce a television program during the course.

- CM 552 ELECTRONIC FIELD PRODUCTION 3 sh
For the advanced graduate student 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 sh
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 sh
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 sh
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. Prerequisite: CM 571 and permission of instructor.
- CM 573 CREATIVE DARKROOM TECHNIQUES 3 sh
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, photomontage. Prerequisite: CM 571 and permission of instructor.
- CM 577 SLIDE AND SOUND PRODUCTION 3 sh
Emphasizes techniques of color and black-and-white slide preparation, duplication, titling, and binding. Techniques necessary to produce color filmstrips on a commercial basis are examined, and students will participate in making 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 sh
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. Prerequisite: CM 571, 503.
- CM 581 SPECIAL TOPICS 3 sh
Advanced topics, offered on an experimental basis within the discipline of communications but not dealt with in other courses. Permission of the instructor is required.
- CM 600 SEMINAR IN LEARNING RESOURCES 3 sh
Major emphasis on differences in learning materials, 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.

Will cover 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. Permission of the instructor is required

CM 699 GRADUATE 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. Prerequisite: successful completion of the basic course in the medium selected and 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 on a dual-level basis with undergraduate courses.

COURSE DESCRIPTIONS

- CO 502 COMPUTERS IN EDUCATION 3 sh
Introduction to computers and computer programming in the language BASIC with emphasis on applications in education, general models for computer usage in education and educational institutions, case studies of specific projects in terms of approach, effectiveness, and implications for the future. No computer prerequisites.
- CO 510 PROCESSOR ARCHITECTURE AND
MICROPROGRAMMING 3 sh
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 sh
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 sh
Concepts and techniques of systems programming with an emphasis on assembly and compilation of user programs. Representation of source languages 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 sh
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 sh
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 sh
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 sh
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.
- CO 601 FUNDAMENTALS OF COMPUTER PROGRAMMING 3 sh
Introduction to digital computer programming. Development of problem-solving skills using flowcharting and a problem-oriented language such as FORTRAN. Four to five programs required. Description of a large problem from student's field of interest for possible computer solution. No prerequisite.

CONSUMER SERVICES

Graduate courses in consumer services are primarily designed to provide in-depth study in particular areas of home economics. A graduate degree in consumer services is pending Credits in these courses may be used toward a degree in Home Economics Education.

COURSE DESCRIPTIONS

CS 533 CONSUMER SERVICES STUDY TOUR 1-6 sh

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 sh

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 sh

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 sh

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 sh

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 sh

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 sh

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

COUNSELOR EDUCATION

Department offerings include Master of Arts, Master of Education, and Doctor 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.

Degree Programs

MASTER OF ARTS IN ADULT AND COMMUNITY EDUCATION

The Master of Arts in Adult and Community Education (ACE) program is a leadership training program which prepares students for work in educational settings in communities, schools, business and industry, and social, health, and recreational agencies. It is designed to accommodate qualified professionals from a wide variety of backgrounds who seek knowledge and skills to work with adults in traditional as well as nontraditional educational situations.

The ACE program addresses the needs of the changing times and changing student population by providing a flexible yet intensive curriculum with a broad-based approach to contemporary learning. The program offers a proportionate balance of practical field experience, academic training, and individual research.

A minimum of thirty-six hours is required for the degree. These include twenty-four credits which may be individualized to allow students to pursue an area of special interest. Required courses are AC 620, AC 621, AC 622, AC 623, AC 625, AC 735, AC 740, GR 615, and GR 650 or AC 745. Students are also required to take six hours in electives. The thesis is optional. AC 645 may be taken in its place.

MASTER OF ARTS IN COUNSELING SERVICES

The Master of Arts degree in Counseling Services is designed for students seeking preparation leading to counseling in and counseling-related employment in community and business settings. Student programs are individually designed to prepare them to work in any number of settings, including mental health centers, 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 thirty-six (includes thesis) or thirty-nine (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, GR 516, and GR 615. Students are also required to take from nine to twelve hours in supporting electives.

MASTER OF ARTS IN STUDENT PERSONNEL SERVICES

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 thirty-three 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 727, ST 728, ST 629, and ST 730. Students must take a minimum of three credit hours in electives.

MASTER OF EDUCATION

Students seeking the Master of Education degree who do not plan to obtain commonwealth certification as a school counselor must complete thirty-three credit hours for the degree. The following courses are required: CE 629 or CE 639, CE 633, FE 611, 612 or 613, GR 516, and GR 615. In addition to the required courses, students may take fifteen 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.

Certification Programs

Elementary and Secondary School Counselors — To qualify for institutional endorsement and commonwealth certification, the student must complete a forty-five credit hour competency-based program to include field experiences and all requirements for a Master of Education degree.

While teaching experience is not a prerequisite for admission, students should have or obtain an understanding of educational philosophy, 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.

All students will take the following courses or their equivalents: CE 631, CE 633, CE 638, CE 755, FE 611, 612, or 613, GR 516, and GR 615.

Students seeking commonwealth certification as elementary school counselors will also complete CE 635, CE 636, CE 627, CE 639, and CE 740, plus six credit hours in supporting electives.

AC 623 ORGANIZATION AND ADMINISTRATION
IN ADULT AND COMMUNITY EDUCATION 3 sh

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: AC 620, 622

AC 625 TEACHING AND LEARNING IN ADULT AND
COMMUNITY EDUCATION 3 sh

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: AC 621 and permission

AC 735 SEMINAR IN ADULT AND COMMUNITY EDUCATION 3 sh

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: twelve credits in adult and community education.

AC 740 INTERNSHIP IN ADULT AND COMMUNITY EDUCATION 6 sh

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. Prerequisites: adviser approval

AC 745 PRACTICAL RESEARCH IN
ADULT AND COMMUNITY EDUCATION 3 sh

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 are to 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: adviser approval

CE 620 COMMUNITY COUNSELING 3 sh

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 sh

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

CE 626 CAREER EDUCATION 3 sh

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 sh

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 sh

Emphasis is placed upon understanding and developing group techniques related to the development and growth of children.

- CE 631 INTRODUCTION TO GUIDANCE SERVICES 3 sh
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 sh
Basic concepts utilized in testing, emphasizing data concerning purposes and types of tests, test administration, test scoring, test validity and reliability, and test selection
- CE 635 INDIVIDUAL ANALYSIS 3 sh
Principles, problems, methods, and content involved in understanding the adolescent and adult and their developing self-concepts
- CE 636 CAREER DEVELOPMENT 3 sh
Emphasizes how individuals acquire knowledge, understanding, skills, abilities, attitudes, and values which will lead to effective career behaviors. Considers career education, vocational development, decision-making skills, and the processing and use of information
- CE 637 COUNSELING AND CONSULTATIVE THEORY 3 sh
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 sh
Helps the school counselor acquire the 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 sh
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
- CE 645 HUMAN RELATIONS AND COMMUNICATIONS 3 sh
Emphasis will be placed on the development of human relations and communications skills in human service organizations. Human relations principles and techniques to elicit cooperation from personnel participating in the organization will be developed
- CE 646 INTERPERSONAL SENSITIVITY 3 sh
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 sh
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 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 656 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 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 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 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 the 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.

The typical committee thesis arrangement (3-6 sh.) has the student working with a committee of 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. The committee may include an off-campus person with special expertise as part of the four if requested by the department and approved by the Graduate School dean.

DEPARTMENT	DEGREE	THESIS	CREDITS	COMMENTS
Adult/Community Education	M.A.	Optional	36	AC 645 may be substituted for the thesis
Counselor Education	M.Ed.	Optional	33	
	M.A.	Optional	36	Thesis
			39	No Thesis
Student Personnel Services	M.A.	Optional	33	

CRIMINOLOGY

The Department of Criminology offers a program of studies leading to a Master of Arts Degree in Criminology. The program is designed to prepare the graduate student for upper-level administrative positions within the criminal justice field and the pursuit of a doctoral education. The design of the program allows the student to choose from a wide variety of courses within the Department of Criminology as well as elective courses in related departments.

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.
- B Students should have knowledge gained through practice experience within the system of justice 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

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 sh
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 sh
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 sh of Principles of Economics or permission of instructor.
- EC 521 MACROECONOMIC ANALYSIS 3 sh
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 sh of Principles of Economics or permission of instructor.
- EC 522 MICROECONOMIC ANALYSIS 3 sh
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 sh
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 or credits of "C" or better in 6 sh of Principles of Economics or permission of instructor.
- EC 530 LABOR ECONOMICS 3 sh
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 sh of Principles of Economics, or permission of instructor.
- EC 534 ECONOMICS OF CORPORATE DECISIONS 3 sh
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 sh of Principles of Economics, or permission of instructor.
- EC 536 STATE AND LOCAL FINANCE 3 sh
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 sh of Principles of Economics, or permission of instructor.

- EC 634 ECONOMICS OF CORPORATE DECISIONS 3 sh
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 sh of Principles of Economics, or permission of instructor.
- EC 699 INDEPENDENT STUDY 1-6 sh
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 sh 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.

After admission 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 those in educational psychology, 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.

MASTER OF EDUCATION IN EDUCATIONAL PSYCHOLOGY

The Master of Education degree in Educational Psychology program (33-36 s.h., 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. There are three majors in this degree.

General requirements All students will take the professional development area (total of 9 s.h.), humanistic studies (3 s.h.), select one FE 611, FE 612, or FE 613, behavioral studies (3 s.h.), select one EP 604 or EP 578, EP 573, EP 576, CE 629, EX 631, or EX 500, research (6 s.h.), GR 615, GR 516

Requirements for the three major areas are as follows

School Psychology — (23-27 s.h.) is designed to prepare the interested student for entrance into the post-master's certification program. Professional specialization courses (6 s.h.) EP 618, EP 662, subject area and/or electives (17-21 s.h.) EP 604, EP 578, EP 576, EP 572, EP 573, EP 750, EP 681, ED 601, PC 640, EX 631, EX 500, EX 639, EX 660, EX 665, CE 625 or CE 635, SH 630, SH 614, EP 850

Human Development and Learning — (23-27 s.h.) is designed to prepare the teacher to be more effective in the classroom and to have a balanced program in educational psychology. Specialization courses (6 s.h.) EP 618, EP 604 or EP 578, subject area and/or electives (17-21 s.h.) EP 604, EP 578, EP 576, EP 572, EP 573, EP 750, EP 681, AC 520, PC 569, PC 640, EX 500, EX 639, EX 655, CE 625 or CE 635

Educational Evaluation and Research — (23-27 s.h.) is designed to provide a broad theoretical background in educational evaluation and research. Professional specialization (6 s.h.) EP 618, EP 578, subject area and/or electives (17-21 s.h.) EP 604, EP 762, EP 576, EP 573, EP 681, GR 615, GR 516, GR 517, CO 502, CE 648, EP 850. Thesis required

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 sixty-six to sixty-nine graduate hours, thirty-three 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 comprehension exam, practicum, and internship experiences. 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 for 21 to 24 s.h. are EP 711, EP 712, EP 713, EP 763 and EP 750 to EP 751 (12-15 s.h.). The other approved courses for 9 s.h. to meet competency requirements are EX 666 or EP 581, and PC 635, PC 647. 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, for PC course, PSYCHOLOGY

COOPERATIVE DOCTORATE IN SCHOOL PSYCHOLOGY

The Doctor of Education (Ed.D.) in School Psychology is designed as a six- to nine-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 and are to be completed at IUP, California University of Pennsylvania, Edinboro University of Pennsylvania, or Millersville University of Pennsylvania. The remaining thirty-six 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 thirty-three 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 two years of experience as a practicing school psychologist, part of which may be an internship. Completion of a plan of study may be pursued on either a full-time or part-time schedule of course work.

COURSE DESCRIPTIONS

- EP 571 PSYCHOLOGY FOR TEACHING SEX EDUCATION 3 sh
This course is designed to present concepts and programs for teaching sex education. This course includes detailed teaching strategies for the various grade levels from K-12.
- EP 572 PSYCHOLOGY OF CHILDHOOD EDUCATION 3 sh
Studies relationship of physical, social, emotional, and intellectual development to theory and practice of childhood and preadolescent education.
- EP 573 PSYCHOLOGY OF ADOLESCENT EDUCATION 2 sh
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 sh
Explores behavior problems encountered in classroom situations and gives cause, characteristics, and some remedial techniques.
- EP 578 LEARNING 3 sh
Explores learning theories and educational application in working with learning problems in the classroom.
- EP 583 EDUCATION OF THE DISADVANTAGED CHILD 3 sh
Acquisition of necessary understandings of physiological, psychological, and social implications relevant to working with and teaching disadvantaged children.
- EP 585 HUMANIZING THE CLASSROOM 3 sh
An experimental course concerned with human relation skills training, placing particular emphasis on group process, nonverbal communication, listening, and responding skills. The focus is primarily on the translation of these skills into effecting productive classroom environments in educational settings.

- EP 588 INTERPERSONAL EFFECTIVENESS AND COMMUNICATIONS SKILLS 3 s.h.
 Designed to increase professional effectiveness and improve communication skills within educational, business, and industrial settings. Includes analysis of nonverbal behaviors, active listening, and rational self-analysis and assertion skills.
- 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 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 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 762 PSYCHOTHERAPY AND GROUP DYNAMICS 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 PROJECTIVE TECHNIQUES 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 sh
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 sh
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 homes, school, and clinic settings. Prerequisite: permission of instructor.

ENGLISH

At the master's level, the English department offers the Master of Arts degree. The program has two goals: increasing the candidate's knowledge of English language and literature and introducing the student to the discipline of advanced study.

After a student is admitted to the Graduate School, the director of Graduate Studies in English will consult with him or her about the scheduling of courses. The student should apply for degree candidacy before twelve credits have been earned.

The writing of a thesis is optional for the MA degree. The English department values writing and research; however, a candidate's decision concerning the thesis should be made on the basis of his/her purposes in obtaining the degree and the extent to which training in research will enhance both professional and personal goals. Under special circumstances and upon request from the Graduate School, a thesis may be written for additional credit after the student has already completed the master's degree without a thesis.

MASTER OF ARTS IN ENGLISH

The MA degree, either with or without a thesis, requires a minimum of thirty semester hours beyond the bachelor's degree. The candidate who chooses not to write a thesis will take all thirty hours in course work. Depending upon the nature of the thesis, the candidate who chooses to do research will take either three or six hours of the minimum thirty as thesis and the remainder in course work.

Required of all MA candidates are (1) EN 674 and (2) proficiency in a single language in addition to English. The language requirement may be satisfied by acceptable undergraduate credit of twelve hours, by examination through the foreign languages department at IUP, or by the Graduate School Foreign Language Test through Educational Testing Service, Princeton, New Jersey.

The MA candidate may apply a maximum of six semester hours in a related field (e.g., history, philosophy, psychology) toward satisfying total course requirements. All hours remaining from the minimum thirty hours' requirement will be satisfied by courses listed in the catalog, EN 529 through EN 699.

DOCTOR OF PHILOSOPHY PROGRAMS

There are two distinct programs in English, one in English and American literature and the other in rhetoric/linguistics. Both programs lead to a Doctor of Philosophy in English.

