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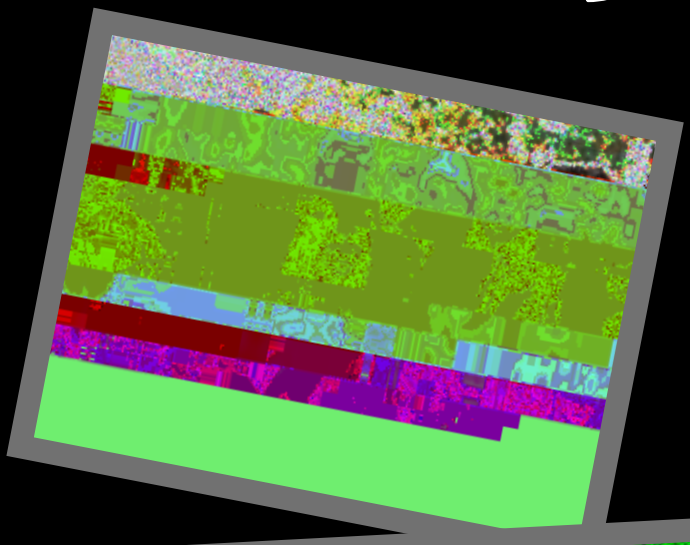

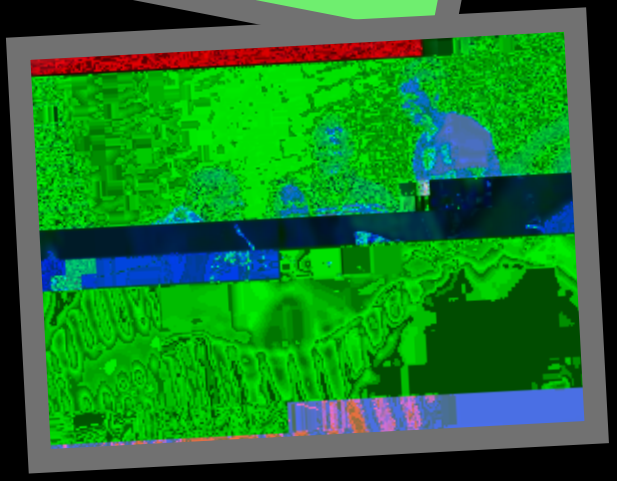

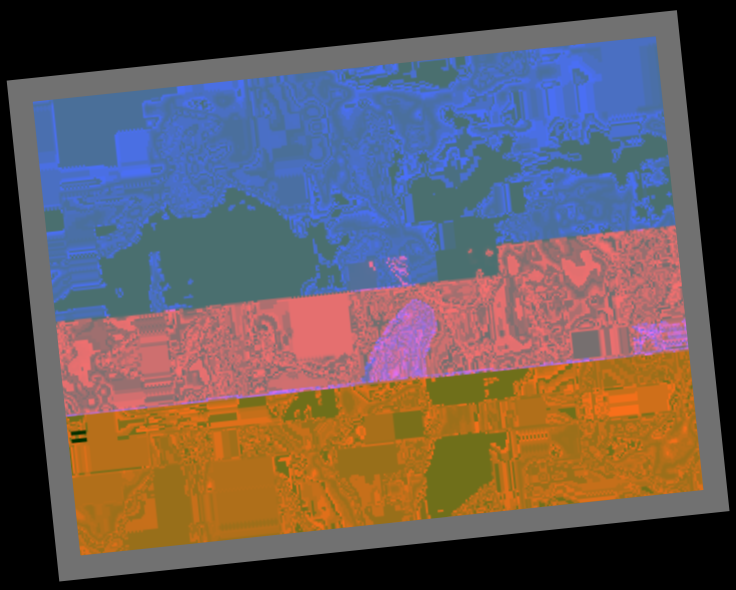

Millers

Undergraduate Catalog

2009-2010

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ville, PA 17551-0302

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UNIVERSITY CALENDAR 2009-2010

FALL TERM 2009

TUES	AUG 25	Orientation for new students admitted for Fall 2009 begins
FRI	AUG 28	Orientation for new students admitted for Fall 2009 ends
MON	AUG 31	Fall classes begin
MON	SEP 07	Holiday (no classes)
FRI	OCT 09	Fall recess begins after last class
WED	OCT 14	Fall recess ends at 7:00 a.m.
FRI	OCT 23	Homecoming Weekend
SAT	OCT 24	Homecoming Weekend/Community Day
SUN	OCT 25	Homecoming Weekend
FRI	NOV 06	Family Weekend
SAT	NOV 07	Family Day
SUN	NOV 08	Family Weekend
TUE	NOV 24	Thanksgiving recess begins after last class
MON	NOV 30	Thanksgiving recess ends at 7:00 a.m.
SAT	DEC 05	Orientation for new students admitted for Spring 2010
TUE	DEC 15	
	through	Evaluation period (special class schedule)
SAT	DEC 19	
SUN	DEC 20	Commencement; End of fall term

WINTER TERM 2010

MON	DEC 21	Winter classes begin
SUN	JAN 17	Winter classes end after last nal examination

SPRING TERM 2010

TBD		Scheduled for “missing Monday” evening classes
TBD		Scheduled for “missing Monday” day classes
MON	JAN 18	Holiday (no classes)
TUE	JAN 19	Spring classes begin
FRI	MAR 05	Spring recess begins after last class
MON	MAR 15	Spring recess ends at 7:00 a.m.
SAT	APR 24	Alumni Weekend
SUN	APR 25	Alumni Weekend
TUE	MAY 04	
	through	Evaluation period (special class schedule)
FRI	MAY 07	
SAT	MAY 08	Commencement; End of spring term

SUMMER 1 TERM 2010

MON	MAY 17	Summer 1 classes begin
MON	MAY 24	Holiday (no classes)
FRI	JUN 11	Summer 1 classes end

