

Millersville University

Undergraduate Catalog



seize ¹ opportunity.

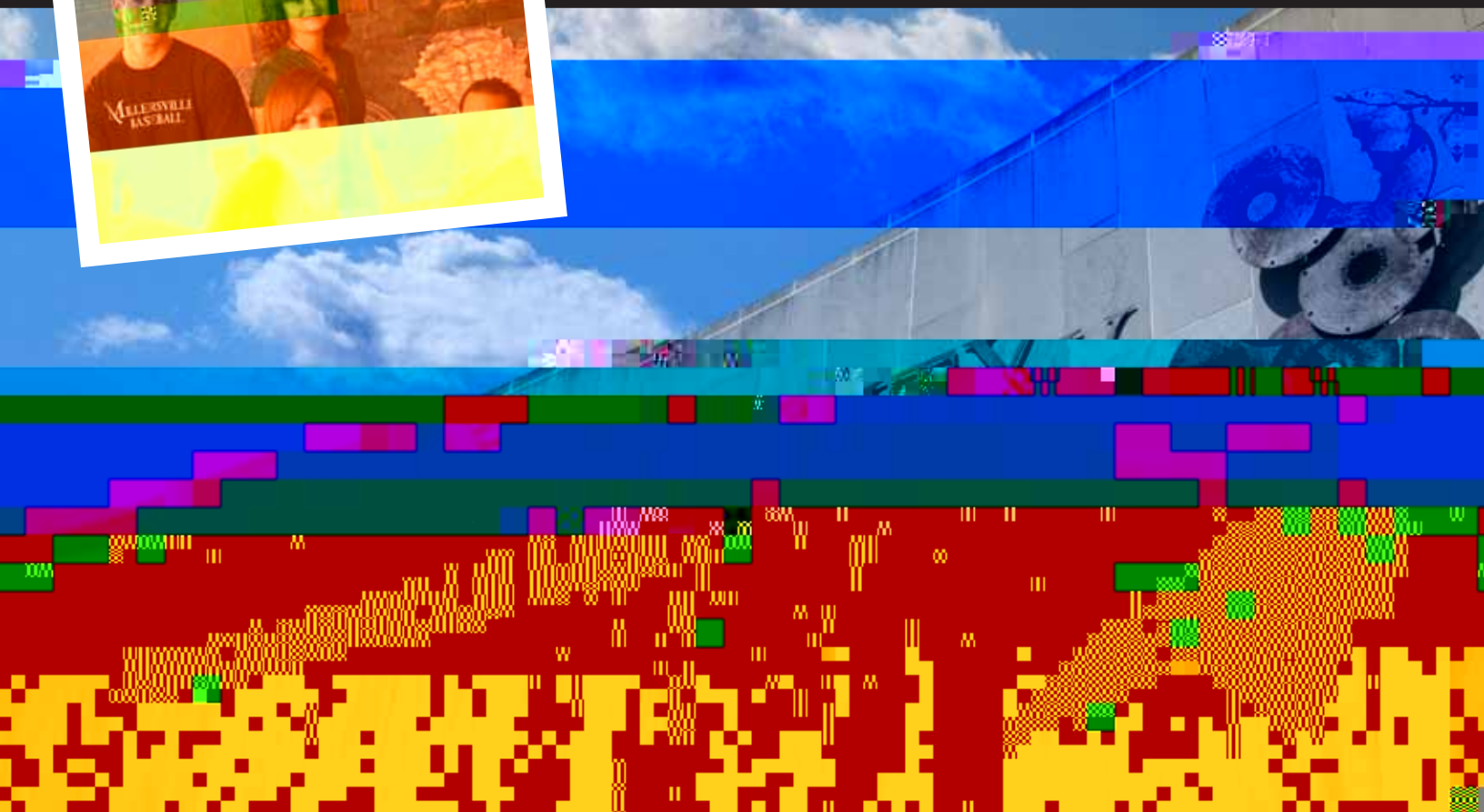


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Introduction

Millersville University of Pennsylvania, located in scenic Lancaster County, is one of the 14 state-owned institutions of higher education that make up the Pennsylvania State System of Higher Education.

In the early 1850s, a group of private citizens in Lancaster County decided to sponsor a three-month summer school program that would provide more education for local pupils than what was then available in public schools. The immediate success of that initial program prompted its sponsors to propose a permanent academy be established. The decision eventually led to the founding of what is now Millersville University. The academy began in 1854 with the construction of a three-story building containing a small auditorium, two classrooms and housing for 50 students, located on seven-and-one-half acres at the corner of West Frederick and George Streets in Millersville. In 1855, just as the building was nearing completion, the trustees saw an opportunity to promote the new school by offering its free entrance to the children of the local mill workers.

Millersville also offers master's degrees in 25 programs in the arts and sciences and education, as well as selected certification programs.

A number of special educational opportunities are provided, including honors programs, independent study, field experiences, study at other institutions and abroad, and developmental course work.

Millersville University's faculty, staff and services reflect the University's concern for student growth and development. There are approximately 325 full-time faculty members available to advise and counsel students on academic and career-related matters. There are also counseling, career planning and placement, and tutorial services, as well as services for nontraditional students. A wide range of cocurricular and extracurricular activities and cultural events are offered.



Admissions & Finances

Students may be admitted to Millersville University to work toward an undergraduate degree or to take college-level courses for self enrichment



The AIM for Success Program provides access and support to underserved students who are entering the University with the potential to succeed. Students are admitted on the basis of their demonstrated potential, motivation, and commitment to their college success and must meet educational and economic guidelines. The program provides placement testing, developmental instruction, academic advisement, counseling and academic support services. To facilitate transition into the University, students begin their studies in the summer before their freshman year.

A
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in the form of a letter of appeal to the Academic Standards Committee, sent in care of the registrar's office.

In order to be eligible to petition for academic amnesty, the former student must complete an application for readmission to undergraduate degree status. If academic amnesty is granted, the calculation of the CGPA is restarted with the new matriculation semester.

Under academic amnesty, all previous course work and grades remain on the permanent record but are not included in the calculation of the MU CGPA after amnesty is granted. Students may use courses taken in the pre-amnesty period to fulfill general education requirements if a grade of C- or higher was earned in the course.

sion form. Both forms can be obtained from the Millersville admissions office. Participation in this program does not guarantee later admission as a degree-seeking student. Home-schooled students are encouraged to contact the admissions office for additional details.

American Council on Education

Millersville University meets all criteria for approval of Veterans Education under the provisions of Title 38, United States Code, Section 1775 (a) (1). DANTES and USAFI courses are considered for transfer credit in accordance with the recommendations of the Commission of Accreditation for Service Experiences of the American Council on Education.

Veterans, reservists, VA vocational rehabilitation participants and eligible dependents should contact the Office of Financial Aid for information on educational benefits.

American Council on Education

An individual who is not concerned with earning credit may audit a course upon approval of the course's instructor. An auditing student attends classes and participates in class discussions but does not take examinations, write papers, or fulfill other requirements generally associated with earning credit. The student's transcript does not record a grade, but notes that the course was audited. Standard tuition and fees are charged. Ordinarily no more than one course may be audited per semester.

Students enrolled in a degree program may also request audit privileges. See the *Special Academic Opportunities* section of this catalog.

Continuing Education

Continuing education students experience the best of Millersville University one class at a time. Choose from hundreds of undergraduate and graduate courses which can be taken for not-for-credit. Enjoy vibrant discourse with your fellow classmates and the guidance of the university's renowned faculty. Many classes meet online or at night. Enrollment is limited to space available after the drop/add period for matriculated (degree-seeking) students. For more information on how to enroll for non-credit as a non-degree student, contact the College of Graduate and Professional Studies, Lyle Hall, 717-872-3099.

American Council on Education

American Council on Education

AP examinations, CLEP examinations or any other college courses taken before or after enrolling at Millersville University. In the event of overlapping course content, credit will be given for only one course.

EXPENSES AND FINANCIAL AID

As a state-owned university, Millersville University provides educational opportunities that surpass those available at many more costly institutions. Public funds appropriated by the Pennsylvania legislature pay for building construction costs and approximately half of Millersville's operating budget. The state appropriation is in essence a scholarship that permits a quality education at an affordable price for every student. The table below and other information in this section presents the most recent approved costs for the academic year (September to May) for students living in University residence halls. Tuition and fees are subject to change at any time.

Residence

resident. Others in military service stationed in Pennsylvania are considered Pennsylvania residents.

5. A student receiving a scholarship or grant dependent on residence in a state other than Pennsylvania is not considered a Pennsylvania resident.

Students living on campus are welcome to dine in University dining halls.

Meal plan per semester:

\$1,800.00	Captains Plan, plus \$200 Flex*
\$1,579.00	19 meals per week, plus \$150 Flex*
\$1,506.00	14 meals per week, plus \$100 Flex*
\$1,259.00	9 meals per week, plus \$100 Flex*
\$813.00	5 meals per week, plus \$100 Flex*
\$855.00	Block Meals
\$200.00	Flex Only





















*Note: Flex dollars will now roll forward from fall to spring.

The 2010 summer meal plan charge for a five-week summer session:





















\$526.35	19 meals per week
\$502.00	14 meals per week
\$419.70	10 meals per week
\$271.00	5 meals per week

Visitors and students who live on campus are also welcome to dine in University dining halls on an occasional basis. Breakfast costs \$4.75*; lunch, \$6.70*; dinner, \$8.60*; and brunch, \$8.60*. Rates for special events are available from the University Food Service.

Students who have FWS eligibility may also work in the community through the Community Service Learning Program (CSL). Contact the coordinator of community services in Bedford House for a list of available positions, 717-871-2223. If you do not have FWS eligibility, you may participate in the CSL Program on a volunteer basis.

                    . This program differs from the Federal Work-Study Program in that students do not have to demonstrate financial need in order to qualify.

Available jobs are posted in the Payroll Office (Dilworth Building) and the Office of Career Services (Lyle Hall).

                    . This program is for students who complete the Free Application for Federal Student Aid (FAFSA) and are enrolled at

A scholarship is a financial grant for a student's tuition. The grants are based on specific criteria such as financial need or a particular academic or athletic excellence. Recipients are chosen by the Millersville University president or her/his designee. All scholarships/awards listed are not renewable unless specifically indicated otherwise in the description.

The University Scholarships marked with an asterisk(*) are awarded to incoming students. For more information regarding freshman scholarships,

*C... B... 70... . Awarded to an incoming, full-time freshman physics major, chosen based on merit as demonstrated by: high school class rank or GPA performance with emphasis on academic performance in mathematics and science courses; standardized test scores (SAT or ACT); and other criteria as recommended by the admissions office and the physics department. Financial need shall be a significant criterion. First preference is to a qualifying student from Lancaster Catholic High School or Solanco High School in alternating sequence. The scholarship may be renewed for up to three years providing the student remains a physics major in good academic standing.

... B... . Awarded to a rising sophomore majoring in technology education or industrial technology. The scholarship may be renewed for four additional semesters providing the student maintains a 3.2 GPA.

C... . Awarded to a full-time rising senior in the occupational safety and environmental health program at MU, who matriculated from York County. Recipient must have a GPA of 3.2 or greater in the program, with consideration given to an acceptable overall GPA. Scholarship to be awarded primarily on the basis of merit, without necessary consideration of financial aid.

*... C... . Awarded to an entering or transfer student who is a child or spouse of a Benchmark Construction Company, Incorporated employee. Scholarship selection based on academic average and community involvement. The scholarship is renewable for a maximum of three additional academic years provided the student maintains a GPA of 3.0 or greater.

C... . Awarded to members of the junior class who have maintained a GPA of 2.0 or higher and who are dependent wholly or in large part upon their own efforts for financing an education.

... C... . Awarded to the junior or senior maunim()

• Awarded to a York County student, as determined by the appropriate college officials.

* • Awarded to an incoming freshman majoring in computer science, based upon both merit and financial need. The scholarship may be renewed for seven additional semesters, providing the recipient remains in good academic standing and is approved by the faculty of his/her chosen major/discipline.

• Awarded to a student enrolled in a science curriculum or in science education, who has completed 55 credits at Millersville University by the end of the semester prior to the semester in which the scholarship is awarded. Preference is given to students who are members of the Phi Kappa Phi Honor Society.

*A B C D

A. Awarded to a junior business administration major who has the highest GPA in courses taken within the department and who has demonstrated outstanding ability and dedication to the study of business.

'62. Awarded to a non-traditional (23 years of age or older, part-time or full-time) female student. The scholarship is renewable for eight semesters provided the student maintains a minimum 3.0 grade point average.

43. Awarded to a student in good academic standing who is an active, outstanding sophomore or junior member of the Millersville University cheerleading squad, who has participated in Millersville cheering for at least one year, and is a full-time student with a 2.30 GPA at the time of the award. A member anticipating continued service to the squad is preferred. The scholarship recipient is to be chosen by the cheerleading coach and the director of women's athletics.

43. Awarded to an elementary education major in good academic standing who has passed the Praxis I and received the required clearances (Act 34, Act 151 and FBI record check). The scholarship may be renewed up to three additional years providing the student remains within the major in good academic standing.

A. Awarded to a worthy junior who intends to teach American history on an elementary, secondary, or college level. Secondary consideration is given to a junior history major who excels in American history.

41. Awarded to a rising junior or senior education major with financial need and a cumulative GPA of 3.0 or greater. First preference to a student who intends to teach in mathematics, second preference to teach science, third to teach other subjects.

A, C. Given by the Lancaster-York Chapter of the American Production and Inventory Control Society to a senior for outstanding achievement in production and operations management.

43. Awarded to a non-traditional nursing student who, having completed a registered nursing program elsewhere enrolls at Millersville University with the intent to receive a Bachelor of Science degree and practice nursing upon graduation. Eligible applicants are to have unusual or special circumstances affecting the completion of their education, such as simultaneously supporting or caring for his/her parents, children or a spouse.

C. Awarded to a chemistry major who has completed the special...

- **B** . Awarded to students who participate on the Millersville University Women's Basketball team.
- **A** . Awarded to a student participating in intercollegiate football.
- * • **C** . Awarded to one or more first-year students who matriculate at MU with a GPA of 3.0 or higher, and who have demonstrated leadership qualities during high school.

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A 0, C 0, 0, 0, A, 0 A, 0, C 0. A subscription to Analytical Chemistry and honorary membership in the Division of Analytical Chemistry to the outstanding student in analytical chemistry. Recognition on a plaque in Caputo Hall.

A 0, 0, 0, 0, C 0, A, 0. A one-year associate membership in AIC and recognition on a plaque in Caputo Hall to the outstanding graduating chemistry major based on character, academic standing and potential to become a successful chemist.

A 0, 0, 0, 0, 0, C, 0 A, 0. Presented by the Central Pennsylvania Chapter of ASSE each semester to a junior or senior occupational safety and hygiene management major who has completed at least 15 credits of occupational safety and hygiene management courses and 12 credits of related courses with a GPA of at least 2.5 overall and 3.0 in health safety management courses.

A 0 C, 0, 0, A, 0. Presented to the outstanding graduating male and female athletic coaching minor students, based on academic excellence, campus leadership, sportsmanship and community service.

B, 0 A, 0. Awarded to a senior political science major in odd-numbered years and to a senior history major in even-numbered years for outstanding ability in political science and history.

B. ... A, Awarded to a full-time junior or senior student in the arts and humanities for outstanding scholarship and character.

B. ... C. ... A, Awarded to a senior psychology major who has demonstrated outstanding community service relevant to the field of psychology. Recipient must have attained a CGPA of at least 3.0. Selection is by vote of the psychology faculty.

A. ... A, Reference books presented to three graduating seniors, one each from premedical/pre dental, nursing, and allied health programs, who have demonstrated outstanding ability. Selections are on the basis of GPA and recommendations.

A, Awarded to a junior social work major who best exemplifies those qualities of Marion G. Foster: dedication to the social work profession; a genuine respect for people; and demonstrated academic excellence under extraordinary circumstances.

A. ... A, Awarded to a senior student who has demonstrated outstanding academic achievement in the field of psychology.

A. Awarded to the art education student teacher who has achieved the highest GPA based on 30 or more Millersville art credits.

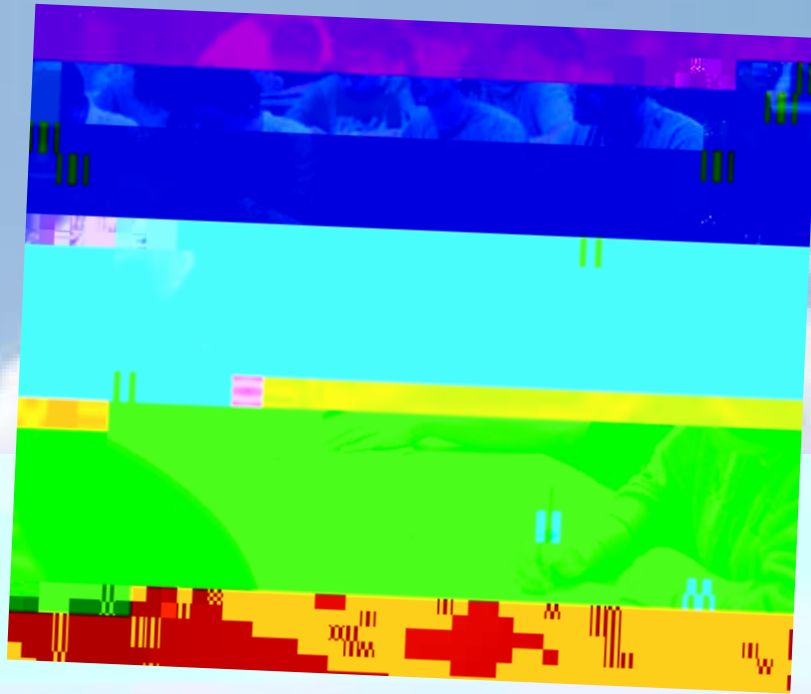
C. Awarded to the outstanding student in the organic chemistry course sequence.

C. An engraved silver bowl and award for contributions of high journalistic quality to the University yearbook, the *Touchstone*.

A. Awarded to a senior physics major who demonstrates outstanding ability in applied physics.

A. Awarded to a full-time music major, selected by an audition committee of the music department, on the basis of outstanding performance in the field of music and demonstrated academic excellence.

A. Awarded to one or more junior or senior Spanish majors who have done excellent work in Spanish studies and contributed significantly to the Spanish Club.



ACADEMIC REQUIREMENTS

BACCA A A C C

Millersville University's baccalaureate degree programs have four common curricular elements:

1. Proficiency requirements in English composition and mathematics.
2. The general education program, which constitutes about half of the curriculum (51 of the 120 minimum credits required for graduation).
3. The major program, which usually constitutes most of the other half of the curriculum.
4. Electives courses, if needed, to meet the minimum of 120 credits required for graduation. (A few programs require more than 120 credits for graduation.) Students may combine elective and general education courses to complete a minor.

Within each of these components, students have many choices in developing programs of study. They have a challenging and responsible role in planning the substance of their program.

Students are reminded that a full-time semester course load consists of 12 credit hours. However, it is necessary to average at least 15 credit hours each semester in order to graduate in 4 years (8 semesters).

Final responsibility for each student's program rests with the student. The role of the adviser is just that—to advise. Students are expected to familiarize themselves thoroughly with program requirements for their major described in this catalog, the Curriculum Record Form and the computerized degree audit (DARS). This computerized audit report is available to help students monitor progress toward completion of their major, minor, and general education requirements.

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1. All undergraduate students must demonstrate minimum levels of proficiency in mathematics.
 - a. All entering undergraduate students are required to take part in the mathematics placement process.
 - b. The mathematics department determines the test(s) and the criteria for course placement.
2. Students placed in a developmental mathematics course are required to enroll in that course. Such students must demonstrate proficiency

CAACBA

2. Students will demonstrate foundational knowledge of the important ideas and methods of different ways of knowing as follows:

- a. in the humanities, students will analyze and interpret existing works of literature and the arts.
- b. in the sciences, students will engage in the scientific method, laboratory study, appropriate technology, and mathematics to investigate, evaluate, and apply scientific concepts and theories.
- c. in social sciences, students will develop the necessary tools of critical thinking, inquiry, and diplomacy to participate effectively in our democracy and the increasingly complex global society.

CAACA

3. Students will connect important ideas and methods of inquiry from different disciplines as a means of becoming holistic and responsible citizens in a diverse and technologically complex, global community. Students will:

- a. demonstrate civic and social responsibility.
- b. grow in their engagement with peoples of diverse histories and communities, both inside and outside the United States.
- c. build the foundation for a lifelong process of understanding, developing, and monitoring healthy lifestyle behaviors in all dimensions of wellness, including physical, social, emotional, intellectual, spiritual, and environmental wellness.
- d. gain personal enrichment by developing new interests that can be enjoyed throughout a lifetime.

To meet these objectives, the general education program is organized into a structure with three components: Foundations for Lifelong Learning, Critical Thinking across the Liberal Arts, and Connections and Exploration.

ACA (minimum 51 credits)

5 860

cultural, scientific/technological, and/or aesthetic problems. They are interdisciplinary and/or multi-cultural in content and require a high level of educational maturity, knowledge, and thinking. Perspectives courses encourage undergraduate students to make independent and responsible value judgments and decisions.

Perspectives courses integrate the knowledge acquired throughout the baccalaureate experience. For example, Perspectives courses nurture and extend the basic communications skills developed in the Foundations for Life-Long Learning component of general education. Moreover, perspectives courses demonstrate how different areas of knowledge gained in the Critical Thinking across the Liberal Arts component of general education are complementary.

The following stipulations apply to perspectives courses:

1. Prior to enrolling in a perspectives course, each student must have successfully completed English composition, fundamentals of speech and earned at least 60 credits (Junior standing).
2. Student must satisfactorily complete one 3 credit perspectives course from a list of approved courses, which may be either in the major department or outside the major department.
3. No perspectives course may be required of a student by his/her major and also fulfill that student's general education Perspectives requirement.
4. No perspectives course may be counted within the Critical Thinking across the Liberal Arts component of general education.
5. Students who complete an academic fall or spring semester abroad as part of a baccalaureate degree will be considered to have fulfilled the Perspectives requirement. International students studying at Millersville will also be considered to have fulfilled the Perspectives requirement. This waiver does not cover credit hours. A student employing this waiver will be required to satisfy three credit hours of general education courses in lieu of the waived three credit Perspectives course. This is in addition to any other Open Elective requirements of the student.

First Year Inquiry seminar (0 or 3 credits). Incoming students are encouraged to take a First Year Inquiry (FYI) seminar which will count as part of a Connections and Exploration Component. The FYI seminar is a component of general education specifically designed for first semester freshmen and offered in a seminar format, typically linked to a foundations course (either ENGL 110 or COMM 100) as part of a living/learning community. Students will choose from a number of FYI topics offered each semester.

A major function of these FYI seminars is to introduce a process of critical inquiry applied to important social, cultural, scientific, technological, and/or aesthetic problems. Each FYI seminar will introduce multiple perspectives related to the understanding and resolution of these problems. A second function of these FYI seminars is to support students' transition into the college experience academically, socially, and personally. For those students who do not complete a FYI course an additional open elective would be completed to satisfy the overall 12 credits required for the Connections and Exploration Component.

Elective(s) [outside of primary major] (3 - 9 credits). Students are required to take at least three credits of Elective courses outside of their primary major. Students who are exempt from the Perspectives requirement and/or did not take or satisfactorily complete a FYI shall take additional Elective credits to satisfy the overall 12 credits required for the Connections and Exploration Component.



ACCELERATED

While it is possible for a student to satisfy the course requirements for two different degrees (e.g., B.A. and B.S.Ed.) simultaneously, only one degree will be awarded. The student chooses the degree to be awarded. A student who is progressing toward, or holds a bachelor's degree, will not be awarded an associate degree in the same discipline.

A student may earn a second associate's or bachelor's degree at a later time by meeting the following requirements:

1. A minimum of 30 additional credits must be completed at Millersville at the undergraduate level following the award of the first degree. These credits must be in the major and required related fields.
2. All requirements for the major of the second degree must be satisfied.
3. Course work completed as part of the first degree program may be used to satisfy the related course work requirement in the second degree.
4. Course work completed as part of the first degree program may be used to satisfy up to half of the second degree's major. If a course required in the second degree's major was completed as part of the first degree, it may not be repeated.
5. Teacher certification credits may not be counted toward a second degree.
6. When there is overlap in the majors of the first and second degrees, the 50 percent limitation in requirement four above and the limited course offerings in some departments may preclude the pursuit of a second degree.

SPECIAL ACADEMIC OPPORTUNITIES

CHALLENGING ACADEMIC ACHIEVEMENT

Millersville University offers a number of programs to help exceptionally talented students develop their potential. Students who complete the programs earn special recognition.

CHALLENGING ACADEMIC ACHIEVEMENT

The University Honors College challenges talented students while encouraging them to develop their intellectual potential. The program introduces students to the main currents of Western thought and culture and develops writing, research and analytical skills. Enrollments in honors classes are limited to facilitate student-faculty interaction. Students who successfully complete the program are awarded the University Honors baccalaureate at graduation.

Invitations to the program are extended to entering freshmen who have combined SAT I scores of 1200 or above and are in the top 10 percent of their high school class. Other interested freshmen and currently enrolled students with cumulative grade point averages (CGPAs) of at least 3.35 are encouraged to apply for admission to the director of the University Honors College.

To remain in good standing in the Honors College, students must maintain a GPA of at least 3.0 in the freshman and sophomore years, 3.25 in the junior year, and must have a 3.35 GPA at graduation.

To receive the University Honors baccalaureate, students must:

1. Earn a cumulative GPA of at least 3.35.

C

Honors courses offer special academic challenges and opportunities for intellectual inquiry. These courses require a measure of independent reading, thinking and questioning. Students are expected to assume a greater portion of the responsibility for learning. Course requirements include activities to develop writing, research, and analytical skills.