I. English and American Literature

The program in English and American literature is designed for those who wish to teach at the college or university level. As such, this plan of study places strong emphasis on the humanistic tradition in literature, for the values expressed therein are felt to be the essential concern of a liberal arts education. A candidate for this degree is expected to acquire a broad knowledge in limited areas of study and to show through the completion of an acceptable dissertation the ability to conduct an independent investigation of a topic approved by the department. To become a candidate, the applicant must meet all the Graduate School requirements for candidacy, as well as the special requirements of the English department. Admission to course work beyond the master's degree does not constitute admission to candidacy for the Ph.D. program. No specific number of course credits entitles a student to the degree, but a minimum of sixty semester hours of credit, exclusive of research credits, must be earned beyond the bachelor's degree. Applications for candidacy will be reviewed by a departmental committee after nine hours of graduate credit have been earned beyond the master's degree and before fifteen hours have been completed. In determining whether or not an applicant should be accepted as a candidate for the degree of Doctor of Philosophy, an Advisory Committee will consider the applicant's scores on the Graduate Record Examination, performance in course work, and, whenever applicable, performance as a teaching-intern.

On application for candidacy, the candidate will be assigned to an Advisory Committee who will help the candidate prepare a plan of study for a comprehensive examination, both written and oral, which will be taken on the recommendation of the Advisory Committee near the end of course requirements and before registering for EN 950 dissertation credits.

The linguistic requirement for Ph.D. candidates, which must be completed before the comprehensive examinations, may be satisfied by one of the following study options: (1) six graduate credits in theoretical or applied linguistics; (2) six graduate credits in computer languages; (3) foreign language proficiency as measured by either ETS or foreign language department examinations. The student's Advisory Committee will attempt to suit the language study to the student's needs as a teacher and researcher. Sole authority in determining foreign language proficiency rests with the Advisory Committee.

On approval of the Advisory Committee, a candidate may take as many as nine graduate hours of course work in a minor field in support of major research interest.

Although there are specific requirements for the degree, the professional and educational background of a number of students will make it necessary to waive certain requirements to avoid needless duplication. Decisions to waive requirements will be made by the student's Advisory Committee.

Candidates must demonstrate the capacity to teach effectively, either in the departmental teaching-internship program or through other acceptable teaching experience. English is required of all candidates.

As this catalog is being prepared, the PhD program in English and American literature is undergoing revisions. Both requirements and course offerings can be expected to change. A complete description of the proposed changes can be obtained from the English department or from the Graduate School.

II Rhetoric and Linguistics

This program, which leads to the Doctor of Philosophy in English is designed for teaching English in the community college or the four-year college. The pre-service candidate for this degree is expected to acquire a thorough understanding of the community college as an institution and to demonstrate, largely through a semester's internship at a community college, the ability to teach effectively.

The in-service candidate may have the internship waived after a description and evaluation of his/her teaching experiences have been accepted.

Upon admission to the program, the candidate will be assigned to a Program/Evaluation Committee which will, in consultation with the candidate, work out a program of study. The Program/Evaluation Committee will review also the candidate's application for candidacy which must be submitted after nine hours of graduate credit have been earned and before fifteen hours have been completed. Another function of the Program/Evaluation Committee will be to prepare a comprehensive examination, written and oral, for each candidate.

Although there are some general course and research requirements for this degree, they may be waived by the student's Program/Evaluation Committee if they believe the student has already acquired the information or specific competencies which these courses are designed to communicate and develop. These general course requirements are as follows: EN 689, EN 692, EN 631, EN 603, a course in the teaching of literature, nine hours of elective credits in psychology, sociology, communications media, etc., a dissertation related to rhetoric and linguistics, a semester's internship at a community college.

As this catalog is being prepared, the program is undergoing revision of requirements and of course offerings. Notable is the proposed English as a Second Language component of this program. A complete description of all proposed revisions can be obtained from the English department or from the Graduate School.

COURSE DESCRIPTIONS

EN 529	HISTORY OF THE ENGLISH LANGUAGE	3 sh
	Development of phonology, syntax and lexicon as well as rhetorical theories from Old English through Modern English.	
EN 542	CLASSICAL LITERATURE	3 sh
	Ranges from drama to lyrics and epic poetry in translation.	
EN 560	BRITISH LITERATURE TO 1500	3 sh
	Intensive study of some major works of Old or Middle English.	

- EN 561 CHAUCER 3 sh
Major works of Geoffrey Chaucer are studied as literature with emphasis upon pronunciation, versification, language, and textual problems
- EN 565 BRITISH LITERATURE — RENAISSANCE (1500-1600) 3 sh
Investigation of an area of English Renaissance that is not currently treated in course work
- EN 566 SHAKESPEARE 3 sh
In addition to the plays and the scholarship on them, study of the historical theatrical influences that affected Shakespeare
- EN 569 SEVENTEENTH-CENTURY PROSE AND POETRY 3 sh
Major writers from the death of Elizabeth to 1660, excluding Shakespeare and Milton
- EN 570 MILTON 3 sh
Major prose and poetry of John Milton and the religious and political controversies reflected in Milton's work
- EN 579 ENGLISH ROMANTIC LITERATURE 3 sh
Works of the major poets and essayists from 1798 to 1832
- EN 580 VICTORIAN LITERATURE 3 sh
Examines major social, political, economic, and religious issues in the works of the leading poets and prose writers from 1832 to 1890
- EN 581 SPECIAL TOPICS IN LANGUAGE AND LITERATURE 3 sh
Allows students to pursue subjects such as textual criticism, prosody, and computers and literature not covered in existing courses
- EN 590 LITERARY BRITAIN 3 sh
A three- or six-week's tour of major sites important to English literature. Always includes London, Stratford, and Cambridge
- EN 601 AMERICAN ENGLISH GRAMMAR 3 sh
Phonology, morphology, and syntax of present-day English, various approaches to analysis of English grammar, and detailed consideration of problems of dialect and appropriateness
- EN 603 LINGUISTICS AND THE ENGLISH TEACHER 3 sh
Effects of modern linguistic theory on teaching of English, with special emphasis on reading, composition, stylistic analysis, and dialect interference
- EN 611 MAJOR WRITERS 3 sh
Concentrates on one or two major writers of American or British literature, such as Twain, James, Wordsworth, Keats, etc.
- EN 612 THE AMERICAN RENAISSANCE 3 sh
Works of major writers in mid-nineteenth century America
- EN 613 NATURALISM AND REALISM IN AMERICAN FICTION 3 sh
Major American realists and naturalists, 1880-1910, including Twain, James, Howells, Norris, Crane, and Dreiser
- EN 614 MODERN AMERICAN FICTION 3 sh
Special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe

EN 687	LITERATURE AND THE FILM	3 sh
	Explores relationship between film and literature and the influences that each has had on the other	
EN 689	ORIENTATION AND FIELD EXPERIENCE IN THE COMMUNITY COLLEGE	3 sh
	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	SEMINAR IN TEACHING BASIC COMMUNICATIONS SKILLS	3 sh
	Instructs students in teaching of writing to adults Reading/writing taught in alternate semesters	
EN 693	SEMINAR IN TEACHING ENGLISH IN THE SECONDARY SCHOOL	3 sh
	Explores recent development in teaching of language, composition, and literature	
EN 698	INTERNSHIP	3 sh
	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 sh
	Study of depth of topics not available through regular course work Student works with supervising professor on carefully planned student-initiated project Prior approval necessary	
EN 850	THESIS	1-6 sh
EN 950	DISSERTATION	1-12 sh

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. It may also lead to fulfilling the requirements for the American Dietetic Association registration. Courses in intermediate 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 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.

University Requirements: GR 615 Elements of Research, three credits, and GR 516 Statistics I, three credits, or BI 602 Biometry, three credits are required of all students. FN 850 Thesis, four credits, is optional. With thesis, thirty credits are required; without thesis, thirty-three are required for graduation.

Department Requirements: All students must choose thirteen credits from courses FN 544, FN 642, FN 646, FN 711, FN 713 (course to be taken twice for a total of two credits) *

University Core: All students may elect 4-10 sh from the IUP Graduate Catalog with approval of their adviser.

*Required in the department core

COURSE DESCRIPTIONS

- FN 510 FOOD, NUTRITION AND AGING 3 sh
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 sh
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 sh
Studies current known effects of food processing techniques on the nutritional value and safety of food. Prerequisites: FN 212, BI 241.
- FN 558 ADVANCED HUMAN NUTRITION I 3 sh
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, BI 151.
- FN 561 MICROWAVE COOKING TECHNOLOGY 3 sh
Examines the electronic technology, selection, care, and use of the microwave oven. Basic physical and chemical concepts related to microwave cooking. Individual research problem required. Two lectures, two lab hours per week. Prerequisite: CH 101.
- FN 562 ADVANCED EXPERIMENTAL FOODS 3 sh
Prerequisites: FN 362, CH 231. 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.
- FN 564 FOOD AND NUTRITION RESEARCH METHODS 3 sh
Prerequisites: FN 362, 458, CH 351 and MA 217. Introduction to research methodology in foods 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.

- FN 612 ADMINISTRATION OF FOOD SERVICE SYSTEMS 3 s.h.
Prerequisites FN 358, FN 259, FN 313, FN 356, or three years of work experience in a food service management position. Addresses food service as a system of interrelated parts and controlling management resources. Analysis of different types of food service delivery systems and legal responsibilities of a food service administrator will be covered.
- FN 641 CULTURAL ASPECTS OF FOODS 3 s.h.
Investigation and analysis of historical, political, religious, ethnic, environmental, and social influences affecting food habits and customs. Major cuisines of the world and regional US are included.
- FN 642 CONTEMPORARY ISSUES IN FOOD AND NUTRITION 3 s.h.
Current information in foods and nutrition is investigated, analyzed, and evaluated for practical implementation.
- FN 645 PROTEINS, CARBOHYDRATES, AND FATS
IN NUTRITION 3 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 co-factors in macronutrient metabolism. Focus on biochemical and physiologic functions, research, and analytical methods. Prerequisite: FN 645.
- 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 1 s.h.
Prerequisites GR 615, GR 515, and two courses from the department requirement. Preparation and presentation of written scientific reports and/or current departmental research. Course to be taken twice.
- FN 743 SEMINAR IN CLINICAL DIETETICS 3 s.h.
Examines nutritional management of the hospitalized patient with emphasis on the role of the dietician. Research for a paper and seminar presentation are required.
- FN 752 INTERNSHIP 1-6 s.h.
Supervised work experience for food and nutrition majors. Prerequisite, permission of department chairperson.
- 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

Potential applicants should discuss with the Graduate School the availability of course offerings in the foreign languages before submitting an application for admission

GERMAN

The programs leading to the MA and MEd degrees in German have been placed on inactive status. No applications are being accepted for either of these programs

COURSE DESCRIPTIONS

- GM 610 HISTORY OF THE GERMAN LANGUAGE 3 sh
History and development of the German language, with special emphasis on relationships with English. Analysis of annals in Gothic, Old High German, and Middle High German using methods of historical and contemporary linguistics
- GM 611 ADVANCED COMPOSITION AND STYLISTICS 3 sh
Development of abilities in German composition and stylistics which will lead to greater facility and accuracy in writing German
- GM 612 ADVANCED ORAL PRACTICE 3 sh
Designed to achieve fluency and accuracy in spoken German by using various media to provide framework for guided discussions of current topics
- GM 613 GERMAN PHONETICS 3 sh
Analysis of physiological and linguistic factors of spoken German. Practice in critical areas of German pronunciation and intonation, with special emphasis on potential interferences between German and English
- GM 620 SEMINAR ON GERMAN LANGUAGE 3 sh
In-depth study of structure and grammar of the language
- GM 630 SEMINAR ON GERMAN CULTURE 3 sh
In-depth study of German culture from either an historical, fine arts perspective or from an anthropological, sociological point of view. Independent research with oral and/or written reports required
- GM 640 SEMINAR ON GERMAN CULTURE 3 sh
In-depth study of a particular author or genre requiring independent research. Seminar topics to vary on a rotating basis, depending on staff and student interest
- GM 653 ADVANCED METHODOLOGY 3 sh
Demonstrations and discussions of current teaching strategies to provide teachers of German with greater expertise in dealing with problems in motivation, articulation and other pedagogical concerns. Topics vary from time to time depending on background and experience of participants involved
- GM 699 INDEPENDENT STUDY 1-3 sh

SPANISH

The Spanish department offers a program of study leading to the Master of Arts in Spanish Language and Literature. In the past, the department also offered an MEd degree, but this program is currently inactive and no longer accepts applicants.

MASTER OF ARTS IN SPANISH LANGUAGE AND LITERATURE

Candidates for the MA degree in Spanish Language and Literature must successfully complete a minimum of thirty semester hours, of which at least twenty-four semester hours are to represent the area of concentration as well as a minimum of four different literary epochs chosen from courses in Peninsular and/or Spanish-American literature. Required courses for the MA degree are SP 600 or SP 601 and SP 606. Thesis is optional; if the candidate chooses the "No-Thesis" option, he/she must complete thirty-three hours, with a minimum of twenty-seven hours in the area of concentration. For admission to degree candidacy, the student must demonstrate a reading knowledge of a second foreign language acceptable to the department.

Curriculum for the MA Degree in Spanish Language and Literature

I Spanish Language and Literature (Area of Concentration)

Courses SP 600 through 699 provide subject matter content in the area of specialization for the Master of Arts degree. MA candidates are to complete twenty-four to thirty semester hours. FL 525 Valladolid Program, for which six semester hours will be allotted, is optional, provided that the candidate has not elected the Valladolid program as an undergraduate.

II Related Studies

A limited number of graduate credits may be elected from related areas of study with departmental approval.

COURSE DESCRIPTIONS

FL 521 LANGUAGE AND SOCIETY 3 sh

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 sh

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 sh
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.

Hispanic Graduate Studies
Series 600-605, Philology, Stylistics, Grammar, and Methodology

SP 600 HISTORY OF THE SPANISH LANGUAGE 3 sh
Traces phonological, morphological, lexical, and syntactical evolution of Castilian dialect from its origins in Vulgar Latin through its development, perfection, and ultimate recognition as the official language of Spain and Spanish America. Places Castilian linguistically with relation to other Romance languages and considers features peculiar to Spanish of Latin America.

SP 601 ADVANCED GRAMMAR, COMPOSITION AND CONVERSATION 3 sh
Advanced grammar, composition, and oral fluency intended to substantially improve understanding of Spanish grammar and syntax, increase vocabulary and command of language, and provide opportunity for acquisition of poise and ease of self-expression.

SP 605 METHODOLOGY OF FOREIGN LANGUAGE TEACHING 3 sh
Improvement of teaching skills and an increased understanding and awareness of implications of current research to foreign language teaching and learning theory as well as developmental strategies for testing and evaluation of student learning and exploration of curricular innovations.

SP 606 METHODS OF RESEARCH, CRITICISM AND STYLISTICS 3 sh
Acquaints students with tools of research in the field. Modern Language Association style sheets, histories of literature, historical grammars, dictionaries, literary criticisms, recognized collections of literary texts, critical editions, and monograph studies, as well as various scholarly journals devoted to Romance philology and literatures. Introduction to history of Spanish literary criticism and to stylistics as a tool of literary analysis applied to representative works of various epoch styles.

Spanish Peninsular Literature
Series 610-650

SP 610 MEDIEVAL SPANISH LITERATURE 3 sh
Reading and discussion of various medieval genres: epic poetry ("Juglana" and "clerecia"), lyric and didactic poetry, prose (Alfonso X and selections from the *Cronica General*, the *Partidas*, the *Cantigas*, etc.; Juan Manuel and the *Apologo*), *Danza General de la Muerte*, the debate, and the medieval drama.

SP 615 PHOTO-RENAISSANCE LETTERS AND MASTERPIECES 3 sh
Critical appreciation of transitional literary forms of fifteenth-century Spain, poetry and the *Cancioneros* and the *Romancero*, prose (history, biography, and satiric-didactic literature, apologues). Special emphasis on *Libro de buen amor* and *La Celestina*.