SUMMER 2 TERM 2010

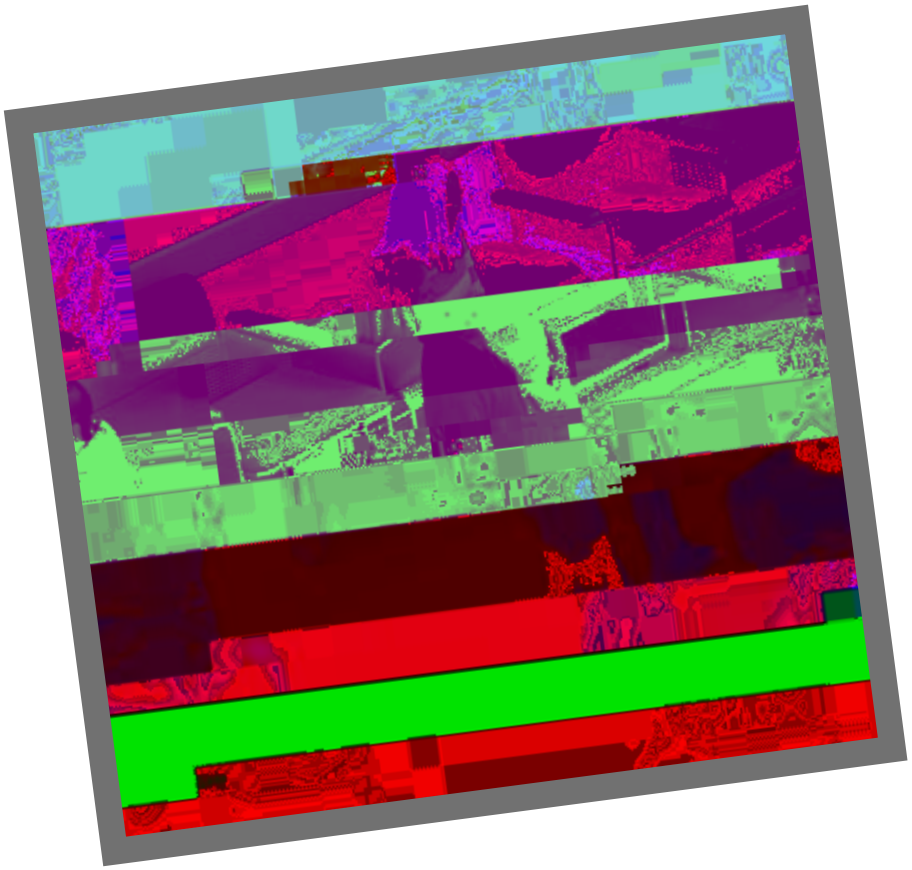
MON	JUN 14	Summer 2 classes begin
MON	JUL 05	Holiday (no classes)
FRI	JUL 16	Summer 2 classes end

SUMMER 3 TERM 2010

MON	JUL 19	Summer 3 classes begin
FRI	AUG 20	Summer 3 classes end

FALL TERM 2010

MON	AUG 30	Fall classes begin



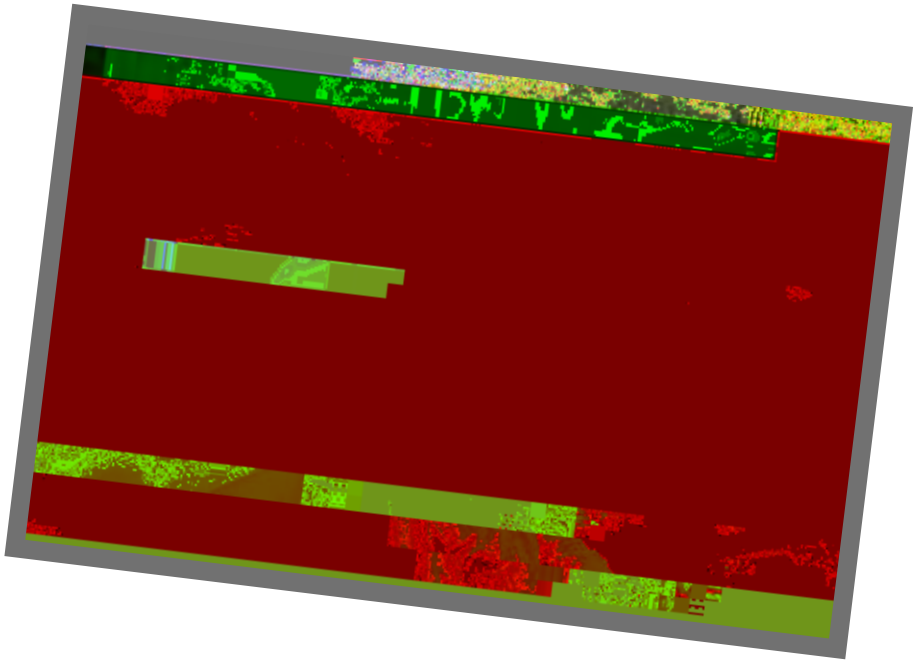
Introduction

Millersville University of Pennsylvania, located in scenic Lancaster County, is one of the 14 state-owned institutions of higher educa-

wider world. The Millersville University community pledges itself to academic freedom and encourages imagination and curiosity, unfettered discourse, the exchange of divergent and controversial opinion, and multicultural awareness and understanding within an environment of civility, mutual respect and cooperation.

CURRICULUM AND PROGRAMS

Millersville offers 51 bachelor's and three associate, degree programs in the arts and sciences, business, industrial technology and education elds, most of which offer many options and choices to students. All Millersville undergraduate degree programs include a general education component designed to develop student communication skills and critical thinking ab BDC Rieandanwell-14(and)-14(an)18



Admissions & Finances

Students may be admitted to Millersville University to work toward an undergraduate degree or to take college-level courses for self enrichment or career development. Students already holding a bachelor's degree may wish to pursue a second undergraduate degree. For more information on any of Millersville's undergraduate admission programs, contact the Of ce of Admissions in Lyle Hall: (800) MU-ADMIT; (717) 872-3371 or visit the Millersville website at: www.millersville.edu.

GENERAL ADMISSION POLICIES F

EARLY ADMISSION

Exceptional high school students may apply for early admission at the end of their junior year. Admissions criteria include a rigorous college preparatory curriculum, superior high school rank and SAT scores, and a recommendation from the high school principal. A personal interview is required.

NURSING MAJORS

The Bachelor of Science in Nursing (BSN) degree program is designed for registered nurses who are graduates of accredited diploma or associate degree nursing programs. Admission requirements to Millersville's nursing program are:

1. Evidence of scholarship as shown by an of cial transcript from an NLNAC accredited hospital diploma school of nursing or an NLNAC accredited associate degree in nursing program.
2. Possession of a Pennsylvania license as a registered nurse. RN candidates for licensure will be admitted pending successful completion of state licensure requirements.

The Dual Admission in Nursing Program, in conjunction with Harrisburg Area Community College, provides the opportunity for the student to apply for dual admission to the University as well as the community college. This dual admission enhances student learning by providing access to an array of academic services in support of attaining the bachelor's degree in nursing. Formal admission to the major in nursing at Millersville University occurs upon graduation from Harrisburg Area Community College.