Honors courses are open to students in the University Honors College, students with a cumulative GPA of at least 3.35, and other students with permission from the instructor. A grade of B- or higher must be earned to qualify for the honors designation on the student's record.

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Winter session allows students to complete additional courses between the fall and spring semesters. Courses are open to students from other institutions of higher education as well as Millersville students. Residence halls and dining facilities are closed during the winter session. For more information about winter session, call the registrar's office at (717) 872-3035, the College of Graduate and Professional Studies office at (717) 872-3099, or check the University website.

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approval form will indicate whether the student is waiting to get into a major and, if so, the reason for nonacceptance into that major. A copy will be led in the Registrar's office.

3. Sign a statement which indicates awareness of the ramifications of remaining in an undecided status but may choose to continue to remain in that status.

Permission to register will be granted only if one of the above requirements is completed.



Cooperative Education (Co-op) and internships (*see Internships*) are optional learning experiences that take place in a work setting rather than in a classroom. Co-op and internships are the result of partnerships between the University and employers in business, industry, government, and human services. The program is flexible, allowing students to work full-time or part-time. They may work locally, nationally or internationally. This work experience becomes part of the total learning experience, giving the student's academic program a sense of reality and relevance. As a result of this program, students in any major can receive work experience, earn income and apply learned theories. A cooperative education experience also provides the opportunity for students to gain greater insight into their chosen career, either strengthening or redirecting their career choice.

The Millersville University student may begin to show his/her interest in the co-op/internship program as early as the first semester, freshman year. Sophomores and juniors (in some instances, seniors, too) are highly encouraged to take the first steps to find out more about this program by completing an online orientation found at www.millersville.edu/elcm/internships.

At the discretion of the department, a minimum of 3 s.h. up to a maximum of 12 s.h. may be counted in the major or as electives toward normal graduation requirements. Additional credits will be counted over and above the normal graduation requirements. Students may participate

to departure (individual programs may have higher requirements); and received advanced approval from the Office of Global Education and Partnerships.

For more information about study abroad, contact Dr. Kirsten Bookmiller, director of global education and partnerships, Cumberland House, (717) 872-3884 or email globaleducation@millersville.edu.

A

Millersville students may take courses at other colleges and universities for transfer back to Millersville. Many students, for example, take summer courses at a college near their home. Students must obtain approval in advance from their adviser, the department chairperson and the registrar. Authorization for Transfer of Credit forms are available in the registrar's office or on the Millersville website located under the Student Forms Center. For more information, see the *Transfer Credit* section.

A **B** **C**. Through this exchange agreement, full-time Millersville students may, with approval, pursue courses not available at Millersville at Franklin & Marshall College. No tuition is charged by Franklin & Marshall College. This agreement does not include courses offered during the summer or winter at Franklin & Marshall. See the approval form, available in the Registrar's Office, for additional requirements.

A **B** **C**. Through this exchange agreement, full-time Millersville students who qualify for admission to graduate level courses may, with approval, pursue courses not available at Millersville at Lancaster Theological Seminary. No tuition is charged by the seminary.

3-2C **B** **C** **D** **E** **F** **G** **H** **I** **J** **K** **L** **M** **N** **O** **P** **Q** **R** **S** **T** **U** **V** **W** **X** **Y** **Z**

- 2. Students must have successfully completed all required professional education courses and early field experiences and been admitted to Advanced Professional Studies (APS) having met all APS requirements.
- 3. Students must apply to the student teaching office one full year prior to the semester in which they plan to student teach.
- 4. No student may student teach while on academic probation.
- 5. Students need an FBI clearance, Act 34 Criminal clearance and an Act 151 Child Abuse clearance that indicate "No record exists" for placement in a student teaching experience. As mandated by the state of Pennsylvania, students will also need an FBI criminal clearance that indicates "No record exists" for eligibility for placement in a student teaching experience.

CERTIFICATION

Millersville University prepares students to be able to apply for the following certification areas in the state of Pennsylvania:

- Art
- Biology
- Chemistry
- Citizenship Education
- *Dual Special Education
- Earth Science
- English
- French
- German
- Mathematics
- *Middle Level
- Music
- Physics
- *Pre K-Grade 4
- Social Studies
- Spanish
- Technology Education

*Changes to these programs are anticipated. Please contact the Millersville University Office of Professional Studies for more information.

Used in support of a University conference, to be known as the Glenna M. Hazeltine Women in Mathematics and Science Conference.

Used in support of a University conference, to be known as the Glenna M. Hazeltine Women in Mathematics and Science Conference.

For the fall and spring terms, the “add” period is extended to the seventh class day of the semester. The signature of the course instructor (or their designee) is required to add a course during the first week and two days of classes.

During the summer and winter sessions, the registrar will determine equivalent dates for the no grade, W grade and regular grade periods.


Drop (D) or Withdraw (W). The notation made on a student’s record about a withdrawn course depends on when the student withdraws. Students who “drop” or withdraw by the end of the first week of classes have all references to that course deleted from their records. Students will be permitted to withdraw from a course and receive a grade of W up until the end of the tenth week of the semester. The W grade does not carry any quality points and will not be calculated in the student’s GPA. There will be no limit on the number of courses from which the student may withdraw. A student who withdraws from their last course is required to submit a form withdrawing them from the University or taking a leave of absence. See *Leaving Millersville University* for more information. After the tenth week of the semester and through the last day of classes, students who withdraw will receive a non-W grade which will be determined by the instructor consistent with University policy.

The official date of withdrawal is the date the withdrawal form is submitted with proper signatures to the registrar’s office. Deadlines for returning the form are strictly enforced. It is the student’s responsibility to obtain all required signatures (both course instructor and adviser) in time to meet the deadline.

Failure to withdraw from a course properly may result in additional tuition fees as well as a failing grade. Financial Aid may also be affected.

See the sections on *Credit Load Policies* and *Tuition* for more information.

During summer and winter sessions, the registrar sets equivalent deadlines for withdrawing from a course without a grade or with a W grade. To withdraw from a course, contact the registrar’s office, Lyle Hall, for an appropriate form, or obtain a form on the web in the Student Forms Center.

the appropriate form. Having properly registered for a course on a pass/fail basis, a student still has the option to take a letter grade instead of a pass/fail grade provided that the decision to change is led 

ACA, C, A, A, BA, A, A, A, A

ACA, C, A, A

Th



Faculty members are charged with the responsibility of evaluating a student's academic performance in accordance with the faculty member's professional and academic judgment. The Deans of the University's Schools establish the programmatic standards for their respective schools and will review any issues related to those standards. The following procedures must be followed by students challenging these academic determinations or when they encounter a problem with an academic affairs process. Appeals dealing with Academic Dismissal from the University, violations of the Academic Honesty Policy, or violations of the Student Code of Conduct are handled by separate processes.

ACADEMIC APPEALS

When a student disagrees with an academic determination by a faculty member the student and the faculty member must meet, within thirty (30) days of the release of the academic determination, to discuss the disputed issue and attempt, in good faith, to resolve the matter. The student has the responsibility to contact the faculty member so that the meeting can be arranged. If the student and faculty member are unable to meet within the specified time period, the student must contact the faculty member's Department Chair within ten (10) calendar days of the above time period to move to the next phase of the appeal.

If the student and the faculty member are unable to mutually resolve the dispute, the student must file a written appeal with the faculty member's Department Chair within ten (10) calendar days of the student/faculty member discussion. The student is advised to set forth in detail the basis for the appeal and provide written documentation in support of the appeal. The Department Chair will request a written statement from the faculty member and may meet with the faculty member as well. The Department Chair will review the appeal and any supporting documentation and then meet with the student. The Department Chair will notify the student and the faculty member of his or her decision within 10 calendar days of receipt of the appeal.

If the Department Chair's decision does not resolve the dispute, the student may submit a written appeal with the appropriate School Dean within ten (10) calendar days from the date of the Department Chair's decision. The student should include any written documentation in support of the appeal. The School Dean will request a written statement from the faculty member and may meet with the faculty member as well. The School Dean will review the appeal and any supporting documentation and will meet with the student. The School Dean will notify the student, the Department Chair, and the faculty member of his or her decision within ten (10) calendar days of receipt of the appeal. The decision of the School Dean is final and not subject to further review.

ACADEMIC APPEALS

When a student encounters a problem with an academic process at the University (i.e. transfer of credit from another institution, missing or incomplete information in a student record, etc.) the student should attempt to resolve the problem by contacting the staff member, or appropriate administrative office, within the division of Academic Affairs within 30 days of identifying the error. The student and the staff member must discuss the disputed issue and attempt, in good faith, to resolve the matter.

If the student and the staff member are unable to mutually resolve the dispute, the student must file a written appeal with the staff member's supervisor within ten (10) calendar days of the student/staff member discussion. The student is advised to set forth in detail the basis for the appeal and provide written documentation in support of the appeal. The supervisor will request a written statement from the staff member and may meet with the staff member as well. The supervisor will review the appeal and any supporting documentation and then meet with the student. The supervisor will notify the student and the staff member of his or her decision within 10 calendar days of receipt of the appeal.

If the supervisor's decision does not resolve the dispute, the student may submit a written appeal to the Associate Provost for Academic Administration within ten (10) calendar days from the date of the supervisor's decision. The student should include any written documentation in support of the appeal. The Associate Provost will request a written statement from the staff member and may meet with the staff member as well. The Associate Provost will review the appeal and any supporting documentation and will meet with the student. The Associate Provost will notify the student, the supervisor, and the staff member of his or her decision within ten (10) calendar days of receipt of the appeal. The decision of the Associate Provost is final and not subject to further review.

CLASS STANDING

Class standing is based on total credits earned, including those transferred from other colleges and earned through advanced standing programs such as CLEP, as follows:

0–29.5	Freshman
30–59.5	Sophomore
60–89.5	Junior
90 or more	Senior

CLASS ATTENDANCE

The University supports departmental and faculty class attendance policies that are reflective of and consistent with University approved

2. The University policy is that faculty will excuse absences for the following reasons:

- a. personal illness,
- b. death or critical illness in the family,
- c. participation in a University-sponsored activity,
- d. jury duty,
- e. military duties, or
- f. religious holidays.

3. Faculty judge the validity of student absences from class within the University's approved guidelines and may require documentation for excused absences. Faculty will evaluate any reason, other than those listed above, for a student missing class and determine whether the absence is justified. In these circumstances, a student may make up missed work at the discretion of the instructor.

4. In the case of foreseeable absences, students are encouraged to notify the faculty member in advance. A student who will miss class due to participation in an official University activity must notify the instructor well in advance of the activity to assure that the absence is excused.

C 

Millersville University uses the following course numbering system:

400-499 300-399 200-299 100-199

CAMPUS LIFE



Millersville University offers a number of programs and services designed to identify students' academic and personal needs, to develop their skills and abilities to meet their needs, and to support their academic efforts.



Millersville University considers academic advisement to be an integral part of the undergraduate experience from orientation to graduation. The academic advisement process is devoted to helping all students achieve their academic goals. This process involves the total campus community including students, faculty, staff, and the administration. Advisers work with students in the clarification of educational goals, the planning of a program of study, the selection of courses and the utilization of programs and services at Millersville University.

Every student has an assigned adviser. Students in majors have a faculty member from their department as an academic adviser. Students in the nationally recognized Exploratory Program have a specially trained adviser who may be a faculty, staff member or administrator at Millersville. Students in the AIM for Success program are assigned advisers during their freshman year from the program.

Advisers at Millersville have the responsibilities of assisting students with course selections and program requirements, being knowledgeable about University policies and procedures, helping students to understand and complete the general education curriculum, being accessible to their advisees via office hours, phone and email, referring students to appropriate resources on campus and helping students who need assistance to improve their academic standing. Students share responsibility with their adviser for completing degree requirements and meeting with their adviser on a regular basis.



The Millersville Mentoring Alliance Program (MMAP) provides interested Millersville University students with effective, one-on-one mentoring by connecting them with qualified, competent Millersville faculty, staff, peers, alumni and community mentors. These volunteer mentors are committed to encouraging students to develop their full potential in all areas of their lives. Through sustained, supportive and nurturing mentoring relationships, the MMAP strives to enhance the learning and holistic development of Millersville University students. For more information, email mmap@millersville.edu, call (717) 871-5361, or visit www.millersville.edu/mmmap.



Orientation begins the transition to the University's environment and expectations; it is the first step in the collegiate experience. Before beginning classes, Millersville's orientation program offers an opportunity for new and transfer students to become familiar with campus facilities, services and people.

The orientation program is offered to all full-time students admitted to Millersville and is tailored to student needs. The scope and format depends

Members of the University community who feel their individual rights have been violated or the policy of nondiscrimination has been abridged

60 credit hours or they have completed four regular (fall or spring) semesters, whichever comes first.

In addition, the University normally makes exceptions to the residence hall requirement for full-time students who are:

- Commuting from the home where they live with their parent(s) or a member of their immediate family who is at least 21 years old, provided the one-way commuting distance does not exceed 40 miles. The University requires written verification of a student's commuting status from the parent(s)/immediate family member(s). *NOTE: A Request to Change to Commuter Status form is available in the Office of Housing and Residential Programs.*
- Married.
- Custodial parents.
- Twenty-one years of age or older by the beginning of the term for which an exception to the residence hall requirement is requested.

Limited on-campus housing is available for students entering his/her third year at Millersville University. Questions regarding this policy and requests for exceptions to it should be directed to the director of housing and residential programs. Details of residence hall policies and procedures are in the *Living On Campus Handbook*, available from the Office of Housing and Residential Programs, Harbold Hall.



Millersville University maintains a listing of local landlords and property owners from the surrounding community who historically rent rooms, houses or apartments to our students. All off-campus residences fall within the category of "independent" student housing. This designation means that the University does not endorse residences off campus. The University off-campus life office serves as a reference agency, collecting information on off-campus housing opportunities and preparing a periodic listing for the convenience of the campus community. The off-campus life office also provides educational workshops for eligible students interested in moving off campus.

Students not admitted as commuters must live on campus until junior status is achieved.



overlooking the Galley are student organization offices. Currently the Student Senate, Allies, University Activities Board, Black Student Union, Society of Latino Affairs and the International Relations Club have offices there. A computer lab across from the Galley is equipped with both PCs and MACs and is open during regular SMC hours.

The lower level of the SMC contains offices for *The Snapper* (student newspaper), *Touchstone* (student yearbook), and WIXQ (campus radio station). The Club de 'Ville is also located on the lower level. This co-working environment provides a comfortable location to surf the Internet, or have lunch or a cup of Starbucks™ coffee. Frequent events include the

religious, social and cultural programming including: United Campus Ministry, Bible Campus Ministry, Hillel, Intersivity Christian Fellowship, John Newman Association (Roman Catholic), University Christian Fellowship, Reformed University Fellowship and Athletes Bible Fellowship. Although not members of the University staff, Roman Catholic and Protestant ministers are employed by Catholic Campus Ministry, United Campus Ministry and University Christian Fellowship to serve the University. Both Roman Catholic and Protestant services are conducted on campus.

Millersville area churches welcome students to their services; several sponsor programming specifically for students. Students who do not find the church of their preference in Millersville will find many places of worship available in the nearby city of Lancaster. Three synagogues in Lancaster represent the Reform, Conservative and Orthodox branches of Judaism. Seven Muslim mosques are located in the Harrisburg area; a Buddhist association is in Columbia and a Hindu temple is in New Cumberland.



The foreign language media center in McComsey Hall includes the instructional digital language lab (Tandberg Prisma Multimedia Learning Center) with 30 student stations, as well as a smaller learning lab with a variety of visual, audio, computer, and print materials for the study and teaching of French, German, Latin, Russian, and Spanish. The media center is also connected to several satellite receivers, and both live and delayed newscasts are available in foreign languages.



The Millersville University Library provides support and assistance to all students, faculty, staff, administrators and Millersville community members. With information resources residing within the library building as well as available electronically, there are many research options for Millersville University Students.

Members of the Millersville University community can access library resources from on campus, off campus, and from computers available within the library building. The library's online catalog allows for easy searching of physical books and journals, electronic books and resources, government documents, audio-visual materials and more. In addition, the library's extensive collection of electronic databases will assist in the location of scholarly articles for personal and professional research projects. A collection of popular DVDs (including classics, documentaries and major motion pictures) is available for borrowing by members of the University community. In addition to electronic research resources, the library building contains many physical volumes and provides both group and individual study spaces.

The library belongs to several statewide and regional library consortia, allowing for resource sharing, reciprocal borrowing and collaborative purchasing of resources. In the event that the Millersville University Library does not own an item, the Pennsylvania Library Consortium (PALS) or the

gram is supported by one on-campus lab, which includes a wave tank, and the field station of the Marine Science Consortium, Wallops Island, Virginia, including access to a modern research vessel.



Students are expected to familiarize themselves with and abide by all student conduct regulations found in this catalog and other University publications, including the *Student Code of Conduct*, the *Living on Campus Handbook*, and the *Student Handbook*. Please refer to the *Student Handbook* for information on the student discrimination grievance procedures, sexual harassment policy, and policy on sales and vendors.



Enrolled students are required to have a Millersville University identification card. The card is needed for facility access and for the use of many campus services and activities.

Identification cards may be obtained at the campus I.D. office in the lobby of Boyer Building. There is no charge for the first card, and the current fee for replacement is posted in the campus I.D. office.

Office hours are Monday through Friday, 8 a.m. to 4 p.m. Hours are extended at the beginning of fall and spring semesters and are posted at the I.D. office.

representing as one's own any academic exercise (e.g. written work, computer program, sculpture, etc.) prepared totally or in part by another. An individual will avoid being charged with plagiarism if there is an acknowledgment of indebtedness whenever one:

1. quotes another person's actual words;
2. uses another person's ideas, opinions, or theories, even if they are completely paraphrased in one's own words;
3. borrows facts, statistics, or other illustrative materials, unless the information is common knowledge.

6)






Academic Programs

UNDERGRADUATE PROGRAMS




Millersville offers 51 undergraduate degree programs leading to an associate or baccalaureate degree as well as minor programs. Many majors

*Social Studies B.S.Ed. (9-12)	Multi-disciplinary
Social Work B.A.	Social Work
Sociology B.A. Criminology	Sociology/Anthropology
Spanish B.A. International Business	Foreign Languages
*Spanish B.S.Ed. (7-12) International Business	Foreign Languages
Special Education B.S.Ed. Special Education PreK-8/PreK-4 (Dual Major)	Special Education
Speech Communication B.S. Broadcasting Communication Studies Public Relations Theatre	Communication & Theatre
*Technology Education B.S.Ed. (PreK-12)	Industry & Technology



A C A 	 A 
Chemistry A.S. Pre-Pharmacy	Chemistry
Computer Science A.S.	Computer Science
Industrial Technology A.T. Computer Aided Drafting/Design Technology Construction Technology Electronics/Control Systems Technology Graphic Communication Technology Manufacturing Technology Mechanical Technology Nanofabrication Manufacturing Technology Occupational Safety & Environmental Health	Industry & Technology



	 A 
African-American Studies	Multi-disciplinary
Anthropology Archeology Cultural Anthropology General Anthropology	Sociology/ Anthropology
Art Art History Studio Art	Art
Athletic Coaching	Wellness & Sport Sciences

Biochemistry	Chemistry
Biology	Biology
Business Administration Accounting Finance General Business Management Marketing	Business Administration
Chemistry	Chemistry
Computer Science	Computer Science
Criminology	Sociology/Anthropology
Earth Sciences	Earth Sciences
Economics General Economics Technical Economics	Economics
Environmental Environmental Policy and Regulation Industrial and Environmental Health Land Use Quantitative Methods in Environmental Science Water Resources	Multi-disciplinary
Environmental Chemistry	Chemistry
Environmental Hazards and Emergency Management	Multi-disciplinary
English American Literature British Literature Film Studies General English Linguistics Print Media Studies Writing Studies	English
French Foreign Languages	
Geography Environmental Geography General Geography Geospatial Applications Global Geography	Geography
Geology	Earth Sciences
German	Foreign Languages
Gerontology	Multi-disciplinary
Government & Political Affairs	Government & Political Affairs
Greek	Foreign Languages
History	History

Industrial Technology Computer Aided Drafting/Design Technology Construction Technology Electronics/Control Systems Technology General Technology Graphic Communication Technology Manufacturing Technology Mechanical Technology	Industry & Technology
International Studies	Multi-disciplinary
Latin	Foreign Languages
Latino/a Studies	Multi-disciplinary
Mathematics	Mathematics
Meteorology	Earth Sciences
Molecular Biology/Biotechnology	Biology
Music	Music
Occupational Safety & Environmental Health	Industry & Technology
Oceanography	Earth Sciences
Philosophy	Philosophy
Physics Physics	
Psychology	Psychology
Sociology	Sociology/Anthropology
Spanish	Foreign Languages
Statistics	Mathematics
TheatreCommunication & Theatre	
Women's Studies	Multi-disciplinary

GRADUATE PROGRAMS

Millersville offers master's degree programs as well as post-baccalaureate and post-master's certification programs. These programs, subject to change, are as follows:

Art Education M.Ed.	Art
Biology M.S.	Biology
Early Childhood Education M.Ed.	Elementary & Early Childhood Education
Elementary Education M.Ed.	Elementary & Early Childhood Education
Emergency Management M.S.	Multi-disciplinary
English M.A. and M.Ed.	English
French M.A. and M.Ed.	Foreign Languages
German M.A. and M.Ed.	Foreign Languages
Gifted Education. M.Ed.	Elementary & Early Childhood Education
History M.A.	History
Language and Literacy Education M.Ed. English as a Second Language	Elementary & Early Childhood Education
Leadership for Teaching and Learning M.Ed.	Educational Foundations
Mathematics M.Ed.	Mathematics
Nursing M.S.N. Family Nurse Practitioner Nursing Case Management Nursing Education	Nursing
Psychology School Counseling M.Ed. Clinical Psychology M.S. School Psychology M.S.	Psychology
Social Work M.S.W.	Social Work
Spanish M.A. and M.Ed.	Foreign Languages
Special Education M.Ed.	Special Education
Sport Management M.Ed. Athletic Coaching Athletic Management	Wellness & Sport Sciences
Technology Education M.Ed.	Industry & Technology

UNDERGRADUATE PROGRAMS OF STUDY

In the following course listings, G1, G2 and G3 refer to general education courses approved to satisfy the critical thinking across the liberal arts requirement.

G1 Course counts in Humanities and Fine Arts block

G2 Course counts in Science and Mathematics block

G3 Course counts in Social Sciences block

The symbols D, L, P, W, and AW indicate additional educational components contained in the course. The symbols are defined as follows:

D A cultural diversity and community course

L A lab course

P A perspectives course

W A significant writing component

AW An advanced writing course

For more information on these components of the general education program, refer to the section in the catalog entitled *The General Education Program*. [Z](#)



ACC 

See Business Administration

AC A A C C 

See Mathematics

A CA A CA 

Professor Smith-Wade-El, director

African-American Studies is an 18-credit interdisciplinary minor focusing on the history and socio-culture of African Americans. The minor offers an introduction to issues, theories, and research concerning African Americans in various disciplines. Courses in the minor emphasize African-American perspectives, as well as the development of critical thinking and written and oral communication skills. The minor will present opportunities to examine, compare and contrast African-American perspectives with those of other American cultures. It offers students in a variety of disciplines important perspectives on African-American history and culture that will help them to understand the possibilities and values of cultural differences. Students will be encouraged to connect issues about African-American culture raised in the classroom to current society. Fifteen of the 18 credits satisfy general education requirements and knowledge of African-American culture will complement many majors, especially elementary and secondary education, business, communications and theatre, English, history, sociology, art, music, and industry & technology. It appears to be both essential and beneficial that all students have a multicultural perspective of themselves and the world around them.

A 0, -A 0, . . . A, 0. :18. . .

Required courses: AFAM 201, AFAM 401, HIST 272 or HIST 273, and ENGL 333 or ENGL 334, plus two electives from an approved list, at least one must be at the 300 level or above.

A  A  C

See Biology

A 

See Sociology/Anthropology

A  :  A C C - C

Professor Eckstein, Instructors Walker, O'Connor

Participation in military science courses during the freshman and sophomore years is open to all students. Individuals who elect to continue



Art History and Criticism

A 100:3, . . .

A 0 C . . . (1)

A

A_ 327: 3, . . .

A_ 0, / C 0

A survey of methods, materials and philosophy involved in teaching art to exceptional children. Open to all education majors. Offered infrequently.

A_ 461, / A_ 462: 12, . . .

. 0, / 0,

Student teachers in art education spend one-half semester in elementary schools and one-half semester in secondary. Seventh or eighth semester. (Eligibility requires students to have completed the art core program and 12 semester hours in art education. See catalog information regarding student teaching application and eligibility.) Offered in fall, spring.

A_ 521: 3, . . .

. 0 A_ / , . . . 0.

A_ 522: 3, . . .

A_ / / / / 0,

A_ 523: 3, . . .

A_ C 0 0, /

A_ 586, 587: 3-6, . . .

. 0, 0 A_ / , . . . 0.

Drawing

A_ 133: 3, . . .

. (1)

Introduces drawing as artistic expression as well as a form of nonverbal communication. Traditional and contemporary perspectives. Emphasis on original creative solutions to visual problems. Students explore artistic composition employing various drawing media and techniques. Includes criticism, analysis and evaluation. For both the non-art major and the art major. Offered in fall, spring.

A - 244: 3 . . .

Studio course explores the origins of alphabets and writing, and the development, classification and creative use of typefaces in graphic design. Includes hand lettering, basic typography specification and copy setting, type indication, type personification, computers in typography, and use of type as image and design. Emphasis on creative problem solving through typography. Offered annually. Prereq: ART 133 and ART 142 (ART 240 is suggested, but not required).

A - 344: 3 . . .