SP 620 RENAISSANCE AND HUMANISM 3 sh
Consideration of cultural contributions of Spanish-Christian humanism together with a careful study of the Renaissance lyric poetry (Italianate and traditional veins), the epic, the novel (in its various forms), Pre-Lopesque theater, the dialogue, ascetic and mystical prose and poetry, history.

SP 625 THE SPANISH BAROQUE 3 sh

An insight into the typical baroque themes, motifs, and stylistic devices through analysis and interpretation of important works of seventeenth-century writers. Poetry (lyric and epic), prose (novel and novella), literary criticism and polemics, drama

SP 626 GOLDEN AGE DRAMA 3 sh

Readings and interpretations of major dramatists (Lope and Calderon) and examination of seventeenth-century drama, its peculiar national character, and its relationship to contemporary society and culture

SP 630 NEOCLASSICISM AND ROMANTICISM 3 sh

Compares and contrasts cultural and ideological expression of eighteenth-century Spain—both French cultural influence and popular reaction to the trend—as manifested in the prose (polemic, erudite, narrative, and philosophic), poetry, and theater of the period to artist and literary aesthetics of the first half of the nineteenth-century in Spain as reflected in poetry, novel, drama, and literary perceptive of her imported Romanticism together with an appreciation of the late Romantic Becquer

SP 635 COSTUMBRISM, REALISM, AND NATURALISM 3 sh

Studies and analysis of "Articulos de costumbres" and especially several trends in the novel of the latter half of the nineteenth century in Spain. Fernan Caballero, Alarcon, Valera, Pereda, Palacio Valdes, Pardo Bazan, Blasco Ibanez, Clarin, and Perez Galdos

SP 640 GENERATION OF 1898 3 sh

A critical excursion into minds of the late nineteenth- and early twentieth-century novels and thinkers and their works. Emphasis on novels and essays of Unamuno, Ganivet, Azorin, Baroja, Valle-Inclan, Ortega y Gasset, and Perez de Ayala

SP 646 MODERNISM, CONTEMPORARY AND
POSTCONTEMPORARY POETRY 3 sh

Study and analysis of lyric poetry in Spain from modernism and its evolution to present.

SP 650 SPANISH LITERATURE OF THE TWENTIETH CENTURY 3 sh

Trends in Spanish novel after the Civil War. A) 1940-1961 "Tremendismo" and testimonial novel, social realism and objectivism. B) 1962 to present reaction against social realism and objectivism, new tendencies. C) short story. D) study and interpretation of Spanish theater from generation of 1898 to present.

Spanish-American Literature and Culture

SP 581 SPECIAL TOPICS 3 sh

Study of an author, genre, epoch, or literary movement

Series 655-699

SP 655 PRE-COLUMBIAN LITERATURE AND SPANISH-AMERICAN
CIVILIZATION 3 sh

Literature, art, myth, and thought of Indian civilizations of Latin America with emphasis on Aztecs, Mayas, and Incas as well as history and culture of Spanish America with special emphasis on baroque and neoclassical trends

- SP 660 COLONIAL PERIOD 3 sh
Representative chroniclers, poets, and dramatists from the letters of Columbus to the end of the sixteenth-century together with a study of various literary genres during the seventeenth and eighteenth centuries in Spanish America with special emphasis on baroque and neoclassical trends
- SP 665 ROMANTICISM AND GAUCHESQUE LITERATURE 3 sh
A detailed study of the Romantic period, its European influences, and unique characteristics of Romanticism in Spanish America with representative poets, novelists, and essayists read against the nineteenth-century historical background. Development of Gauchesque genre in Argentina and its characteristics, interrelated with the geographical, historical and social background with emphasis on Gauchesque poetry
- SP 670 MODERNISM 3 sh
Modernistic movement of Spanish-American literature history and its relation to certain European artistic trends and movements. Aesthetic principles of modernism, together with its renovation in themes, vocabulary, syntax, and versification will be seen as reflected in the criticism and works of the movement's outstanding authors
- SP 675 POSTMODERNISM AND AVANT-GARDE POETRY 3 sh
A study of the reaction against modernism as characterized by new techniques of postmodernistic poetry, followed by an analysis of historical and sociocultural situation of "avant-garde" movements. Discussion of characteristics of works of major "avant-garde" poets
- SP 680 REGIONALISTIC NOVEL 3 sh
A study of the "maestros" of Spanish-American regionalism of the early twentieth century, including novelists Callegos, Rivera, Azuela, Guiraldes, Icaza, Alegria etc
- SP 685 TWENTIETH-CENTURY SPANISH-AMERICAN LITERATURE 3 sh
Literary expressions in Spanish America from the end of the nineteenth century to the present
- SP 690 CONTEMPORARY NOVEL AND SHORT STORY 3 sh
Major contemporary novelists and short-story writers (Borges, Onetti, Cortazar, Carpentier, Rulfo, Garcia Marquez, etc) with an examination of their major themes, techniques and stylistic features
- SP 695 THE SPANISH-AMERICAN ESSAY 3 sh
Development of theory and ideological essay from the last two decades of the nineteenth century to present with stress on contemporary period. Essays will be read both as a literary genre and as a vehicle for ideas against the historical background
- SP 699 INDEPENDENT STUDY 1-3 sh

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 sh.

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 sh.

Analysis of philosophical, sociological, and psychological basis for creation of curriculum patterns, K-14. 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 sh.

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 sh.

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 sh.

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, basic ideas heightening a sound philosophy for American schools.

FE 613 SOCIAL FOUNDATIONS OF EDUCATION 3 sh.

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 sh

Studies 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 sh

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 MEd in Geography is currently inactive and no applications are being accepted for this program.) The MA and MS 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 spatial location patterns and processes and environmental concerns, the planning field, its organization and operation, and geographic and cartographic skills, including computer application, is of value to the graduate in the job search.

Students usually hold a bachelor's degree in geography or one of the social sciences. Persons with degrees in education, science, or business 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 MA student may design his/her program in consultation with a faculty adviser. The MS program requires that the student complete a twelve-credit concentration in regional development, planning, and cartography. In either program, selected courses in related fields may be applied toward the degree. All graduate degree programs require a minimum of thirty 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 to incorporate an internship as part of either the MA or the MS program.

MASTER OF ARTS AND MASTER OF SCIENCE IN GEOGRAPHY

I Core Program (9 sh): Thought and Philosophy in Geography and Planning, Research in Geography and Planning, Qualitative Techniques in Geography and Planning.

- II. Electives and/or Thesis (21-27 s.h.)
- A. The M.A. candidate elects 15-20 s.h. in geography and related fields with the thesis (1 to 6 s.h.) and 27 s.h. without the thesis.
 - B. The M.S. candidate takes a concentration in regional development, regional planning, and cartography (12 s.h. minimum), elects 3 to 9 s.h. in geography and related fields with thesis (1 to 6 s.h.) and 15 s.h. without thesis. A 6 s.h. 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 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 techniques are evaluated Field tools and techniques are used in the study of a specific area Emphasis is upon skill and interpretation of spatial patterns of phenomena

GE 620 SPATIAL STRUCTURE OF THE ECONOMY 3 s.h.

The spatial organization of economic systems is studied Various processes that give rise to these systems and their spatial interdependencies will be explored Some topical and regional examples of spatial structure will be used as case studies

GE 622 INDUSTRIAL GEOGRAPHY 3 s.h.

Spatial aspects of industry are considered Emphasis is placed on the locational patterns of industry

- GE 623 REGIONAL DEVELOPMENT 3 sh
Theory and policy implications of the spatial aspects of development in various regions of underdevelopment
- GE 630 CULTURAL GEOGRAPHY 3 sh
Literature and methods of cultural geography Topics include population settlements, human ecology, culture areas, and related features
- GE 531 POPULATION GEOGRAPHY 3 sh
Spatial variations in numbers, characteristics and dynamics of human population, and models and theoretical constructs relevant to demographic structures and processes are studied
- GE 532 URBAN GEOGRAPHY 3 sh
Analysis of city types, patterns, and functions as influenced by geographic conditions and other factors City planning techniques and field study are utilized
- GE 633 SETTLEMENT GEOGRAPHY 3 sh
Settlement patterns and processes, origins, diffusion, classification, pioneer settlement planning, and agricultural colonization
- GE 534 POLITICAL GEOGRAPHY 3 sh
Geographic factors and conditions are analyzed as they relate to character and function of states Political institutions in light of geographic conditions
- GE 540 CONSERVATION ENVIRONMENTAL ANALYSIS 3 sh
Problems of exploitation and utilization of regional resources, i.e., soils, minerals, forests, and wildlife in relation to population growth and regional planning and development
- GE 650 REGIONAL GEOGRAPHY 3 sh
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 651 GEOGRAPHY OF PENNSYLVANIA 3 sh
Regions of Pennsylvania are examined in detail to identify man-environment relationships Soils, topography, climate, vegetation, population, and economic patterns are studied
- GE 560 INTRODUCTION TO PLANNING 3 sh
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 sh
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 sh
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 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, program administration Prerequisite GE 560
- GE 581/681 SPECIAL TOPICS 3 s.h.
Topic 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 are 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 student 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 sh
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 sh
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 sh
Study of phenomenon of glaciation, including study of glacial movement, 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. Prerequisite: GS 121 and GS 131.
- GS 526 STRUCTURAL FIELD GEOLOGY 3 sh
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 sh
Landforms and the processes and principles that govern both their origin and their subsequent development. Prerequisite: GS 325.
- GS 530 PALEONTOLOGY 3 sh
A morphological study of major invertebrate life forms of the geologic past and their distribution in space and time. Prerequisite: GS 131 or BI 120.
- GS 535 ECONOMIC GEOLOGY 3 sh
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 sh
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. Permission of the instructor.
- GS 540 PETROLEUM GEOLOGY 3 sh
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 of twenty credit hours of geology.
- GS 541 THE SOLAR SYSTEM 3 sh
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. It will require some treatment of celestial mechanics.

- GS 542 THE SIDEREAL UNIVERSE 3 sh
 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 observation are a 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 sh
 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 work 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 sh
 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 sh
 Introduction to ocean, geological, chemical, 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 sh
 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 sh
 Basic and advanced consideration of physical processes of the atmosphere. Lectures, readings, term paper, lab. Prerequisite: one year of physical science or Physics GS 581.
- GS 681 SPECIAL TOPICS 1-3 sh
 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 sh
 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 sh
 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 MINEROLOGY 3 sh
 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.

CS 630 PALEOECOLOGY 3 sh
Application of paleontologic, sedimentologic, and geochemical approaches to the interpretation of ancient environments. Field and laboratory research leading to term paper. Prerequisite: CS 330

CS 699 INDEPENDENT STUDY 1-3 sh
Independent research under faculty direction

A new course, CS 532 Coal Geology, is pending approval

HEALTH AND PHYSICAL EDUCATION

The Master of Science degree in Sports Sciences is designed to attract students from nonteaching professions as well as the teaching profession. It is discipline-oriented with provision for the student to choose between two major areas of emphasis: professional specialization and sport studies. Options for professional specialization are provided in sports management, sports information, sports media, and aquatics administration and facilities management. Options in sport studies are interdisciplinary in nature and tailored to meet individual needs and interests.

Requirements for Admission—To be admitted to the health and physical education department, the applicant must have completed the requirements for a bachelor's degree from an accredited college or university and fulfill the general requirements for admission to the Graduate School for a master's degree as discussed in this bulletin.

Requirements for Candidacy—Acceptance into the Graduate School permits a student to take course work in the department. If a student wishes to become a degree candidate, he/she must complete the application for candidacy and forward this form to the dean of Human Ecology and Health Sciences after having successfully completed six hours of course work in the department.

MASTER OF SCIENCE IN SPORT SCIENCE

Students may choose between a thesis or non-thesis curriculum depending upon individual preferences and needs.

- I Thesis Degree Requirements (30 sh)
 - A Core Courses (20-24 sh) HP 600, HP 601, HP 602, HP 603, GR 615, GR 516, HP 850
 - B Electives (6-10 sh)
Students may, with the advice and consent of an adviser, select electives from any of the approved graduate-level courses
- II Non-thesis Degree Requirements (36 sh)
 - A Core Courses (18 sh) HP 600, HP 601, HP 602, HP 603, GR 615, GR 516
 - B Electives (18 sh)
Three semester hours from HP 631, HP 632, HP 633, HP 634, HP 635, HP 637, HP 680, or HP 681. Fifteen semester hours from any of the approved graduate-level courses with the advice and consent of an adviser.

For description of GR courses, see entry under "GENERAL SERVICE COURSES"

COURSE DESCRIPTIONS

HP 510 EXERCISE PRESCRIPTION 3 sh

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 Physiology of Exercise.

HP 512 PHYSICAL ACTIVITY AND STRESS MANAGEMENT 3 sh

Acquisition of necessary understandings of anxiety and stress with respect to their 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 sh

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 visits to nursing homes, senior citizens' organizations, and social service agencies.

HP 550 CURRICULUM AND PROGRAMMING IN
SEXUALITY EDUCATION 3 sh

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 sh

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 sh

Designed to acquaint the student with the reciprocal relationships between sport and physical activity as they affect man's development in the societies and cultures out of which sport emerges.

HP 602 SPORT PSYCHOLOGY 3 sh

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 PSYCHOLOGICAL BASIS OF SPORT 3 sh

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 sh

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 sh.
Study of various physical fitness components their contribution to a persons well-being and how to measure and evaluate physical fitness
- HP 633 **KINESIOLOGICAL PRINCIPLES** 3 sh.
Scientific study of human motion with particular attention given to analysis of sport techniques and discussion of kinesiological concepts
- HP 634 **CURRENT LITERATURE IN SPORT** 3 sh.
Review of current literature in physical education and sport Requires the submission of an article for publication
- HP 635 **SPORT MANAGEMENT** 3 sh.
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 sh.
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 sh.
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 sh.
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 sh.
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 690 **INTERNSHIP** 3-6 sh.
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 graduate faculty approval
- HP 699 **INDEPENDENT STUDY** 1-3 sh.
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 school dean associate provost
- HP 850 **THESIS** 3-6 sh.

A new course Sport Facilities Administration is pending approval

HISTORY

A minimum of thirty semester hours is required, or thirty-six semester hours for those electing not to write a thesis. Within these general requirements is a nine 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 510 HISTORY OF 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 ROME 3 s.h.