ART MAJORS

Applicants for the B.F.A. in art, B.A. in art or the art education B.S.Ed. in art education programs, including transfer applicants, must submit an art portfolio for review after acceptance to the University. Accepted students will receive a letter with speci c details

ACADEMIC AMNESTY

Former Millersville University students applying for readmission following a minimum absence of ve years since the end of their last semester are eligible to petition for academic amnesty if their cumulative grade point average (CGPA) was below 2.0 at departure. The petition must be in the form of a letter of appeal to the Academic Standards Committee, sent in care of the registrar's of ce.

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 preamnesty period to ful ll general education requirements if a grade of C- or higher was earned in the course.

SECOND BACCALAUREATE DEGREE STUDENTS

Anyone with a bachelor's degree from a regionally accredited college or university may apply to earn a second bachelor's degree. All second-degree students must declare a major at the time they apply for admission.

NONDEGREE STUDENTS APPLYING FOR DEGREE-SEEKING STATUS

Individuals who are high school graduates or hold a General Education Development (GED) certi cate may choose this alternative

Millersville students may also take advantage of these agreements and enroll for courses at these institutions. See the Special Academic Opportunities section for more information.

HIGH SCHOOL STUDENTS

Quali ed high school students may take credit courses at Millersville while pursuing their high school diplomas. Applicants must submit an of cial transcript and a letter of recommendation from their high school principal. They must also complete a special high

In some instances department chairpersons may approve the use of a CLEP subject examination to challenge a course by examination. See the preceding section on CLEP for more information.

INTERNATIONAL BACCALAUREATE (IB) PROGRAM

Millersville University recognizes the value of the rigorous IB Program and considers it seriously when evaluating the credentials of admission applicants. For students entering with the IB Dipolma or Certi cate, credit may be awarded for a score of ve or higher on examinations in higher level (HL) IB courses. Such credit is generally awarded on a course-by-course basis as recommended by the appropriate Milllersville University department. The University does not give credit for standard level (SL) examinations.

Credit awarded for IB higher level examinations may be used to satisfy general education requirements, major or minor requirements, or electives in the same manner as Advanced Placement (AP). Students will not receive duplicate credit for IB examinations, 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.

International Baccalaureate transcripts should be submitted to the Of ce of Admissions, Millersville University, P.O. Box 1002, Millersville, PA 17551-0302. Students can request transcripts through their high school IB coordinator within the rst year after

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.

	Residents of Pennsylvania	Nonresidents of Pennsylvania
Tuition*	$5,358.00	$13,396.00
General Fee*	1,327.00	1,327.00
Technology Fee*	181.00	273.00
Room and Meals	7,308.00	7,308.00
Estimated books and supplies costs	1,000.00	1,000.00
Estimated personal costs	1,687.00	1,687.00
Estimated travel costs	800.00	800.00

*08-09 rates. Rates will change.

PAYMENT OF TUITION & FEES

Students enrolling for classes during the early registration period are not required to pay immediately. Electronic semester bills are forwarded four to six weeks before the beginning of each semester. Full payment is due two to three weeks prior to the beginning of the semester.

3. Pennsylvania residency by parent(s) or guardian(s) of students who are minors. The age of majority in Pennsylvania for establishing an independent residence for tuition purposes is 22. A minor may, however, prove nancial emancipation and independence through clear and convincing evidence.

4. A United States government employee or a member of the armed forces who was residing in Pennsylvania immediately prior to entering the government service and who has continuously maintained Pennsylvania as his or her legal residence is considered a Pennsylvania 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.

A student who changes his or her residence from Pennsy lvania to another state must give prompt written notice to the U niversity. The University may reclassify a student if it believes he or she is no longer a Pennsylvania resident. Students may challenge residency classifications by making written petitions to the bur sar's office, Dilworth Building. To obtain the r equest form, go to the bursar's homepage www.millersville.edu/ and click on res idency.

Refunds will be made according to current University and State System of Higher Education policies. Students who reduce their credit hour load after the end of the drop/add period so as to qualify for billing as part-time students shall not be eligible for a refund of the amount billed which exceeds the part-time rate. After the drop/add period, refunds shall be made only for full semester withdrawal.

After the end of the drop/add period, there will be no partial refunds for full time students who reduce their credit hour load below full time status, or for part-time students who reduce their credit load. After the drop/add period, refunds of tuition and the general fee will only be made for students who of cially withdraw from the university or, in the case of eligible undergraduates, take an of cial leave of absence.

The technology fee is non-refundable after the drop/add period and the refund of tuition and general fee will be based on the following schedule for the fall and spring semester.

Through "drop/add period" 100%
Second week.....80%
Third week.....60%
Fourth week.....50%
Fifth week 40%
After fth week ..... No refund

NOTE: Refunds for rst-time students receiving nancial aid under Title IV are made according to Public Law 102-135, Section 484B of the Higher Education Amendments.

First summer session, second summer session, third summer session, and winter session are each considered to be separate terms and are treated as such for refund purposes. See the appropriate session course listing for the applicab le refund schedule on the MU w

Meal Plan for Students Living Off Campus. Students living off 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 2009 summer meal plan charge for a ve-week summer session:

$493.35	19 meals per week
$470.70	14 meals per week
$393.35	10 meals per week
$254.00	5 meals per week

Visitors and students who live off 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, Gordinier Dining Hall. *Rates are subject to change.

All students who leave the University, regardless of reason, receive a prorated refund of meal plan fees, provided they complete the of cial withdrawal process.

Marauder Gold. Money deposited into your Marauder Gold account may be used to make purchases at campus locations that display the Marauder Gold logo, including the University Store. You can open a Marauder Gold plan with a minimum deposit of $50 and additions of $25. Please notate Marauder Gold and the amount being sent on your statement.

Marauder Gold must be paid by check, money order or credit card. Financial aid and MIPP balance may not be used.

Refunds. A prorated refund schedule for housing and meal plan fees for students who withdraw from the University is as follows:

Before student move-in day

STATE GRANT PROGRAMS

The Pennsylvania Higher Education Assistance Agency (PHEAA) provides state grants (PA State grants) to help Pennsylvania residents in need of nancial assistance to attend approved institutions of higher education. To apply for a PA State Grant, complete the Free Application for Federal Student Aid (FAFSA) by May 1. The FAFSA is available online at www.fafsa.ed.gov after January 1.

Grant sizes vary depending on educational expenses, family size, and resources. PA State Grants are subject to annual review and may change from year to year. Renewal depends on satisfactory academic standing, continued need for nancial assistance, and the availability of funds appropriated by the Pennsylvania General Assembly.

STUDENT EMPLOYMENT PROGRAMS

Federal Work-Study Program (FWS). This program provides funds for students who have nancial need. Students are eligible if they are enrolled at least half-time (6 credits).

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.