Studio course explores typography and design processes in solving design and communication problems similar to those found in design studios and ad agencies. Offered in fall and/or spring. Prereq: ART 133, 142 or permission of instructor.

A - 345: 3 . . .

Explores and develops the capabilities for aesthetic expression native to computer-generated art forms. Includes system knowledge and preparation, artistic input, manipulation, display and output of chosen images in response to given assignments. Offered in fall and/or spring. Prereq: ART 133 and ART 142.

A - 346: 3 . . .

Explores and develops capabilities for graphic expression through the use of computers in design. Various computer programs will be employed to develop-essio

A _ 355: 3 . . .

Continued development of painting in watercolor with the emphasis on sustained individual development and technical expression. Prereq: ART 353 or permission of instructor.

A _ 453: 3 . . .

Further study in watercolor as the individual student works toward developing a personal idiom of expression. Prereq: ART 355 or permission of instructor.

A _ 455: 3 . . .

An advanced course in which students continue to develop style and technique as they seek their own direction in watercolor painting. Prereq: ART 453 or permission of instructor.

A _ 553, 555: 3-6 . . .*Graphics***A _ 167: 3 . . .**

A studio course in alternative photographic processes for the artist, photographer and craftsperson. Offered periodically.

A _ 306: 3 . . .

θ A (1)

An introduction to the value, function and perception of the art photography through study and practice. Student work is analyzed, criticized and evaluated in terms of the photograph as the art. (For both non-art and art majors.) Offered in fall, spring.

A _ 406: 3 . . .

θ A

Photography as a working method for the creative photographer. Color techniques and various printing processes may be chosen to suit the individual photographer's objectives. Offered in fall and spring. Prereq: ART 306 or permission of instructor.

A _ 409: 3 . . .

A **θ A**

A _ 410: 3 . . .

θ A

Introduces the techniques and applications of digital photography with an emphasis on aesthetic approaches. Offered in spring. Prereq: Art 306 or permission of instructor.

A _ 567: 3 . . .

A **θ A**

A _ 361: 3 . . .

θ **θ**

Introduction to the four areas of printmaking – relief, intaglio, lithography, and silkscreen. Projects in each of these areas will develop technical skills and understanding of the physical nature of creating original prints. Issues of subject matter, content, and intent will be discussed and explored. Creative and original solutions to visual problems will be emphasized. Offered in fall, spring. Prereq: ART 133 and 142.

A _ 363: 3 . . .

θ **θ** **θ**

Explores multiple approaches to creating lithographic prints. Starts at an introductory level technically and builds with each new process into an intermediate understanding and working knowledge of the process. Covers stone lithography, aluminum plate lithography, and waterless lithography. Offered periodically. Prereq: ART 133 and 142.

A _ 364: 3 . . .

θ **θ** **θ**

Explores multiple approaches to creating relief prints. Starts at an introductory level technically and builds with each new process into an intermediate understanding and working knowledge of the process. Covers linocut, alternative relief matrices, color reduction, and multiple block relief printing. Offered periodically. Prereq: ART 133 and 142.

A _ 365: 3 . . .

θ **θ** **θ**

Explores multiple approaches to creating intaglio prints. Starts at an introductory level technically and builds with each new process into an intermediate understanding and working knowledge of the process. The course will cover drypoint etching (hardground/softground), aquatint and sugar lift, white ground, toner transfers, spitbite, and will introduce color printing (ala poupee/monoprinting). Offered periodically. Prereq: ART 133 and 142.

A _ 367: 3 . . .

θ **θ** **θ**

Explores multiple approaches to creating water-based silkscreen prints. Starts at an introductory level technically and builds with each new process into an intermediate understanding and working knowledge of the process. Covers basic to intermediate stencil preparation including photographic processes. Offered periodically. Prereq: ART 133 and 142.

A - 368: 3 . . .**C**

Offers a historical look at the last 100 years of collage as a media for fine art. Highlights of its history will be discussed and followed by a hands-on application of the ideas and imagery that it encompasses. Offered periodically. Prereq: ART: 133 and 142.

A - 463: 3 . . .**0 0 0 0 0**

Explores multiple approaches to creating color lithography prints. A continuation of Lithography Printmaking I, this course technically builds with each new process into an advanced understanding and working knowledge of the process. Uses stone lithography, plate lithography, and waterless lithography to explore printed color and individual investigations into artmaking. Offered periodically. Prereq: ART 363.

A - 464: 3 . . .**0 0 0 0**

Builds on the information presented in Relief Printmaking I. Starts at an intermediate level technically and builds with each process into an advanced understanding and working knowledge of the process. Covers linocut, woodcut, alternative relief matrices, color reduction, large format, mixed media, relief monoprinting, and multiple block relief printing. Students will be expected to develop a cohesive body of works from the projects and a personal investigation into artmaking. Offered periodically. Prereq: ART 364.

A - 465: 3 . . .**0 0 0 0**

Explores multiple approaches to creating intaglio prints. Builds on the techniques in Intaglio Printmaking I and builds with each new process into an advanced

ART 291:3 . . .
0 Art Jewelry (1)

Introduces jewelry and metals as a form of artistic expression. The student seeks creative solutions to visual problems while employing various metal working techniques and media. Critical analysis and evaluation of jewelry and metal art are central to the course. (For both art majors and non-art majors.) Offered in fall and spring.

and a certificate in respiratory therapy, and will be eligible to sit for the national credentialing examination.

The education curriculum leads to the bachelor of science in education with secondary education certification in biology.

Individualized programs in pre-medicine, pre-dental, pre-optometry, pre-podiatry and pre-veterinary medicine are organized with the program adviser.



University requirements for retention must be met. In addition, all biology majors must earn grades of C- (C minus) or higher in all core courses

Bθ .

A 0 (B.): 120. . .
 3+1

BIOL 100, 254, 255, 257, 263, 365, 454, 461. Directed electives to bring total biology credits to 30 to 32. MATH 130, 160. 16 s. h. chemistry, 4 s. h. physics, 27 s. h. of clinical laboratory study in nuclear medicine technology at the Lancaster General College of Nursing and Health Sciences School of Nuclear Medicine Technology.

A 0 (B.): 120. . .
 2+2

BIOL 100, 254, 255, 455, 461. MATH 130. 6 s. h. chemistry, 4 s. h. physics, 54 s. h. of clinical laboratory study in respiratory therapy at the Lancaster Regional Medical Center (LRMC). All the courses for the respiratory therapy track are Millersville University-approved courses taught primarily by employees of LRMC.

C

R 100:3 . . .
 (2,)

An introduction to biology with emphasis on cell structure, metabolism, genetics, behavior, ecology, adaptations, organ systems and evolution. 2 hours lec., 2 hours lab. No credit toward BIOL major.

R 101:4 . . .
 (2,)

This introduction of biological principles provides the foundation of modern biological knowledge essential for all higher-level courses. Topics include cell structure and function, cellular reproduction, energy acquisition, biochemical pathways, mechanisms of inheritance, natural selection, speciation and evolution. 2 hrs. lec., 1 hr. discussion, 3 hrs. lab. Offered in fall, spring. Prereq: Biology major or biology minor or permission of instructor.

R 103:3 . . .
 (2)

Evolutionary theory through an integrated perspective of both biology and geology. No credit for biology and earth science majors. Prereq: 15 credit hours recommended. Offered infrequently.

R 108/108 :1 . . .
 (2)

Emphasis on the intellectual and historical context of the core ideas of BIOL 100 and an in-depth exploration of ideas raised in lecture and laboratory. Satisfies the honors lab when taken with Biology 100. 1 hr. seminar. Offered in fall, spring. Prereq or coreq: BIOL 100.

R 204:3 . . .
 (2,)

Prereq: BIOL 100, 101, 103, 108, 108:1, 108:2, 108:3, 108:4, 108:5, 108:6, 108:7, 108:8, 108:9, 108:10, 108:11, 108:12, 108:13, 108:14, 108:15, 108:16, 108:17, 108:18, 108:19, 108:20, 108:21, 108:22, 108:23, 108:24, 108:25, 108:26, 108:27, 108:28, 108:29, 108:30, 108:31, 108:32, 108:33, 108:34, 108:35, 108:36, 108:37, 108:38, 108:39, 108:40, 108:41, 108:42, 108:43, 108:44, 108:45, 108:46, 108:47, 108:48, 108:49, 108:50, 108:51, 108:52, 108:53, 108:54, 108:55, 108:56, 108:57, 108:58, 108:59, 108:60, 108:61, 108:62, 108:63, 108:64, 108:65, 108:66, 108:67, 108:68, 108:69, 108:70, 108:71, 108:72, 108:73, 108:74, 108:75, 108:76, 108:77, 108:78, 108:79, 108:80, 108:81, 108:82, 108:83, 108:84, 108:85, 108:86, 108:87, 108:88, 108:89, 108:90, 108:91, 108:92, 108:93, 108:94, 108:95, 108:96, 108:97, 108:98, 108:99, 108:100.

B

of plant structure and function using angiosperms as principal examples. Includes brief discussions of plant and fungal diversity, plant ecology, evolution and economic botany. 3 hrs. lec., 3 hrs. lab. Prereq: BIOL 101 or BIOL 100 with a grade of C minus or higher; B minus or higher in BIOL 100 for biology majors.

B 222/222 : 1, . . .

..... B B B

A botanical science investigation of a problem or series of problems. Students define a problem with a botanical basis, search appropriate literature, formulate hypotheses and collect appropriate information to test hypotheses through experimentation and data gathering. Completion of both BIOL/HNRS 222 and BIOL 221 earns 5 credits to be counted as one course in the G2 block. BIOL/HNRS 222 may not be used independently to fulfill a G2 requirement. 1hr. seminar. Offered periodically. Prereq: completion of BIOL 221 with a grade of B- or higher and University Honors College or 3.35 GPA or instructor's permission.

B 241: 3, . . .

..... B B

Ecological principles underlying physiological adaptations of organisms to their environment, population dynamics, community analysis and ecosystem studies. Ecological and evolutionary theory emphasized with examples from aquatic and terrestrial habitats. 3 hrs. lec. Offered in fall, spring. Prereq: BIOL 100 or BIOL 101 and MATH 235, 151, 160 or 161.

B 242: 2, . . .

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Introduction to techniques used in terrestrial and aquatic environments to gather ecological data, laboratory experiments, and quantitative data analysis using computers. 4 hrs. lab. Offered in fall, spring. Prereq or coreq: BIOL 241.

B 247: 3, . . .

B B B B B B : B B B B B B (2)

Existing patterns of biological diversity (biodiversity), the processes and events that produce biodiversity, and the natural and unnatural factors that limit and/or reduce biodiversity. The ethics of biodiversity are also discussed. 3 hrs. lec. Offered periodically. Prereq: BIOL 100 or BIOL 101, and COMM 100. No credit toward BIOL major.

B 254: 4, . . .

..... A B

Study

B 324: 4 . . .
B 0 0

A study of enzymes and pathways involved in plant intermediary as related to plant cell structure, function and plant development. Topics include plant bioenergetics, biosynthesis of plant hormones and elicitor molecules, signal perception and transduction, and secondary metabolites (natural products), 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: BIOL 221 and BIOL 362 or BIOL 263, CHEM 232 or CHEM 235.

B 325: 3 . . .
B 0 0

A survey of local vascular flora, use of dichotomous keys in identifying plants, distinguishing features of common plant families, principles of plant systematics. Phylogenetic, biosystematic and nomenclatural concepts are considered. 2 hrs. lec., 3 hrs. lab. Offered in fall. Prereq: BIOL 221.

B 326: 3 . . .
B 0 0

The structure, life histories and evolution of algae, bryophytes and the vascular cryptogams. Notes are made of their distribution, physiological peculiarities and pathogenicity or usefulness to people. 2 hrs. lec., 3 hrs. lab. Offered infrequently. Prereq: BIOL 221.

B 327: 3 . . .
B 0 0

Principles of horticultural science including regulation of plant growth, propagation and breeding, plant nutrition, pruning, plant diseases and special topics related to individual types of plants. Laboratory includes propagation and handling of plants in the greenhouse and field trips. 2 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: BIOL 221, or permission of instructor.

B 340: 3 . . .
B 0 0 0

Interdisciplinary study of current environmental problems and their implications on future habitability of the planet. Physical, biological and social aspects of alterations to ecosystems presented and solutions considered. Course includes lectures, open forums and student participation. Offered in fall and spring. Prereq: COMM 100, ENGL 110, junior status and at least one science (G2 block) and one social science course (G3 block). May be used as biology elective if not applied to general education perspective requirement.

B 343: 4 . . .
B 0 0

The basic concepts and principles of evolution and ecology. Topics include natural selection, genetic variation, macro and microevolution, population genetics, evolutionary stable strategies, species concepts, biodiversity, extinction, reproductive strategies, population dynamics, the ecological niche concept, predation, competition, mutualism, parasitism, coevolution, biogeography, disturbance ecology, and ecosystem structure and function. 3 hrs. lec., 3 hrs. lab. Offered in fall and spring. Prerequisites: BIOL 101 or 100 with a grade of C minus or higher; B minus or higher in BIOL 100 for biology majors; BIOL 211 and BIOL 221; MATH 160 or equivalent; ENGL 110.

B 345: 3 . . .
A 0 0

The application of genetics, and population genetics, and evolution. Prerequisites: BIOL 101 or 100 with a grade of C minus or higher; B minus or higher in BIOL 100 for biology majors; BIOL 211 and BIOL 221; MATH 160 or equivalent; ENGL 110.

363:3...
10, 10, 10

Intended for biology B.S. majors in the molecular biology/biotechnology option. 5 hrs. integrated lecture/lab. Offered in spring. Prereq: BIOL 462. BIOL 461 recommended.

B 467: 3 . . .

B : A . . . A . . . ()

Applications of traditional and molecular approaches in understanding the genetic basis for human traits. Gene mapping and identification, cytogenetics, and DNA sequence analysis will be covered in depth. Gene function, regulation, mutations, and cloning will be explored in the context of human diseases. The Human Genome Project, genetic diagnostics, gene therapy and transgenic organisms will be addressed, along with the genetic basis of cancer, behavior, immunity and development. Genetic counseling and medical genetics will be discussed. 3 hrs. lec./discussion. Offered annually. Prereq: BIOL 364 or 365, ENGL 110.

B 470: 1-2 . . .

B C . . .

An opportunity to meet visiting scientists and to discuss their research work. Students will read and discuss, in a seminar format, assigned papers prior to the presentation of the colloquium by the visiting scholar. In addition, they will be expected to participate in discussions with the speaker after the colloquium hosted by the Department of Biology. Offered periodically. Prereq: BIOL 101 or BIOL 100. Other courses indicated by instructor.

B 471: 1-4 . . .

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Detailed investigations of a topic of current interest. Topic to be announced each time course is offered. Offered periodically. Prereq: Upper class standing or permission of instructor.

B 472: 1-2 . . .

. . . B B

Group discussions. General theme to be determined by professor. Offered annually. Prereq: 16 s.h. of biology and courses indicated by the instructor.

B 473: 1 . . .

. . . B B . . .

A seminar for prospective life science teachers to consider methods a teacher might employ to present controversial aspects of biology in intellectually honest, balanced ways which also demonstrate sensitivity to the various moral, ethical and political dilemmas secondary school students may encounter. 1 hr. lecture. Offered annually. Co- or prereq: EDSE 435; required of all B.S. Ed./BIOL students prior to or with EDSE 461.

B 485: 3 . . .

A

B 495: 3, **C 465: 3**, . . .

Bθ . . . **θ** . . .
 Physical, chemical and biological factors controlling marine populations; methods of sampling, identification and analysis. Prereq: BIOL 211 and 221; ESCI 261.

A . . . **A** . . . **C** . . .

All 500 level courses are open to qualified undergraduates. For course descriptions, please refer to the *Graduate Catalog*.

B 516: 4, . . .

A . . . **θ** . . .

B 564: 4, . . .

θ . . . **θ** . . . **θ** . . . **Bθ** . . .

B 588: 4, . . .

A . . . **θ** . . .

B 589: 1-4, . . .

θ . . . **θ** . . . **Bθ** . . .

Respiratory Therapy

The following courses are offered as needed for students in the clinical phase of the respiratory therapy program.

410: 2, . . .

A . . . **C** . . . **B** . . . **C**

This course is designed to give the student a complete understanding of artificial airways, manual artificial ventilation methods, and cardiopulmonary resuscitation. A basic study of cardiac physiology and electrocardiograph interpretation will be discussed. Integrated lecture/lab. Prereq: BIOL 356, for the B. S. in Biology; BIOL 254 and BIOL 255 for the B. S. in Allied Health Technology. Basic Life Support for Healthcare Providers, for both programs.

411: 2, . . .

θ . . . **C** . . . **θ** . . .

A study of the basic techniques of respiratory care including professional organizations, ethics, legal aspects, aerosol pharmacology, lung hyperinflation therapy, and basic diagnostic appliances. Integrated lecture/lab. Prereq: BIOL 356, for the B. S. in Biology; BIOL 254 and BIOL 255, for the B. S. in Allied Health Technology.

412: 3, . . .

θ . . . **θ** . . . **A** . . . **θ** . . .

A study of medical gas therapy, bland & pharmacologic aerosol administration, and related theory guides the learner in making sound judgments in their application. Particular attention is given to the operating principles of the devices used in this therapy and their use and maintenance. Integrated lecture/lab. Prereq: BIOL 356, CHEM 112, and PHYS 131, for the B. S. in Biology; BIOL 254 and BIOL 255, CHEM 103 and CHEM 104, and PHYS 131, for the B. S. in Allied Health Technology.

413: 4, . . .

θ . . . **A** . . . **θ** . . . **θ** . . .

The lungs and chest wall are studied to gain an understanding of breathing mechanics in health and disease. Therapeutic measures are considered as to their value in reducing the work of breathing imposed by disease. Each student learns to examine the pulmonary patient and to integrate and evaluate the findings. Bronchopulmonary hygiene, chest physical therapy techniques and an overview of pulmonary rehabilitation are introduced and discussed. Prereq: RESP 411, RESP 412.

414: 3, . . .

θ . . . **C** . . . **θ** . . . 25

The chest-imaging component prepares the student to evaluate chest x-ray films, and to recognize and track the progression/resolution of abnormalities. CT scanning and MRI are given emphasis proportional to their utilization in chest medicine. Measurement and calculation of volume, flow rate, and ratios, and their physiologic significance, and testing procedures for performance of the pulmonary function tests.

understand their role as respiratory therapists in the home care, sub-acute care and pulmonary rehabilitation settings. Lecture, guest speakers, a camp experience, a one-day site visit, and in-class presentations are included. Prereq: RESP 413.

420:3 . . .

A . 0 B . 0 A . 0

The physiologic role of various gas pressures (alveolar gas pressures, blood gas pressures, inspired gas pressures, tissue gas pressures, etc.) and pulmonary abnormalities causing hypoxemia are discussed. Control of ventilation, oxygen transport (including oxygen content and oxygen dissociation curve), and carbon dioxide transport are presented. The student will interpret acid-base imbalances and blood gas abnormalities. Prereq: CHEM 112 and PHYS 131, for the B. S. in Biology; CHEM 103 and CHEM 104 and PHYSICS 131, for the B. S. in Allied Health Technology.

421:2 . . .

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Aspects of continuous positive and negative pressure breathing are discussed. Special emphasis is placed on the complications of mechanical ventilation and analysis of various waveform patterns produced by different ventilator modes. Theory and measurement of airway resistance and lung thorax compliance is presented. The student learns guidelines and calculations for correct ventilator set up. Prereq: RESP 420 and RESP 411.

422:2 . . .

A concise core of pharmacologic knowledge that will be used by the respiratory therapist to understand how chemical agents affect disease processes. Emphasis is placed on the chemical and molecular structures, toxic aspects, actions, and hazards of drugs. Prereq: CHEM 112, for the B. S. in Biology; CHEM 104, for the B. S. in Allied Health Technology.

423:2 . . .

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- The ability to adhere to ethical standards of conduct as well as applicable state and federal laws.
- The ability to provide effective written, oral, nonverbal communication with patients and their families, colleagues, health care providers, and the public.
- The ability to successfully complete all requirements needed to receive ACLS certification as defined by the American Heart Association.

An individual who poses a direct threat to the health or safety of others or themselves may be denied admission, progression or graduation. The university's determination that a person poses a direct threat will be based on an individualized assessment that relies on current medical evidence or on the best available evidence to assess the nature, duration, and severity of the risk and the probability that the potential injury will actually occur.

In order to fulfill the requirements of the respiratory therapist program at Millersville University, students must be able to meet the physical demands associated with the profession. For specific performance standards associated with the respiratory therapist program, please contact the program director (717) 291-8457 or consult the respiratory therapy website at www.millersville.edu/rtp.

Because of the unique responsibilities involved, the program reserves the right to require that the student who appears to be unsuited to the professional demands withdraw from the program and be guided into another curriculum of study.

B C

See Biology

B CA

See Communication & Theatre

B A

Professor Ellis, chairperson
 Professors Frazer, Ghoreishi, Nakhai, Galante
 Associate Professors Blazer, Douglas, Corrigan, Guo, Leinberger, McCaskey
 Assistant Professors Dillon, DiRusso.

The Department of Business Administration is nationally accredited by the Association of Collegiate Business Schools and Programs to offer the bachelor of science (B.S.) in business administration with options in accounting, finance, international business, management and marketing. The curriculum is designed to provide study in the subjects required for employment in any business or organization. The Department of Business Administration has a diverse faculty with extensive academic training and business experience.

The curriculum also provides excellent preparation for graduate and professional studies leading to degrees such as the M.B.A., M.S., Ph.D. and the J.D. Accounting students have available all the necessary course work to sit for either the CPA or CMA, CIA, or the CFE examination.

The curriculum is flexible enough to permit internships and cooperative education with local industry. Minor study can also be incorporated. Studies in disciplines outside business are required to help develop the well-rounded and liberally educated person employers seek.

Admission into the department's bachelor of science program from other departments of the University is limited to those who have earned at least 30 credits. Those interested should apply to the chairperson of business administration. Transfers from other institutions should check with the Office of Admissions for current grade point average requirements. The department offers minors in general business, accounting, finance, management and marketing. Please see the chairperson of business administration for an application.

The Department of Business Administration offers a Master of Business Administration. All undergraduate business majors could complete the MBA degree in one year.

B . θ . . C

General Business: BUAD 202, 207, 306, 308

Accounting: BUAD 161, 162

Finance: BUAD 341

Management: BUAD 251, 352, 455

Marketing: BUAD 231

BA 306: 3000

The theory and practice of a number of widely-used research techniques as an aid to decision making. Business application will be emphasized with cases and problems from the areas of management, marketing, finance and accounting. Uses computer programs for data analysis, interpretation and presentation of research

B A 366: 3 . . .

Study of federal income tax laws as they relate to individuals and businesses. Topics include gross income, deductions, basis, gains and losses and tax computations. Students are introduced to tax research techniques and applications. Offered annually. Prereq: C- or higher in BUAD 162 for BUAD majors/minors.

B A 367: 3 . . .

Study of corporate, S Corporations and partnership taxation. Topics include corporate organization, distribution, reorganization, accumulated earnings, S elections, partnership formation, operation, and transfers. Introduction to estate planning and wealth accumulation. Offered annually. Prereq: BUAD 366.

B A 461: 3 . . .**A 461**

Study of the attest function of the independent auditor and review of theory and procedures for evaluating internal control and financial information. Includes generally accepted auditing standards as developed and applied to different audit areas in order to establish the fairness of financial information. Offered annually. Prereq: C- or higher in BUAD 361 for BUAD majors/minors.

B A 465: 3 . . .**A 465 (B A 465)**

Accounting formation, operation and liquidation of the partnership and corporate forms of business. Emphasis on preparing consolidated financial statements. Review of topics such as nonpro fit accounting and multinational business. Offered annually. Prereq: BUAD 362.

B A 561: 3 . . .**A 561 (B A 461)***Finance***B A 143: 3 . . .****A 143 (B A 143)**

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B A 447:3 . . .

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Continuation of the study of nancial the1BtheIBujEui

BUAD 457: 3.00

Japanese organizational climate, the styles of management, theories and principles of management; contrasts and similarities of theories and principles used in Japan and the United States. Includes management, systems, culture, and environment. Offered periodically. Prereq: C- or higher in BUAD 251 for BUAD majors/minors.

Marketing

BUAD 231: 3.00

Explores the role of marketing in the free enterprise system. Defines marketing and its relationship to society. Reviews the controllable elements of the marketing mix: product, place, promotion, and price. Explains marketing concepts and terminology. Applies terminology and concepts to real world problems. Covers basic analytic skills needed to solve marketing problems. Offered in fall, spring. Prereq: BUAD 161, ECON 101, 102.

BUAD 332: 3.00

Analysis of individual and collective consumer behavior patterns both within and outside the marketplace through theoretical model building and empirical research findings. Emphasis on the role of consumer research in identifying, planning, implementing and evaluating both short-term and long-term marketing strategies. Offered annually. Prereq: C- or better in BUAD 231 for BUAD majors/minors.

BUAD 333: 3.00

Covers skills and knowledge required of sales representatives to understand customers' needs and make effective presentations. Includes prospecting and contacting customers, making presentations, handling objections, closing the sale and developing long-term relationships. Emphasis on individual role-play and group presentations. Offered periodically. Prereq: 560 or higher in BUAD.

The bachelor of science degree (B.S.) offers intensive training in chemistry and mathematics and is designed specifically for students who wish to pursue graduate studies or employment as a chemist. There are four options available within the B.S. degree program. The first option, in biochemistry, provides study in the chemistry of life processes. This program offers the best preparation for acceptance to medical schools. Completion of the requirements for either of these degree programs leads to certification of the graduate by the department to the American Chemical Society, which offers immediate membership eligibility in ACS as well as more desirable employment opportunities. The second option, in environmental chemistry, provides study in areas that involve the traditional chemistry of the atmosphere, hydrosphere, geosphere and biosphere. The third option is in polymer chemistry. Polymer chemistry forms the basis for the production of plastics, synthetic fibers, paints, coatings, adhesives and many other chemical products.