Will trace Roman history from early Republic to fall of Empire. A study of 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 beginning 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 20TH-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-US 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 sh
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 523 MODERN FRANCE 3 sh
Investigation of political, cultural, economic, and social developments since 1815. Discussions and readings.
- HI 524 HISTORY OF GERMANY TO 1848 3 sh
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 sh
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 sh
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 sh
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 sh
An approach to learning about non-Western culture, Mohammed, Arabs, Muslims as creators of 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 sh
Survey of changes that have taken place in the Middle East and in Islam since the eighteenth century and of contemporary problems in that region.
- HI 540 COLONIAL AMERICA 3 sh
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 sh
Study of history of United States from beginnings of revolutionary crisis in 1763 through adoption of the Constitution and the administration of John Adams. Special emphasis is given the causes and civil war aspects of the revolution and the constitutional-political development of the new nation.
- HI 542 THE EARLY REPUBLIC 3 sh
Survey of the United States history from 1783 to 1850, with special attention to constitutional, political, and social trends.
- HI 543 CIVIL WAR AND RECONSTRUCTION 3 sh
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 544 HISTORY OF US, 1876-1900 3 sh
Stresses reaction of various segments of heterogeneous population and rapid industrialization, urbanization, and corporatization of American life and emergence of US as a world power, special attention to formation of new institutions
- HI 545 THE AGE OF RAGTIME AMERICAN HISTORY, 1900-1929 3 sh
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 sh
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 sh
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 sh
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 sh
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 sh
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 sh
Treats primarily our twentieth-century involvement 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 MODERN AMERICA 3 sh
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 sh
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 sh
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 US 3 sh
Historical development of economic institutions in American life since independence, emphasis on farming, labor, transportation, banking, and manufacturing

- HI 568 US URBAN HISTORY 3 sh
A survey of American cities from their beginnings to present emphasizing relationship of urban history to social science theory stages and process of city development
- HI 569 WOMEN IN AMERICA 3 sh
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 sh
Description and analysis of nature and significance of the US working class in the 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 sh
Description and analysis of the nature and significance of the US working class in the twentieth century Work settings and strikes will be examined and analyzed as well as unions such as 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 sh
Each semester, courses are offered in interest areas which are not part of the regular course offerings
- HI 590 FILM AS HISTORY 3 sh
Particularly concerned with probing the relationship between cinema and society History of film is explored, and student is given some background in film interpretation and cinematography, the western, science fiction, police films, and great foreign and American detective films
- HI 591 FILM AS CULTURAL, INTELLECTUAL AND SOCIAL HISTORY 3 sh
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 sh
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 sh
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 sh
Direct readings of historical materials, focused on a general topic
- HI 601 HISTORY SEMINAR 3-6 sh
Area research, culminating in a formal paper

HI 614	RESEARCH METHODS	3 sh
	Investigation of library system, reference works, bibliographies, how to compile a bibliography, organizing research, use of statistics, style systems in printing.	
HI 692	HISTORY INTERNSHIP	1-6 sh
	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 sh
	Student selects topic for individual study with an instructor	
HI 850	THESIS	3-6 sh

HOME ECONOMICS EDUCATION

The graduate program in home economics education leads to a Master of Education degree. The primary purpose of the program is to further develop professional competencies essential for more responsible leadership roles.

For admission, a student must have completed a bachelor's degree in home economics with major in home economics education or with a minimum of thirty-five semester hours of home economics, nineteen semester hours in education including home economics education and student teaching, and a minimum of three semester hours in educational psychology. The degree must be from an approved institution.

Food and nutrition and other home economics majors who have a B.S. degree from an approved institution may be admitted to this program. Graduates with a food management and nutrition background will not be qualified to teach in the public schools, nor will this degree help them to meet state certification requirements for teaching home economics. However, students can become better qualified for leadership positions in their area of specialization.

Upon admission, students will be assigned an adviser. The student and adviser will outline a tentative program of studies. Any deviation from degree requirements shall have the written approval of the adviser and coordinator of the program.

Prior to the time the student is admitted to degree candidacy, he/she must, in consultation with his/her adviser and coordinator, select the thesis or no-thesis option.

Thesis Option: Candidates will complete thirty semester hours of approved course work plus a three- or four-semester hour thesis. The selection of, and the proposal for, research shall be approved by the adviser and other members of his/her Graduate Committee. The research shall be carried on by the candidate under the direction of the research adviser and/or committee members.

Non-Thesis Option In lieu of thesis candidate must complete thirty-three semester hours of approved course work and two extensive research papers. One research paper will be required in HE 676 and the other research paper will be in another home economics course selected by the candidate and approved by the adviser and the coordinator.

MASTER OF EDUCATION IN HOME ECONOMICS

Students should complete thirty semester hours of work (thesis option) or thirty-three semester hours of work (no-thesis option) from the following areas: Nine semester hours in professional development including one course in humanistic studies selected from FE 514, 611, 612 or 613; one course in behavioral studies selected from EP 604, 573, 576, 578, 580, or CE 629, 639, or EX 631; and GR 615 Elements of Research; six semester hours in a specialization core including HE 670, 671, 672 through 699. HE 672 is required of any student who has not completed a course in evaluation; and nine semester hours in a home economics subject matter concentration. Courses for the subject matter concentration may be selected from two or more subject areas of home economics, or all courses selected may be selected from one area of home economics.

Courses HE 533, 677, or 697 may be counted for home economics education or subject matter concentration, depending on focus of course.

Dual-level courses taken at the undergraduate level cannot be repeated on the graduate level for graduate degree credit.

A maximum of six semester hours of four credits may be applied toward degree requirements, but only one to four semester hours may be applied in any one subject matter area. A maximum of four semester hours may be applied for any four.

COURSE DESCRIPTIONS

General Courses

General courses may be used to meet the requirements for subject matter or home economics education, depending upon the focus.

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 catalogs, or chairperson for special offerings.

HE 653 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 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 a half years.

- HE 526 TECHNIQUES OF CHILD DEVELOPMENT CENTERS 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 ADMINISTRATIONS 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 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. Three lecture hours. Prerequisite: EX 300/500.

- 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. Three lecture hours. Prerequisite: EX 300/500.

- 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 sh
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 sh
Evaluative methods and techniques designed to measure a comprehensive range of home economics educational objectives are studied. Special attention is given to use and construction of teacher-made tests and evaluative devices.
- HE 673 SUPERVISION AND ADMINISTRATION
IN HOME ECONOMICS 3 sh
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 sh
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 675 SPECIAL PROBLEMS IN HOME ECONOMICS 3 sh
Specific problems with curriculum, teaching, learning experiences, and evaluation are stressed. Each student will research a special problem or area of interest.
- HE 676 CURRICULUM DEVELOPMENT IN HOME ECONOMICS 3 sh
Special attention is focused on realistic curriculum decisions and on using innovative procedures.
- HE 690 RESEARCH IN HOME ECONOMICS 3 sh
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 forty-two semester-hour program consists of a required core of twenty-seven semester hours and elective course offerings totaling fifteen semester hours.

In consultation with the adviser, each student will individually build the elective sequence of the program of study by choosing fifteen 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 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 s.h. in LR 610, LR 611, LR 612, LR 613, LR 615, LR 619, LR 625, LR 641, and EC 530.
- II. Elective Area: 15 s.h. 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 sh
Detailed examination of current professional issues in the field
- LR 619 RESEARCH METHODS IN INDUSTRIAL AND LABOR RELATIONS 3 sh
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 sh
Field experience in industrial and labor relations An internship log and term paper are required
- LR 621 LABOR RELATIONS IN THE PUBLIC SECTOR 3 sh
Developments in federal, state, and 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 sh
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 sh
The union examined as an institution, with focus on its organizational structure administration, relationships with the employer, members, and state and national affiliates Particular unions will be chosen for case study
- LR 624 COMPARATIVE LABOR RELATIONS 3 sh
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 sh
Survey of current laws, principles, and procedures in use in modern collective bargaining and evolving trends
- LR 631 HUMAN RESOURCE MANAGEMENT IN THE PUBLIC SECTOR 3 sh
Human resource management systems with a special examination of public sector organizations
- LR 632 COMPENSATION AND BENEFIT ADMINISTRATION 3 sh
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 compensation and benefit systems and the necessary skills to function as a professional in the field
- LR 640 NEGOTIATIONS
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 sh
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 650 ALTERNATIVE WORK STYLES 3 sh

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 681 SPECIAL TOPICS IN INDUSTRIAL AND LABOR RELATIONS 3 sh

According to student demand, special graduate courses on selected topics

LR 699 INDEPENDENT STUDY 3 sh

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, dean, and provost.

LR 850 THESIS 3 sh

For student writing the thesis, LR 850 should be selected for the semester in which the student plans to complete his/her work. The thesis may be a noncommittee thesis (1-3 sh), with one faculty member serving as the student's adviser, or a committee thesis (1-6 sh)

MATHEMATICS

The mathematics department offers the Master of Education degree with a major in mathematics and the Master of Science degree.

The Master of Education program 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 course requirements for the Master of Science program are quite flexible and include an option of six semester hours in an area related to mathematics. This flexibility allows the program to serve many purposes and to provide appropriate choices for secondary mathematics teachers, for persons preparing for employment in areas of applied mathematics, and for students who will pursue further graduate work in mathematics. Students should also be aware that both the MEd and MS degrees are being revised and the requirements may change before the next catalog is issued. For current information concerning degree requirements, write to the Director of Graduate Studies, Mathematics Department, IUP, Indiana, PA 15705.

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 EDUCATION IN MATHEMATICS

A minimum of thirty 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 sh.) from FE 514, 611, 612, 613
2. One course (3 sh.) from EP 604, EP 573, EP 576, EP 578, EP 580, CE 629, CE 639, EX 631
3. Gr 615, Elements of Research (3 sh.)

- 4 Six sh from MA 651, MA 652, MA 650, MA 654. With special permission from the adviser, EM 651 and EM 652 are acceptable for fulfillment of this requirement.
- 5 A minimum of 15 sh of mathematics content courses. All 3 sh graduate mathematics courses are considered content courses, with the single exception of MA 600, MA 521 and MA 576 are required unless comparable courses have been completed at the undergraduate level.

For descriptions of FE courses, see section 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 SCHOOL TEACHERS.

For description of GR courses, see entry under GENERAL SERVICE COURSES.

MASTER OF SCIENCE IN MATHEMATICS

Every candidate for the Master of Science degree in Mathematics must complete at least thirty semester hours of graduate work and must satisfy the following requirements:

- 1 The course MA 600 Methods of Research in Mathematics is required of all students.
- 2 The two courses MA 576 Abstract Algebra I and MA 521 Advanced Calculus I are required unless comparable courses have been completed at the undergraduate level.
- 3 The student may select twenty-seven semester hours of content courses in mathematics or twenty-one semester hours of content courses and six semester hours in a related area. The department accepts the optional thesis as a content course. The student must have the adviser's approval of the courses elected in a related area.

COURSE DESCRIPTIONS

MA 521-522 ADVANCED CALCULUS I, II 3, 3 sh
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 523-524 COMPLEX VARIABLES I, II 3, 3 sh
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 527 TOPOLOGY 3 sh
Basic topological concepts including some topological invariants. Relationships between topology and other disciplines of mathematics are discussed. Prerequisites: differential and integral calculus.

MA 545 PROGRAMMING MODELS IN OPERATIONS RESEARCH 3 sh

Prerequisites: two semesters of calculus. Development of deterministic mathematical models for managerial and social sciences with relevant computational techniques. Three-hour lecture per week.

MA 546 PROBABILISTIC MODELS IN OPERATIONS RESEARCH 3 sh

Prerequisites: two semesters of calculus, MA 563 or equivalent. Development of probabilistic mathematical models for managerial and social sciences with relevant computational techniques. Three-hour lecture per week.

MA 553 THEORY OF NUMBERS 3 sh

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 sh

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. Three-hour lecture per week. Prerequisite: differential and integral calculus.

MA 564 MATHEMATICAL STATISTICS II 3 sh

Multivariate distributions, properties of the moment generating function, change of variable technique. Chi-square distribution, estimation, confidence intervals, testing hypotheses, contingency tables, goodness to fit. Many practical applications. Use of calculating machines and computers where appropriate. Three-hour lecture per week. Prerequisite: MA 563.

MA 565 TOPICS IN STATISTICS 3 sh

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. Three lecture hours per week. Prerequisite: MA 564.

MA 571 LINEAR ALGEBRA 3 sh

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 sh

Basic algebraic 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 sh

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 sh

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 625-626 REAL VARIABLES I II 3.3 sh
 Classical theory of functions of a real variable and of measure and integration theory Prerequisite MA 522 or equivalent
- MA 631 FOUNDATIONS OF MATHEMATICS I 3 sh
 Designed to acquaint students with logical techniques used in proof and set theory Topics include symbolic logic, rules and inference, validity of arguments algebra of sets, cardinal numbers, the well-ordering property and the Axiom of Choice
- MA 632 FOUNDATIONS OF MATHEMATICS II 3 sh
 Properties of axiom systems, including consistency, independence and completeness for propositions calculus and first-order predicate calculus Prerequisites MA 631 and at least 6 sh of graduate-level mathematics
- MA 641 DIFFERENTIAL EQUATIONS 3 sh
 Special solvable nonlinear equations with solutions based on operator techniques Laplace transform or infinite series Applications to physical problems Three-hour lecture per week Prerequisite differential and integral calculus
- MA 650 HISTORY OF MATHEMATICS 3 sh
 Men 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 sh
 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 sh
 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 sh
 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 sh
 An introduction to Klein's formulation of geometry of the invariant theory of a given set under a given group of transformations, 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 sh
 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 677 TOPICS IN ABSTRACT ALGEBRA 3 sh
 Topics in group theory, ring theory and study of modules Prerequisite MA 577

MA 681-683 SPECIAL TOPICS IN MATHEMATICS 3 sh

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 topic class may be taken. Prerequisite: consent of the instructor.

MA 690 INDEPENDENT STUDY IN MATHEMATICS 3 sh

Under the guidance of faculty member a student may study some area of mathematics not included in the regular courses.

MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS

The program leading to a Master of Education degree in Mathematics for Elementary School Teachers is designed to give the elementary and middle school teacher both depth and breadth in the mathematical concepts essential to a contemporary school mathematics program. 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 the elementary schools. Upon completion of the program the student will be prepared to serve as coordinator or resource person 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.

Each person admitted to the program will be assigned an adviser who will assist the student in selecting course work best suited to the student's background and professional aspirations.

A minimum of thirty semester hours* is required for the Master of Education degree in Mathematics for Elementary School Teachers. Courses taken must satisfy the following requirements:

I Professional Development Area — nine semester hours as listed below:

A Humanistic Studies — three semester hours should be selected from the course listing for the Foundations of Education department.

B Behavioral Studies — three semester hours should be selected from a list of approved courses (consult adviser). Course descriptions are under appropriate departmental listings for the educational psychology, counselor education, special education, and elementary education (professional studies in education) departments.

C Educational Research — three semester hours GR 615 Elements of Research.

II Specialization Core — six semester hours required from EM 650, 651, 652.

III Subject Matter Concentration Area — 11-15 semester hours.

A minimum of fifteen semester hours will usually be selected from the courses listed if the student elects not to write a thesis. If the student elects to write a thesis, eleven semester hours will be taken in the subject matter concentration area. Courses other than those with "EM" department labels (such as MA 654) may be taken to meet the subject matter concentration area requirements with the adviser's consent. MA courses are listed in the MATHEMATICS section.

IV Thesis (Optional) — three semester hours

A student may elect to write a thesis for three semester hours after consultation with his/her adviser. This decision should be made at the time the student is admitted to candidacy for the degree.

*Program is currently being revised and requirements may be changed before next edition of catalog is available.

For description of GR courses, see entry under "GENERAL SERVICE COURSES"

INTERNSHIP PROGRAM AS PART OF THE MASTER OF EDUCATION IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS DEGREE PROGRAM

IUP, in cooperation with selected schools, offers a graduate-level internship program as part of the Master of Education in Mathematics for Elementary School Teachers degree. This program is intended to provide a limited number of well-qualified graduate students with teaching experience in a K-8 mathematics program while they are completing the requirements for the Master of Education in Mathematics for Elementary School Teachers degree.

The professional work experiences of the interns will earn graduate credit and therefore be subject to review and evaluation by a faculty member of the university, as well as being under the supervision of designated school personnel.

Information regarding the internship program may be obtained from Director of Graduate Studies in Mathematics for Elementary School Teachers, Mathematics Department, IUP, Indiana, PA 15705.

COURSE DESCRIPTIONS

EM 517 INTRODUCTION TO PROBABILITY AND STATISTICS 3 sh

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.