Millersville University Student Employment Program. This program differs from the Federal Work-Study Program in that students do not have to demonstrate nancial need in order to qualify.

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

LOAN PROGRAMS

Federal Perkins Loans. This program is for students who complete the Free Application for Federal Student Aid (FAFSA) and are enrolled at least half-time (6 credits) and demonstrate signi cant nancial need. Maximum loans are $3,000 per year.

Repayment begins nine months after leaving school with up to ten years to repay. During the repayment period, ve percent interest is charged on the unpaid balance of the principal.

Federal Stafford Loan Program. This program enables students to borrow directly from a participating lender. Millersville Univer - sity will determine a student's borrowing eligibility and pre-certify a loan with American Education Services (AES). The student may complete their master promissory note (MPN) online after Millersville University precerti es the loan at www.aesSuccess.org. After AES receives the completed MPN, the loan can be guaranteed. If you prefer to use another guarantor other than AES, please notify the Of ce of Financial Aid and your loan will be certi ed accordingly.

To be eligible, a student must complete the Free Application for Federal Student Aid (FAFSA) and be enrolled at least half-time (6 credits). The maximum loan for an undergraduate ranges from $5,500 to $7,500 per year, based on grade level.

Federal Stafford loans can be subsidized or unsubsidized. The government pays the interest on the subsidized loan while the student is enrolled. On the unsubsidized loan, the student is responsible for the interest while enrolled.

A scholarship is a nancial grant for a student's University expenses. These grants are usually given based on nancial need and/or particular academic or athletic excellence.

The University Scholarships marked with an asterisk(*) are awarded to incoming students. For more information regarding freshman scholarships, contact the admissions of ce, and for general information regarding scholarships, contact the Of ce of Financial Aid.

SCHOLARSHIPS – ACADEMIC

Dr. Joseph J. Abromaitis Family Industry and Technology Department Scholar-Athlete Scholarship. Awarded to a full-time male or female student majoring in industry and technology who participates in a intercollegiate sport in the year the scholarship is awarded. The recipient must be full-time and maintain a 3.0 GPA and be a sophomore, junior or senior for renewal.

*AFSCME Local 2421 Scholarship. Awarded annually by the American Federation of State, County and Municipal Employees to a student graduating from each Lancaster County high school.

African-American/Latino Alumni Scholarship. Awarded to African-American and Latino students who are full-time undergraduates. Recipients must have a minimum CGPA of 2.5 with 36 or more credits. A written essay and interview are required.

All-Greek Council/Stefanie Wojcik Scholarship. Awarded to a student af liated with an organization that is a member of All-Greek Council.

American Association of University Women Scholarship. Awarded to a "nontraditional" female student from the Lancaster area who has completed 90 credits and is one year from completing her degree requirements.

American Industrial Hygiene Association Scholarship. Awarded to a student majoring in occupational safety and environmental health or a related discipline and who has demonstrated a proclivity toward industrial hygiene. Applicants must have completed 60 credits, including 12 in industrial hygiene, and have a GPA of at least 2.5.

Eugene and Dora Androlunis Scholarship. Awarded to orphaned students c (c e mJ /Sra24 mJ)52(n)18arc (c e mJ nts)124(mJ nlso(ha

Beatrice U. Datesman Scholarship. Awarded to a junior/senior on the basis of scholarship, requiring at least a 3.0 GPA in the major. Students' nancial need shall be a determining factor.

Aimee Decker Scholarship. Awarded to a deserving MU student who is in good academic standing and has nancial need as determined by the director of nancial aid.

*Dr. Dominick '53 and Mrs. Helen DiNunzio Scholarship Endowment. Awarded to a full-time incoming freshman from Bristol Borough High School in Bucks County, Pa., who graduated in the top 10% of his/her high school graduating class, who achieved an average score of 1200 on his/her SAT, and who exhibits high standards in character and leadership. If no student from said high school is accepted to Millersville University for admission, a student shall be chosen from among the other high schools in Bucks County, Pa.

William H. and Alma P. Duncan Scholarship in Elementary Education. Awarded to an elementary education major on the basis of nancial need, excellence in scholarship, leadership qualities and service to others.

*Dean Dutcher Memorial Music Scholarship. Awarded to an incoming freshman who maintains enrollment as a full-time music major at Millersville University, based on musical talent in art performance medium.

*James C. Ebbert Education Scholarship. Awarded to two incoming freshmen students demonstrating nancial need with a minimum high school GPA of 3.0 and in teacher preparation in the School of Education. First preference for the scholarship is to a student from the PA Migrant Education program, and then to a student participating in the Color of Teaching mentorship program. Scholarships will be disbursed to the students' account for tuition, fees, room and board.

Economics Department Scholarship. Awarded to a declared economics major, with a GPA of 2.5 and a 3.0 in courses for the major. Preference is given to a junior who has nancial need.

B. Jeanne Elder Voice Scholarship. Awarded to a full-time undergraduate student who has chosen to major in voice. Recipient will be selected by the Music Department and chosen on the basis of excellence in scholarship (utilizing High School GPA and classes undertaken as well as nationally recognized test scores for entering freshman and overall and major GPA for upperclassman) and vocal performance skills and/or talent. Financial need may be taken into consideration but shall not be the major criterion. The scholarship is renewable for three additional years provided the student maintains satisfactory academic progress.

Robert Elder Business Administration Scholarship. Awarded to a rising junior who is a business administration major demonstrating a strong commitment to the discipline; rst preference is to a student with an interest in management. Student must be in good academic standing and have demonstrated nancial need.

*Elementary Education Scholarship. Awarded to a freshman majoring in elementary education and based on nancial need. Recipient must demonstrate high academic performance in high school record and strong community service during the nal two years of high school. May be renewed for three additional years if student maintains a 3.0 GPA, remains in elementary education and actively pursues renewal prior to June 30 for the subsequent academic year.

Daniel G. Engle Scholarship. Awarded on completion of the junior year to a science major for superior scholarship and exceptional University and community service and for maintaining a 3.0 GPA.

Paul W. Eshelman Memorial Scholarship. Awarded annually to a junior industry and technology major for excellence in wood technology, payable upon the student's enrollment for the second semester of the senior year.

Ermaleen B. Etter Scholarship in Special Education. Awarded to senior student teachers enrolled in the School of Education who have demonstrated professional excellence during their student teaching experience with learning disabled children.

Exide/Fittipaldi Memorial Scholarship. Awarded to children or spouses of employees of Exide Corporation, Lampeter Plastics Division, who are admitted as full-time undergraduate students.

*John Charles Falck Scholarship For Academic Excellence. Awarded to an undergraduate student on the basis of academic excellence and good character, as determined by the director of nancial aid, and renewable each year that the student maintains a passing academic average.