The fourth option, in nanotechnology, provides study in the control of materials at very small dimensions to make smaller, cheaper and better materials used in many fields. Students spend a semester at Penn State University Park campus in their nanofabrication facility. Graduates can pursue graduate studies in materials science.

The bachelor of arts degree (B.A.) is a more versatile program, combining a solid foundation in chemistry with an ample opportunity for breadth of study. Students electing this degree have found it to be sound preparation for further study or a career in chemistry. It invites interdisciplinary studies in areas such as environmental science, geochemistry, oceanography and chemical physics and provides the breadth and depth of pre-professional training necessary for subsequent study in, for example, law or medicine.

CHEM 111:4...

CHEM 111:4... (2,)

The properties and theories of the solid, liquid and gaseous states of matter, the stoichiometry and thermochemistry of chemical reactions, and theories and applications of molecular structure and bonding. Proficiency in algebra is essential. High school chemistry is strongly recommended. Intended for science majors: biology, chemistry, earth sciences, physics. 3 hrs. lec., 1 hr. discussion, 2 hrs. lab. Prereq: C- grade or higher in CHEM 110, or satisfactory score on the Chemistry Placement Test (CPT) before registration, or permission of instructor.

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C 图 324: 4 . . .
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C 465: 4 . . .

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Theory and practice of modern analytical techniques in chemical separations and instrumental analysis. 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: ENGL 110 and Prereq or Coreq: CHEM 342.

C 476: 4 . . .

A, 0, C 0

Extension of the principle topics covered in CHEM 375 with emphasis on quantitative aspects of topics such as the ozone layer, potential greenhouse effects, tropospheric chemistry, chemical fate and transport in aquatic systems, phase interactions and chemical equilibrium. Includes computer modeling, government regulations, policy issues and hazardous waste and disposal methods. All topics will be studied from chemical, political and socioeconomic

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opponents seek to influence the policies and practices affecting our natural and human environments. The course will focus on current and historical controversies and campaigns to protect or oppose environmental values ranging from such diverse groups as environmental movements, Native American concerns, community concerns, corporate concerns and governmental policies. Offered in fall. Prereq: COMM 100 and ENGL 110.

COMM 317: 3 . . .

Explores the possibilities of communication between and among diverse cultures. Prepares students for participation in the global community through close study of cultural codes, symbolic interaction, nonverbal behavior, and contexts of intercultural contact at multiple levels (intrapersonal, interpersonal, group organizational and societal-cultural). Students develop understanding and appreciation of human diversity and competence in intercultural communication practices. Prereq: English 110 and junior class standing.

COMM 324: 3 . . .

Content varies. Selected theoretical perspectives and topics in depth. Potential topics include: organizational cultural and critical studies; organizational conflict and conflict resolution processes; organizational semiotics; organizational group issues; decision making and leadership. Offered in spring. Prereq: COMM 100, 101, 201, 224; junior status or permission of instructor.

COMM 342: 3 . . .

COMM 451: 3 . . .

Analysis of various organizations' public relations problems and communicative responses. Third in a 4-course sequence. Offered in fall, spring. Prereq: COMM 301, COMM 351 or permission of instructor.

COMM 452: 3 . . .

Hands-on practice in public relations problem solving. Involves work in student-run "agencies" to develop and implement a public relations campaign for a nonprofit organization. Capstone course in public relations. Offered in fall, spring. Prereq: COMM 451.

Broadcasting

COMM 121: 3 . . .

Audio and video production fundamentals, techniques and uses. Includes study of the production process and hands-on production assignments in both

Theatre

A 120: 3 . . .

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C. ... 00 ... :3. . .

ENGL 312.

C. ... 00 ... :20. . .

A. ... 00 ... :16. . .

One of the following: CSCI 101, 111, 121 and all of the following: CSCI 161, 162, 362.

B. C C ... 00 ... :4. . .

Choose any 300 or 400 level computer science major course not in required CSCI courses above.

C. ... 00 ...

C C 101:4. . .

... 00 ... (2)

Designed to introduce concepts, techniques and history of computing to students who are not computer science majors. Emphasis on problem solving using the computer including making calculations and presenting reports, tables and graphs based on those calculations. Collecting, storing, updating and retrieving data. Display and interpretation of information using the Internet. No credit toward computer science major.

C C 111:4. . .

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Professor Clark, chairperson
 Professor Marquez, Yalda
 Associate Professors DeCaria, Price, Sikora
 Assistant Professors Earman, Kumar, Vaillancourt

The Department of Earth Sciences offers programs of study leading to the following degrees: bachelor of science in geology; bachelor of science in meteorology; bachelor of science in ocean sciences and coastal studies with an option in physical oceanography; bachelor of arts in the earth sciences with an option in environmental geology and bachelor of science in education (B.S. Ed.) in earth sciences with secondary education certification in earth and space sciences.

The bachelor of science programs in meteorology, geology and ocean sciences and coastal studies with an option in physical oceanography are intended to prepare students for admission to graduate school or for professional employment upon graduation. The B.S. in meteorology conforms to the American Meteorological Society's guidelines and the GS-1340 requirements of the National Weather Service.

The bachelor of arts degree in earth sciences is designed to meet the needs of students who want exposure to all of the earth sciences but who do not intend to continue their studies in a particular academic area. However, by selecting additional appropriate courses as electives, it is possible for these graduates to meet the admission requirements of graduate schools in one of the earth sciences or to prepare for employment in an earth science field.

The program leading to the bachelor of science degree in education in earth sciences with secondary education certification prepares students for teaching careers in the secondary schools. The core of the curriculum provides a sound education in the traditional earth sciences areas of oceanography, meteorology, geology and astronomy. Completion of this curriculum leads to certification in earth and space science. In addition, graduates may teach general science.

Internships and cooperative education programs in the earth sciences provide opportunities for majors to apply knowledge gained in the classroom to the challenges of professional employment. In addition, the department has a set of skills courses in GIS, Advanced Weather Analysis and Forecasting Practicum, and Broadcast Meteorology with Studio for students wanting to develop proficiencies in these areas.

Millersville University is a founding member of the Marine Science Consortium, and the Earth Sciences Department actively participates in this

Track 1 - Required for BSE Earth Science majors. ESCI 221, plus 9 s.h. of geology course work at the 200, 300 and/or 400-level; at least 6 credits must be taken at the 300-level or higher for the electives courses. Total 19 s.h.

Track 2 - Requirements for all other majors. ESCI 221, 222, plus 6 s.h. of geology course work at the 200, 300 and/or 400-level; at least 6 credits must be taken at the 300-level or higher for the electives courses. Total 20 s.h.

ESCI 241, 340, 341, 342 plus 6 s.h. of electives from ESCI 34_, 44_ or ESCI 385, 485. Total 19 s.h.

ESCI 261; two from ESCI 362, 363, 364, 465; two from ESCI 267, 282, 380, 386, 466; one from ESCI 365, 366, 385, 445, 485. Total 19 s.h.

ESCI 221, 241, 261, plus ESCI 32_ or 42_ (geology choice), ESCI 36_ or 46_ (oceanography choice), ESCI 34_ or 44_ (meteorology). Total 21 s.h.

Introductory Courses

ESCI 101: 3.000 (2)

The scientific understanding of Earth systems as the causes of natural disasters, such as earthquakes, volcanoes, landslides, hurricanes, tornadoes, floods and tsunamis. 3 hrs. lec. Does not count toward any ESCI major. Offered fall, spring and periodically in summer.

ESCI 102: 3.000 (2)

The origin and evolutionary development of the universe, solar system and planet Earth. Geophysical behavior of the solid earth, including volcanism, mountain building and other manifestations of the Earth's dynamic interior. 3 hrs. lec. Does not count toward any ESCI major. Offered in fall, spring and periodically in summer.

ESCI 103: 3.000 (2)

Evolutionary theory through an integrated perspective of both biology and geology. 3 hrs. lec. No credit for biology and earth science majors. Prereq: 15 credit hours recommended.

ESCI 104: 3.000 (2)

A broad overview of the biological, chemical, geological and physical characteristics of the ocean, the importance of the oceans to mankind and the environment. Does not count toward any ESCI major. 3 hrs. lec. Offered in fall, spring and periodically in summer.

ESCI 105: 1.000 (2, 4, 8) **ESCI 104**

Methods and technology

Geology

C 221: 4. . .
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The nature and distribution of materials of the solid Earth—the dynamic processes by which they are formed and modified and the character of resulting geologic structures. 3 hrs. lec., 2 hrs. lab. Offered in fall, spring and periodically in summer.

C 222: 4. . .
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Methods of interpreting the geologic rock record, chronologic study of earth history and study of fossils as records of ancient life. Emphasis on the history of North America. 3 hrs. lec., 2 hrs. lab., field trips required. Offered in spring. Prereq: ESCI 221.

C 225: 3. . .

Processes of landscape development in theory and in the context of the regional geomorphology of North America. 3 hrs. lec. Offered in fall of odd years. Prereq: ESCI 221.

C 227: 4. . .

Identification, crystal chemistry, crystallography and occurrence of common minerals; optical theory and interaction of light with crystals; mineral identification through use of transmitted polarizing light. 3 hrs. lec., 2 hrs. lab. Offered in fall of odd years. Prereq: ESCI 221, Prereq or Coreq: CHEM 112.

C 320: 3. . .
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The development of geological science in Europe and its maturation in North America; the historical origins of geological ideas in the context of the American experience, especially westward expansion. Basic knowledge of world and U.S. history is assumed. 3 hrs. lec. Field trips required. Offered infrequently. Prereq: ESCI 101 or ESCI 102 or ESCI 221; COMM 100; ENGL 110; junior status.

C 321: 3. . .

Recognition, interpretation and illustration of geological structures; kinematic and dynamic analysis of rock deformation; stress, strain, and deformation mechanisms. 2 hrs. lec., 3 hrs. lab., field trips required. Prereq: ESCI 222, MATH 160 and PHYS 131 or 231.

C 322: 3. . .

Theory and practice of quantifying hydrologic phenomena; field methods, data manipulation and environmental applications. 2 hrs. lec., 2 hrs. lab. Offered in fall of even years. Prereq: C- grade or higher in ESCI 222, MATH 160 and PHYS 131 or 231.

C 326: 4. . .
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The origin and composition of sediments and sedimentary rocks, study of the processes involved in the sedimentary cycle, environments of deposition, and the interpretation of ancient environments from sedimentary rocks. 3 hrs. lec., 2 hrs. lab., field trips required. Offered in spring of odd years. Prereq: ESCI 222.

C 328: 4. . .
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Optical characteristics and identification of igneous and metamorphic rocks; petrogenesis of igneous and metamorphic rocks; introductory thermodynamics and phase equilibria as applied to igneous and metamorphic systems. 3 hrs. lec., 2 hrs. lab., field trips required. Offered in fall of even years. Prereq: ESCI 221, ESCI 222, ESCI 225, ESCI 227, ESCI 228, ESCI 229, ESCI 230, ESCI 231, ESCI 232, ESCI 233, ESCI 234, ESCI 235, ESCI 236, ESCI 237, ESCI 238, ESCI 239, ESCI 240, ESCI 241, ESCI 242, ESCI 243, ESCI 244, ESCI 245, ESCI 246, ESCI 247, ESCI 248, ESCI 249, ESCI 250, ESCI 251, ESCI 252, ESCI 253, ESCI 254, ESCI 255, ESCI 256, ESCI 257, ESCI 258, ESCI 259, ESCI 260, ESCI 261, ESCI 262, ESCI 263, ESCI 264, ESCI 265, ESCI 266, ESCI 267, ESCI 268, ESCI 269, ESCI 270, ESCI 271, ESCI 272, ESCI 273, ESCI 274, ESCI 275, ESCI 276, ESCI 277, ESCI 278, ESCI 279, ESCI 280, ESCI 281, ESCI 282, ESCI 283, ESCI 284, ESCI 285, ESCI 286, ESCI 287, ESCI 288, ESCI 289, ESCI 290, ESCI 291, ESCI 292, ESCI 293, ESCI 294, ESCI 295, ESCI 296, ESCI 297, ESCI 298, ESCI 299, ESCI 300, ESCI 301, ESCI 302, ESCI 303, ESCI 304, ESCI 305, ESCI 306, ESCI 307, ESCI 308, ESCI 309, ESCI 310, ESCI 311, ESCI 312, ESCI 313, ESCI 314, ESCI 315, ESCI 316, ESCI 317, ESCI 318, ESCI 319, ESCI 320, ESCI 321, ESCI 322, 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C 428: 3 . . .
Geology ()

Terrestrial geology in the context of the solar system; geochemical evolution of the solar nebula; planetary formation and evolution; comparative planetology, meteoritics; asteroid/cometary impact phenomena. 3 hrs. lec. Offered in fall. Prereq: ENGL 110, ESCI 222 and CHEM 111.

C 429: 3 . . .
Soil Science ()

Principles of the geological, meteorological, chemical, biological, and physical processes that transform bedrock into soil; rock and mineral weathering as a component of pedogenesis geomorphology, biogeochemical cycling, hydrology, tectonics, anthropogenic activities and global climate. Offered in spring of even years. Prereq: C- grade or higher in CHEM 112, MATH 161, and 60 credit hours.

Meteorology

C 404: 3 . . .
Meteorology (2,)

Atmospheric structure and motions; physics of weather processes; weather and motion

ESCI 440: 3 . . .

In-depth study of the space environment between earth and sun; solar-terrestrial interactions; physics of the sun and space weather; observations, modeling, and prediction of space weather events; effects on life, property, and infrastructure. 3 hrs. lec. Offered in spring of even years. Co-req: MATH 365; Prereq: ESCI 342, and either ESCI 340 or PHYS 233; or permission of the instructor.

ESCI 441: 3 . . .

Dynamics and physics of the atmosphere as revealed by observational data and numerical output; subjective and objective analysis of meteorological data; use of standard meteorological graphics software; current weather discussions. 2 hrs. lec., 4 hrs. lab. Offered in fall. Prereq: ESCI 342.

ESCI 442: 2 . . .

Advanced synoptic and mesoscale weather analysis and forecasting skills. Students perform weather analysis exercises designed to complement the forecast process. Students prepare probabilistic meteorological forecasts and lead post-forecast discussions focused on lessons learned. 1 hr. lec., 2 hrs. lab. Offered in spring. Prereq: ESCI 441 and one semester of Campus Weather Service or by permission of the instructor. Coreq: ESCI 444.

ESCI 443: 3 . . .

A comprehensive treatment of the components of the climate system, feedback mechanisms and interactions; mean state of the climate system; a detailed and in-depth treatment of the earth-atmosphere radiation balance and general circulation; natural and anthropogenic forcings and their effect on the climate system; climate models; and the current state of climate observing networks and model validation. 2 hrs. lec.; 2 hrs. applications and analysis. Offered in spring. Prereq: ESCI 343 or ESCI 364, ENGL 110.

ESCI 444: 4 . . .

Study of high-impact events that threaten life and property. Microphysical and dynamic aspects of severe convective systems, mesoscale convective com-

C 363. A . C.331:3. . .

Oceanic chemical phenomena, including structure of water, salinity, sources and sinks of chemical constituents; chemical interactions at interfaces between hydrosphere and atmosphere, lithosphere and biosphere; geochemical processes at spreading centers; biogeochemical cycles of nutrients; applications of geochronology and tracers; the carbon-dioxide-carbonate system; origin and history of seawater; anthropogenic effects. 3 hrs. lec. Offered in fall of odd years. Prereq: ESCI 261 and CHEM 112.

C 364. A . C.364:3. . .

Physical properties of seawater; mass and energy budgets of the ocean; typical distribution of water characteristics; dynamic computation of current; circulation and water masses of the ocean; nature of waves and tides; basic instrumentation in field work. 2 hrs. lec., 2 hrs. lab. Offered in spring. Prereq: ESCI 261 and PHYS 232 or 132

C 365:3. . .

Fluid motion in rotating systems; principal balance and modifications; conservation of vorticity; quasi-geostrophy; wind-driven and thermohaline circulation; currents and eddies; classical tidal theory; generation and propagation of surface waves. 2 hrs. lec., 2 hrs. lab. Offered periodically. Prereq: ESCI 364. Coreq or Prereq: MATH 365 and PHYS 312.

C 366:3. . .

Actual and potential ocean resources and the feasibility of their exploitation; role of ocean science and engineering in accomplishing this; socio-economic and political issues affecting resources and conservation. 3 hrs. lec. Offered in spring of even years. Prereq: ESCI 261.

C 465. B 495. A . C.464:3. . .

Physical, chemical and biological factors controlling plant and animal populations in the marine environment; methods of sampling, identification and analysis. 2 hrs. lec., 3 hrs. lab. Offered during summer at Marine Science Consortium field station. Prereq: ESCI 261 and BIOL 211 and BIOL 221.

C 466. A . C.451:3. . .

The interaction of chemical, physical, geological and ecological ocean processes as applied to coastal environments, emphasis on environmental management issues. 2 hrs. lec., 3 hrs. lab. Offered only in summers at Marine Science Consortium field station. Prereqs: ESCI 261 and ESCI 364.

ESC 485: 3

3 credits

Physics of wind waves; turbulent fluxes at the air-sea interface; planetary boundary layers; low-frequency oceanic waves; storm surges; importance of the ocean for tropical climates; El-Niño-Southern Oscillation, monsoon circulations, tropical and extratropical cyclones. 3 hrs. lec. Offered in spring of even years. Prereq: ESCI 342 or 364.

Problems and Seminar

ESC 390: 1-4

1-4 credits

Detailed investigation of a topic of current research interest. Topic to be announced each time course is offered. Credit and meeting hours variable, depending



Professor Smith, chairperson
Professors Gumper, Suliman
Associate Professors Madden
Assistant Professor Baker

The Department of Economics offers a B.A. degree in economics with options in quantitative economics, financial economics and political economy.

Economics is the study of how a society is organized to produce and distribute material goods and services. It is a combination of technical knowledge of industry and commerce as well as a broad theoretical and practical understanding of major aspects of the economy.

The economics major requirement includes a basic core of courses in economic principles and theory. The student, in consultation with an adviser, may then select courses based on individual interest and the wide variety of career options available to economics majors.

As one of the crucial fields in the government, manufacturing and service sectors, students will find economics to be an especially attractive field to help them prepare for a future career. By virtue of its broad nature, economics readily widens students' choices to join the work force and/or pursue their graduate studies. Students who wish to join the work force, attend law school or work toward advanced degrees in other applied areas are advised to choose the basic B.A. in economics, which emphasizes preparation in applied economics and data processing.

... 0, 0, :18...
ECON 101, 102 and either ECON 318 or 319 plus three other courses in economics including one 300-400 level course.

... 0, ... 0, 0, :18...
ECON 101, 102, 235, 318, 319 and 333.

C ... C ...
C 100:3...
... (3)

C 316:3...
... (3)

Economic aspects of governmental budgeting emphasizing fiscal policy including impact of taxation and expenditures. Topics include the allocation, distribution and stabilization effects of the public household. Offered in spring. Prereq: ECON 101, 102.

C 318:3...
... (3)

Similar in scope to ECON 102 with major emphasis on the further development and refinement of tools of economic analysis. Offered in spring. Prereq: ECON 101, 102 and MATH 151 or 161.

C 319:3...
... (3)

Similar in scope to 101, with major emphasis on the determination of the economy's total output, the price level and the level of employment. The course incorporates the interaction of the market for goods and services, the assets market and the labor market. Offered in fall. Prereq: ECON 101.

C 323:3...
... (3)

This course presents how economic theory is used to explain decisions of economic agents (e.g. consumers, firms, or the government) in markets and strategic environments where the outcomes depend on the interaction of the decisions of the agents. Tests of economic theory predictions in the form of laboratory experiments will also be discussed and implemented. The areas of study include market behavior under various institutional settings, allocation decisions in settings with externalities, and individual choice and uncertainty. Offered fall of odd numbered years. Prereq: ECON 101 or 101H, and 102 or 102H, and 231.

C 325:3...
... (3)

Theory of international trade, commercial policy and trade in relation to economic development, balance of payments and the foreign exchange market, international monetary developments, foreign aid and economic growth. Offered in spring. Prereq: ECON 101, 102.

C 326:3...
... (3)

Introduction to economic characteristics and problems of less developed economies and to associated theories and policies. Offered annually. Prereq: ECON 101, 102; ENGL 110.

C 327:3...
... (3)

Theoretical and case-based examination of women in the political economy of 'less developed' economies. Issues covered include: women's experiences with economic development; effects of economic development on women's status, roles, workloads, and resource access; effective methods of empowerment for women experiencing contemporary economic development; and targeting gender in development, particularly through grassroots efforts. Offered annually. Prereq: COMM 100, ENGL 110, junior status.

EDFN 320/520: 3

Students use case studies to explore the uses of technology and its application in elementary education. Topics include computer basics, applications software, curriculum integration, evaluation of educational software, telecommunications and multimedia presentation systems. Students are provided a series of hands-on experiences with hardware and software to develop the skills and competencies required of the elementary education teacher. Offered in fall, spring. No credit given if credit earned in EDFN 130, 220, 230, 330/530, 333/533 or EDAR 330/530.

EDFN 321: 3

The Urban Education Program provides students with the opportunity to have an overall understanding of urban communities, urban children and urban school teaching. The intensive part of the program is for one semester during the sophomore year.

If you have already taken EDFN 211 and 241 you do NOT qualify for the Urban Education Program.

See Industry & Technology

Associate Professor West, chairperson

Professors Gray-Schlegel, Kerper, Topping, Wenrich
 Associate Professors Heilshorn, Ho man, King, Rudden
 Assistant Professors Anthony, Colabucci, P. Himmele, W. Himmele, Hossain, Labant, Nell, Shettel

The program in elementary education is designed to provide the student with an in-depth knowledge of subject matter, appropriate knowledge of pedagogy and extensive and varied field experiences. Students who complete the elementary education program at Millersville University receive a Bachelor of Science in Education degree and may apply for a Pennsylvania Instructional I teaching certificate. Students are strongly urged to complete an academic minor from the list of minors available at Millersville University.

Students may elect to earn dual certification in elementary education (K-6) and early childhood education (N-3). This additional certification would allow students to teach, as well, children from preschool through 3rd grade. Students earning the additional early childhood certification complete the following courses with a C (2.0) or better in each course: ELED 210, 312, 313, 314, 315, PSYC 227. These students need to complete 3 credits of elementary education electives.

Students may elect a double major (elementary education and special education) with dual certification (elementary education and special education) through a cooperative program offered by both academic departments. Students may then apply for a Pennsylvania Instructional I teaching certificate in elementary education (K-6) and a certificate in special education allowing students to teach children from preschool through 12th grade (N-12 or ages 3-21), specifically individuals identified as developmentally delayed, learning disabled, mentally retarded, behaviorally disordered, autistic or pervasively developmentally disordered, physically disabled, health impaired, neurologically impaired or multiply handicapped.

Students may elect to complete the elementary education major with a science option. The science option has a 16-credit minimum (in addition to two natural science courses completed for G2 requirements) including BIOL 100, CHEM 101 or 103, ESCI 101 or 102 or 104 or 107, PHYS 131 and PHYS 117. Students completing the science option will be well prepared to teach science in intermediate grades and upon satisfying state licensure requirements at the middle school level.

Practicum experiences in the local schools are required as early as the freshman year and culminate with a semester-long student teaching assignment(s) in the elementary school classroom. Students may complete this requirement in a variety of settings which include urban, suburban and rural schools, or possibly schools in different cultural settings, such as Navajo reservation schools or schools in foreign countries. Current Pennsylvania regulations and standards mandate that one student teaching assignment be completed within a Pennsylvania school.

K-6 Certification in Elementary Education (B.S. Ed.): 120 s.h.

K-6 Certification in Elementary Education

Major Sequence Requirements: ELED 100, SPED 312, EDFN 320, ELED 376, EDUC 333 and 9 credits of elementary education electives.

Foundations Block: EDUC 220, EDFN 211 and EDFN 241. Prereq: ELED 100 or SPED 312 with grades of C (2.0) or higher.

Students complete Foundations of Modern Education (EDFN 211), Psychological Foundations of Teaching (EDFN 241) and Foundations of Reading (EDUC 220) and examine the role of the teacher, the learner, the school environment and the classroom as a social setting. A practicum experience of considerable length allows students to make application of their new knowledge.

Required Related Courses: Art 141, MATH 104, MATH 105, MUSI 103 or MUSI 104, WELL 352.

Professional Block: ELED 325, 340, 351, 361 and EDUC 305.

The professional semester is an integrated program of professional education courses normally completed in the student's junior or senior year. It is composed of 16 s.h. A practicum experience in the local schools is required in conjunction with the four courses of the elementary education professional block.

Before enrolling in professional block the student must satisfy the following prerequisites:

1. Gain admission to APS with a minimum of 60 credit hours and an overall Grade Point Average (GPA) of 3.0 or higher.
2. Earn a qualifying score on the following Pennsylvania Certification (PRAXIS I) tests:
 - PPST Reading
 - PPST Writing
 - PPST Mathematics
3. Earn a C (2.0) or higher in ENGL 110 and pass an additional 3 credit English literature course.
4. Earn a C (2.0) or higher in two (2) college level math classes.
5. Earn a grade of C (2.0) or higher in all courses completed in the major, including required related courses.
6. Pass a laboratory course in science.
7. Satisfactory Act 34 (criminal record check) report, satisfactory Act 151 (child abuse history clearance) report, satisfactory FBI clearance and a completed background information sheet on file with the Field Services Office.

Refer to *Admission to Advanced Professional Studies and Certification* in this catalog for more information.