EM 520 PRE-CALCULUS MATHEMATICS I 3 sh

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.

EM 550 MATHEMATICS FOR EARLY CHILDHOOD 3 sh

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. Pre-numbered 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; 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. Prerequisites 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. Participants will work with elementary school children throughout the semester. 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 mathematical maturity of the student. Other topics include relations and functions, systems of equations and inequalities. Consideration is given to development of these concepts in the mathematics curriculum. 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 the student 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 the

mathematics curriculum, innovative curriculums that have impacted 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 sh

Development of the lab approach to the teaching of mathematics Includes 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 sh

Examines why some children have difficulty 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 sh

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 EL 313

EM 681 SPECIAL TOPICS 3 sh

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 699 ELEMENTARY MATH—INDEPENDENT STUDY 1-6 sh

Under the guidance of a faculty member, a student may study some area of mathematics or mathematics education not covered in the regular courses

MUSIC

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 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

NOTE The MEd degree program in music has been inactivated Applications for this program are no longer being accepted

MASTER OF ARTS IN MUSIC

Core Courses: MU 600, MU 516, and MU 632 (9 sh)

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 sh.)
- 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 sh.)
- III. Music Performance—Applied music courses in the major performance area. AM 610-771 (12 sh.)
- 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 628, MU 629, MU 631, MU 633, MU 634, MU 635, MU 636, MU 537, MU 540-550 (10-14 sh.)

Elective Courses:

If major concentration is I, II, or III, courses totaling six semester hours are selected according to student's needs and interests.

If major concentration is IV, select a music theory or history course (3 sh.) and applied music study in the student's major or minor performance area (4 sh.).

Thesis or Recital:

GR 850	Thesis — if major concentration is I or II (Optional if major concentration is IV)	3-4 sh. 2-4 sh.
GR 851	Recital — if major concentration is III (Optional if major concentration is IV)	4 sh. 2-4 sh.

For description of GR courses, see entry under "GENERAL SERVICE COURSES."

COURSE DESCRIPTIONS

MU 501	ADVANCED CHORAL CONDUCTING	2 sh
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 sh
An intensive study of large instrumental works. Skill development of each individual will be stressed		
MU 503	MUSIC OF THE BAROQUE ERA	3 sh
A survey of music from about 1600 to 1750		
MU 504	MUSIC OF THE CLASSICAL ERA	3 sh
A survey of music from about 1725 to about 1827		
MU 505	MUSIC OF THE ROMANTIC ERA	3 sh
A survey of music from about 1800 to 1910		
MU 506	VOICE PEDAGOGY	3 sh
Techniques in teaching voice		
MU 507	MUSIC OF THE TWENTIETH CENTURY	3 sh
A survey of the principal stylistic trends in music from 1900 to the present.		

- MU 508 MUSIC OF THE SIXTEENTH CENTURY 3 sh
A survey of music from about 1500 to 1600
- MU 509 PIANO PEDAGOGY 3 sh
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 sh
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 sh
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 sh
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 sh
Four-part writing course. Five-, six-, seven-, and eight-part writing will compose 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 sh
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 sh
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 sh
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 sh
Theory and practical application of fundamentals of precision drill. Also this course deals with building "half-time shows" and with materials and instrumentation of the marching band.
- MU 540-550 SUMMER MUSIC WORKSHOP 1-3 sh
Concentration in special interest areas. Content varies.

MU 551	ITALIAN/ENGLISH DICTION	2 sh
MU 553	FRENCH DICTION	2 sh.
MU 554	GERMAN DICTION	2 sh
MU 600	BIBLIOGRAPHY OF MUSIC	3 sh
	Introduces graduate students to various types of music, music literature, and bibliographical tools which exist and may be used in research in music. As a project, each student will prepare an extensive annotated bibliography of a music subject within his special interest.	
MU 618	COMPREHENSIVE MUSICIANSHIP	3 sh
	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 sh.
	Includes learning strategies, experiences, and activities appropriate for introducing comprehensive musicianship at elementary and secondary school levels.	
MU 620	FOUNDATIONS OF MUSIC EDUCATION	3 sh
	Study of historical, philosophical, and social foundation of music education, including educational thought and implications for school music programs.	
MU 622	COMPOSITION II	3 sh
MU 623	COMPOSITION III	3 sh
MU 628	CONTEMPORARY INTERNATIONAL APPROACHES TO ELEMENTARY EDUCATION	2 sh
	An introduction to new developments in elementary music education practices based 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 sh.
	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 sh
	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 sh.
	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 sh.
	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 sh
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 sh
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 sh
Examination and application of modern communications media and their role in music education. Development of an experimental sound lab, 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 sh

APPLIED MUSIC (AM 601-771) 1-4 sh

The following courses will be taught in the 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 nursing department offers a Master of Science degree with a concentration on family nursing. The program of studies includes three areas of focus: the clinical focus on family nursing, a focus on nursing theory and research, and a functional role focus on either the teaching of nursing or the administration of nursing services. The program is designed to prepare graduates to function as teachers, administrators, or practitioners of family nursing.

- NU 725 **TEACHING STRATEGIES FOR NURSING CURRICULUM** 3 sh
Theories of learning instructional modalities, teaching strategies and methods
methods of evaluation of learning emphasis on theoretical and clinical
requirements for professional nursing Prerequisite NU 724
- NU 727 **ADMINISTRATION OF NURSING SERVICES** 3 sh
Conceptual framework of nursing administration, goals and structure for nursing
management processes, resources, controls, administrative and organizational
theory
- NU 731 **FAMILY NURSING II** 3 sh
Focus is on family health problems in the nonurban community setting
promotion of health, maintenance of health, and health education, development of
knowledge of the process of diagnosis of deviations from health, application of that
knowledge in family nursing practice, fundamental disease processes and the
study of the sick or disordered human system Prerequisites NU 630, NU 632
- NU 733 **FAMILY NURSING III** 3 sh
Study of health care systems and the role of the professional nurse in the
community health planning, health policy development, and health care program
evaluation, emphasis on the family and referral systems, development of a clinical
nursing role in nonurban health care, nursing in health care agencies, client homes
clinics Prerequisites NU 630, NU 631
- NU 740-A **NURSING ADMINISTRATION PRACTICUM** 3 sh
Development of the functional role of nurse administrator, practice in a health
care agency under the supervision of a practicing nurse administrator, application
of administrative theory to nursing Prerequisites NU 615, NU 727 LR 631. Cognate
Electives
- NU 740-B **TEACHING PRACTICUM** 3 sh
Development of functional role as nurse educator, practice under the guidance
of a master teacher of Nursing Prerequisites NU 615, NU 724, NU 725. Cognate
Electives
- NU 850 **THESIS** 3-6 sh
Thesis should be scheduled for semester in which student plans to complete
degree requirements A committee of faculty members will provide thesis
supervision

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 your 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 HUMAN RIGHTS THEIR BASIS AND BOUNDARIES 3 sh
 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 nonhuman animals and by environmental studies which prompt consideration of the possible rights of future generations
- PH 560 PHILOSOPHY OF LANGUAGE 3 sh.
 An investigation in the philosophy of language and related issues in linguistics (including anthropological linguistics, sociolinguistics, and psycholinguistics). Topics include, for example, influence of language on perception, rationalistic/empiricist perspectives on language acquisition, language and political control, reference, meaning, and truth.
- RS 580 READINGS IN RELIGIOUS THOUGHT 3 sh.
 An examination of religion as a vital human phenomenon. Treating both classical and contemporary themes; origin of western theological thinking; alienation; contemporary atheism; definitions of deity in Western and Eastern religions; the sacred; origins of religion.
- PH/RS 581 SPECIAL TOPICS 3 sh.
- PH 582 PROBLEMS OF ETHICS 3 sh
 An investigation into the nature of morality by focusing on influential historical and contemporary ethical theories and issues
- PH 583 AMERICAN PHILOSOPHICAL THOUGHT 3 sh
 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 sh.
 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 sh
 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 sh.

PHYSICS

The graduate program in Physics offers a choice of two degrees: a Master of Arts and a Master of Science. The student obtaining a master's degree for fulfillment of certification requirements usually selects the Master of Arts degree. The student obtaining a master's degree for additional preparation for research, an industrial position, or further graduate work will usually select the Master of Science degree.

Because of a wide range of possible courses and research areas available, the student is required to have the consent of his/her department adviser before selecting a course or initiating a research project. Adviser assignments are made as soon as acceptance of a graduate student reaches the physics department. The graduate student should arrange appointments with his/her adviser. The flexibility of the program allows the student to satisfy almost any combination of educational goals.

NOTE. The MEd program in physics has been inactivated and applications are no longer being accepted for this program.

MASTER OF ARTS IN PHYSICS

This program is the most flexible of the three graduate degree programs offered by the physics department. 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 the student is working to attain his/her 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, 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/her adviser, enroll in exactly that ratio of content courses to professional education courses necessary to attain his/her goals.
2. The student who holds a teaching certificate in a field other than physics but who 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 them 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 eight to fifteen semester hours during a semester while interning under one of the special programs instituted by the university.

SUBJECT MATTER—15 sh minimum

Required course work in physics is to be selected from the graduate physics courses with course number 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—11-18 sh

The student may complete the requirements for an M.A. by selecting, with the approval of his/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 two semester hours and PY 850 for at least two semester hours. If he/she selects this option, he/she will have completed a minimum of thirty semester hours, including these two courses, for the degree.
- B. Decide, with the approval of his/her academic adviser, that he/she does not wish to undertake such a research problem. If this option is exercised, the student will not do a thesis but must complete a minimum of thirty-three semester hours of course work.

MASTER OF SCIENCE IN PHYSICS

I. Admisson Requirements.

Any student meeting the requirements of the Graduate School and having either a B.A. or B.S. with the major in physics will be permitted to initiate study in this curriculum.

Students having other degrees that provide sufficient preparation in mathematics and physics may be permitted to initiate study with approval of the chairperson of physics.

II. Subject Matter Concentration

A minimum of six courses to be selected with the approval of the adviser from the following PY 536, PY 601-602, PY 634, PY 641, PY 651, PY 652, PY 661-662.

III. Research Requirement.

Each Master of Science student is required to undertake an individual research problem and complete an acceptable thesis under the direction of one of the graduate faculty. The semester-hour requirement is normally fulfilled by scheduling PY 600 and PY 850.

IV. Comprehensive Examination

The student is expected to pass a comprehensive examination.

V. Free Electives.

The student may complete the thirty semester hour requirement by choosing from among any offerings of the Graduate School, with, of course, the advice and approval of his/her graduate adviser.

COURSE DESCRIPTIONS

PY 507 INTRODUCTION TO MATHEMATICAL PHYSICS I 3 sh

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 sh

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 sh
Application of mathematical methods to physical theory in area of mechanics, electricity, and magnetism, including partial differentials, vector calculus, and non-Cartesian coordinate systems. Intended primarily for individuals in the MED program. Prerequisite: permission of adviser.
- PY 511 SECONDARY SCHOOL PHYSICS LABORATORY PRACTICE 1-3 sh
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 DEVELOPMENTS IN SECONDARY SCHOOL PHYSICS 3 sh
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 settings.
- PY 520 ADVANCED LABORATORY PRACTICE 3 sh
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 sh
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 sh
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 sh
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. The topics are discussed in lecture and investigated by the student in the lab.
- PY 536 ADVANCED ELECTRONICS 3 sh
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 one-hour lectures and one three-hour lab. Prerequisite: PY 535.
- PY 541 ANALYTICAL MECHANICS I 2 sh
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 sh
Central-force motion, high-energy collisions.
- PY 545 OPTICS 3 sh
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 642 **ADVANCED MECHANICS II** 3 sh
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 sh
Solution of boundary value problems using Green's functions and separation of variables techniques Cartesian and spherical coordinate systems multipole expansions, macroscopic electrostatics and magnetostatics, Maxwell's equations, and plane electromagnetic waves Prerequisite PY 552 or equivalent
- PY 652 **ADVANCED ELECTROMAGNETIC THEORY II** 3 sh
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 sh
Quantum approach to solid state Topics include second quantization of fermion and boson systems, electron theory of metals, electro-phonon interactions, and superconductivity Selected subjects in thermal transport, magnetic phenomena Co-requisite PY 561 or its equivalent
- PY 661 **QUANTUM MECHANICS II** 3 sh
Fundamental concepts of quantum mechanics, theory of representations and linear vector spaces, relationship between quantum and classical mechanics Approximation methods for stationary problems with applications to central potentials Prerequisite PY 561 or its equivalent
- PY 662 **QUANTUM MECHANICS III** 3 sh
Approximation methods for time-dependent problems with application to scattering and transition theory Elementary theory of many particle systems with applications to molecules and chemical bonds, fundamentals of the quantum theory of solids, Dirac theory Prerequisite PY 661
- PY 690 **RESEARCH PROBLEMS IN PHYSICS** 1-6 sh
Introduction to advanced research problems through individual assignment Prerequisite permission of department
- PY 699 **INDEPENDENT STUDY** 1-6 sh
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 sh

SCIENCE COURSES

- SC 575 **THE GROWTH OF SCIENCE AND ITS CONCEPTS I** 3 sh
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-hour lecture per week

SC 576 THE GROWTH OF SCIENCE AND ITS CONCEPTS II 3 sh

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, 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 a foreign service professional.

The M.A. in Public Administration degree 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 (36** credits) or (B) International Affairs (30** credits plus foreign language competence).

A. PUBLIC ADMINISTRATION (36 ** credits **minimum)**

1. Research methods (3-6 credits minimum): PS 674 or GE 612, and **GR 516 or 517.
2. Required Core Courses (15 hours): ***PS 570, ***PS 671, PS 666, PS 668, PS 673, or PS 555
3. Directed Research Option (3-6 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 departmental 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 MA in Public Administration directed-research manual may be consulted for requirements pertinent to each of these three options
- 4 Specialization (15 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 MA in Public Administration program for current list of required courses and additional options for specialization)
- B INTERNATIONAL AFFAIRS CONCENTRATION (30-credit minimum)
- 1 Research Methods (3-6 credits) (See A1)
 - 2 Required Core Courses (12 credits) PS 670, PS 672 and two of the following PS 520, PS 521, and PS 589
 - 3 Directed Research Option (3-6 credits) See A3
 - 4 Specialization (12 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 MA in Public Administration program for current list of specializations and required courses)
 - 5 Foreign Language Reading Competency, established by examination *May be taken **only** by those students with sub-field concentration in Planning or Regional Development

**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 is substituted

COURSE DESCRIPTIONS

PS 520 INTERNATIONAL LAW 3 sh
Study of the development, nature, and function of international law including recent trends

PS 521 INTERNATIONAL ORGANIZATIONS 3 sh
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 sh
Focuses on the interactions of science/technology and politics as they impinge on the public decision-making process. Technology-generated sociopolitical 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 sh
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 sh.
Legislative processes in the US 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 sh.
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 sh.
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 sh.
Explores the characteristics of federal system of government with emphasis on theories, origins, institutions, and problems in intergovernmental relations in the US, federal systems in other nations, and trends.
- PS 556 MASS MEDIA IN AMERICAN POLITICS 3 sh.
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 sh.
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 sh.
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 sh.
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 sh.
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 sh.
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 sh
Develops an understanding of American political thinkers from the Puritans through the current Afro-American writers. Political phenomena is examined relating to past writings, and inferences are made for future political behavior.
- PS 570 INTRODUCTION TO PUBLIC ADMINISTRATION 3 sh
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 sh
Essential features of Communist party and government of USSR, including geographical and historical background and ideological and theoretical foundations.
- PS 581 SPECIAL TOPICS 1-3 sh
In-depth study of specific problem or topic not regularly treated in courses. May be repeated.
- PS 582-587 POLITICAL STUDIES 3 sh
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 sh
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 sh
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 sh
In-depth study of human resource 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 sh
Examines public policy using analytical tools and policy models. Considered within this framework are values and resources, the cultural-political environment, the policymaking process, and evaluation methods and their application to major policy areas.