*Dr. Dominick J. and Frances McAndrew Fanani Memorial Scholarship. Awarded to an incoming freshman in humanities who has achieved a minimum cumulative high school academic performance of 3.30, and a strong record of high moral character as demonstrated by community service and volunteer experience.

*Faraday Physics Scholarship.

student should also demonstrate intent to be active in the practice of nursing upon completion of the program. The award will be made on the basis of academic potential and nancial need as determined by the nursing faculty. The scholarship may be renewed on the recommendation of the nursing faculty.

Arthur and Claribel Gerhart Scholarship in Biology. Awarded to a student who is majoring in biology, is in good academic standing, and has completed 60 credits by the end of the semester in which the award is made. Preference is given to sophomores and juniors.

*Greek Council Scholarships. Awarded to encourage academically strong high school students with extensive extracurricular involvement to attend Millersville University.

*Nancy Zakrewski Groff Memorial Scholarship. Awarded to a rst-year student who has demonstrated academic achievement in high school; there is no restriction upon major or eld of study.

Willard O. and Dr. Catherine Gibson Havemeier Scholarship in Computer Science. Awarded to a student engaged in computer science and robotics research. Recipient must have a GPA of 3.0 or higher. Award is restricted to related travel, materials and supplies.

Dr. Alex Henderson Scholarship in Biology. Awarded to a sophomore or junior biology major who is engaged in a project addressing an issue in biology from an interdisciplinary perspective.

Richard J. Hess Memorial Scholarship in Psychology. Awarded to a rising senior in psychology with good academic standing.

Albert, Christina and Eric Hoffman Scholarship for Humanities and Social Sciences. Awarded to a student in the honors college majoring in humanities and social sciences.

Albert, Christina and Gregory Hoffman Scholarship for Science and Mathematics. Awarded to a student in the honors college majoring in science and mathematics.

Alan S. & Adeline Holliday Scholarship. Awarded to a student who demonstrates scholastic ability and nancial need.

*HomeTowne Heritage Bank Scholarship. Awarded to an entering student in the Bank's service area with rst preference to employees and their families of HomeTowne Heritage Bank. Scholarship selection will be based on academic average and community activities. The scholarship is renewable for three additional academic years provided the student maintains a GPA of 3.0 or greater.

*James Hughes Memorial Scholarship. Awarded to an incoming freshman from the city of Philadelphia who has nancial need.

*R. Clinton and Dorothy Hughes & Kathryn Hughes Seaber Vocal Music Scholarship. Awarded to a freshman vocal music

*D

*Sydney Radinovsky Scholarship. Awarded to an entering freshman biology major with an interest in biological research. The scholarship recipient will develop a research project in collaboration with a faculty member that will lead to the presentation of research results in the student's senior year. The student must rank in the top 10% and/or have a high school GPA of 3.5 or above and scored 1100 or higher on their SAT. The scholarship may be renewed for up to three additional years contingent upon the student's continued progress in the biology course curriculum and has maintained a GPA of 3.0.

*Ratzlaff Scholarship. Awarded to an incoming biology major. The scholarship may be renewed for three additional years if the student remains a biology major and maintains a GPA of 3.0 or greater.

Philip R

George F. Stauffer Scholarship. Established by Dr. George F. Stauffer and Lelia M. Stauffer. Awarded to a student who has completed the sophomore or junior year and has demonstrated academic excellence in a physical science major.

Steinman Communications Scholarships. Awarded to full-time undergraduates in good academic standing who have completed at least 15 but not more than 100 credits, for outstanding contributions to campus communications and who indicate an intention to continue to serve in a capacity that will advance campus communications.

*Steinman Foundations/Intelligencer Printing Freshman Scholarship. Awarded to a full-time freshman admitted into either the associate or baccalaureate degree programs in industrial technology or technology education with demonstrated interest in graphic communication.

Steinman Foundations/Intelligencer Printing Upperclassman Scholarship. Awarded to a full-time junior or senior industrial technology-graphic communication or technology education major with demonstrated performance in graphic communication and a 3.0 GPA in the major.

*Nicholas W. Stephens Memorial Scholarship. Awarded to an incoming freshman from the School District of Lancaster, Pa. The scholarship may be renewed for seven additional semesters provided student maintains acceptable academic standing.

*Richard W. Stewart Scholarship. Awarded to an incoming freshman who is the child of an R.R. Donnelly employee (located in Lancaster, Pa.) to attend Millersville University as a full-time undergraduate student in order to achieve a baccalaureate degree. Renewable for six additional semesters providing the student maintains a 2.5 CGPA at the beginning of each academic semester, and is registered for 12 credits per semester.

Clyde S. and Pauline F. Stine Scholarship. Awarded annually to a resident assistant who is a member of the junior class and who has demonstrated outstanding service to resident life.

*Drs. Helen A. ’64 and George F. Stine Freshman Scholarship. Awarded annually to an admitted freshman with a high school cumulative grade point average of at least 2.5 who attended at least two years of, and is a graduate of, Solanco School District, Lancaster County, Pennsylvania. Preference is given to a qualifying student with nancial need.

Student Independent Research or Honors College Biology Research Endowment. Awarded to fund biology research expenses of students enrolled in Independent Biology Research and Biology Honors courses (currently Biology 498 and Biology 499) and may include costs to attend, prepare materials for presentation, or travel to conferences helpful to the student’s research efforts. The

*MEDAL Fund Athletic Scholarships. Established by Millersville University employees and awarded to athletes who have potential for outstanding achievement in intercollegiate football, wrestling, men's basketball or women's basketball. Recipients must meet all requirements for admission or be full-time students in satisfactory academic standing.

*Men's Basketball Memorial Scholarship. Established in memory of Eugene Rutherford, Class of 1940, and other former Millersville basketball team members now deceased. Awarded to athletes who have potential for outstanding achievement in men's intercollegiate basketball. Recipients must meet all requirements for admission or be full-time students in satisfactory academic standing.

Millersville University Alumni Association Athletic Scholarship. Awarded to one male and one female athlete who participate in NCAA recognized sports at MU. Students must be full-time, maintain an overall GPA of 3.0 and have passed 24 credits but no more than 60 credits.

Aurora Wickey Pucillo Award. Awarded to an outstanding female athlete who has participated in more than one varsity sport and lettered in at least one sport. Recipients must exhibit outstanding traits of loyalty, leadership and sportsmanship, and have a GPA of at least 2.5.

John A. Pucillo Memorial Scholarship. Awarded in alternating years on the basis of nancial need to a female or male who has participated in intercollegiate athletics for at least two years, has completed at least 60 credits, and has a GPA of at least 2.0.