Prerequisites for Student Teaching

A student shall successfully complete with a C (2.0) or higher all major required courses and attain an overall GPA of 3.0 or higher in all University courses. In addition, the student must have earned grades of C (2.0) or higher in each course in the professional block.

Millersville Students Applying to the Major: If space is available, admission to the elementary education major from other majors, including the undeclared major, for students who transferred to Millersville University with 15 or more credits is upon:

1. Completion of 15 s.h. of credit at Millersville University with a grade point average (GPA) of 2.75 or higher.
2. Qualifying scores for Pennsylvania on the PRAXIS I PPST tests.
3. A passing score on the Basic Skills Test (BST) administered by the Department of Mathematics.
4. A successful interview.
5. Approval of the chairperson of the elementary and early childhood education department.

If space is available, admission to the elementary education major from other majors, including the undeclared major, for students who entered or transferred to Millersville University with 14 s.h. or fewer credits is upon:

1. Completion of 30 s.h. of credit at Millersville University with a grade point average (GPA) of 2.75 or higher.
2. Qualifying scores for Pennsylvania on the PRAXIS I PPST tests.
3. A passing score on the Basic Skills Test (BST) administered by the Department of Mathematics.
4. A successful interview.
5. Approval of the chairperson of the elementary and early childhood education department.

C 090: 3 . . .

Improvement of reading, communication and study skills for students requiring additional instruction prior to formal University courses. The course is developmental in nature and will not be applicable toward University requirements. After successfully completing this course, a student would be prepared to begin courses at the 100-level or above. Offered in summer.

C 100: 3 . . .

A realistic introduction to teaching in the elementary school. Throughout the course, student thinking is encouraged as prospective teachers reflect on goals and societal expectations of elementary schools, essential teacher knowledge, attitudes and skills, teacher roles and responsibilities and teachers as planners and designers of curriculum. Students contemplate the consequences of critical teaching decisions on grouping, content and classroom management strategies. In the concurrent field experience, students reflect on their ability to cope with classroom reality as they affirm or deny their choice of teaching as a profession. Offered in fall, spring.

C 210: 3 . . .

An overview of the field of early childhood education. Historical and philosophical influences on past and current approaches to teaching young children are traced and analyzed. The developmental needs and characteristics of the young child, with emphasis on the preprimary level, are related to current curriculum programs and practices. Emphasis on the necessity of using developmentally appropriate learning materials and teaching strategies. Weekly observation/participation in a pre-school setting integrates theory with practice and affords the student an opportunity to evaluate his/her commitment to a career in early childhood education. For early childhood certification students only. No credit given if credit earned in EDUC 215. Offered in fall, spring.

C 215: 3 . . .

Elective for an education major, but not for an early childhood education certification student. No credit given if credit earned in ELED 210. Overview of the young child in educational settings. Emphasis on developmentally appropriate teaching techniques, learning materials and environments. Focus on developmental needs, individual characteristics and socio-cultural considerations. Weekly observation/participation in an early childhood setting applies theory to practice. Offered annually.

C 345:3 . . .

Teacher candidates will apply the standards and thematic strands of social studies as defined by the National Council for the Social Studies for the Pre K-Grade 4 developmental level. Emphasis is on the learner building civil competence and acquiring knowledge, skills, and attitudes in civics and government, economics, history and geography. Offered in fall, spring. Prereq: EDFN 211, EDFN 241 and EDUC 220.

C 351:3 . . .

For elementary education majors with emphasis on modern curricula and methods of teaching mathematics in elementary schools. Examinations of texts, supplementary teaching materials and teaching devices. Study of research findings. Offered in fall, spring. Prereq: MATH 105, 60 s.h. and admission to Advanced Professional Studies (APS).

C 361:3 . . .

An overview of the content and processes included in an elementary school science program, plus a study of methodology and instructional skills appropriate to the elementary school setting. Offered in fall, spring. Prereq: laboratory course in the sciences, 60 s.h. and admission to Advanced Professional Studies (APS).

C 371:3 . . .

Prereq: C 345, C 351, C 361, C 371

C 451:3 . . .

Implementation of the metric system in schools, techniques for problem solving and applications of mathematics to the world of measurement. Offered infrequently.

C 475:3 . . .

A survey of current and future curricular and instructional trends in education. Emphasis on identifying and forecasting educational trends and their impact on the future of education.

C 536:3 . . .
B C . . .
Offered infrequently.

C 551:3 . . .
Offered infrequently.

C 561:3 . . .
A . . .
Offered fall, spring.

C 562:3 . . .
B . . .

C

ENGL 220, 233, 231 or 238H or 235, 237, 311, 405; 3 s.h. of literature (400 level) prior to 1800, 3 s.h. of literature (400 level) after 1800; 3 s.h. of a literary genre (400 level); 3 s.h. in American literature (400 level); 12 s.h. of English electives.

Candidates will select one of the following courses in the English department:

ENGL 347 Studies of Ethnicity in Film
 ENGL 482 Film and American Society
 ENGL 484 Brave New Worlds: Exploring Technology in Film

Candidates will also select one of the following courses outside the English department:

ANTH 227 Culture through Film
 ECON 305 Economics in Film
 PHIL 327 Philosophy in Film

Linguistics Option (B.A., B.S. Ed.)
ENGL 321, ENGL 322, ENGL 463, ENGL 465

The linguistics option enables English B.A. or B.S. Ed. majors to pursue in a formal way an interest in language study. Students enrolled in this option fulfill all existing departmental requirements (including ENGL 220: Introduction to Language Study); but in lieu of 9-12 hours of free English electives, they complete the following program of study:

1. One course in theoretical linguistics:
 ENGL 321 Transformational Grammar.
2. One course in historical linguistics:
 ENGL 322 History of the English Language - or -
 ENGL 465 Special Topics in Language: Seminar (if its content is so oriented).
3. One course in applied linguistics:
 ENGL 463 Applied Linguistics - or -
 ENGL 465 Special Topics in Language: Seminar (if its content is so oriented).
4. One other course in linguistics:
 ENGL 221 Introduction to Linguistic Analysis - or -
 ENGL 462 Dialects of American English - or -
 ENGL 464 Teaching English to Speakers of Other Languages - or -
 ENGL 465 Special Topics in Language: Seminar.

230:3...
ENGL 230:3 (1)
 Reading, analysis and interpretation of various literary genres (poetry, fiction and drama) selected from different periods with emphasis on cultural contexts. Not for English major credit. Offered in fall, spring.

231:3...
ENGL 231:3 (1)
 Survey of literary development from earliest records to 1650. Emphasis on historical, aesthetic and philosophical aspects of world literature. Offered in fall, spring.

232:3...
ENGL 232:3 (1)
 Continuation of ENGL 231 from 1650 to present. ENGL 231 is not a prerequisite. Offered annually.

233:3...
ENGL 233:3 (1)
 Survey of English literature from Anglo-Saxon times to 1800. Emphasis on historical and cultural contexts; new genres and thematic relationships. Offered in fall, spring.

234:3...
ENGL 234:3 (1)
 Survey of English literature from 1800 to the present. ENGL 233 is not a prerequisite. Emphasis on historical and cultural contexts; new genres and thematic relationships. Offered annually.

235:3...
ENGL 235:3 (1)
 Survey of American literature from colonial times to 1865. Offered in fall, spring.

236:3...
ENGL 236:3 (1)
 Survey of American literature from 1865 to present. ENGL 235 is not a prerequisite. Offered in fall, spring.

237:3...
ENGL 237:3
 Textual, critical and rhetorical analyses of literary genres. Designed to familiarize the student with literary theory and interpretation of genres through research and analytical writing. Offered in fall, spring.

238 :3...
ENGL 238 (1,)
 Major works of the Western literary tradition from the Ancient World through the Renaissance. Offered annually. Prereq: ENGL 110, Member University Honors College or 3.35 GPA.

239 :3...
ENGL 239 (1,)
 Major works of the Western literary tradition from the Neoclassical period through Modernism. Offered annually. Prereq: ENGL 110, Member University Honors College or 3.35 GPA.

240/240 :3...
ENGL 240/240 (1,)
 Interpretation of film as an art form, including technical and artistic aspects of film making. Genres, auteur theory and other theoretical approaches to cinema. Technology-intensive course. Offered in fall, spring. Prereq: ENGL 110.

250:3...
ENGL 250 (1,)
 In-depth analysis and critical evaluation of print media in society, including responsibilities, functions, influences and operations of the press in society. Covers press and public freedoms, press ethics and codes of conduct. Offered in spring. Prereq: ENGL 110.

272:3...
ENGL 272 (1,)
 Focuses on some of the major areas of scholarship related to the practice of writing: literacy practices; at the time of the course, the course will be held in a hybrid format.

300/400: 3-6 . . .
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411:3 . . .

Rise of romanticism in later 18th century to the beginning of Victorianism. Emphasis on poetry and criticism between 1798 and 1832. Prereq: ENGL 110, 237.

412:3 . . .

Literary figures and their works (exclusive of fiction) against social and political backgrounds from 1832 to 1914. Prereq: ENGL 110, 237.

413:3 . . .

B 000 0 1914

Literary figures and works against the background of crisis in the 20th century from the onset of World War I to the present. New movements, attitudes and experimental techniques. Prereq: ENGL 110, 237.

414:3 . . .

Studies in the English novel. The course emphasis will vary from semester to semester, focusing on 18th, 19th or 20th century novels. May be taken more than once for credit since the content of the course varies. Prereq: ENGL 110, 237.

415:3 . . .

Intensive study of the works of selected British writers. May be taken more than once for credit since the content varies. Prereq: ENGL 110, 237.

416:3 . . .

Chronological study of British women writers of poetry, prose, criticism and/or drama. Authors studied varies. Prereq: ENGL 110.

418:3 . . .

Survey course in the literature of Scottish and Irish writers. Authors studied varies. Prereq: ENGL 110.

American Literature

All classes listed in the American Literature section are offered periodically.

421:3 . . .

A 000 0 1830

Examination of colonial and federal literature, with some discussion of the beginnings of Romanticism. Special attention to Bradstreet, Taylor, Edwards, Franklin, Wheatley, Brockden Brown, Irving and Cooper. Prereq: ENGL 110, 237.

422:3 . . .

A 000 0

Focuses on transcendentalism and authors including Hawthorne, Poe, Thoreau, Melville, Emerson, Whitman and Dickinson. Prereq: ENGL 110, 237.

423:3 . . .

430:3 . . .
A 1945 (.)
Examinesr

Writing

466

In-depth investigation of topics in writing studies theory. May be taken more than once for credit with varied topic. Offered periodically. Prereq: ENGL 311 or 312 or 313 or 316.

471:3...

Extensive practice in writing fiction and poetry. Inquiry into the social functions and purposes of fictional and poetic writing. Prereq: ENGL 110. Offered periodically.

472:3...

Extensive written work focused on particular topics, a theme in literature, or a specific genre in communication. Mini-research papers. Critiques of other student papers. Considerable discussion of other student papers. Offered periodically. Prereq: ENGL 311 or permission of instructor.

473:3...

Techniques and problems in journalism. Offered in spring. Prereq: ENGL 313.

Film

481:3...

Viewing/discussion of influential narrative films from early silents to recent independents. Technology-intensive course. Offered biannually in fall. Prereq: ENGL 110.

482:3...

Viewing/discussion of significant American films in relation to social and historical context. Technology-intensive course. Offered biannually in spring. Prereq: ENGL 110.

483:3...

Ex

Independent Study, Thesis and/or Departmental Honors

489, 498, 499: 1-3 . . .

For inf



C 245:3 . . .
 C 261:4 . . .
 281:3 . . .
 112:3 . . .
 241:3 . . .
 C 329:3 . . .
 C 101:3 . . .
 C 211:3 . . .



Five multi-disciplinary minors are available that have been designed for students with an environmental interest. We believe that a full major in a discipline is an important foundation on which to build expertise in a specific environmental area and designed the minors to complement majors in the sciences, technology, and social sciences. Increasingly environmental problems are addressed by multidisciplinary teams, so the minors prepare students to operate in this multidisciplinary setting.

The environmental minors are coordinated by the Center for Environmental Science (CES), and the director of the CES is the primary contact for the minors.

For information on environmental studies and for course prerequisites, also see the *Biology, Chemistry, Earth Sciences and Geography* sections. For information on environmental options within majors, also see the *Biology, Chemistry, Earth Sciences and Geography* sections.

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305:3... ()

333:3...

Bθ

Choose One of the Following GIS Courses:

C 281:3...

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295:3...

θ θ θ θ θ

395:4...

Aθ θ θ θ

θ θ θ θ θ θ θ θ θ θ :18...

This minor emphasizes the quantitative and technical skills valued by both employers and graduate programs in environmental science.

C C...

495:3...

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θ C...

For initial placement of freshmen, the department advises that the following guidelines be used:

- 0-1 year of high school FORL FORL 101
- 2 years of high school FORL FORL 102
- 3-4 years of high school FORL FORL 201
- 4-5 years of high school FORL FORL 202

A placement examination will be administered every semester to incoming freshman language majors and to those non-majors intending to take FORL 201, 202, 351 or 352. Consult individual language sections for current policy.

Students who, in the first week of classes, consider themselves improperly placed should discuss the matter with their instructor so that changes can be made promptly.

Attention is called to the Millersville University Foreign Language Summer Institutes, in which graduate students live together in their own schools and speak the foreign language at all times. Well-prepared undergraduate students may participate following their junior year with a recommendation from their department chairperson and adviser.

All students are required to take an oral proficiency interview at the end of their sophomore year, and at the beginning of their senior year.

BSE students are required to take the official OPI and receive a rating of Advanced Low or higher as well as the official WPT and receive a rating of Intermediate High or higher prior to graduation.

AB

Language majors considering spending their junior or senior year abroad at an international university are advised to discuss the matter with their advisers, the department of Foreign Languages study abroad advisers, and the Office of Global Education and Partnerships at an early date.

Millersville has official partners in Chile, Germany, Puerto Rico, France and Spain (for a complete list of partners, refer to *Study Abroad* section of this catalog). Language study in other countries is also possible via non-Millersville programs coordinated by the Office of Global Education and Partnerships. For more information about study abroad, contact the Office of Global Education and Partnerships, Cumberland House, phone: (717) 872-3884 or email globaleducation@millersville.edu.

C

(B.A.): 120

Specialization in French, German or Spanish. A minimum of 36 s.h. in major language-FORL 201, 202, 311, 312, 351, 352, 470, plus courses in language, literature and civilization as approved by adviser. Four courses in a required second language (12 s.h.) and two courses in a third language (6 s.h.) are to be chosen from among the ancient or modern languages in consultation with adviser. NOTE: In lieu of the second and third language requirements students may elect to minor in a language (a minimum of 18 credits; see minor requirements). Required related courses: ENGL 220, one course each in history and the humanities related to the foreign language area of study with adviser's approval. Study abroad strongly recommended.

(B. . M.): 120 . . C - 9 - 9 . 9 0



NOTE: All courses designated HUMN (Humanities) are designed for non-majors and may be credited in the humanities and fine arts block (G1) as general education, subject to distribution limits, unless you are a foreign language major.

French

101:3 . . .
| (1)

490: 3 . . .

θ . . . **θ** . . .

Methodology, materials and techniques devised for teaching foreign languages to young children. Observation of FLES classes with opportunity for selected students to acquire teaching experience under guidance. Offered infrequently. Prereq: Applied Linguistics.

498: 1-3 . . .

For further information on independent study, see the *Special Academic Opportunities* section.

C . . . **θ** . . . **C** **θ**

491 (589): 3 . . .

361, 362:3 . . .

163:3...
9

Russian (in moratorium but courses are offered in cooperation with Franklin & Marshall College)

101:3 . . .
 Introduction to language and culture. Fundamentals of grammar and syntax. Oral and written practice, short readings and practice in aural comprehension. Emphasis is placed on learning useful everyday phrases and working toward accuracy in pronunciation. Offered infrequently.

102:3 . . .
 Continuation of the introduction to language and culture and further mastery of speaking, comprehension, reading and writing skills. Offered infrequently. Prereq: RUSS 101 or 1 year h.s. Russian.

270:3 . . .
 Representative short readings from major Russian writers, covering 19th and 20th centuries in alternating years. Consideration of themes and characteristics of Russian literature as influenced by history, politics and esthetic currents. Designed primarily as an elective for nonmajors; may be elected by majors with the consent of the adviser as a supplement to the department requirements. Evaluation is by written examinations. Offered infrequently. Prereq: ENGL 110.

370:3 . . .
 An examination of Russian culture up to about 1700 with Peter the Great's moves toward Westernization; the essence and foundations of the Russian world view as conditioned by events and as reflected in religion, arts and crafts, folklore, oral and written literature, daily life and rites of passage. Requirements include a crafts project, papers on aspects of folklore and literature and written examination. A useful course for education majors. Knowledge of Russian is not required. Offered infrequently. Prereq: COMM 100, ENGL 110, junior status.

391:3 . . .
 In-depth investigation and development of a topic of current interest not covered in regularly scheduled courses. The topics will vary according to the needs and interests of the students and the faculty involved. Specific topics will be identified by the subtitles each time the course is offered. Course may be taken for credit each time the content (subtitle) is different. Offered periodically. Prereq: ENGL 110.

201:3 . . .
 Further development of reading, writing, comprehension and speaking skills and basic grammar, using contemporary cultural and situational material. Offered infrequently. Prereq: RUSS 102 or 3 years of h.s. Russian.

202:3 . . .
 Continued development of the skills nurtured in 201. Emphasis on communication in speech and writing and improved control of grammatical structures, as well as increased vocabulary for daily life and reading. Offered infrequently. Prereq: RUSS 201 or 4 years of h.s. Russian.

Spanish

A 101:3 . . .
 Introduction to language and culture. Fundamentals of grammar and syntax. Oral and written practice, short readings and practice in aural comprehension. Emphasis is placed on learning useful everyday phrases and working toward accuracy in pronunciation. Offered in fall, spring.

A 102:3 . . .
 Continuation of SPAN 101; emphasis on more complex syntactical structures while working toward greater proficiency in reading and writing. Offered in fall, spring.

SPAN 280:3 . . .
Outstanding Spanish and Spanish American literary works. Course taught in English by an instructor of Spanish. Offered periodically.

SPAN 301:3 . . .

Commercial vocabulary and stylistics. Presentation of the parts of the business letter. General types of business correspondence such as letters requesting and offering information, mail orders, sales letters, applications for employment, complaints, claims, collection, credit, etc. Offered infrequently. Prereq: SPAN 202 or placement exam.

SPAN 313:3 . . .

C /T1 1 6 ^2613327 73(1026

120: 3 . . . (3)

Cultural geography of race, ethnicity, gender and political systems. Emphasis on processes that create and maintain cultures and the geographies that these processes produce. Offered in spring.

141: 3 . . . (3)

Examination and comparison of the spatial patterns of environmental, cultural, social, economic and political developments in selected regions of the world. Emphasis on developed and less developed parts of the world.

202: 3 . . . (3)

Critical resources and environmental issues of the United States examined. Topics are analyzed from the perspective of interrelatedness and implications for culture and society, development and policy formation.

222: 3 . . . (3)

Location of economic activities in different environmental settings. The growth of global economic interdependence. Economic growth and development strategies in a regional framework. Economic versus environmental trade-offs. Offered in spring.

384: 3 . . .

Introduction to concepts and techniques of map making. Skill developed in computer-based compilation, layout, drawing and lettering of maps. Offered periodically. Prereq: GEOG 281, 295.

395: 4 . . .

Advanced experience with Geographic Information Systems (GIS) concepts and software. Emphasis on environmental and planning applications and organizational consideration. Offered periodically. Prereq: GEOG 295 or ESCI 281.

488: 3 . . .

Investigation of selected topic with individual research assignment; focus varies but related to environmental analysis. Prereq: Senior standing and completion of basic courses. Offered as needed.

489, 499: 1-3 . . .

Investigation of selected topic with individual research assignment; focus varies but related to environmental analysis. Prereq: Senior standing and completion of basic courses and eligibility for departmental honors. See *Special Academic Opportunities, Departmental Honors* section of this catalog.

498: 3 . . .

Investigation of selected topic with individual research assignment; focus varies.

See Earth Sciences



See Foreign Languages

Professor Gregoire, Coordinator

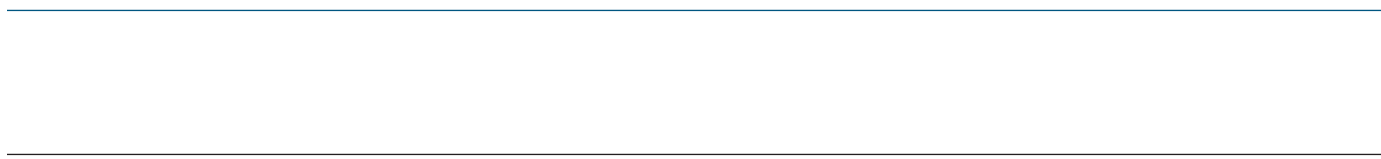
The interdepartmental minor in gerontology is intended to help prepare students to function at the entry level in the rapidly developing field of services to the aging and to relate and work with elderly people in general social and work environments. In combination with any of several baccalaureate degrees, it facilitates an appreciation of the special strengths and needs of the elderly and the range of services and problems that relate to them.

C

GERT 100, GERT 210, NURS 350, PSYC 229, SOWK 306; 1 of the following courses: GERT 300/301, PHIL 280, SOCY 214. Other topics courses approved by the program coordinator. Offered in spring of even years.

C

100: 3 . . .
(3)



361:3...

00 (3)

Examination of the role of racial and ethnic minority groups in American politics and government. Focus on political resources and political status of minority groups in America, minority group representation and participation in American politics, the racial divide in American public opinion, racial politics in America's cities and strategies of minority political empowerment. Offered in spring. Prereq: GOVT 111.

408:3...

0 0 00 0

Analysis of critical problems in the discipline. Research and preparation of a written report. Seminar may be taken for credit more than once provided content is different each time. Offered periodically.

411:3...

C 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Focus on the allocation of power between branches and among levels of government, as interpreted through significant cases of the U.S. Supreme Court. Offered in fall. Prereq: GOVT 111, strongly recommended: GOVT 314.

412:3...

C 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Focus on individual rights and liberties protected by the U.S. Constitution and Bill of Rights, as interpreted through significant cases of the U.S. Supreme Court. Offered in spring. Prereq: GOVT 111, strongly recommended: GOVT 314.

498: 0

For further information on independent study, see the *Special Academic Opportunities* section.

A CC CA C

See Industry & Technology

A

Education (B.S.): 120

This program is designed for students planning to teach economics, geography, government or history. The program consists of 30 s.h. from required core courses, two in economics, geography and government and four in history. In consultation with an academic adviser, each student will select a concentration totalling 30 s.h. from along the following disciplines: anthropology (0-6), economics (3-15), geography (3-15), government (3-15), history (3-15), psychology (0-6) and sociology (0-6). Economics, geography, government and history courses should be 200-level or above. Students who concentrate in history are highly encouraged to take 15 s.h. in history. The program also consists of 27 s.h. of professional education courses, two math courses and two courses in the

- 250:3...**
3 (3,)

History of women in the United States from the early 16th century through the late 20th century, with a particular emphasis on the significance of race, class, religion and region in the shaping of women's experiences. Offered periodically. Prereq: ENGL 110.
- 251:3...**
3 (3)

The historical roots of violence as well as the social and cultural significance of violence in American history. Offered periodically.
- 255:3...**
3 (3)

The role of religion in American history and society from Native American beginnings and European colonization through the 20th century. Offered periodically.
- 260:3...**
3 (3)

Historical development and contributions of Pennsylvania from colonial beginnings to present. Offered annually.
- 270:3...**
3 (3)

Formation/historical analysis of American political parties. Offered periodically.
- 271:3...**
3 (3)

A historical study of the growth and development of presidential leadership and power. Offered periodically.
- 272:3...**
3 (3)

History of African Americans from their first arrival in the Americas through the Civil War, with a particular emphasis on the process of enslavement, the formation of African American communities and institutions and the evolution of Black abolitionism. Offered annually. Prereq: ENGL 110.
- 273:3...**
3 (3)

History of African Americans from their first arrival in the Americas through the Civil War, with a particular emphasis on the process of enslavement, the formation of African American communities and institutions and the evolution of Black abolitionism. Offered annually. Prereq: ENGL 110.

334:3 . . .
 The political, social, economic and intellectual development of England and the British Empire from the end of the Napoleonic wars to the outbreak of World War I. Offered periodically.

340:3 . . .
 The political, socio-economic, cultural and diplomatic transformation of Europe, 1900 to the present. Offered in spring of odd years. Prereq: ENGL 110.

342:3 . . .
 The origins, development and impact upon Germany and the rest of the world of National Socialist theory and practice. Offered annually. Prereq: ENGL 110.

351:3 . . .
17 C . . . **B 00 A 0** (3,)
 The founding and growth of the British Colonies to the Glorious Revolution of 1688, with particular attention devoted to society, beliefs and government. Offered annually. Prereq: ENGL 110.

352:3 . . .
0 0 0 . . . **A 0** ,1689-1789 (3,)
 America from the Glorious Revolution to the completion of the American Revolution, with particular attention to social, cultural and political developments such as the Enlightenment, the Great Awakening and the War for Independence. Offered annually. Prereq: ENGL 110.

354:3 . . .
0 (3,)
 The United States 1789-1850: The formation of a national vision and culture, the development of political parties, the market revolution and social turmoil, westward movement, sectionalism and reform, including abolitionism and the women's movement. Offered annually. Prereq: ENGL 110.

355:3 . . .
C0 0 . . . **0** (3,)
 The social, political and economic causes of the Civil War, the military and social events of the war and the postwar developments of Reconstruction, with particular emphasis on the place of African Americans in U.S. society. Offered annually. Prereq: ENGL 110.

356:3 . . .
0 ,1876-1919 (3,)
 Responses to industrialization from populism through the progressive era. Changes in thought and culture. World War I and American society. The rise of America as a world power. Offered annually. Prereq: ENGL 110.