- PS 668 PUBLIC SECTOR FINANCIAL ADMINISTRATION 3 sh
 Concerned with the administration of fiscal and monetary processes of government on all three levels. Included are topics related to revenue expenditure—how the former are calculated and provided for and how the latter are prioritized and allocated via the budgetary process—and control systems which are concerned with recordkeeping and the monitoring of the flow of revenues
- PS 670 FOREIGN POLICY STUDIES 3 sh
 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 sh
 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 sh
 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 US
- PS 673 REGIONAL PUBLIC SERVICE ADMINISTRATION
 IN RURAL AREAS 3 sh
 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 sh
 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 program
- PS 681 SPECIAL TOPICS 1-3 sh
 In-depth study of a specific problem or topic not regularly treated in courses. May be repeated
- PS 698 POLITICAL SCIENCE INTERNSHIP 3-6 sh
 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 chairman
- PS 699 INDEPENDENT STUDY 1-3 sh
 Readings and written assignments on a specific topic determined by student and instructor in charge. May be repeated
- PS 850 THESIS 3 sh
- 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 four semester-hour committee thesis is required, as well as the course GR 615 Elements of Research. 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," page 167, 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 Davis Hall.

MASTER OF EDUCATION IN ELEMENTARY EDUCATION

Students working toward a master's degree in Elementary Education should complete thirty semester hours of work (thesis option) or thirty-six hours of work (non-thesis option) from the following areas: nine semester hours in professional development, including a foundations of education course, a behavioral studies course, and Elements of Research; six semester hours in a specialization core; eighteen semester hours of elementary education electives; and EL 680 Seminar in Advanced Research. With approval of the coordinator, when appropriate, six semester hours of workshop credit or graduate electives may be applied to the master's degree.

GRADUATE PROGRAMS IN EARLY CHILDHOOD EDUCATION

Students seeking Instructional Level II certification with a specialization in early childhood education or a Master of Education degree specializing in early childhood must complete the following requirements: a minimum of twenty-four semester hours is required for students with an Instructional I certificate seeking an Instructional II certificate or thirty semester hours minimum is required for the Master of Education degree program. Courses scheduled by the student should have the approval of the program coordinator.

Students pursuing the M.Ed. with an Early Childhood concentration must complete thirty semester hours (thesis option) or thirty-six semester hours (non-thesis option) from the following areas: nine semester hours in professional development, including a foundations of education course, a behavioral studies course, and Elements of Research; six semester hours

in specialization core; eighteen semester hours of elementary education electives including EL and EE courses; and EL 680 Seminar in Advanced Research. With approval of the coordinator, when appropriate, nine semester hours 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 specialization core 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 of a topic approved by an advisory committee.

A doctorate is defined as ninety semester hours of advanced study beyond the undergraduate degree program. Using this criterion, students who have already obtained a master's degree in education (thirty semester hours) from an accredited institution of higher learning would be responsible for approximately sixty remaining semester hours of study and research. In most cases, approximately forty-five semester hours, or fifteen different three-credit courses, would be allocated to the work. The remaining fifteen credits would be allocated to 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, Davis Hall.

COURSE DESCRIPTIONS

EE 660 EARLY CHILDHOOD STUDY TECHNIQUES AND ASSESSMENT TOOLS 3 sh

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 sh

Introduces students to philosophy and historical background of preschool 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 sh

Based on developmental levels of children, students understand 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 sh
Focuses on the major controversies facing the early childhood educator. Opposing viewpoints will be presented for review, reaction, and debate. Students will be encouraged to establish priorities and clarify value systems to arrive at solutions to the critical issues.
- EL 510 SEMINAR IN ELEMENTARY SCHOOL EVALUATION
AND ACCREDITATION 3 sh
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.
- ED 631 CURRICULUM DEVELOPMENT 3 sh
Students will 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, will be studied. The design and selection of learning activities as well as design for evaluating the effectiveness of curriculums also will be considered.
- ED 632 SYSTEMATIC OBSERVATION OF CLASSROOM BEHAVIOR 3 sh
Students will 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.
- EL 641 RECENT TRENDS IN SOCIAL STUDIES 3 sh
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 sh
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 will be presented and used. Opportunities will be given to write activity and problem cards and to plan mathematics activity centers. Psychological foundations and mathematics structure will be used as reference for suggested activities and curriculum studies.
- EL 643 RESOURCE MATERIALS IN ELEMENTARY SCIENCE 3 sh
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 development and preparation of individualized self-instruction modules. Students are required to work with various program materials.
- EL 644 RECENT TRENDS IN LANGUAGE ARTS 3 sh
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 sh
 Teachers will 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 will be developed, along with a study of the exceptional child to recognize and encourage evidences of art potentials as well as wholesome self-expression.
- EL 646 MODERN PROCEDURES AND SKILLS IN
 ELEMENTARY MUSIC 3 sh
 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 sh
 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 sh
 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.
- ED 650 SCHOOL AND COMMUNITY 3 sh
 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 sh
 Newer trends in classroom procedure, equipment, and materials, as well as problems involved in improvement of instruction. Whenever possible, sessions will be 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 sh
 Current models for both formative and summative evaluations are presented with emphasis on their application to school programs and other educational projects. Prior knowledge or experience in curriculum development and/or project proposals would be helpful but is not required.
- ED 653 SUPERVISION AND THE IMPROVEMENT OF INSTRUCTION 3 sh
 Purposes, patterns, processes, and products of the supervision of instruction with emphasis on the supervisor as the educational leader whose concern is improvement of instruction through the ongoing growth and professional development of his/her staff.
- EL 655 RECENT TRENDS IN HUMAN DEVELOPMENT
 AND LEARNING 3 sh
 Concerned with the literature and recent research in the fields of human development and learning and how they relate to the education of children. Characteristics of the learner and the developmental aspect of children will be stressed.

- EA 656 SCHOOL ADMINISTRATION 3 sh
Designed as a basic course in school administration 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 sh
Designed to provide background for potential principals and supervisors in matters pertaining to functions of various types of personnel employed in schools. 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 658 SCHOOL LAW AND NEGOTIATIONS 3 sh
An understanding of legal principles as they pertain to functions of personnel in public school system 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.
- EL 659 ADMINISTRATION OF THE ELEMENTARY SCHOOL 3 sh
Principles and techniques of elementary school administration. Administrators will be 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 INTERNSHIP 3 sh
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 sh
Designed for the students who wish to do independent research in special areas.
- EL 698 SUPERVISED INTERNSHIP 6 sh
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 only by permission.
- EL 699 INDEPENDENT STUDY IN ELEMENTARY EDUCATION 1-3 sh
Students will select one or more topics which are of critical importance in elementary education and will meet staff members for independent reading, study analysis, and evaluation. Registration only by permission of Graduate Committee.
- EE 762 EARLY CHILDHOOD FIELD STUDY EXPERIENCES 3 sh
Includes direct observation and teaching in early childhood programs. Seminar sessions will be directed toward the study of appropriate strategies with immediate application to children. Students will be expected to meet the individual needs of children they are teaching. Close supportive relationships with parents and community will be stressed. Prerequisites: EE 660, EE 661, EE 664.
- EE 766 EVALUATION OF PROGRAMS FOR YOUNG CHILDREN 3 sh
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, EE 664 or permission of the instructor.

EL 780 SEMINAR IN ADVANCED RESEARCH 3 s.h.

This course focuses on the application of experimental and survey designs within the school setting. Students will be expected to use the computer in analyzing a research project. Students will also be able to interpret factorial analysis of variance, analysis of covariance, and also some nonparametric research designs

EL 850 THESIS 3 s.h.

For students 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, two additional faculty members, and the associate dean for Research

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 RESEARCH IN PROGRESS. They remain so until the paper is approved. They DO NOT automatically revert to the grade "F" in a specific length of time. Also, thesis and dissertation can be programmed above the regular load

PSYCHOLOGY

The psychology department offers a Doctor of Psychology degree in Clinical Psychology (Psy.D.) and, in certain circumstances, a Master of Arts degree in Experimental Psychology. The Psy.D. includes specialization in such areas as behavioral medicine, child, 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 Master of Arts in Experimental Psychology is offered only on an occasional basis when a student's research interests closely match those of a faculty member.

The department also offers courses open to students in other graduate programs in the Graduate School.

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 (300 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 strength in all areas. Students may be required to make up deficiencies.

The deadline for receipt of all application materials is January 25. The Admission 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 skill 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 is designed to be completed in three calendar years of full-time study plus an additional year of full-time internship. The curriculum requires a minimum of ninety-three 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 examination and (f) master's and doctoral candidacy. In addition, a course in history and systems in psychology is required for graduation. This course may be taken prior to or during enrollment.

A. Core Course Work

The core courses are required of all students. These courses cover several areas of psychology and provide the function for professional practice.

1. Methods of Behavior Change PC 630, PC 631, PC 632, 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, PC 650

B. Special Proficiency: three to five courses.

Examples of specialty areas are behavioral medicine, child clinical, and family relations. No more than two required courses may be counted in a special proficiency, and courses from outside the psychology department may be included with permission of the adviser.

C Practicum, Internship, and Professional Issues: (24 credits) PC 670, PC 675, PC 676

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: (9 credits) PC 950

E Comprehensive Academic and Professional Examination 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 comprehensive examination covering basic knowledge appropriate for a professional psychologist. This examination will cover material related to any of the core course work areas. Students will have options of questions within the context areas.

Satisfactory performance on both the comprehensive examination and the professional evaluation must be achieved before candidacy or the doctorate will be recommended. Serious deficiencies may result in recommendations for remedial work, reexamination, 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 to the MA degree are the successful completion of twenty-four credits of approved graduate course work with an average of 3.00 GPA and the recommendation of the Clinical Training Committee based on satisfactory academic and professional evaluations. The fifty-four credits must include nine hours of practicum and forty-five 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 MA requirements plus a minimum of an additional nine-to-fifteen credits, successful performance on the comprehensive examination, and satisfactory annual academic and professional evaluations. An average GPA of 3.00 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 thirty-six 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. Part-time students must complete a Plan of Study which will include a detailed semester-by-semester outline of proposed course work and completion dates for comprehensive exams, doctoral project, and internship. An average of fifteen 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 sh
Comprehensive overview of historical antecedents of contemporary psychology Prerequisite permission
- PC 554 DEVELOPMENTAL PSYCHOLOGY 3 sh
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 sh
An overview of the integration of the major thesis of personality
- PC 557 ABNORMAL PSYCHOLOGY 3 sh
Theories of pathological behavior with reference to clinical and experimental data
- PC 558 SOCIAL PSYCHOLOGY 3 sh
A scientific approach to the study of behavior and experience of individuals in relation to other individuals, groups, and cultures
- PC 561 MOTIVATION 3 sh
A systematic study of how behavior is initiated, sustained, directed, and terminated Lab projects are conducted Prerequisite permission
- PC 562 PHYSIOLOGICAL PSYCHOLOGY 3 sh
The relationship between behavior and the anatomy and physiology of the nervous system Lab projects are conducted Prerequisite permission
- PC 563 HUMAN COGNITION PERCEPTION 3 sh
The interaction of sensory and cognitive events in production of awareness of the world Lab projects are conducted Prerequisite permission
- PC 564 PSYCHOPHARMACOLOGY 3 sh
Survey of the theoretical and empirical foundations of psychopharmacology Topics include discussions of basic principles of pharmacology, theories of drug action, 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 sh
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 sh
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 sh
Behavior of various animal species and man are examined from the position of evolution of behavior as adaptation to a changing ecology
- PC 569 INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY 3 sh
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 sh
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 sh
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 581/681 SPECIAL TOPICS 3 sh
Designed to examine a special topic in depth. Students prepare presentations representing selected research areas. Prerequisite: permission
- PC 600 INTRODUCTION TO HUMAN COGNITION 3 sh
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 sh
The design, statistical analysis, and report of laboratory experiments will be studied. Prerequisite: permission
- PC 602 RESEARCH METHODS IN PSYCHOLOGY II 3 sh
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 sh
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 sh
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 sh
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, permission
- PC 632 PRINCIPLES OF BEHAVIOR MODIFICATION 3 sh
Applications of learning theory principles in changing maladaptive behavior both on the individual and group units. Prerequisite: permission
- PC 633 CLINICAL GROUP TECHNIQUES 3 sh
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 652 ENVIRONMENTAL PSYCHOLOGY 3 sh.
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 sh.
The study of the effects of the work situation and of personal, interpersonal, and structural variables upon individual behavior and experience in organizations. Prerequisite: industrial psychology or industrial sociology, introductory course work in psychology and in behavioral science statistics
- PC 660 CHILD CLINICAL PSYCHOLOGY 3 sh.
Approaches unique to child psychopathology and assessment and intervention are explored. Ages from birth to adolescence are covered. Prerequisite: PC 637 and PC 643 or permission
- PC 699 INDEPENDENT STUDY IN PSYCHOLOGY 1-6 sh.
Individual students develop and conduct research studies in consultation with a faculty member. Prerequisite: permission
- PC 704 CLINICAL RESEARCH METHODS 3 sh.
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, 641
- PC 743 PSYCHOLOGICAL ASSESSMENT III 3 sh.
Continuation of PC 642 with emphasis on nontraditional assessment methods such as family observations, mental status rating, and social skills assessment. Topics in clinical judgment and inference and a combination of assessment data and report writing are covered. Prerequisites: PC 642 or permission
- PC 761 PSYCHOLOGY AND MEDICINE 3 sh.
This course evaluates the clinical use of, and the experimental basis for, techniques derived from general psychology for the evaluation, prevention, management, and treatment of health-related problems. The role of psychological and environmental variables in development, maintenance, and recovery from physical disease is studied
- PC 762 BIOFEEDBACK PROCEDURES IN BEHAVIORAL MEDICINE 3 sh.
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 770 PROFESSIONAL ISSUES 3 sh.
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. Prerequisites: permission
- PC 781 SPECIAL TOPICS 1-6 sh.
- PC 798 ADVANCED PSYCHOLOGICAL PRACTICUM 1-18 sh.
Provides supervised experience in applied settings. Prerequisite: permission; variable credit depending on setting

PC 799 INTERNSHIP 3 sh
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 sh
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 3 sh during two semesters.

PC 950 DOCTORAL PROJECT (DISSERTATION) 3-9 sh
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, transfer to another concentration within the psychology department, 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 and reading supervisor at the graduate level. These learning experiences entail classroom and clinical instruction and field experiences by faculty members who are sincere and dedicated to the students and the programs. In addition, the faculty members represent a marked balance with a variety of backgrounds and areas of expertise—reading, elementary and secondary education, psychology, and reading research.

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 thirty-six 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 of Master of Education degree may do so by completing a minimum of twenty-seven semester hours of course work. The program for each student will be formulated based on the student's needs, educational experiences, and teaching experiences. All students who desire certification are required to either take 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 program enrollees are as follows:

1. Mastery of competencies determined through the use of oral and/or written examination administered by reading faculty. Overall grade point average of B in both ED 702 and ED 703, a 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. Upon receipt of an acceptance letter, the coordinator of the Graduate Reading Program will send the applicant the necessary forms for the reading program and the name of his/her adviser. 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.