*Maryann Kitson Raspen Scholarship in Women's Athletics. Awarded to an entering freshman who intends to participate in women's intercollegiate athletics, on the basis of potential for outstanding achievement in intercollegiate athletics.

Theodore Rupp Wrestling Scholarship. Awarded to a student who participates in intercollegiate wrestling and demonstrates nancial need.

*Mike Stone Wrestling Scholarship. Awarded to a student who has established himself as an outstanding wrestler.

*Richard C. Todd Scholarship. Established by Dr. Todd and Clauda Pennock Todd, and awarded to athletes who have established themselves as outstanding basketball players. Entering freshmen are selected based on their potential for achievement in intercollegiate basketball; upperclassmen are selected based on their achievements as members of the basketball team.

*James E. Treasure Memorial Football Scholarship. Awarded to an incoming freshman who has good academic high school preparation and will participate in intercollegiate football. The student will receive the scholarship each year he is in good academic standing and eligible to participate in intercollegiate football.

Marjorie A. Trout Women in Athletics Scholarship. Awarded to female student athlete(s) who are rising juniors or seniors with a CGPA of 2.8 or above.

*University Athletic Scholarships. Awarded to student athletes on the basis of potential for outstanding achievement in intercollegiate athletics. Recipients must meet all requirements for admission and maintain satisfactory academic progress.

Women's Athletic Scholarships. Awarded to two junior female athletes.

UNIVERSITY AWARDS

An award is a cash grant or gift made directly to a student, a student's account, or a mention on a University plaque in recognition of the student's achievements. For more information on any of these awards, contact the honors and awards committee through the Of ce of Development, Duncan Alumni House.

American Chemical Society, Millersville University Student Af liate Award. Recognition on a plaque in Caputo Hall to a graduating senior of high academic standing who has contributed outstanding service to the chemistry department and the chapter.

American Chemical Society, Southeastern Pennsylvania Section Award. The Merck Index is awarded to the outstanding senior chemistry major. Recognition on a plaque in Caputo Hall, a choice from several reference works and journal subscriptions are awarded.

American Chemical Society Undergraduate Award in Analytical Chemistry. 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.

American Institute of Chemists Award. 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.

American Society of Safety Engineers/Raymond C. Mullin Award. 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.

Athletic Coaching Minor Faculty Award. Presented to the outstanding graduating male and female athletic coaching minor students, based on academic excellence, campus leadership, sportsmanship and community service.

Guy Kurtz Bard Award. 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.

Esther Herr Bear A ward. Awarded to worthy and deserving students who excel in music.

Anne E. Beyer Award. Awarded for outstanding performance in student teaching to senior elementary education majors who have spent two full academic years at Millersville preparing to teach in elementary schools.

Cora Catharine Bitner Music Award.

Verda M. Fulmer Award. Established by the Philadelphia Alumni Branch/MU Alumni Association, and awarded to an outstanding senior elementary education major.

Fulton Bank Award in Economics. Awarded to a student who, in the judgement of the economics department, has written the best essay on an aspect of banking.

Roy and Mary Garden Gamber - Helen L. Koontz Award in Elementary Education. Awarded for educational expenses to a junior or senior education major who demonstrates a commitment to a career in teaching. Two awards will be given, at least one must be directed to a candidate committed to teaching elementary education.

Geography Faculty Award. A certi cate and an appropriate gift, usually a book, presented annually by the geography department faculty to a geography major who graduates with honors.

D. Joan Godfrey Nursing Award.

Philadelphia Alumni Award. Awarded to a technology education major who demonstrates the best qualities of a technology teacher.

Polymer Education Undergraduate Award. Awarded to a sophomore/junior level chemistry major who has a minimum GPA of 3.5

Wentzel-Wright Memorial Award. Awarded to a student at the end of the junior year, payable upon enrollment for the second semester of the senior year, on the basis of nancial need, industry, service to the University community, participation in campus activities, scholarship, good character, integrity, honesty and professionalism.

Who's Who Among Students in American Universities and Colleges. Awarded to outstanding seniors for scholarships, service, constructive participation in activities, and contribution to student government and campus life.

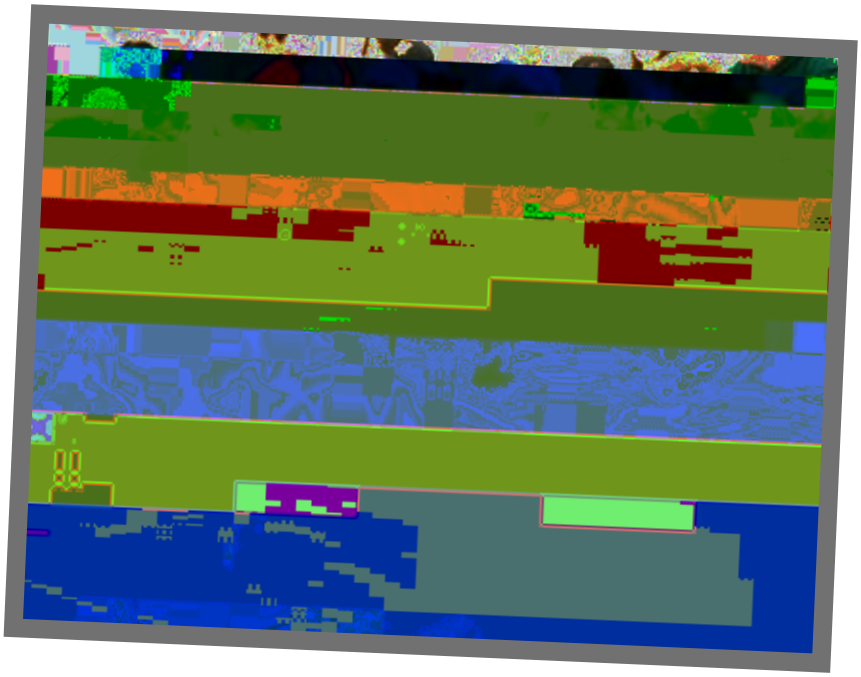
Ruth Fox Wilkinson Award. Awarded by the Philadelphia Alumni Branch/MU Alumni Association to a graduating senior who has attained the highest average in elementary and early childhood education courses.

Dr. Charles R. Winter A ward in Pre-Med. Awarded to an upperclassman who is planning to attend medical school.

WIXQ Service A ward. Awarded for outstanding service to the University radio station.

Edna Rochow Workman Memorial Award. Awarded to a junior or senior art major who has produced the best painting in oil or related media during the academic year.