357:3 . . .
0 . . . **0** (3)
 The United States
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1



listings in departments for additional honors courses. Honors courses are open to Honors College students, students with 3.35 GPA and students with permission of instructor.

B 108 :1, . . .

B0 . . . **0**
Emphasis on the intellectual and historical context of the core ideas of BIOL 100 and in-depth exploration of ideas raised in lecture and laboratory. Satisfies

MA 301 :3. . .
0. . . 0. ()

The progression of mathematical concepts, in the context of the thought and civilization of the time, from the Babylonians to the 20th century. Focus on the contributions of the Hellenic and Alexandrian Greeks as a point of departure for the evolution of geometry, number theory, analysis and logic. Proofs of some of the great theorems. Offered in fall, spring and periodically in summer. Prereq: COMM 100, ENGL 110, MATH 151 or 156 or 161 or 163; junior status.

PHYS 230 :1. . .
0. . . 0. (2)

The ideas of introductory physics in extended depth, in the language of calculus, using problems, laboratory exercises, readings and discussion. Grades of B- or higher in both PHYS 231 and PHYS 230H will result in honors designation for the pair. The pair of courses counts as one entry in the science component of the curriculum record form and results in six hours of general education credit. Offered in fall, spring. Coreq: Concurrent registration in PHYS 231 required and either good standing in the Honors College or a 3.35 GPA or permission of instructor.

PSYC 318 :3. . .
0. . . 0. ()

Examination of individual and institutional racism in all its aspects with an emphasis on the various psychological explanatory theories and supporting research as well as the various techniques for alleviating this problem. Additional overview of resultant effects on the victims. Offered periodically. Prereq: COMM 100, ENGL 110, PSYC 100 and junior status.

PHIL 201 :3. . .
0. . . 0. (3,)

Currents of thought in Western civilization from the ancient world through the Enlightenment, focusing on seminal thinkers and their impact on the culture of the West. Offered annually. Prereq: Member University Honors College or 3.35 GPA.

PHIL 202 :3. . .



Professor David, chairperson
 Associate Professor Brusic, EDTE coordinator
 Assistant Professor Snyder, ITEC coordinator
 Professor Anna, OSEH coordinator
 Professors DeLucca, Gemmill, Litowitz, Johnson, McCade, Specht, Wright
 Associate Professors Bell, Kerekgyarto, Warner
 Assistant Professors Atharifar, LaPorte, Painter

The Department of Industry & Technology (I&T) offers nationally accredited programs of study leading to an A.T. or B.S. in Industrial Technology, a B.S. in Occupational Safety and Environmental Health, and a B.S. in Education in Technology Education. Minors are offered in Industrial Technology, and Occupational Safety and Environmental Health. Post-baccalaureate technology education teacher certification is also offered.

Students may participate in the activities of the Technology Education Collegiate Association; Association of Technology, Management and Applied Engineering; Society of Manufacturing Engineers; American Society of Safety Engineers; Human Powered Submarine Club and M-rauder Graphics Club. An invitation to join Epsilon Pi Tau, the international honor society for professions in technology, may also be extended to department majors who excel.

Qualified department majors pursuing a bachelor's degree may earn departmental honors by proposing, conducting and defending thesis



Technology Literacy (A.S.): 61-65 . . .

Technology Literacy courses (12 credits required): ITEC 110, 120, 130 and OSEH 120. Technical laboratory courses (21-22 credits required).

Technical Option (choose one):

- CADD (21 credits): ITEC 241, 243, 342, 346, 446 and two of ITEC 245, 300, 343, 344, 345, 445, 448 or related ITEC laboratory elective.
- Construction (21 credits): ITEC 241, 271, 331, 332, 336, 346 and one of ITEC 326, 375 or 376.
- Electronics/Control Systems (21 credits): ITEC 261, 262, 325, 364, 467 and two ITEC .echTtwo22526

Technology Literacy (B.S. Ed.): 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Technology literacy courses (12 credits required): ITEC 110, 120, 130, 140. Technical courses (36 credits required): ITEC 241, 251, 261, 262, 271, 281, 325, 344, 346, 435 required and two advanced technical laboratory electives in communication, transportation/energy/power and/or production technology. Professional courses (27 credits required): EDTE 291, EDFN 211, EDFN 241 in the sophomore year; EDTE 391 in the junior year; and EDTE 461, EDTE 491, and EDTE 496 in the senior year. Students must be admitted to advanced professional studies (APS) with a 3.0 GPA or higher prior to entering EDTE 391 and then maintained through the completion of this teacher certification program.

Required Related Courses (15-16 credits): ENGL 312 or ENGL 316; BIOL 100, CHEM 103, CHEM 205 or PHYS 103; two general education MATH courses; and one general education ENGL literature course.

Recommended Perspectives Course: ITEC 301 or ITEC 302.

Refer to *Admission to Advanced Professional Studies and Certification (Education Majors)* in this catalog for more information. Undergraduate and graduate courses may be credited within this program.

C **Industrial Technology**

C 110: 3

Communication technology to design, compose, send, receive and understand ideas and information. Emphasis on graphic and electronic media. Experiences with sketching, drafting, graphic design, graphic reproduction, desktop publishing, web-page development, e-business, and digital imaging. Prerequisites: C 110: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

C 262:3, . . .
0. . . 0.

C 344: 3 . . .

Aesthetic and design elements, principles of design, methods of designing, various concepts of the design process and evaluation of designs. A research and development activity required. 2 hrs. lec., 3 hrs. lab. Offered fall, spring. Prereq: ITEC 241.

C 345: 3 . . .

controllers, networks, human-machine interfaces, robotics, variable frequency drives, control loops and sensors. A research and development component required. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 425, MATH 151 or 161, or permission of instructor.

C 433: 3 . . .

Construction Management

Methods, processes and information necessary to manage a construction project. Includes cost and risk control; developing and applying policies and procedures; subcontractor management; specifying and purchasing materials; scheduling; and contract development. Experiences include use of project planning and cost estimation software for development of a complete project plan. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 332 or permission of instructor.

C 435: 3 . . .

Product Engineering

Exploration of the technological and management processes for conceptualizing and manufacturing a product. Experiences with product engineering,

numerical control (CNC). Manufacturing, automation and robotics emphasized. Advanced-level production experiences with an intensive research and development component required. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 281.

C 489: 1 . . .

Preparation of honors thesis proposal. For the definition of honors course and student eligibility, refer to the departmental honors section of this catalog. EDTE, ITEC and OSEH majors may enroll in the Department of Industry & Technology honors program. Contact the department office for guidelines and an application.

C 492: 3 . . .

A student-centered exploration of industry and technology using the line-production and group-project methodologies. Students sample a variety of industrial personnel positions through role playing and simulation. 2 hrs. lec., 3 hrs. lab. Reserved for ITEC majors. Offered fall, spring. Prereq: ITEC 110, 120, 130.

C 494: 3 . . .

BA B 494: 6 800 Y C- 2 2- 7 P A R 4 28002 300 A 50 C4 P 51 56002 58 25000



Occupational Safety and Environmental Health

120:3, . . .

Introduction to safety, health and environmental issues that impact people and workplaces. Includes the historical development of safety, the impact of accidents on society, a legislative overview and basic principles of personal risk assessment and management. (3)

Introduction to safety, health and environmental issues that impact people and workplaces. Includes the historical development of safety, the impact of accidents on society, a legislative overview and basic principles of personal risk assessment and management.

220:3, . . .

A.

Legal issues relative to occupational safety and environmental health. Includes federal and state legislation, resolution of legal and ethical challenges, product safety and professional liability. Offered annually.

221:3, . . .

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Basic principles, chemistry of fire, fire hazards determination, workforce notification, alarm and sprinkler systems, protective equipment, evacuation procedures and firefighting methods. Offered fall, spring.

320:3, . . .

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Methods for the identification and analysis of industrial hazards. Emphasis on application of basic safety engineering principles for the control of losses in an industrial environment. Offered fall, spring. Prereq: OSEH 120.

321:4, . . .

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Fundamental theory and methods used in identifying, evaluating and controlling the health risks of chemical contaminants and biological agents. Includes coverage of toxicology, exposure standards, medical surveillance, toxic air emissions, air sampling techniques, air pollution control, and protective equipment. Offered fall. Prereq: MATH 101 or equivalent, OSEH 120, CHEM 104.

323:3, . . .

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Ergonomic study of interaction between people and their work. Emphasis on the application of biological sciences to engineering principles in an effort to optimize efficiency, productivity and safety. Topics include anthropometrics, biomechanics, design principles, physiological and cognitive capabilities and task evaluation techniques. Offered spring. Prereq: OSEH 120 or permission of instructor.

333:3, . . .

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4. Area Studies Electives (9 s.h.): Students choose one of the following areas and take three courses from that area:

- African Area Studies
- American Area Studies
- Asian Area Studies
- European Area Studies

NOTE: Consult the Curriculum sheet or DARS for course listings in the elective and area studies and for distribution requirements.

B. Foreign Language Requirement: 18 s.h.

Students are required to minor in one approved foreign language offered by the Department of Foreign Languages. (If a student is eligible to use English to satisfy the foreign language component, the foreign language requirement is waived.)

Students desiring more in-depth study of particular topics may register for INTL 491: Topics in International Studies (1-6 s.h.) and INTL 498: Independent Study (1-6 s.h.). Students also may register for seminar, topics and contemporary issues courses from various departments that change from semester to semester. These latter courses, along with the topics and independent study credits may count under any of the major field categories with the approval of the director of international studies.

Majors are strongly encouraged to study abroad. Study abroad courses and international internship experiences may be counted toward the requirements of the major with the approval of the director of international studies.

C. Required Courses: 18 s.h.

Required courses: INTL 201 and INTL 488.

International Studies Electives: (12 s.h.): Students choose two from the following four areas and take two courses from each area. These courses cannot count toward the student's major.

- Comparative Societies
- Economic Interdependence
- Global Environmental Issues
- International Relations

NOTE: Consult the Curriculum sheet or DARS (degree audit) for course listings and distribution requirements.

Students minoring in international studies are strongly encouraged to study abroad and to study a foreign language.

C. INTL 201: 3 s.h. (3)

Study of global cultural diversity, economic interdependence, environmental issues and international relations. Offered in fall, spring.

INTL 488: 3 s.h.

Research, discussion and analysis of current global issues. Offered in spring.

INTL 491: 1-6 s.h.

Investigation of topics on economic, environmental or political global systems or in-depth comparative study of international issues, cultures or the arts. Offered annually.

INTL 498: 1-6 s.h.

For further information, see the *Special Academic Opportunities* section.

Descriptions of other courses approved for international studies may be found under the appropriate departmental listing of courses.

A. Associate Professor Kimberly Mahaly, director

Latino studies is an 18 credit interdisciplinary minor that consists of courses from a wide variety of academic disciplines including anthropology, economics, education, geography, history, humanities, mathematics, music, philosophy and Spanish as well as an introductory and senior level course in Latino studies. The Latino studies minor will allow students to become conversant with the language, roots, culture, history and socioeconomic perspectives of the rapidly growing Latino population in the United States. Because the program is both multicultural and multidisciplinary, it promotes the holistic liberal arts approach to learning. Courses in the minor will emphasize Latino perspectives, the development of critical thinking as well as written and oral communication skills within this field of study and across other disciplines.

Students are required to take three core courses: LATS 201: Introduction to Latino Studies, HUMN 380: Latino Issues of Identity and LATS 488: Senior Seminar. The seminar requires a senior project that will assure that the students develop research or practical experience, which can translate into career skills. The minor also requires six credits (two courses) from a group of courses dealing with race, culture and ethnicity and one additional elective from a list of approved courses. This program will be particularly effective when combined with majors that offer an organic relationship to Latino issues (such as business administration, economics, government and political affairs, history, sociology, social work or education, to name a few). Successful completion of the Latino studies minor will enable graduates to become effective employees as they take their place in an increasingly diverse workplace.

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C 318: θ
 A 211: θ B. θ
 A 212: θ B. θ
 A 301: C θ θ
 A 313: θ θ -A θ θ
 A 362: θ
 A 433: θ A θ
 A 447: θ θ -A θ C θ θ θ θ *
 A 452: θ θ -A θ *
 A 461: θ θ θ A *
 A 472: A C θ A θ *
 A 487: θ θ θ -A θ θ *
 A 498: θ θ θ θ

* Courses in the graduate program are open to undergraduates with consent of adviser and course instructor. These courses are usually taught only in the summer.

A A
 See Business Administration

A AC C
 See Industry & Technology

A B
 See Biology

A
 See Business Administration

A A C

Professor Schultz, chairperson
 Associate Professor White, assistant chairperson
 Professors Buchanan, Catepillan, Fenwick, Shao, Shoemaker, Smith, Umble
 Associate Professors Blum, Heitmann, Ikenaga, Zhan
 Assistant Professors Cardwell, Miller, Robinson, Sell, Wismer
 Instructor Brislin

The Department of Mathematics offers three baccalaureate degree programs with a major in mathematics. It also offers minors in mathematics and statistics.

The recommended course sequences in the three mathematics programs are virtually identical through the first two years. The B.A. degree pro-

C 

(B.A.): 120 . . .

A  **43-44** . . .

1. Required core courses: MATH 161 or 163, 211, 310, 311, 322, 345, 464.
2. Six of the following: MATH 335, 353, 355, 365, 370, 375, 393, 395, 422, 435, 445, 457, 465, 467, 471, 472, 483, 4X8, 535, 536, 566, 592. Selected 500 level courses may be substituted with departmental permission. These six courses must include: either MATH 335 or 365; and at least one of MATH 422, 435, 445, 465 or 467. Other courses may be substituted by departmental permission.

B  **13-20** . . .

1. CSCI 161.
2. The second semester of a foreign language.
3. One of the following options:
 - a. two courses (at least 3 credits each) chosen from the biology, chemistry, computer science, earth sciences and physics departments, which count toward a major in that department; PHIL 312 may be substituted for one of the two courses or,
 - b. three courses (at least 3 credits each) from a single department, chosen from courses counting toward the major in that department.

(B.): 120 . . .


A  **43-44** . . .

1. Required core courses: MATH 161 or 163, 211, 310, 311, 322, 335, 345, 365, 375, 464.
2. Any three of the following: MATH 353, 355, 370, 393, 395, 422, 435, 445, 457, 465, 467, 471, 472, 483, 4X8, 535, 536, 566, 592. Selected 500 level courses may be substituted with departmental permission. These 3 courses must include at least one of MATH 422, 435, 445, 465 or 467; others may be substituted by departmental permission.

18-22 . . .

1. CSCI 161
2. PHYS 231.
3. One of the following options:
 - a. three courses (at least 3 credits each) chosen from the biology, chemistry, computer science, earth sciences and physics departments, which count toward a major in that department and to include at least one of: BIO 375, CSCI 162, ESCI 340, 341, 342 or PHYS 232 or;
 - b. four courses (at least 3 credits each) chosen from a single department, which count toward a major in that department.

(B.): 120 . . .

A  **43-46** . . .

1. Required core courses: MATH 161 or 163, 211, 310, 311, 322, 333 (or 335/435), 345, 353 or 355, 464, 405.
2. At least two additional math courses chosen from: MATH 353, 355, 365, 370, 375, 393, 395, 422, 435, 445, 457, 465, 467, 471, 472, 483, 4X8, 535, 536, 566, 592. Selected 500 level courses may be substituted with departmental permission.



A 090:3..

B 0

For students who need additional preparation before taking a college mathematics course. Remedial in nature and not applicable toward the science/math requirement. After successfully completing MATH 090, students are prepared to take courses that fulfill this requirement. Students who must take MATH 090 earn course credits and the grade is counted in the cumulative grade point average, but MATH 090 course credit cannot be counted towards fulfillment of the baccalaureate or associate degree.

A 100:3..

B 0 (2)

A liberal arts course in Mathematics (100) taken by students who are not in the Science, Technology, and Mathematics (STEM) pathway. This course is designed to provide a foundation in mathematics for students who are not pursuing a STEM degree. The course covers topics such as algebra, geometry, and trigonometry. It is a required course for students in the Liberal Arts pathway.



MATH 160: 4 . . .
 (2)

For students preparing to take Calculus I (MATH 161) who need additional background. Covers topics in which beginning calculus students are often deficient: elementary functions, curve sketching, theory of equations, inequalities, trigonometry and analytic geometry. No credit toward a math major. Prereq: 2 years of high school algebra, 1 year of high school geometry and trigonometry and math placement testing/evaluation before registration; or MATH 101, 110 with a grade of C- or higher.

MATH 161: 4 . . .
 (2)

Introduces concepts and techniques of calculus, beginning with limits. Major emphasis is on the theory and applications of limits, continuity, derivatives, antiderivatives and the definite integral. Includes introductory calculus of trigonometric, inverse trigonometric, exponential and logarithmic functions. Prereq: C- or higher in MATH 160 or math placement testing/evaluation before registration.

MATH 163/163 : 5 . . .
 (2)

Concepts of calculus intended primarily for students majoring in mathematics and the sciences. The notions of limit, derivative, definite and indefinite integral are developed in detail as well as underlying philosophy of mathematics and use of calculus in a modern computational environment. Offered in fall. Prereq: permission of instructor.

MATH 171: 1 . . .

This seminar, reserved for freshman mathematics majors with placement in MATH 161 (Calculus I) or higher, will introduce students to a mathematical way of thinking, through a sequence of exploratory problem assignments drawn from the areas of elementary calculus, probability, number theory, linear algebra, etc. Students will experience problem solving and mathematical research in a structured environment using discussion, collaboration, abstraction and technologies. Offered in fall. Coreq: MATH 161 or 163.

MATH 204: 3 . . .

Designed for middle level (4-8) teacher candidates. It contains a concrete study of algebraic structures encountered in the middle level school mathematics curriculum. Content includes sequential patterns and examples and properties of rings and integral domains such as the integers, integers mod n , polynomials and matrices. Prereq: passing score on BST, and C or better in MATH 104 or department permission.

MATH 205: 3 . . .

Designed to equip middle level (4-8) teacher candidates with sufficient knowledge and mathematical experiences for teaching geometry and measurement effectively. Includes the study of two-dimensional and three-dimensional figures, geometric constructions, congruence, similarity, angle measure, distance, area and volume. Connections between geometry and other mathematics topics, nature and art are addressed. Prereq: passing score on BST, and C or better in MATH 104 or department permission.

MATH 211: 4 . . .

Continuation of MATH 161. Techniques of integration, applications of the definite integral, improper integrals, parametric equations, polar coordinates, sequences and infinite series. Prereq: C- or higher in MATH 161 or 163.

MATH 230: 3 . . .

Designed for middle level (4-8) teaching candidates as an introduction to probability and statistics. Course will cover the following topics at an appropriate

MATH 310:3 . . .
 (2)

Emphasizes mathematical reasoning and communication of mathematical ideas both orally and in writing. Symbolic logic. Techniques of mathematical proof. Algebra of sets, binary relations and functions. Infinite sets, both countable and uncountable. Offered in fall, spring and periodically in summer. Prereq: ENGL 110 and MATH 211.

MATH 311:4 . . .
 (2)

Continuation of MATH 211. Vector calculus, functions of several real variables, partial differentiation, implicit functions, multiple integrals, line and surface integrals and applications. Prereq: C- or higher in MATH 211.

MATH 312:1 . . .
 (2)

This course will introduce students to a computer algebra system and programming language of use in understanding multivariable calculus. Assuming no prior experience with this software, the students will learn how to evaluate algebraic expressions, plot functions and perform many operations common in calculus such as integration and differentiation. Students will develop skills with this software that are useful for the visualization and manipulation of multivariable and vector-valued functions. Offered periodically. Co-req: MATH 311.

MATH 319:1 . . .
 (2)

An extension and synthesis of the calculus sequence that provides students with the problem solving skills emphasized in such examinations as the Society of Actuaries Exam 1. Does not count as an upper division elective for the mathematics major or minor. Offered in spring. Prereq: MATH 311.

MATH 322:4 . . .
 (2)
 A

MATH 395: 3 . . .

Mathematical foundation for the concepts and techniques used in combinatorics. Topics include recurrence relations, finite differences, generating functions, pigeonhole principle, special sequences of integers (such as Fibonacci, Sterling and Bell sequences), principle of inclusion and exclusion and an introduction to the theory of graphs. Applications will be indicated. Offered periodically. Prereq: MATH 322.

MATH 405: 5 . . .

Place and function of mathematics in secondary education; evaluation and improvement of instruction; current trends in objectives, methods and subject matter of junior and senior high school mathematics. A considerable portion of class time is devoted to teaching mathematics to secondary school students. Must be taken simultaneously with EDSE 321. Offered in fall, spring. Prereq: MATH 333 (or 335/435), 345 and MATH 353 or 355.

MATH 422: 3 . . .

A continuation of MATH 322. Topics include further theory of linear transformations and their matrix representations: invariant subspaces, equivalent and similar matrices, canonical forms. The vector space $L(V, W)$. Orthogonal transformations and isometries; analysis of Euclidean motions in R^3 . Least squares approximation and theory of generalized inverses. Bilinear and quadratic forms and their matrix representations; applications to conic sections in R^2 and quadric surfaces in R^3 . Complex vector spaces. Offered periodically. Prereq: MATH 322.

MATH 435: 3 . . .

A continuation of MATH 335. Functions of random variables, sampling distributions, point estimation, interval estimation, hypotheses testing theory and applications. Offered in spring. Prereq: MATH 335.

MATH 445: 3 . . .

Continuation of MATH 345. Introduction to field theory, rings of polynomials, introduction to Galois theory. Offered periodically. Prereq: MATH 345.

MATH 457: 3 . . .

Frenet frames; curvature and torsion of curves in 3-space. Calculus of vector fields; geodesics and curvature of surfaces in 3-space. Surface area and volume. The Euler characteristic of a surface and the Gauss-Bonnet theorem. Rigid motions and isometries. Riemannian metrics, parallelism, non-Euclidean geometries and applications. Offered periodically. Prereq: MATH 310, 311, 322.

MATH 464: 3 . . .

Rigorous development of the concepts and methods of calculus. The real number system and its topology; theory of limits and continuity; differentiable functions and their properties, the Riemann integral. Offered in fall, spring and periodically in summer. Prereq: MATH 310, 311, 322. MATH 345 recommended.

MATH 465: 3 . . .

120A, 121A, 220A, 221A, 320A, 321A, 420A

MUSI 151: 1 . . .
Strings I, Violin, Viola (open to music majors only or permission of instructor)

MUSI 251: 1 . . .
Strings II, Cello, String bass (open to music majors only or permission of instructor)

MUSI 152: 1 . . .
Woodwinds I (open to music majors only or permission of instructor)

MUSI 252: 1 . . .
Woodwinds II (open to music majors only or permission of instructor)

MUSI 156: 1 . . .
Brass I (open to music majors only or permission of instructor)

MUSI 256: 1 . . .
Brass II (open to music majors only or permission of instructor)

MUSI 153: 1 . . .
Percussion I (open to music majors only or permission of instructor)

MUSI 253: 1 . . .
Percussion II (open to music majors only or permission of instructor)

MUSI 154, 155, 254, 255, 354, 355, 454, 455: 1-2 . . .

Includes private study and participation in master classes. Music majors and minors only. Offered in fall, spring.

MUSI 162: 2 . . .
MUSI 162: 2A

Entry-level investigation of music history for music majors and music minors. Combining elements of a historical survey approach and class discussion, this course examines the developments in musical style in the context of societal changes, changes in aesthetic theories, the development of instruments, patronage and audience expectation. The music and art of each period will be examined with reference to the circumstances of creation and the settings in which musical works were presented. Offered in fall.

MUSI 171: 1 . . .
MUSI 171: 1A

Introduction to music teaching for prospective music educators, (K-12). Emphasis on peer teaching, rote song, popular song and accompanied song, folk song analysis and collection; creating instructional materials through the use of technology. Students learn basic skills in recorder and guitar. 2 hrs. lab. Offered in fall. Prereq: MUSI 112 and MUSI 131.

MUSI 191: 3 . . .
MUSI 191: 3A

Provides future music business professionals with a comprehensive overview of the music industry, as well as live, hands-on experience. Offered annually. Prereq: BUAD 101.

MUSI 192: 3 . . .
MUSI 192: 3A

Provides future music business professionals with a comprehensive overview of the field of arts administration, as well as live, hands-on experience. Offered annually. Prereq: BUAD 101.

MUSI 204: 3 . . .
MUSI 204: 3A

Explores electronic music as a major cultural expression in the 20th century through cultural trends, listening, analysis and theoretical study. Creative projects are integral to the course. Offered periodically.

MUSI 212: 3 . . .
MUSI 212: 3A

Provides an in-depth coverage of the structures and aesthetics of medieval and renaissance music. Reviews basic triadic progressions in keyboard style, introduces principles of voice leading, nonchord tones, using diatonic common chords. Investigates the harmonization of melodies and harmonic progressions through a wide range of activities. Musical materials will include selected multicultural folk music and art music examples. The study of medieval and renaissance music will be done through singing, ear training, improvisation, composition, analysis and keyboard. Offered in fall. Prereq: MUSI 131.

MUSI 231: 2 . . .
MUSI 231: 2A

Intermediate course in practical keyboard facility accomplished through technique, sight-reading, improvisation, harmonization, composition and analysis. Primary and secondary harmonies are explored through selected multicultural folk songs, art songs and original piano compositions. MUSI 231 is

MUSI 267:3 . . .
A 0 (1)

American music from the colonization period to the present. Composers, their works, musical organizations and folk music in relation to historical developments which have shaped America's cultural heritage. Analysis of recorded musical examples is an integral part of this course. Offered in fall, spring. Prereq: MUSI 100 or permission.