Acceptance into the Graduate School only permits a student to take course work in a department. If a student wishes to become a degree candidate, he/she must complete the application to candidacy form and forward this form to the Graduate School within the first twelve semester hours of course work in the department.

MASTERS IN READING/READING SPECIALIST PROGRAM

Certification Program Courses

Students seeking certification as a reading specialist must complete a minimum of twenty-seven semester hours or its equivalent.

- A. Reading Required (eighteen s.h.)
(three s.h. each) ED 508, ED 600, ED 601, ED 702, ED 703, EL 644
- B. Research — Required (three s.h.)
ED 698
- C. Related Area — select one (three s.h.)
EP 604, EP 573, EP 576, EP 578, EX 631
- D. Electives — select one (three s.h.)
ED 510, ED 605, ED 607, ED 620, ED 696, ED 697, EL 647, EL 648, EL 655, EN 631, EX 631, EX 665, EX 666

Students who wish a master's degree in Reading must complete nine additional credits from the following area

- E. Research — Required (three s.h.)
GR 615
- F. Humanistic Studies — Select one (three s.h.)
FE 611, FE 612, FE 613, FE 614
- G. Electives — Select one (three s.h.)
Refer to category D

If thesis option is selected, no elective is required from category D or G.

For description of FE courses, see section on FOUNDATIONS OF EDUCATION; for EP courses, EDUCATIONAL PSYCHOLOGY; for EX courses, SPECIAL EDUCATION; for EL courses, ELEMENTARY EDUCATION; for EN courses, ENGLISH

For description of GR courses, see entry under "GENERAL SERVICE COURSE"

A student with previous graduate work, vast educational experience, and/or six to nine credit hours in undergraduate courses in reading may opt to challenge Education 600. When this is done successfully, the student seeking certification only may 1) waive that requirement, or 2) pay for the course and have the credits recorded on his/her transcript. Students seeking a master's degree will substitute another three-credit course in reading to meet the thirty-six hour requirement for a master's degree at IUP.

READING SUPERVISOR

Students may pursue the Reading Supervisor's Program by selecting courses from the following sequence of courses. Students must have a Master of Education degree and certification as a reading specialist. Before completion of the program, students must have had five years teaching experience in the area of reading to be eligible for the supervisor's certificate.

CERTIFICATION PROGRAM (18 semester hours) (12 semester hours required classes)

A Required Courses EL 631, EL 653, ED 670, EP 662, or CE 629

B Electives (Select two) ED 604, ED 605, ED 620, ED 699, ED 697, EL 632, EL 644, EL 645, EL 652

For description of EL courses, see section on ELEMENTARY EDUCATION for EP courses, EDUCATIONAL PSYCHOLOGY for CE courses, COUNSELOR EDUCATION

DOCTORAL DEGREE IN ELEMENTARY EDUCATION WITH EMPHASIS ON READING

Graduate students who are interested in working for a doctorate in Elementary Education with an emphasis in reading may choose one of three options:

Option 1

Emphasis in reading which will lead to certification as a reading supervisor. (This presupposes that the candidate will have Reading Specialist Certification.)

Option 2

Emphasis in reading which will lead to certification as a reading specialist.

Option 3

Emphasis in reading which does not involve certification for this program, students will be expected to take fifteen to twenty-one hours in "reading electives."

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, 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 INSTRUCTION 3 s.h.

Emphases on nature of reading process; nature of learner; advancement of pupil's reading skills; how pupil learns to read, what teacher can do when pupils fail to learn to read.

ED 601 DIAGNOSIS AND REMEDIATION OF READING DISABILITIES 3 s.h.

Students will appraise reading difficulties of individuals with emphases on general principles and types of diagnosis 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 will be discussed 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 DISADVANTAGED 3 s.h.

Emphasizes the sociological, psychological, linguistic, and educational variables that affect the disadvantaged reader.

ED 670 PRACTICUM AND SEMINAR FOR READING SUPERVISORS 3 s.h.

A supervised field experience relevant to the duties of the reading supervisor in elementary and secondary schools, provides students the opportunity to translate theory into practice. Prerequisite: permission of coordinator.

ED 697 SEMINAR IN SPECIAL PROBLEMS IN READING 3 s.h.

Topics such as reading disability, preschool reading instruction, and adult literacy programs will be covered.

- ED 698 RESEARCH SEMINAR IN READING 3 sh
Designed to insure that students are 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 on application and understanding of statistical information not on solving mathematical formulas.
- ED 699 INDEPENDENT STUDY IN READING EDUCATION 1-3 sh
The student with cooperation of the reading faculty member with whom he/she expects to work and his/her reading faculty adviser, engages in a study individually or with a small group on some problem of field not clearly defined in existing courses. Prerequisite: permission of coordinator.
- ED 702 READING PRACTICUM: DIAGNOSTIC CASE STUDIES 3 sh
(Clinical Experience I)
Students will administer and interpret a battery of diagnostic instruments both formal and informal to a small group of children. Emphasis will be placed on interview and observation techniques as well as diagnostic teaching. A needs assessment for each child will be completed. All work will be done under the supervision of the Reading Specialist Program faculty. Prerequisites: ED 600, ED 601 and ED 510.
- ED 703 READING PRACTICUM: REMEDIAL CASE STUDIES 3 sh
(Clinical Experience II)
Students will complete an in-depth needs assessment as well as design and implement a remedial program for a small group of children. Emphasis will be placed on the application of specialized remedial techniques. All work will be done under the supervision of Reading Specialist Program faculty. Prerequisites: ED 600, ED 601, ED 510, ED 602.

SAFETY SCIENCES

The Department of Safety Sciences offers a program of studies leading to a Master of Science degree in Safety Science. 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, shall include a minimum of six semester-hour credits in each of the following:

Safety	Chemistry
Occupational Health	Physics
Management Studies	Mathematics

In addition, three semester-hour credits shall be required in fire protection.

Where 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 thirty-six hours, of which eighteen hours are core courses. The core courses are SA 601, SA 602, SA 603, SA 604, SA 605, and SA 606. The student must choose the remaining eighteen hours in a specialized or generalized option. Students may choose between a thesis or non-thesis curriculum.

Degree Requirements (Thesis) — For the additional eighteen hours, three to six of these may consist of a thesis. Students in the specialized option must complete a minimum of six to nine hours (not including thesis) in courses offered by the safety sciences department, plus six hours of electives approved by the student's adviser. Students pursuing the generalized option must complete a minimum of twelve hours of safety sciences graduate course work (one three-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 eighteen hours, students enrolled in the specialized option must complete six hours of safety sciences courses in one chosen subdiscipline. In addition, twelve hours of approved electives must be completed. Students pursuing the generalized option must complete twelve hours of safety sciences course (one three-hour course in each subdiscipline) and six 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 courses, 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. Prerequisites: junior standing

- SA 561 AIR POLLUTION** 3 sh
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 safety sciences and industrial health professionals. Prerequisites: CH 101 and 102 or equivalent and SA 301 or equivalent courses, and junior standing, or permission of the instructor.
- SA 562 RADIOLOGICAL HEALTH** 3 sh
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. Prerequisites: SA 301, PY 111, PY 112, and junior standing, or permission of instructor.
- SA 581 SPECIAL TOPICS** 3 sh
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 sh
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 sh
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 sh
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 sh
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 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 sh
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 and 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, PY 112, or permission of the instructor.

SA 606 HAZARDOUS MATERIALS MANAGEMENT 3 sh

This course offers the student a logical approach to the problem of hazardous materials management. Emphasis is placed 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, CH 102, or permission of instructor.

SA 620 SAFETY DATA MANAGEMENT 3 sh

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 sh

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, FS 360, or permission of instructor.

SA 642 ADVANCED MINE SAFETY ENGINEERING 3 sh

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, SA 401, or permission of instructor.

SA 643 CONSTRUCTION SAFETY 3 sh

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. Prerequisites: SA 211 or permission of the instructor.

SA 663 INDUSTRIAL HYGIENE LABORATORY METHODS 3 sh

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, SA 303, or permission of instructor.

SA 672 CHEMICAL PROCESS SAFETY 3 sh

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. Prerequisites: SA 311 or equivalent, or permission of instructor.

SA 673 DISASTER PREPAREDNESS 3 sh

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. Preventative loss measures are discussed, directed toward preservation of organization resources. Prerequisites: SA 311 or equivalent, or permission of instructor.

SA 674 FIRE SAFETY IN BUILDING DESIGN 3 sh

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. Prerequisites: SA 311 or equivalent, or permission of instructor.

SA 681 SPECIAL TOPICS 3 sh
 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 sh
 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 Prerequisites: permission of instructor

SA 850 THESIS 3 sh
 The thesis will require a committee review with one faculty member serving as the student's adviser The committee will also include two additional faculty members and a representative of the dean of the College of Human Ecology and Health Sciences Prerequisites: permission of instructor

SCIENCE FOR THE ELEMENTARY SCHOOL TEACHER

The program leading to a Master of Education degree in Elementary Science is on inactive status No new applications are being accepted for this program Courses from the following list may be offered from time to time to serve students needs

COURSE DESCRIPTIONS

ES 610 EDUCATION IN THE OUT-OF-DOORS 3 sh
 Specifically designed to teach the elementary teacher to coordinate all of the elementary subjects in lessons taught in the out-of-doors that cannot ordinarily be taught in the classroom (Summers only)

ES 611 EDUCATION IN THE OUT-OF-DOORS 3 sh
 Same as ES 610

ES 630 QUANTITATIVE TOOLS FOR ELEMENTARY SCIENCE 3 sh
 Proficiency in quantitative aspects of science Emphasis on practical problem solving related to typical lab data Instruments, instrument calibration, graphing, and graph interpretation (interpolation and extrapolation) Area under the curve, idea and meaning of slope graph will be explored extensively Concentrated instruction in use of computers, use of logarithms and significant figures as tools to achieve above objectives

ES 640 CHEMISTRY IN ELEMENTARY SCIENCE EDUCATION 3 sh
 Principles of chemistry through lab and/or field-centered experiences relevant to teaching chemistry in elementary school Recommended for all elementary education majors

ED 650 PHYSICS IN ELEMENTARY SCIENCE EDUCATION 3 sh
 Development of basic concepts in physics on a quantitatively plausible basis appropriate for elementary science Lab work is designed to develop an understanding of force, work, and energy and conservation of energy in mechanical, thermal, and electrical systems Operational definitions and formulation and use of physical models

ES 660 BOTANY IN ELEMENTARY EDUCATION 3 sh
 Introduction to anatomy and life processes of plant cells, tissues, and organs Consideration to selected algae, bacteria, fungi, mosses, ferns, and their allies and seed plants Recognition of groups of local plants and their economic importance and health implications are emphasized Lab studies will include practical uses of plants

ES 664 ZOOLOGY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

A lab study and field study which surveys principles and theories of zoological taxonomy and study of representative invertebrate and vertebrate taxa. Emphasis on freshwater and terrestrial forms which may be observed or collected in Western Pennsylvania. Homologous structures are compared and their functions are studied. Principles of embryology, genetics, and animal behavior are introduced.

ES 666 CONSERVATION IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

A new concept in conservation—corrective and preventive conservation for man's survival. Problems of pollution and population are central theme. Field work is required.

ES 674 METEOROLOGY IN ELEMENTARY EDUCATION 3 s.h.

A descriptive analysis of fundamentals of weather, including composition and structure of atmosphere, radiation, heat budget, cloud and rain physics, circulation patterns, storm structures, air pollution, and bimeteorology. Familiarization with weather instruments, maps, and records, as well as activities applicable to elementary science.

ES 680 ASTRONOMY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

A descriptive and qualitative study of stellar and solar system astronomy, including telescopes and space travel, at a level adaptable to the elementary school classroom; techniques for presentation. Three-hour lecture and/or lab.

ES 688 FIELD NATURAL HISTORY OF WESTERN PENNSYLVANIA 3 s.h.

Bus and automobile travel throughout Western Pennsylvania. Places of interest in ecology, geology, conservation, and nature study will be visited. Offered in pre- or post-session only. Travel may require the student to be away from campus for several days at a time. A travel assessment based upon needs will be made.

ES 692 ELEMENTARY SCIENCE CURRICULUM 3 s.h.

Various approaches to teaching of elementary science and bases for these approaches. New curricula being used in elementary schools will be examined and critiqued.

SOCIAL SCIENCE

The Master of Education degree in Social Science is currently inactive, and no applications are being accepted for this program. The courses listed below will be offered from time to time in response to sufficient student demand.

COURSE DESCRIPTIONS

SS 581 SPECIAL TOPICS FOREIGN STUDY 3 s.h.

Directed foreign study that involves travel and observation outside the United States. Areas visited and itineraries vary from year to year. Background reading, lectures, and briefings are included, diary or evaluative paper is required. In past years, Argentina, India, the Soviet Union, and countries of Western Europe have been tour destinations. For details on projected tours, direct inquiries to director, Center for International Studies.

SS 610 NEW APPROACHES IN SOCIAL SCIENCE INSTRUCTION 3 s.h.

Develops innovative curriculum materials by applying concepts from the latest research in the behavioral and social sciences. Plans strategies for use of such materials in the classroom. Explores methods available for analyzing the teaching process.

- SS 614 RESEARCH METHODOLOGIES IN THE SOCIAL SCIENCES 3 sh
Techniques of locating and using source materials; evaluation of evidence, organization of tested data and exposition of tested data according to approved forms are discussed. Methodologies of value to students in various disciplines of social sciences are explored.
- SS 680 SOCIAL SCIENCE SEMINAR 3 sh
Research in methodology of social science in the secondary schools
Prerequisite: GR 615
- SS 699 INDEPENDENT STUDY 1-3 sh
Independent research and study under faculty direction. Interested students should apply to director of Graduate Studies.

SOCIOLOGY

Sociology is the study of society and human social relationships. Advanced training in sociology should enable the student to think critically and reflectively about the social world and to be able to use the knowledge acquired in a variety of ways. Sociology is relevant to a number of careers. Many students plan to affiliate themselves with professional social service, governmental, or research careers. The M.A. program in sociology is designed to serve these various needs and interests of students.

MASTER OF ARTS IN SOCIOLOGY

In addition to Graduate School admission requirements, the student should have completed at least twelve hours of undergraduate sociology courses with an average of B or better. In individual cases, the department may allow a promising student to enter the program with deficiencies. Such deficiencies must be made up by taking specific courses at the discretion of the department in addition to the required total number of course hours.

All M.A. students are required to complete two basic core requirements: SO 664 Research Seminar in Sociology and SO 667 Contemporary Sociological Theory. Beyond the completion of these two courses, the M.A. degree in Sociology allows the student two options.

Thesis Option In addition to the two core courses, students will complete an additional eighteen semester hours of course work (twelve of which must be in sociology) and a six semester-hour thesis.

Non-Thesis Option In addition to the two core courses, students will complete an additional thirty semester hours of course work (twenty-one hours must be in sociology).

Students planning further academic work in sociology may find the thesis option most helpful, while those going on to community-related work might find the non-thesis option most beneficial. Specific programs of study are planned by the student and assigned faculty adviser when the student enters the program. Students may alter their program of studies in consultation with their advisers. Such flexibility in structuring the curriculum, we believe, will best serve students.

No more than one-third of a student's work toward the MA degree may be in dual-level (500) courses. Therefore, those selecting the thesis option are limited to nine semester hours of dual-level course work, while those selecting the non-thesis option will be permitted no more than twelve semester hours of dual-level course work. Furthermore, students who enrolled for dual-level courses while undergraduates at IUP may not repeat the same courses for credit as graduate students.