Xenophile-Theodore H. Rupp Foreign Language A ward. Awarded to a senior for excellence in foreign languages.



Academic Requirements Opportunities & Policies

ACADEMIC REQUIREMENTS

THE BACCALAUREATE CURRICULUM

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

1. Pro ciency 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.

PROFICIENCY REQUIREMENTS

MATHEMATICS

1. All undergraduate students must demonstrate minimum levels of pro ciency 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 pro ciency by satisfactorily completing the course with a grade of C- or above prior to taking any mathematics course at the 100 level or higher.

3. Students who must take developmental mathematics earn course credits and the grade is counted in the cumulative grade point average, but developmental course credit cannot be counted towards ful llment of the general education or graduation requirements for the baccalaureate or associate degree.

ENGLISH

1. All undergraduate students must demonstrate minimum levels of pro ciency in English composition.
   a. All entering undergraduate students who have not completed ENGL 110: English Composition or the equivalent, earning a

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, scienti c, 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.

Approved Wellness course (3 credit). The Wellness requirement is designed to assist students in making positive lifestyle changes that reduce their health risks, modify their consumer behavior, and enhance their personal well-being and productivity.

Perspectives course (3 credits). A major function of these courses is to apply analytical and critical thinking abilities in resolving major social, cultural, scienti c/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 ful ll 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 ful lled the Perspectives requirement. International students studying at Millersville will also be considered to have ful lled 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

an informal record of student progress. They are available from department of ces or through the Of ce of Academic Advisement or through Millersville's website. In addition, degree audit reports summarizing the status of a student's degree requirements are available on the University website through our Millersville Access System (MAX).

DECLARING OR CHANGING A MAJOR

To declare or change a major or an option within a major, contact the Of ce of Academic Advisement, Lyle Hall, for an appropriate form or online at the Millersville University website Student Forms Center. Some departments have speci c requirements for admission to their major programs. Students must meet the major program requirements in effect at the time they declare or change their major. Students in undecided major status, with at least 45 credits passed should refer to the Undecided Major Status section for speci c academic requirements.

DEPARTMENT EVALUATION OF MAJORS

Students are subject to the approval of their major department for continuation in their major program. Departments may establish additional requirements for continuation in the major, review student credentials at the end of any semester, and deny continuation in the major to any student they feel is not making satisfactory progress. Students who have been denied continuation in the major may appeal to the school dean and then to the Academic Standards Committee for reconsideration.

SECOND MAJORS

In some programs, through careful selection of elective courses, it is possible to complete the requirements for a second major. Upon certi cation by each major department that requirements have been satis ed, both majors are recorded on the student's records.

MINORS

Students who wish to become pro cient in a second discipline may complete the requirements for a minor. Each minor requires a minimum of 18 credits. A GPA of at least 2.0 must be earned in Millersville courses required for the minor. Half of the minor must be completed at Millersville, only one course may count toward both a major and a minor, and no student may minor in his or her major. A list of minor programs and speci c course requirements for each are given in the Academic Programs section.

To declare or change a minor, obtain an appropriate form from the Of ce of Academic Advisement or through the University website Student Forms Center.

THE ASSOCIATE DEGREE CURRICULUM

Millersville's associate degree programs are career-oriented for students with speci c occupational objectives. They consist of 60 to 65 credits of study. The programs normally have three components: communication skills; general knowledge of the natural sciences, social sciences, and humanities; and an area of concentration. Approximately half the course work is in communication skills and general education; the other half is in the area of concentration. For more information see the Academic Programs section.

OTHER CURRICULAR POLICIES

ADDITIONAL DEGREE REQUIREMENTS

To earn an undergraduate degree at Millersville University, a student must meet the following requirements:

1. All curricular and pro ciency requirements as described above must be met.
2. A minimum of 120 credits must be completed for a bachelor's degree.
3. A GPA of at least 2.0 must be earned in Millersville courses.
4. A GPA of 3.0 must be earned in Millersville courses to meet entrance and exit requirements for a Bachelor of Science of Education (B.S.Ed.) degree.
5. A GPA of at least 2.0 must be earned in Millersville courses required for the major (area of concentration for associate degrees).
6. A GPA of at least 2.0 must be earned in Millersville courses required for the minor.
7. At least 30 credits (in addition to student teaching) of the last 45 credits must be completed at Millersville. Participation in approved Millersville University exchanges or attendance at programs consistent with Millersville University academic agreements will satisfy this requirement.
8. At least half the major requirements must be completed at Millersville.
9. At least half of the minor requirements must be completed at Millersville.
10. Students who graduate with a B.S.Ed. degree or complete an approved program of post-baccalaureate studies for teaching certi cation must be admitted to Advanced Professional Studies. They must also meet the Pennsylvania state requirements and other Pennsylvania certi cation requirements sucbd couDIanian ffolluDIani ion requid(other)raxicouDIaniex PrluDIani oluDIaniq<</ifyluDIani h

ADMISSION TO ADVANCED PROFESSIONAL STUDIES AND CERTIFICATION (EDUCATION MAJORS)

All students enrolled in teacher preparation programs must be admitted to Advanced Professional Studies and meet Pennsylvania state requirements and University requirements prior to being enrolled in their initial Advanced Professional Studies course. Students must meet additional Pennsylvania state requirements in order to be certi ed. A listing of Advanced Professional Studies courses and requirements is available in each department of ce, the early eld experiences of ce, and on the early eld experiences website.

EARNING A SECOND DEGREE

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 rst degree. These credits must be in the major and required related elds.

2. All requirements for the major of the second degree must be satis ed.

3. Course work completed as part of the rst degree program may be used to satisfy the related course work requirement in the second degree.

4. Course work completed as part of the rst 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 rst degree, it may not be repeated.

5. Teacher certi cation credits may not be counted toward a second degree.

6. When there is overlap in the majors of the rst 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.

UNDECIDED MAJOR STATUS

Students may seek admission to Millersville without selecting a major. Special academic advisers are assigned to guide undecided students through the general education requirements and assist them in exploring potential majors through the Exploratory Program.

Students who qualify for admission to Millersville, but do not meet admission criteria for a selected major, are classi ed as undecided until they qualify for study in the major of their choice.

Students with at least 45 credits passed and in undecided status, or changing to undecided status must either:

1. Declare and be accepted into a major, or

2. Complete a review of academic goals as follows: the student, in consultation with an assigned adviser, must propose and have approved by the adviser each semester, an academic plan of action which includes a realistic timeline for the completion of degree

Millersville University students may study abroad in nearly every country worldwide for a summer, a semester or an academic year. Although most students who study abroad choose to do so during their junior year, students may study and/or do an internship abroad for University credit any time after completing 24 academic credits. Student teaching abroad also is available.