MUSI 271:3 . . .
(-5)

This course is designed to prepare students for teaching general music through the integration of multicultural content and practices related to the learner in an elementary school environment. Emphasis is on leading the young learner to understand musical concepts through a variety of behaviors (singing, moving, creating and listening). Also included are issues related to musical literacy development for young students. The course includes a field experience component (observation and teaching) that is intended to allow participants to apply theoretical principles in a practical setting. Offered in spring. Prereq: MUSI 212, 141, 171 or permission.

MUSI 312:3 . . .
A, A, A, C

This course provides in-depth coverage of the structures seventh chords, secondary dominants and modulations and aesthetics of common practice harmony with particular emphasis on the Classical and Baroque periods. Reviews diatonic progressions. This course investigates the harmonization of melodies and selected harmonic progressions through a wide range of activities. Musical materials will include selected multicultural folk music and art music examples. The study of Baroque and Classical examples of music will be done through ear training, improvisation, composition, analysis and keyboard performance. Offered in spring. Prereq: MUSI 331.

MUSI 315:1 . . .
C 00

The art of music composition through examination of the creative process. Includes modulation, melodic development and harmonic

MUSI 377:2 . . .
C, M, B

Designed to equip the piano student with techniques for setting up a studio and teaching beginning through intermediate levels in private and class situations. The course includes a survey of current instructional methods and observation of different pedagogical approaches to piano instruction. 1 hr. lec., 2 hrs. lab. Offered in fall every two years. Prereq: MUSI 331 or permission. NOTE: music students with a major in piano take this course instead of MUSI 231.

MUSI 381:2 . . .
C, M, B

Includes fundamentals of conducting with emphasis on gesture and developing score study technique. Choral music is used throughout this course. 1 hr. lec., 2 hrs. lab. Offered in spring. Prereq: MUSI 212, 281 or permission of instructor.

MUSI 411:2 . . .
C, M, B

Instruments of the orchestra and band with particular emphasis upon their ranges, timbre, balance of tone and mixed tone color. Scoring of instruments in small and large ensembles. Offered in spring. Prereq: MUSI 212 or permission.

MUSI 412:3 . . .
MA, B, A, M, C

This course provides coverage of the structures and aesthetics of the Romantic Period and an introduction to 20th century practices. Reviews chromatic harmony, introduces mode mixture, enharmonic spellings and modulations found in the late 19th century. Includes an introduction to melodic and metric reduction and modulus-twelve analysis. The study of Romantic and selected 20th century music is required. Prereq: MUSI 312 or permission.

360: 3, . . .

θ C θ

Provides an opportunity for examination of the major concepts related to transcultural nursing and allows learners to critically analyze current therapeutic nursing interventions as well as their communications with clients belonging to various ethnic groups in nursing practice situations. 3 hrs. lec. Nursing elective. Offered fall. Nursing majors only.

Senior Level (91-120 credits)

423: 5, . . .

θ C θ θ

History and philosophy of community health nursing are explored. Role of preventive and promotive health teaching for individuals, families and the community is emphasized. Application of nursing practice and public health sciences occurs in community agencies. 3 hrs. lec., 4 hrs. lab. Offered in fall. Prereq: NURS 320, 322.

424: 5, . . .

θ θ θ θ θ

The nurse's role in promoting healthful adaptation of clients across the life span with chronic health problems is explored. The impact of chronic illness and disability on the individual and the family is addressed. The need for an interdisciplinary approach and utilization of the nursing process in providing rehabilitative care is stressed. Clinical experiences afford the student an opportunity to use critical thinking and creativity when providing care to clients and families faced with chronic health problems and disability in rehabilitation hospitals, therapy settings and community agencies. 3 hrs. lec., 4 hrs. lab. Offered in spring. Prereq: NURS 320, 322. Coreq NURS 325.

426: 4, . . .

θ θ θ θ ()

Discussion of current leadership, management and organizational theories and concepts and their usefulness in studying various problems in nursing. Emphasis is placed on integration of the problem-solving process and the nurse's role in decision making and evaluation. 3 hrs. lec., 2 hrs. lab. Offered in summer. Prereq: ENGL 110 and NURS 320.

428: 3, . . .

θ

Emphasis on critique and utilization of nursing research. The fundamentals of scientific nursing research and inquiry are explored, including the identification of major elements of a research proposal. Students will identify researchable nursing problems within an area of professional practice. Prereq: MATH 130. Nursing majors only.

435: 1-3, . . .

θ θ θ

In-depth investigation of topics of current interest in the nursing field. Topics to be announced when course is offered. Offered periodically.

438: 3, . . .

θ θ

Discussion of the political, economic, legal, ethical and related societal issues that influence nursing practice and education. Professional nursing roles and responsibilities are emphasized. 3 hrs. lec. Offered in summer. Nursing majors only.

498: 1-3, . . .


θ θ θ θ

An individualized experience based on the student's particular interests. Provides an opportunity to demonstrate creativity and initiative to investigate further an area of interest in practice, research or education in nursing. Offered periodically. Prereq: NURS 423, 428.

A C

Sev


See Biology


Associate Professor Ward, chairperson
Associate Professor Stameshkin
Assistant Professor Miller

Philosophy courses are open to all students and present an opportunity for students to develop their critical thinking skills on a broad range of issues. Traditional subjects include philosophy of religion, introduction to logic and ethical theories. Nontraditional courses include Philosophies of Death and Dying and Philosophy in Film.

A major in philosophy is designed to acquaint students with a wide range of philosophers, philosophic concepts and philosophic problems.

PHYS 198 (B.S.): 120 . . . 0 0 .

49 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 321, 331, 334, 335, 351, 352, 395, 451, 471, 492, 498; plus 6 credits including one 400 level physics course and either PHYS 312 or 322. Required related courses: CHEM 111, 112, MATH 161, 211, 311, 365; plus an additional 6 credits in mathematics at or above the 200 level.

PHYS 198 (B.A.): 120 . . . 0 0 .

30 s.h. in physics: PHYS 198, 231, 232, 233, 311, 321, 334, 335, 351, 352, 492, 498. 24 s.h. in computer science: *CSCI 140, 161, 162, 370, 362 and one 4 s.h. CSCI elective. Required related courses: CHEM 111, 112; FORL 101, 102 or competency; MATH 161, 211, 311, 365. Foreign language competency required through elementary level. Students presenting two years of successful high school study in one language satisfy this requirement.

*The CSCI courses satisfy the requirements for a minor in computer science.

PHYS 198 (B.A.): 120 . . . 0 0 .

33 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 321, 334, 335, 351, 492, 498. Required related courses: CHEM 111, 112; FORL 101, 102 or competency; MATH 161, 211, 311, 365; *ESCI 241, 261, 340, 342, 343, 441, 442. Foreign language competency required through elementary level. Students presenting two years of successful high school study in one language satisfy this requirement.

*The ESCI courses fulfill the requirements for a minor in meteorology. Substitution of ESCI 343 for ESCI 245 will be accepted by the Earth sciences department. The courses fulfill the minimum course requirements for employment by the National Weather Service.

PHYS 198 (B.A.): 120 . . . 0 0 .

36 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 321, 334, 335, 351, 492, 498 plus PHYS 431 or 471. Required related courses: CHEM 111, 112; MATH 161, 211, 311, 365; and FORL 101, 102 or competency; plus 18 s.h. earned at the Penn State Nanofabrication Facility. Foreign language competency required through elementary level. Students presenting two years of successful high school study in one language satisfy this requirement.

PHYS 198 (B.A.): 120 . . . 0 0 .

36 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 321, 334, 335, 351, 435 or 471, 492, 498. Required related courses: CHEM 111, 112; FORL 101, 102 or competency; MATH 161, 211, 311, 365; *PHIL 312, 314, 321, 322, 328 or 371 and one PHIL elective. Foreign language competency required through elementary level. Students presenting two years of successful high school study in one language satisfy this requirement.

*The PHIL courses fulfill the requirements for a minor in philosophy.

PHYS 198 (B.A.): 120 . . . 0 0 .

33 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 321, 334, 335, 351, 492, 498. 19 s.h. in chemistry: CHEM 111, 112, 231, 235, 381, 482. Required related courses: FORL 101, 102 or competency; MATH 161, 211, 311, 365. Foreign language competency required through elementary level. Students presenting two years of successful high school study in one language satisfy this requirement.

PHYS 198 (B.A.): 120 . . . 0 0 .

33 s.h. in physics at MU: PHYS 198, 231, 232, 233, 266, 311, 321, 334, 335, 351, 492, 498. Required related courses: CHEM 111, 112; MATH 161, 211, 311, 365; ENGL 312. Specific engineering curricula have additional requirements. Students MUST consult their advisers or the physics department coordinator for cooperative engineering.

PHYS 198 (B.S.): 125 . . .

37-38 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 317 or ESCI 241, 321, 334, 335, 351, 352, 492, 498. Required related courses: CHEM 111, 112; MATH 161, 211, 311, 365. Professional education: EDFN 211, 241, 330; EDSE 321, 435, 461. Refer to *Admission to Advanced Professional Studies and Certification* (Education Majors) in this catalog for more information.

PHYS 231

19 s.h. in physics: PHYS 231, 232, 233, 334, 335; Prereq or Coreq: MATH 161, 211, 311.

PHYS 101

PHYS 101: 3 . . .
(2)

An elementary treatment of fundamental concepts of classical and modern physics. Selected examples from classical mechanics, electromagnetism, thermodynamics, relativity and quantum mechanics. The solving of numerical problems is de-emphasized. 3 hr. lec. and discussion. No credit in block G2 for majors in the School of Science and Mathematics. Credit will be granted for only one of the the courses: PHYS 101, PHYS 103 or PHYS 104. Offered in spring. Prereq: MATH placement at the 100 level or above.

PHYS 103: 4 . . .
(2 ,)

An elementary treatment of fundamental concepts of classical and modern physics. Selected examples from classical mechanics, electromagnetism, thermodynamics, relativity and quantum mechanics. The solving of numerical problems is de-emphasized. 3 hrs. lec., 2 hrs. lab. No credit in block G2 for majors in the School of Science and Mathematics. Credit will be granted for only one of the the courses: PHYS 101, PHYS 103 or PHYS 104. Offered in fall, periodically in spring.

PHYS 317: 3

PHYS 317: 3 A A

An overview of astronomy and astrophysics for students majoring in the sciences or mathematics, emphasizing selected areas such as terrestrial astronomy, celestial mechanics, stellar evolution, cosmology and the solar system. 3 hrs. lec. Offered in fall of odd years. Prereq: A year of college level physics and calculus.

PHYS 321: 3

PHYS 321: 3

Electrostatic and magnetic fields in vacuum and in dielectric and magnetic materials. Maxwell's equations are developed. 3 hrs. lec. Offered in spring. Prereq: PHYS 233, 334. Coreq: MATH 365.

PHYS 322: 3

PHYS 322: 3

Consequences of Maxwell's equations. Solutions to Laplace's equation, electromagnetic radiation and relativistic electrodynamics are discussed. 3 hrs. lec. Offered in fall. Prereq: PHYS 321. Coreq: PHYS 335.

PHYS 331: 2

PHYS 331: 2

Lab-based course in physical optics, including applications of geometrical optics such as image formation by mirrors and lenses, microscopy, reflection, refraction, and basic phenomena in wave and quantum optics such as interference, diffraction, color mixing and filtration, polarization, birefringence, absorption, dispersion, scattering, laser properties and laser application. 1 hr. lec., 3 hr. lab. Offered in fall. Prereq: PHYS 232 or PHYS 132 and MATH 211.

PHYS 334: 3

PHYS 334: 3

Lectures, problems and demonstrations which develop the basic ideas of classical continuum physics and the macroscopic behavior of solids, liquids and gases, including an introduction to fluid dynamics, stress-strain relationships in solids, electric and magnetic properties of materials, phase transitions, superconductivity and the classical laws of thermodynamics. 3 hrs. lec. and discussion. Offered in spring. Prereq: PHYS 232. Coreq: MATH 311.

PHYS 335: 3

PHYS 335: 3

Multi-electron atoms, statistical mechanics of classical and quantum systems and introduction to nuclear physics. Principles are applied to selected examples. 3 hrs. lec. Offered in fall. Prereq: PHYS 233, 334.

PHYS 345: 3

PHYS 345: 3

Symbolic computational methods involving procedural, functional, rule-based programming and pattern matching using the graphical and numerical capabilities of Mathematica or other integrated mathematical software systems, with applications to a broad range of computationally challenging problems in physics. Offered in fall of odd years. Prereq: PHYS 233; Coreq: PHYS 311 and MATH 365.

PHYS 351: 1

PHYS 351: 1

Selected experiments in classical and modern physics introducing a variety of experimental techniques. 3 hrs. lab. Offered in fall. Prereq: PHYS 233 and PHYS 266 or CSCI 370.

PHYS 352: 1

PHYS 352: 1

Continuation of PHYS 351. 3 hrs. lab. Offered in spring. Prereq: PHYS 351.

PHYS 360: 4

PHYS 360: 4

Mathematical analysis of linear circuits in the complex domain. Differential equations, operators, transfer functions, Laplace transforms and computer simulation with SPICE. 4 hrs. lec. Offered infrequently. Prereq: MATH 365.

PHYS 365: 3

PHYS 365: 3



See Biology and Chemistry



See Biology



See Biology



See Biology

instructor, and the department of psychology's cooperative education adviser, up to 6 additional s.h. may be taken; however, these credits may not be counted toward the psychology major.

C Psychology (B.A.)

(B.A.): 120

33 s.h. in psychology. Required psychology courses (15 s.h.) are: PSYC 100, 211, 212; one of PSYC 314, 315, 316; an additional four courses (12 s.h. minimum) of psychology core electives (PSYC 227, 228, 229, 314, 315, 316, 317, 329, 335, 337, 356, 415, 417, 454) and 6 s.h. of psychology general electives (PSYC 234, 256, 311, 318, 319, 328, 346, 350, 403, 427, 447, 455, 489, 490, 495, 496, 498, 499). Advanced laboratory courses (PSYC 314, 315, 316) not taken as part of the 15 s.h. of required psychology courses may be counted in the block of core electives. Up to 6 s.h. of psychology core electives taken in excess of the required

C 228: 3 . . .
Psychology of Human Development (3,)*

A focus upon the major stages of human development beginning with infancy and continuing through the developmental changes of childhood, adolescence and adulthood through to old age and death. Cognitive and psychosocial aspects of human development are emphasized. Offered in fall, spring. Prereq: ENGL 110 and PSYC 100. No credit given if credit earned for PSYC 227 or 229.

C 229: 3 . . .
Adult Development (3)*

An examination of the years from young adulthood to retirement. Focuses on intimate relationships, family, parenting and other enduring commitments. Offered in spring. Prereq: PSYC 100. No credit given if credit earned for PSYC 228.

*Psychology majors may count only one of these three courses as a core elective.

C 234: 3 . . .
Human Interactions (3)

An examination of human interactions, both historically and currently, in diverse structures (e.g., family, social, educational, political, economic, etc.). Course content targets increased awareness and understanding of values, traditions and rites of dominant and minority groups and their effect upon interpersonal and inter-group relations. Offered in fall, spring.

C 256: 3 . . .
Factors of Personal and Social Behavior (3,)

An examination of factors that shape personal and social behavior with a focus on basic issues, problems and therapies as they relate to personal adjustment. Offered annually. Prereq: ENGL 110 and PSYC 100.

C 300: 3 . . .
Psychology of Learning and Motivation (3,)

C 311: 3 . . .
Psychology of Drug Addictions (3,)

An investigation of the problems associated with drug addictions. Evaluations of opiates, stimulants, barbiturates, depressants, hallucinogens, marijuana and alcohol, with consideration of the effects of these drugs on the individual. Offered in fall, spring. Prereq: ENGL 110 and PSYC 100 or SOWK 211.

C 314: 4 . . .
Psychology of Memory, Perception and Thought (3,)

A laboratory course designed to examine the nature of human memory, perception and thought and to provide an introduction to the techniques used to study these phenomena. 3 hrs. lec., 2 hrs. lab. Offered in fall, spring. Prereq: PSYC 211 and 212 with a grade of C- or higher.

C 315: 4 . . .
Psychology of Sensory and Perceptual Systems (3,)

A laboratory course designed to develop an understanding of the models and theories of the sensory and perceptual systems. 3 hrs. lec., 2 hrs. lab. Offered in fall, spring. Prereq: PSYC 211 and 212 with a grade of C- or higher.

C 316: 4 . . .
Psychology of Learning and Motivation (3,)

A theoretical laboratory course designed to investigate and apply the concepts of learning and motivation to both human and animal behavior. 3 hrs. lec., 2 hrs. lab. Offered annually. Prereq: PSYC 211 and 212 with a grade of C- or higher.

C 317: 3 . . .
Principles of Social Psychology (3,)

A review of the principles of social psychology derived from experimental study. Offered in spring. Prereq: PSYC 100, PSYC 211 recommended.

C 318/318 : 3 . . .
Psychology of Racism (3,)

Examination of individual and institutional racism in all its aspects with an emphasis on the various psychological explanatory theories and supporting research as well as the various techniques for alleviating this problem. Additional overview of resultant effects on the victims. Prereq: COMM 100, ENGL 110, PSYC 100 and junior status.

C 319: 3 . . .
African American Psychology (3,)

History of psychology in relation to African Americans and approaches to African-American psychology. Examinations of theories, concepts and issues related to the behavior of African Americans. Offered annually. Prereq: ENGL 110.

C 328: 3 . . .
Psychology and Religion (3,)

An exploration of psychological and religious questions, issues and processes in the search to give meaning to one's personal and shared journey. Prereq: COMM 100, ENGL 110, PSYC 100 and junior status

C 329: 3 . . .
Psychology of Work (3,)

A study of research and applications of psychology to the work setting. Knowledge of the psychological processes of learning, motivation, perception and assessment is used to analyze selection, training, work design and performance. Offered annually. Prereq: ENGL 110 and PSYC 100.

C 335: 3 . . .
Psychology of Personality (3)

An introduction to historic and contemporary theories of the human personality. Offered in fall, spring. Prereq: PSYC 100.

C 337: 3 . . .
A (3,)

A comprehensive study of the etiology, characteristics and treatment in the categories of abnormal behavioral manifestation. Offered in fall, spring. Prereq: ENGL 110 and PSYC 100.

C 346: 3 . . .
B

An examination of theory, research and techniques related to the modification of behavior with special emphasis placed on the application of behavior modification procedures in a variety of settings, e.g., family, school and industry. Offered in fall. Prereq: PSYC 211 or permission of instructor.

C/C C 350: 3 . . .
C ()

Basic introduction to cognitive science. Reviews at ear00b3ttingb00b0winvi23

CA C C

00 0 0

C 201 3 . .

00 (3,)

Main currents of thought in Western civilization from the ancient world through the Enlightenment, focusing on seminal thinkers and their impact on the

5. To prepare students to engage in research informed practice and practice informed research.

6. To prepare students for continuing professional development and graduate education.

The curriculum is designed to help students integrate knowledge and theories from many academic disciplines with social work concepts, values and practice skills. Courses in the social work program attempt to develop an understanding of the human condition and human diversity. The social work major needs to understand biological, psychological and sociocultural aspects of human development; characteristics of human interaction with the social environment; the role, structure and function of social welfare policies and programs; social work intervention methods; and social work research findings and methods.

302: 3 . . .

In-depth examination of the knowledge, values and skills that form the base of social work practice; method selection and skill development in social work intervention; practice with social work communication skills. Emphasis on practice with groups and vulnerable populations. Junior field experience required. Offered in spring. Prereq: SOWK 301. SOWK majors only.

303: 3 . . .

Significant legislation, court decisions and regulatory language that shape public social policy and affect the legal base for social work practice. Among substantive areas discussed are: family law, mental health law, constitutional and civil rights, poverty law (including landlord-tenant relations), legal regulations of human reproduction and sex behavior, education and professional licensing. Offered in fall. Prereq: SOWK 102 or permission of instructor. SOWK majors only.

304: 3 . . .

Public policy issues and problems in juvenile and adult corrections. Historical perspective, rehabilitation approaches, de-institutionalization, community-based programs and other trends. The correctional system as a subsystem of the criminal justice system; legal offenders and their families as a vulnerable population group. Roles of the social worker in institutional settings, probation and parole, group homes. Field trips to state prisons, county jails and juvenile facilities. Offered in spring.

305: 3 . . .

Concepts, policies and practices in child welfare services as response to needs of children and their families; focus on services designed to support, supplement or substitute for the care usually given by biological parents; social work practices and public policy issues in foster care, adoption, day care, institutional care, protective services, teenage pregnancy and juvenile delinquency. Offered in spring.

306: 3 . . .

A developmental approach to the aging process as one phase of the life cycle; biological, psychological, social and economic needs of the elderly; analysis of societal provision for these needs; public policy issues and pertinent social legislation; community-based programs of social and health services; techniques of generic social work with older persons; advocacy and policy planning for the aging. Lectures and discussion supplemented with audiovisual material, speakers and field visits as available. Volunteer experience with an older person or persons required. Offered in spring of odd years.

307: 3 . . .

Scope and contribution of professional social work in comprehensive health care settings focusing on individual and community health needs, social and behavioral aspects of illness, essential practice components and skills required of social workers, health care policy, issues and trends, alternative health care programs and research needs. Offered in fall of odd years.

308: 3 . . .

Concept, policies, issues, trends, theories and social work practice skills in the setting of alcoholism services. Focuses in interaction of affected individuals with others in family, social, economic, educational, legal and political systems. Examines role of social worker in identification, intervention and use of network of community resources. Offered in fall.

309: 3 . . .

Application of theory and social work values to practice with mentally disordered people, their families and service systems relating to their needs. Consideration of various practice modalities, including direct intervention as well as social policy analysis, research and prevention. Offered in fall. Prereq: ENGL 110.

350:3

An upper-level, multicultural, interdisciplinary, interactive course designed to enhance students' knowledge, skills and values relative to working with people in professional situations within a diversity-embracing atmosphere. Focus on the various differences in communication styles brought about by gender and culture. Designed for students whose anticipated careers are primarily oriented to direct work with people. Offered in fall of even years. Prereq: COMM 100, ENGL 110 and junior status.

401-402:6

Supervised placement in social service agencies for 450 hours of social work practice. Malpractice liability insurance required. Offered in spring. Prereq: 24 credit hours of social work professional courses. Prereq: SOWK 403 Coreq: SOWK 404, SOWK majors only.

403:3

Theoretical aspects of the skills knowledge and values in social work practice at the macro level involving organizations and communities. Integration of abstract knowledge with concrete experience in the field, including community, agency and "change-agent" papers. 30 hour field experience required. Offered in fall. Prereq: SOWK 302. SOWK majors only.

404:3

The "capstone" course for social work majors is a bridge between the roles of student and practitioner. The course examines issues and concerns facing social workers entering professional practice, synthesizes and integrates knowledge, value and method components with field experiences. Offered in spring. Prereq: SOWK 403 Coreq: SOWK 401-402. SOWK majors only.

405:3

The second of two courses in human behavior and the social environment, emphasizing 1) the interaction of social and economic forces with individuals and social systems; 2) traditional and alternative theories about systems as they interact with people, promoting and impeding health, welfare and well-being, in context of human culture and diversity; and 3) knowledge about opportunity structures and how they promote and deter human development and meeting needs. Offered in fall. Prereq: SOWK 301. SOWK majors only.

498:1-3

For further information on independent study, see the *Special Academic Opportunities* section.

489, 499:1-3

For the definition of honors course/thesis and eligibility, refer to the *Special Academic Opportunities* section of this catalog.

C / A

Professor Glazier, chairperson
 Professors Arnold, Counihan
 Associate Professor Mahady, Schmitt
 Assistant Professors Porter, Rosenberg, Smith, Trussell

The Department of Sociology/Anthropology offers both a major and minor in sociology, a major and minor in anthropology, an option in archaeology and a minor and option in criminology. Many departmental faculty teach in the women's studies, African-American studies and Latino studies programs.

A
 The departmental major in anthropology emphasizes a holistic approach to the study of humans, located in all parts of the world through all periods of time. Anthropology consists of four separate but interrelated subdisciplines: cultural anthropology, physical anthropology, archaeology and anthropological linguistics. Our program focuses primarily on the subdisciplines of archaeology and cultural anthropology. The department encourages its majors to undertake field study in one or more of the subdisciplines of anthropology. A major in anthropology provides the student with a holistic and comparative perspective on problems and situations, which employers find very valuable. An undergraduate degree prepares the student for employment in the area of human services, entry-level work with local or federal government agencies and employment in the business community. Our program also prepares students for more advanced study leading to careers in teaching and research at colleges, universities or museums or research/consultative careers with local, national or international organizations.

Sociology is the scientific study of human interaction and social organization. The sociologist is primarily interested in discovering the social patterns affecting and resulting from human group behavior. Sociologists focus on the influences of the social as well as the physical and biological environment on individual behavior and personality formation, on group interaction and on social organization and institutions. Within this general framework, sociological interests are extremely varied. The subject matter of sociology includes crime and its causation, family problems and interaction patterns, variations in the aging process, the impact of social class on life chances, the influence of mass media on human behavior, the social construction of gender and the transition from adolescence to adulthood. The sociology major is selected by those students primarily interested in pursuing careers in the following areas: college/university teaching and research, research in a public or private organization or business and employment in community agencies or in local, state or federal government.

The department offers three minors, one in criminology, one in sociology and one in anthropology. These minors provide the student with insight into the principles governing human interaction and social organization. The criminology minor is the most specific of the three, focusing exclusively on the American criminal justice system. The sociology minor, in broad terms, examines American society, while the student minoring in anthropology can focus on either archaeology or cultural anthropology. All of these minors should facilitate career advancement and intellectual breadth, regardless of the student's major field of study.

For sociology majors wishing to concentrate their studies in the areas of criminal behavior and criminal justice, the department has a criminology option within the sociology major. This program provides the student not only with a thorough knowledge of the American criminal justice system, but combines that knowledge with a broad understanding of American society and the principles of sociological method and theory.