For description of GR courses, see entry under "GENERAL SERVICE COURSES."

COURSE DESCRIPTIONS

SO 522 CULTURE AND PERSONALITY 3 sh

Study of personality traits unique to prescribed cultural or institutional settings. Subject matter includes socialization, emotional expression, kinesics, deviant roles, cultural aspects of mental disturbance, and value orientation. Some attention is given to research methods employed in the discipline.

SO 534 POPULATION PROBLEMS 3 sh

Major forces of population changes are examined. Problems of excessive population growth rates outside of US and declining growth rates in US are analyzed. Threats to ecological stability are discussed.

SO 542 SOCIAL AND CULTURAL ASPECTS OF
HEALTH AND MEDICINE 3 sh

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 sh

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 557 SOCIOLOGY OF AGING 3 sh

Introduction to various problems faced in the process of growing older. Attitudes of society toward elderly and social and cultural impact of an aging US population are examined.

SO 559 THE DEVELOPMENT OF SOCIAL SERVICES 3 sh

Examination of genesis and implementation of health, welfare, and employment policy with particular reference to who benefits from such policy and who does not.

SO 581 SPECIAL TOPICS SEMINAR IN SOCIOLOGY 3-6 sh

See SO 681 for course description.

SO 654 SOCIAL INEQUALITY 3 sh

Examines central theoretical perspectives on inequality. Considers such topics as nature of social classes and inequality in the US, characteristics of working class, poor, and super-rich, and sexual inequality.

SO 656 SOCIAL CHANGE 3 sh

Explores nature and consequences of social change and types of changes individuals might want in US and how these might be implemented. Also discusses lessons to be learned from various social change efforts.

- SO 660 SOCIOLOGY OF POWER 3 sh
Examines social power of groups and classes with particular emphasis on the sources of power and the ways in which power is exerted
- SO 662 THE SOCIOLOGY OF DEVIANCE 3 sh
Relationship between individual deviance and social and cultural factors are examined. How different groups set limits for acceptable behavior is analyzed in comparative and historical context
- SO 663 ISSUES IN RACIAL INEQUALITY 3 sh
Focuses on current situation of minorities in US. Efforts to improve conditions for minorities in employment, housing, education, and police protection receive special attention
- SO 664 RESEARCH SEMINAR IN SOCIOLOGY 3 sh
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 is given to development of thesis proposal. Required for the MA degree in Sociology
- SO 667 CONTEMPORARY SOCIOLOGICAL THEORY 3 sh
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 MA degree in Sociology
- SO 674 COMPARATIVE URBAN STUDIES 3 sh
Reviews sociological analysis of urbanism and urbanization. Growth and problems of cities are investigated, and comparative approach is stressed throughout. Various research methods and theoretical orientations are considered
- SO 676 COMPARATIVE MACROSOCIOLOGY 3 sh
Detailed comparative analysis of major institutional features of entire range of human societies, from band and tribal through agrarian to industrial societies. Course is organized in an historical or evolutionary framework. Seeks basic theoretical understanding of forces responsible for organization and transformation of human societies
- SO 681-581 SPECIAL TOPICS SEMINAR IN SOCIOLOGY 3-6 sh
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 sh
Students report and develop extensive bibliographies on assigned readings for in-depth understandings of a specific sociological concept, process, or problem
- SO 699 INDEPENDENT STUDY IN SOCIOLOGY 1-3 sh
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 six 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 or in Speech Pathology. The department also offers the Master of Science degree in Exceptionality or in Speech 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 and Hearing Association.

The MEd 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, (4) Gifted/Talented. As a prerequisite for completion of the MEd degree, the first 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 semester hours toward such certification, depending on individual background. The fourth concentration area requires Pennsylvania teaching certification in an elementary or secondary field.

All four concentration areas require nine semester hours in Professional Development selected from the approved list, including three semester hours in foundations of education, three semester hours selected from the course list in behavioral studies, and three semester hours in research (GR 615). All four concentrations areas also require six semester hours in specialization core, including EX 640 for the first three areas as well as specialization courses in each area: EX 623 for the Mentally Retarded, EX 655 for the Emotionally Disturbed, EX 666 for the Learning Disabled, and EX for the Gifted/Talented.

All four concentration areas require a minimum of twenty-one semester hours in subject area course work, unless the thesis option is selected. Advisement is required for course selection, and workshops are not to be considered applicable for degree requirements.

For description of GR courses, see entry under "GENERAL SERVICE COURSES".

EX 580 SELECTED PROBLEMS AND RESEARCH 1-3 sh

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 EX 640

EX 599 INDEPENDENT STUDY IN SPECIAL EDUCATION 1-3 sh

Individual students develop research studies in consultation with a faculty member. Departmental consent is required.

EX 623 CURRICULUM AND METHODS 3 sh

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 is given to subject matter at elementary and secondary levels and to the relationship between academic subjects and vocational skills. Emphasis is on critical and diagnostic approach in curriculum design.

EX 625 VOCATIONAL AND CAREER OPPORTUNITIES FOR THE HANDICAPPED 3 sh

Designed to develop competencies in the areas of prevocational 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 sh

Principles, practices and problems of administration and supervision as they relate to developing and maintaining special education programs. 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 623 640 (Required for administrators and supervisors).

EX 631 PSYCHOLOGY OF EXCEPTIONAL CHILDREN AND YOUTH 3 sh

Designed as a basic course in the psychosocial and psychoeducational adjustment of exceptional individuals. Consideration is 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 sh

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 is 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 sh

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 sh
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 is given to changing outlook and recent trends in the field.
- EX 640 DIAGNOSTIC TECHNIQUES IN SPECIAL EDUCATION 3 sh
Diagnostic procedures and appropriate test materials are selected for use in assessment of pupils with mental, physical, emotional, and learning disabilities. Observations and demonstrations and reporting and interpreting results of diagnostic procedures are integrated with remedial or developmental recommendations in individuals case studies. Prerequisites: EX 631, EX 639.
- EX 641 INTERPRETATION OF RESULTS OF PSYCHOLOGICAL TESTS 3 sh
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 sh
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 sh
Utilization of existing hierarchical 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 Psychology of the Gifted.
- EX 665 EDUCATION OF CHILDREN WITH SOCIAL AND
EMOTIONAL MALADJUSTMENTS 3 sh
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 sh
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, and spelling or in doing arithmetic.
- EX 685 PRACTICUM AND INTERNSHIP 3-9 sh
Advanced students are offered guided practicum experiences in selected schools, residential institutions, clinics, or agencies. Internship or supervised student teaching is planned individually. Students analyze, evaluate, and report on their experiences.

SPEECH - LANGUAGE PATHOLOGY

The Speech-Language Pathology program culminates in either a Master of Science or a Master of Education degree. A minimum of thirty-six semester hours is required for either 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 either degree and requires approval of the adviser.

MASTER OF EDUCATION IN SPEECH-LANGUAGE PATHOLOGY

Candidates for the Master of Education degree will choose nine semester hours in professional development, a specialization core of six semester hours (SH 624 and SH 645), and a minimum of twenty-one hours of subject matter concentration, including SH 610, SH 650, SH 661, SH 662, SH 663, and SH 681. The course work in the professional development sequence must receive approval of the adviser.

MASTER OF SCIENCE IN SPEECH-LANGUAGE PATHOLOGY

Candidates for the Master of Science degree will select a minimum of twenty-four 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 three to six semester hours of research and register for one elective (three 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 on areas of speech, hearing, and language. Included in course will be human embryology, physical remediation, the effects of clefts on structure and function of the 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 the planning of appropriate subsequent case management. Interviewing techniques appropriate to case-history taking. Writing of diagnostic and case-history reports.

SH 640	DIAGNOSTIC AUDIOLOGY	3 sh
	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 sh
	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 effect upon medical referral classroom placement and prosthetic or educational modifications	
SH 650	ADVANCED SPEECH SCIENCE	3 sh
	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 sh
	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 sh
	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 sh
	Supervised practicum experience in performing diagnostic audiological tests	
SH 681	ADVANCED CLINICAL PRACTICUM II	2-6 sh
	Similar to SH 661 students assume more responsibility and experience may be done at approved off-campus sites	
SH 850	THESIS	3 sh

THEATER

The theater department does not offer a graduate degree program

TH 586	PRACTICUM IN PRODUCTION	1-6 sh
	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	1-6 sh
	Supervised work experience in the context of a professional theater environment with IUP's Theater-By-The-Grove an U/RTA (University/Resident Theater Association) company employing professional actors directors and designers Interns performing in U/RTA productions may earn points toward membership in Actor's Equity Association Prerequisite permission	

DIRECTORY

IUP COUNCIL OF TRUSTEES

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David M. Lynch	Dean, Graduate School and Research
Charles W. Ryan	Dean, College of Education
Nicholas E. Kolb	Dean, School of Continuing and Nonresident Education

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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.

Adult and Community Education	357-2470
Art and Art Education	357-2530
Biology	357-2352
Business	357-2520
Chemistry	357-2361
Communications Media	357-2492
Computer Science	357-2524
Consumer Services	357-2336
Counselor Education	357-2306
Criminology	357-2720
Economics	357-2640
Educational Psychology	357-2445
Elementary Education (see Professional Studies in Education)	
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 and Music Education	357-2390
Nursing	357-7647
Philosophy	357-2311
Physics	357-2370
Political Science	357-2290
Professional Growth	357-2222
Professional Studies in Education	357-2400
Psychology	357-2426
Reading	357-2476
Safety Sciences	357-3019
Science for the Elementary School Teacher	357-2359
Sociology	357-2730
Special Education and Clinical Services	357-2450
Sport Sciences	357-2770

6560 

GRADUATE SCHOOL FORMS

Please send me immediately the following

Graduate School Forms:

- General Application
- Application for Degree Candidacy
- Research Proposal
- Application for Graduation
- Other: Please Specify— _____

MAIL TO:

Name: _____

Address: _____

City/State/Zip: _____

Telephone: _____

The Graduate School
IUP
Indiana, Pennsylvania 15705
Telephone: (412) 357-2222

GRADUATE SCHOOL FORMS

Please send me immediately the following

Graduate School Forms:

- General Application
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- Application for Graduation
- Other: Please Specify— _____

MAIL TO:

Name: _____

Address: _____

City/State/Zip: _____

Telephone: _____

The Graduate School
IUP
Indiana, Pennsylvania 15705
Telephone: (412) 357-2222

RETURN ADDRESS

Place
Stamp
Here

THE GRADUATE SCHOOL
IUP
Indiana, Pennsylvania 15705

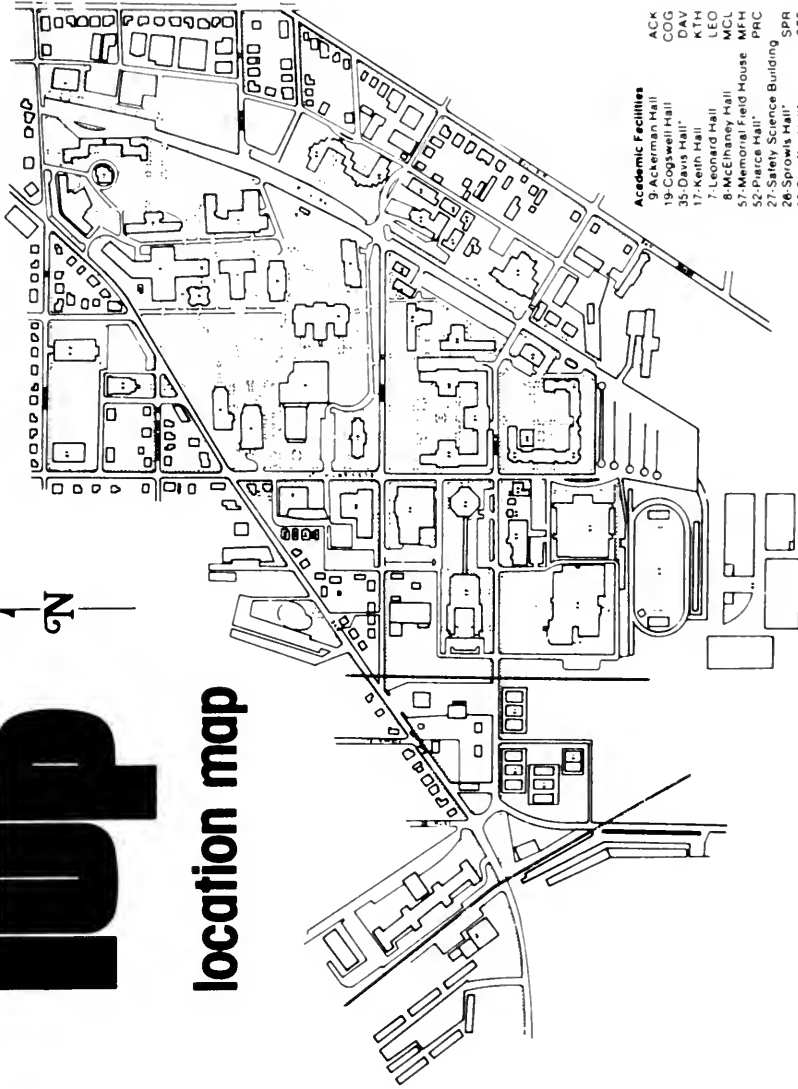
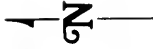
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THE GRADUATE SCHOOL
IUP
Indiana, Pennsylvania 15705



location map



Academic Facilities

- 9-Ackerman Hall
- 19-Cogswell Hall
- 17-Davis Hall
- 17-Davis Hall
- 7-Leonard Hall
- 8-McElhenny Hall
- 57-Memorial Field House
- 52-Peace Hall
- 27-Safety Science Building
- 26-Spruells Hall
- 33-Stouffer Hall
- 20-Stringt Hall
- 22-Uhler Hall
- 5-Waller Hall
- 15-Walsh Hall
- 14-Weyandt Hall
- 6-Wilson Hall
- 56-Zink Hall

Administrative Facilities

- 41-Administrative Annex
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- 10-Clark House
- 26-Hall House
- 1-John Sutton Hall
- 29-Lewis House
- 23-McFarland House
- 21-Pratt Hall
- 2-President's Apt
- 55-Reschum House
- 31-Richards House
- 32-Stanley House

Dining Facilities

- 50-Folger Dining Hall
- 34-Foster Dining Hall

Housing Facilities

- 1-Elmer Hall
- 24-Eich Hall
- 16-Gordon Hall
- 39-Langham Hall
- 60-Lawrence Hall
- 36-Mack Hall
- 58-Scranton Hall
- 61-Shafer Hall
- 37-Stewart Hall
- 38-Turnbull Hall
- 40-Wahr Hall
- 25-Wallace Hall
- 13-Whitmyre Hall

Sports and Recreational Facilities

- 64-Athletic Office
- 63-Miller Stadium
- 51-Tennis Courts

University Service Facilities

- 43-Boiler Plant
- 12-Breerzdale
- 44-Eicher Maintenance Bldg
- 14-Fisher Auditorium
- 42-Gigante Theater
- 30-Hopac House
- 50-IUP Post Office and Bulk Mail Center
- 46-Maintenance Garage
- 49-Maintenance Garage
- 62-Pechan Health Center
- 59-Pa. Emergency Mgmt Agency
- 45-Shop Building
- 3-Stepleton Library
- 48-Storage Trailer
- 50-University Printing
- 47-University Ship & Receiving

* Accessible to Handicapped Students
 ** Partially Accessible to Handicapped Students



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