The archaeology option within the anthropology major offers students a broad view of contemporary archaeology, with emphasis on contract archaeology, artifact analysis, current method and theory, field experience and independent research.

The department strongly encourages all of its majors to acquire practical experience as part of their degree program. This experience may take a variety of forms, depending on the student's major or minor. Along with other activities, the department recommends participating in faculty supervised research (ongoing research projects are conducted out of both the archaeology and social research labs), cooperative education/internships (see *Cooperative Education* in the *Special Academic Opportunities* section), studying abroad for a semester or summer term, or becoming a departmental tutor or peer mentor.

There is an honors program for superior students. Further information may be obtained from the department or the *Departmental Honors* section of this catalog.

For the most recent curriculum and career information, students should contact the Sociology Department (www.socdept.com)

PSYC 227:3, 228:3, 317:3, 335:3 (B.S.): 120, . . .
PSYC 227:3, 228:3, 317:3, 335:3 (B.A.): 120, . . .

There is currently no separate program to prepare students to teach anthropology or sociology in the secondary schools. Students interested in pursuing teaching of anthropology or sociology should consult the *Social Studies* section of this catalog to learn how to fulfill their career goals.

PSYC 227:3, 228:3, 317:3, 335:3 (B.A.): 120, . . .

One course from PSYC 227, 228, 317, 335, SOCY 316, 319, ANTH 323 or 342 may be credited toward both majors.

ANTH 201:3, 220:3, 422:3 (3) (B.S.): 18, . . .

General Anthropology Option: ANTH 201, 220, 422 and 3 s.h. at the 300 level or higher and 6 additional s.h. in anthropology;

Archaeology Option: ANTH 121, 123, 320, 425 (6 s.h.) and 3 additional s.h. of anthropology;

Cultural Anthropology Option: ANTH 121, 220, 422 or 458, 3 s.h. at the 300 level and 6 additional s.h. in anthropology.

SOCY 101:3 (3) (B.S.): 18, . . .

Required courses: SOCY 101, 3 s.h. at the 200 level and 12 additional s.h. of sociology at the 300 or 400 level.

SOCY 101:3, 230:3, 331:3, 332:3 (3) (B.A.): 18, . . .

Required courses: SOCY 101, 230, 331 and 332, plus 6 s.h. from SOCY 334-339 and/or 3 s.h. of criminal justice co-op/internship.

C

Sociology

C 101:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3 (3)

Introduction to the scientific study of human groups, organizations and societies. Examination of major sociological questions and approaches to studying them.

C 148:1, . . .

ANTH 201:3, 220:3, 422:3 (3)

Introduction to the social sciences of anthropology and sociology, department faculty, and opportunities for study and participation. Offered infrequently.

C 210:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3 (3)

The family as a social institution. Topics include the family in mass society, diverse family forms, human sexuality, typologies of love, mate selection, husband-wife interaction, parent-child interaction, family disorganization and American ethnic families. Specific topics may vary.

C 211:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3 (3,)

A sociological examination of problem areas or human concerns such as poverty, labor issues, substance abuse, domestic violence, crime and justice, health, the environment, discrimination and globalization. Topics may vary. Prereq: ENGL 110.

C 216:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3 (3)

Analysis of population processes such as fertility, mortality, composition, distribution and migration patterns; relationship of population processes to social, economic and political development; effects of status differences; trends in population change. Offered periodically.

C 230:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3 (3,)

The nature and causes of criminal behavior and the types of social response to law violation. Offered in fall, spring. Prereq: SOCY 101, ENGL 110.

C 302:4, . . .

PSYC 227:3, 228:3, 317:3, 335:3

Emphasis on learning and presenting findings from applied statistical techniques including frequency tables and graphs, contingency tables, measures of central tendency and dispersion, hypothesis testing, confidence intervals, analysis of variance, correlation, linear regression (bivariate and multiple). SPSS software package used. Offered in fall, spring. Prereq: C- or higher in Math 130 and 9 s.h. in sociology/anthropology.

C 303:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3

Examination of classical and contemporary theoretical traditions; relevance of sociology to everyday life; works of selected theorists such as Durkheim, Marx, Weber, Merton. Offered fall, spring. Prereq: SOCY 101 and 9 s.h. of sociology at the 200 level or higher.

C 305:3, . . .

PSYC 227:3, 228:3, 317:3, 335:3

Overview of major research methods: survey analysis, interviewing, participant observation, content analysis and experimental design. Each student designs and completes a research project. Offered fall, spring. Prereq: C- or higher in SOCY 302, SOCY 101 or SOCY 211 and SOCY 303.

C 307:3, . . .

ANTH 201:3, 220:3, 422:3 (3)

Examina

- C 313:3...**
3 (3)
 Behavioral and organizational response to environmental hazards and disasters. Case studies of major natural disasters and hazardous materials incidents illustrate individual, group and societal challenges faced in such events. Issues include: building a disaster resistant community, the impact of the media, governmental successes and failures. Offered annually. Prereq: SOCY 101 or SOCY 211. A required course for the EHEM minor.
- C 315:3...**
3 (3)
 Study of racial and ethnic relations, modes of adaptation of minorities and cross-cultural examinations of dominant-minority relations. Offered annually. Prereq: 3 s.h. of sociology or junior/senior status.
- C 316:3...**
3 (3,)
 Introduction to sociological social psychology: how social interactions are created, become patterned and susceptible to change; how society is structured through social interaction; and how social identities are formed. Specific topics may vary. Offered periodically. Prereq: ENGL 110, 3 s.h. of sociology or junior/senior status.
- C 317:3...**
3 (3)
 Social and cultural factors in health and illness; social organization of the medical care system; structural and interactional aspects of health care. Prereq: 3 s.h. sociology or junior/senior status. Offered periodically.
- C 318:3...**
3 (3)
 Social interaction processes in business and industry; nature and effects of complex industrial organization; interrelationships among industry and other social subsystems. Offered infrequently. Prereq: ENGL 110 and 3 s.h. sociology or junior/senior status.
- C 319:3...**
3 (3)
 The development of social inequality by race, ethnicity, class, gender and nationality. The social construction of race and gender; various theories of class distribution. Inequality in education, housing and the workplace are discussed. Global instances of inequalities are also discussed. Offered periodically. Prereq: 3 s.h. of sociology and junior/senior status.
- C 320:3...**
3 (3)
 Analysis of education as a social institution and its relationship to other institutions, the roles of educator, administrator, student and parent; implications of subcultures, social stratification and social change. Offered infrequently.
- C 329:1-6...**
3 (3)
 Offered periodically.
- C 331:3...**
3 (3)
 Overview of the American system for the administration of justice focused on the apprehension, prosecution and adjudication of criminal defendants. Offered in fall. Prereq: SOCY 101, 230.
- C 332:3...**
3 (3)
 Contemporary American responses to crime. Concentrates on the origins, nature, functions and limitations of American correctional modalities. Offered in spring. Prereq: SOCY 101, 230.
- C 334:3...**
3 (3)
 Nature and extent of juvenile crime; theories of causation; techniques of control and prevention. Offered annually. Prereq: SOCY 101, 230.
- C 338:3...**
3 (3)
 Deviance as a social phenomenon. Discusses how definitions of deviance have changed over time, how people become labeled "deviant," and the utility of various theories of deviance. Offered annually. Prereq: SOCY 101.
- C 339:3...**
3 (3)
 The nature, extent, origins and possible "solutions" to select problems in contemporary criminology. Offered periodically. Prereq: SOCY 101 and SOCY 230 or permission of instructor.
- C 342:3...**
3 (3)
 An interdisciplinary approach to Japanese culture and society focusing on the arts, humanities and social sciences. Includes traditional culture, social institutions,

C 441:3 . . .

Historical and post-modern analysis of urban development, in particular the impact of demographic, political, and socio-economic structural changes on the social fabric of U.S. metropolitan cities. Topics include inner city life and culture, race, gender, class relations, and policy implications. Offered periodically. Prereq: SOCY 101.

C 448:3 . . .

Research and group discussion for advanced students on various topics of interest. A total of 6 s.h. may be taken. Offered in fall, spring. Prereq: permission of instructor.

C 489, 499:1-4 . . .

Two to four semesters of supervised research through independent projects. Prereq: 3.0 GPA and recommendation by a faculty mentor. For further information, see the Special Academic Opportunities section.

C 498:1-6 . . .

For further information, see the Special Academic Opportunities section. Prereq: 3.0 GPA and permission of faculty member.

C 586:3-6 . . .

Offered periodically.

Anthropology

A 121:3 . . .

C 121, A 121 (3)

Introduces basic concepts and topics: culture, fieldwork, communication, sex roles, social organization, politics, economics, belief systems, culture change and applied anthropology.

A 122:3 . . .

C 122, A 122 (3)

The anthropological study of human evolution: paleoanthropology, primatology and human population genetics; and the study of human variation—the ways humans adapt biologically to their environments. Offered annually.

A 123:3 . . .

C 123, A 123 (3)

Introduces methods and theory of contemporary archaeology using examples from Old and New World prehistory. The relationship of archaeology to anthropology is emphasized. Offered annually.

A 148:1 . . .

C 148, A 148, C 148

Introduction to the social sciences of anthropology and sociology, our department faculty and opportunities for study and active participation. Offered fall semester.

A 201:3 . . .

C 201, A 201 (3)

A general introduction to the four subdisciplines within anthropology: biological anthropology, archaeology, cultural anthropology and anthropological linguistics—taking an evolutionary and comparative perspective of the human condition. Offered annually.

A 220:3 . . .

C 220, A 220

Introduces ethnographic research methods through individual or group fieldwork, emphasizing the ethnographic interview and participant observation. Prereq: permission of instructor.

A 222:3 . . .

C 222, A 222 (3)

Study of past and present cultures of the native peoples of North America. Offered infrequently. Prereq: .

A 223:3 . . .

C 223, A 223 (3)

Comparison and contrast of the history and culture of rural and urban society in the Mediterranean region. Focus is on topics and themes of importance to the circum-Mediterranean culture area. Offered periodically.

A 226:3 . . .

C 226, A 226 (3)

Comparative investigations of a topic or region of current interest in the field of anthropology. Offered annually. Prereq: .

A 227:3 . . .

C 227, A 227 (3)

Comparative study of cultures through the medium of film using anthropological theories, perspectives and texts. Offered annually. Prereq: ENGL 110.

A.



Associate Professor Rohena, chairperson
Professor Ridley

and guest lectures focusing on interest groups and organizations whose major goals involve helping persons with disabilities. Emphasis on the role of the teacher in facilitating and organizing resources and people. Offered in fall, spring.

SPED 212: 3 . . .
A C

Psychological and sociological aspects of individuals with disabilities are surveyed. Environmental and socio-cultural factors are emphasized and analyzed in relation to human adjustment and social roles. Coherent educational service recommendations and whole person assessment concepts are explored. The history of services, socially constructed definitions and characteristics of disability movement form a basis for understanding. Offered in fall, spring. Prereq: SPED 101.

SPED 237: 3 . . .
A C

This course identifies the complex sociocultural history that has brought us today where we are in special education practice. It presents the contemporary and historical influences of the American school system and how special education is integrated into the modern classroom. The overrepresentation of economically disadvantaged, culturally and linguistically diverse students in special education is addressed through a case study approach. Cultural and linguistic diversity in special education is explored. Offered in fall, spring.

A **A** **C**

The following 500 level courses are open to qualified undergraduates with permission. For course descriptions, please refer to the *Graduate Catalog*.

527:3 . . .
Exact Signing: Methods of Nonverbal Communication for Individuals with Disabilities

575:3 . . .
Training and Utilization of Paraeducators in Special Education

576:3 . . .
The Student with Disabilities in the Regular Education Classroom

578:3 . . .
Special Education Law for Students with Disabilities

580:3 . . .
Diagnostics and Assessment Strategies for Students with Disabilities

586-598:3 . . .
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See Mathematics

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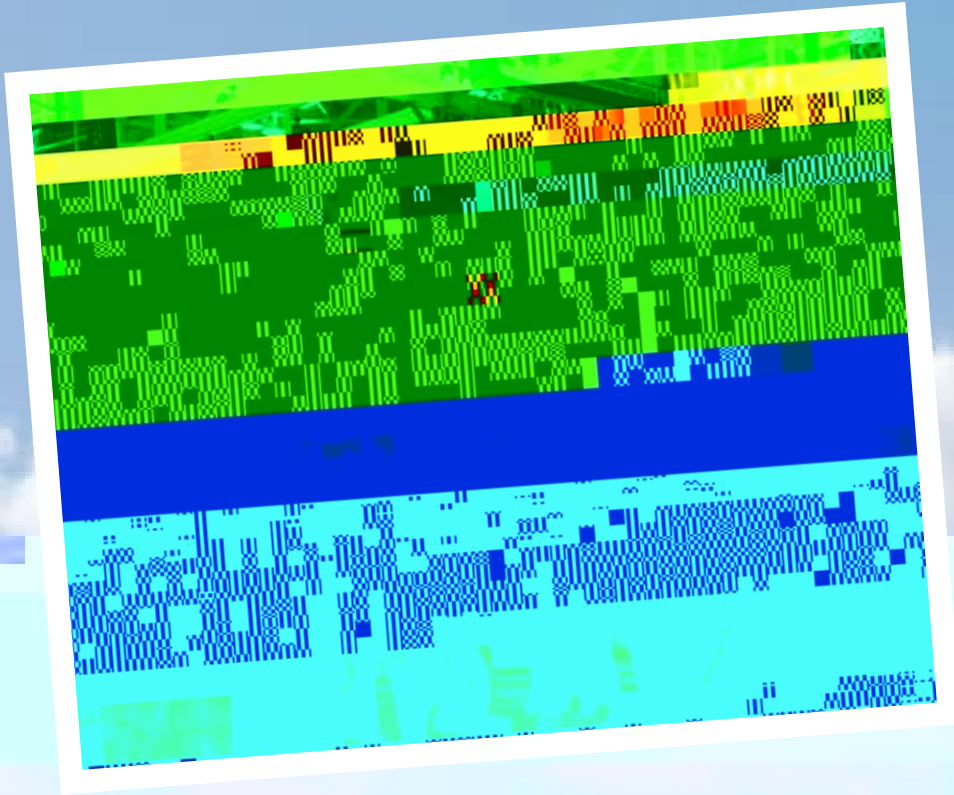
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- (1994). B.A., University of Pittsburgh, 1968; M.S.W., Ibid., 1970, Ph.D., Ibid., 1978. President
- (2006). B.A., Youngstown State University, 1977; J.D., University of Akron, 1987. Executive Assistant to the President
- (2008). B.A., Temple University, 1980; M.S., University of Pennsylvania, 1986; Ph.D., Temple University, 2004. Vice President for Student Affairs
- (2006). State University of New York, Plattsburgh, 1976; M.S., Youngstown State University, 1977. Vice President for Finance and Administration
- (1984). B.A., St. John Fisher College, 1967; M.A., State University of New York, 1971. Vice President for University Advancement
- (2008). B.A., University of Virginia, 1974; M.A., Ibid., 1979. Vice President for Information Technology
- (1987). B.A., Utica College of Syracuse University, 1971; M.S., Chicago State University, 1977. Assistant to the President for Social Equity
- (2004). B.S., University of Bombay, India, 1970; M.S., Idaho State University, 1973; M.B.A., Southwestern Oklahoma State University, 1991; Ph.D., University of Texas, 1977. Provost and Vice President for Academic Affairs
- (2007). B.S.S., The University of Dhaka (Bangladesh), 1980; M.A., The University of Akron, 1985; Ph.D., Ibid., 1989. Associate Dean, School of Humanities and Social Sciences
- (2001). B.S., Kutztown University, 1972; M.Ed., Ibid., 1974; Ed.D., Lehigh University, 1994. Dean, School of Education
- (2006). B.S., Dickinson College, 1991; M.S., Vanderbilt University, 1994; Ph.D. Ibid., 1998. Associate Provost for Academic Administration
- (2007). B.A., Lagos State College of Education (Nigeria); B.A., Ibid.; M.Ed., University of South Carolina, 1990; Ph.D., Ibid., 1993. Associate Dean, School of Education
- (2007). B.S., University of the District of Columbia, 1974; M.B.A., University of Notre Dame, 1976; Ph.D., Indiana University, 1987. Director of Business Studies and Associate Dean, School of Humanities and Social Sciences
- (2005). B.A., Washington College, 1986; M.A., American University, 1990; Ph.D., Ibid., 1991. Dean of Graduate Studies and Research

- A . . . , C . . .** (2001). B.S., Pennsylvania State University, 1986; M.S., University of Tennessee, Knoxville, 1994; Ph.D., Ibid., 1999. Assistant Professor of Elementary & Early Childhood Education
- A . . .** (2003). B.A., University of Valladolid, 1996; M.A., Ibid., 2000; Ph.D., Ibid., 2002. Assistant Professor, Department of Foreign Languages (Spanish)
- A . . .** (1971). B.S., Tufts University, 1963; Ph.D., University of Minnesota, 1967. Professor of Developmental Studies; Coordinator of Undecided Program; Chairperson, Department of Academic Student Development
- A . . . , C . . .** (2000). B.A., University of Iowa, 1974; M.A., California State University-San Bernardino, 1995; Ph.D., University of North Dakota, 2000. Assistant Professor of English; Coordinator of English Tutorial Services
- A . . . , C . . .** (1996). B.S., Millersville University, 1980; M.M., Holy Name College, 1987. Assistant Professor of Music
- A . . .** (1981). B.A., Macalester College, 1974; Ph.D., University of Pennsylvania, 1985. Professor of Anthropology
- A . . .** (2008). B.S., Tabriz University (Tabriz, Iran), 2002; M.S., Sharif University of Technology (Tehran, Iran), 2004. Assistant Professor of Industry and Technology
- A . . .** (1997). B.A., Plymouth State College, 1970; M.S., University of Bridgeport, 1971; D.Ed., West Virginia University, 1982. Associate Professor of Wellness & Sport Sciences
- B . . .** (1991). B.S., James Madison University, 1976; M.Ed., Ibid., 1978; Ph.D., Ball State University, 1991. Professor of Counseling and Human Development; Chairperson, Department of Counseling and Human Development
- B . . .** (2008). B.A. Converse College, 2001; M.A., University of Virginia, 2003. Assistant Professor of Government and Political Affairs.
- B . . .** (2007). B.S. Juniata College, 1999; M.Ed., Pennsylvania State University, 2002; Ph.D., Regent University, 2008. Assistant Professor of Psychology.
- B . . . , C . . .** (2005). B.M., University of Nebraska-Lincoln, 1996; M.M., The Florida State University, 1998; D.M.A., University of Nebraska-Lincoln, 2005. Assistant Chairperson, Department of Music
- B . . .** (1995). B.S., Millersville University, 1983; M.Ed., Ibid., 1985; Ph.D., University of Maryland-College Park, 1992. Associate Professor of Industry & Technology; Graduate Coordinator for Technology Education
- B . . .** (1989). B.S., Cheyney University, 1971; M.Ed., Antioch College, 1977; Ph.D., Michigan State University 1987. Associate Professor of Psychology
- B . . . , B . . .** (1998). B.A., Mercyhurst College, 1972; M.A., University of Maryland, 1992; Ph.D., Ibid., 1995. Associate Professor of Art
- B . . .** (1996). B.S., Virginia Tech, 1984; M.S., Ibid., 1986; Ph.D., Ibid., 1996. Associate Professor of Business Administration
- B . . .** (1988). B.S., University of North Carolina, 1972; M.S., Virginia Polytechnic Institute and State University, 1977; Ph.D., Ibid., 1982. Associate Professor of Mathematics
- B . . .** (1999). B.S., Stanford University, 1979; Ph.D., University of North Carolina-Chapel Hill, 1993. Professor of Biology (Marine)
- B . . .** (1992). B.A., Pennsylvania State University, 1986; M.A., University of Virginia, 1988; Ph.D., Ibid., 1992. Professor of Government & Political Affairs; Director of International Affairs.
- B . . .** (2008). B.A., Indiana University of Pennsylvania, 1985; M.A., University of Virginia, 1989; Ph.D., Ibid., 1992. Associate Professor of Government & Political Affairs; International Studies Curriculum Coordinator.
- B . . .** (2007). B.S. Kutztown University, 1974; M.S. Bucknell University, 1977; Ph.D., University of Minnesota, 1983. Assistant Professor for Chemistry
- B . . . , A . . .** (1990). B.A., University of Wisconsin-Milwaukee, 1972; M.A., Ibid., 1974; Ph.D., University of Pennsylvania, 1991. Associate Professor of Psychology, 1974; M.S. (1975), M.A. (1976), Ph.D. (1977). (A., Ue)

C. ...

 (1999). B.S., West Chester University, 1992; M.Ed., Ibid., 1993; M.Phil., Columbia University, 1998; Ph.D., Ibid., 1998. Associate Professor of Special Education
 , A

... A. (1979). B.A., University of South Dakota, 1967; M.S.S.W., University of Tennessee, 1969; Ph.D., University of Maryland-Baltimore, 1988. Professor of Social Work; Chairperson, Department of Social Work; Coordinator, Gerontology Program

... (1995). B.A., SUNY at Geneseo, 1987; M.A., University of Kentucky, 1993; Ph.D., Ibid., 1998. Professor of Economics; Director, Center for Economic Education

... (1990). B.S., Jiangxi University of Finance and Economics (China), 1982; M.S., Virginia Tech, 1987; Ph.D., Ibid., 1990. Associate Professor of Business Administration

... C. (1992). B.A., Towson State University, 1975; M.S., Central Missouri State University, 1977; Ph.D., Ball State University, 1987. Associate Professor of Psychology; Assistant Chairperson, Department of Psychology; Director of Clinical Psychology Program

... A

- B. (1989). B.A., University of Pennsylvania, 1972; Ph.D., Ibid., 1977. Professor of Biology; Chairperson, Department of Biology
- A. (2005). B.A., Bloomsburg University, 1985; M.A., University of Pennsylvania, 1987; Ph.D., Ibid., 1993. Assistant Professor of Sociology
- (2003). B.S., Northern Illinois University, 1990; M.S., Michigan State University, 1994; Ph.D., Ibid., 2003. Associate Professor of Earth Sciences (Geology)
- (1990). B.S., University of Peradeniya (Sri Lanka), 1981; Ph.D., University of Arizona, 1989. Professor of Chemistry
- (1981). B.A., Rutgers University, 1968; M.S., Ibid., 1972; Ph.D., University of Montana, 1978. Professor of Biology
- A. (1995). B.M., Florida State University, 1970; M.M., Memphis State University, 1976; D.M.A., Southern Baptist Theological Seminary School of Music, 1981. Professor of Music
- (1990). B.S., University of Southern Mississippi, 1973; M.S., Ibid., 1975; Ph.D., Florida Institute of Technology, 1985. Professor of Chemistry
- (1989). B.S., California State College, 1976; M.Ed., Ibid., 1980; Ed.D., West Virginia University, 1988. Professor of Special Education.
- C. (2006). B.A., Mans eld University; M.A., Millersville University; Ph.D., Temple University. Assistant Professor of English
- A. (1998). B.A., Universidad de Puerto Rico, 1975; M.A., Ibid., 1984; Ph.D., University of Texas at Austin, 1994. Associate Professor

- ... A. (1967). B.S., Shippensburg University; M.A., Tulane University; Ph.D., Ibid. Professor of English
- ... (2005). B.A., Furman University, 1992; M.A., East Tennessee State University, 1996; Ph.D., University of Kentucky, 2003. Assistant Professor of History
- ... (2008). B.Ed., Millersville University, 1992; M.Ed., Pennsylvania State University, 1997; Ed.D., Widener University, 2009. Assistant Professor of Elementary and Early Childhood Education
- ... C. (1981). B.A., Pennsylvania State University, 1972; M.A., Ibid., 1973; Ph.D., Ibid., 1976. Professor of English
- ... (1993). B.A., Sogang University (Korea), 1978; M.A., Ibid., 1981; Ph.D., Indiana University, 1991. Assistant Professor of English
- ... (1987). B.A., Lehigh University, 1975; M.A., Pennsylvania State University, 1978; Ph.D., Ibid., 1980. Professor of Mathematics
- ... (1997). B.A., Carleton College, 1986; M.F.A., Cranbrook Academy of Art, 1991. Associate Professor of Art
- ... (2005). B.S., The Pennsylvania State University; M.S., Ibid., 1992; Ph.D., Ibid., 1996. Associate Professor of Earth Sciences
- ... B. (1996). B.A., Howard University, 1971; M.A., Ibid, 1975; Ph.D., Ibid, 1994. Associate Professor of English
- ... (2005). B.A., University of California, 1996; M.A., Vanderbilt University, 1998; Ph.D., Ibid., 2004. Assistant Professor of Sociology
- ... (2000). B.S., University of Minnesota, 1986; M.S., University of Wisconsin-Madison, 1989; Ph.D., Ibid., 1993. Associate Professor of Economics, Chairperson, Department of Economics
- ... (1987). A.A., Enterprise State Junior College, 1969; B.A., University of West Florida, 1970; M.Ed., University of Georgia, 1974; Ph.D., Ibid., 1977. Professor of Educational Foundations
- ... (1983). B.A., Barnard College, Columbia University, 1970; M.A., University of Pduca. and D.O.C. (1970) Foundations of Education, 1970

A A AC

- A (1986). B.A., Eastern College, 1978; M.A., Millersville University, 1984. Instructor of English
 - B (1988). B.S., Lebanon Valley College, 1967; M.F.A., University of Michigan, 1968. Instructor of Music
 - B C. (1989). B.S., Marywood College, 1967; M.A., Villanova University, 1970. Instructor of Mathematics
 - B (1987). B.A., St. Olaf College, 1971; M.S., Stanford University, 1973; Ph.D., Ibid., 1980. Assistant Professor of Physics
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