Whether uent in foreign languages or only English, students may participate in study abroad through Millersville's own international partners, through other accredited U.S. institutions' programs or directly through many international universities. Millersville offers its own student exchange programs with London Metropolitan University in London, United Kingdom; University of Strathclyde in Glasgow, Scotland; Saint Mary's University College in Belfast, Northern Ireland; Kansai Gaidai University in Osaka, Japan; Philipps-Universität Marburg, in Marburg, Germany; Ponti cia Universidad Católica de Valparaíso in Valparaíso, Chile; Foro Europeo School of Business in Pamplona, Spain; Universidad Pública de Navarra in Pamplona, Spain; Universidad de Burgos in Burgos, Spain; Universidad de Puerto Rico-Mayagüez in Mayagüez, Puerto Rico; University of KwaZulu-Natal in Durban, South Africa; Université de Caen Basse-Normandie in Caen, France; and American Business School Paris in Paris, France. International internship placements as part of a formal study abroad program are possible through the London Metropolitan, Valparaíso, Foro, Marburg and American Business School programs.

To be eligible for any study abroad experience, students must have completed at least 24 college credits; maintained a minimum 2.0 GPA prior to departure (individual programs may have higher requirements); and received advanced approval from the Of ce 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.

STUDY AT OTHER INSTITUTIONS

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. Approval forms are available in the registrar's of ce or on the Millersville website located under the Student Forms Center. For more information, see the Transfer Credit section.

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STUDENT TEACHING

The University, working with school district administrators, will assign student teaching placements. Student teachers may not approach or request a speci c school or cooperating teacher, nor may a cooperating teacher request a speci c student teacher. Student teachers are not assigned to the school district from which they graduated or in which family members are attending or employed.

For admission to the Millersville student teaching program, the following policies apply:

1. Student must have earned at least 85 credits with a cumulative GPA and major GPA that meet University and state requirements prior to the student teaching semester.

2. Students must have successfully completed all required professional education courses and early eld experiences and been admitted to Advanced Professional Studies (APS) having met all APS requirements.

3. Students must apply to the student teaching of ce 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. Beginning April 2007, 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 certi cation 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 consult with your academic adviser.

MARINE SCIENCE CONSORTIUM

Millersville is the founding member of the Marine Science Consortium; 14 colleges and universities that operate a marine station at Wallops Island, Virginia. The consortium has several seagoing vessels and laboratories with biological and oceanographic equip-
ment. Housing facilities for students and staff are provided at the station.

Mary Ross Ezzo. Funds to be used toward a literary lectureship.

Paul G. Fisher Endowment for a Symphonic Guest Artist. Funds are directed to the honoraria and expenses to bring distinguished symphonic band conductors or solists to the University to perform primarily with the Millersville Symphonic Band.

Helen A. Ganser Endowment Fund. Used to purchase library materials.

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

William Randolph Hearst Foundation Endowment Fund. Funds support scholarships for the Lancaster Partnership Program.

Elsie Breckbill Hollinger Endowment for Library Acquisition. Used for acquisition of materials for the University library.

Ray W. Kauffman Endowment Fund. Funds honoraria and expenses to bring distinguished orchestral performers to the campus to perform with the Millersville Community Orchestra.

Esther Kilheffer Endowment in Earth Sciences. Used for the purchase of instructional equipment for the earth sciences department.

Harry D. Kilheffer Endowment. Used for acquisition of materials for the University library.

Frank S. Lisella Endowment for Biology Equipment. Funds to be used by the Biology Department to purchase equipment which will support the education of students.

Anna Funk Lockey Lectureship Endowment Fund. Funds support a lectureship in education.

Elsie McAuslan Library Endowment Fund. Used to purchase materials for the library.

William M. and Winifred Cooke McCain Endowment. Used for acquisition and restoration of material of historical value to the Millersville University Archives and Special Collections.

Mary McGrann Endowed Fund. Used to assist deaf or hearing impaired students who, in the opinion of the selection committee, have demonstrated academic ability and nancial need. Preference given to Lancaster County students.

Paul J. McInerney Memorial Lecture Endowment Fund. Funds cover direct costs of invited distinguished guest lectures who will lecture within the physical sciences.

Meteorological Endowment. Established in memory of Dr. Russel DeSouza for equipment acquisition for the earth sciences department.

C. Maxwell Myers Endowed History Memorial Fund. Used to purchase library books for the history department.

Conrad Nelson Endowment in the Fine Arts. Funds used to fund an Artist-in-Residence program.

Melzer R. Porter Memorial Library Fund. Used to purchase music literature for the music collection of the library.

Carl R. Rees Mathematics and Computer Science Fund. Used to advance faculty development in the mathematics and computer science departments.

Elsie S. Shenk Endowment. Used in support of the Wellness and Women's Center Program.

Jestina Stahl Endowment for Library Support. Funds are directed to the acquisition of materials for the library.

Samuel Bechtold Stayer and Caroline Nissley Stayer Endowment. Awarded to faculty within the School of Education for activities which enhance both their professional development and the academic development of their students, and ensure that Millersville University maintains a leadership role for programs in education.

Carl Van Stephenson Memorial Library Fund. Used to purchase library books.

Walter B. '42 and Betty Waetjen Global Opportunities Fund. Funds to support program needs associated with either education abroad initiatives or on-campus internationalization efforts. Such needs can include but are not limited to expenses related to providing nancial assistance for students to participate in study, internships, student teaching or research experiences abroad, hosting visiting faculty and students from abroad, program support for said students and faculty, and costs associated with establishing, promoting or monitoring student programs with international academic partner institutions.

Donald E. Weiman Instructional Equipment Endowment. Award used to support the repair or purchase of equipment for the chemistry department.

Harold A. Weirich Memorial Lecture in Biology Endowment Fund. Funds support annual lecture in biology.

Women's Issues Endowment. Awarded annually to members of the University community for conducting or disseminating research or organizing programs that focus on issues of central concern to women.

David Zubatsky Endowment for International S

10. Courses taken on a pass/fail basis will be counted toward the total credit hour requirement for graduation, but those courses that are passed will not be included in the GPA computation on which academic honors and academic standing are based. Courses failed under the pass/fail option will be included when computing the GPA.

11. The minimum grade a student must earn in order to be awarded a 'pass' grade is D-.

12. The option to take a course on a pass/fail basis may be exercised until the end of the add period. Contact the registrar's of ce, Lyle Hall, for 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 with the registrar the week prior to nals week.

13. The pass/fail option is limited to students not on probation at the time of registration.

Satisfactory and Unsatisfactory (S, U). These terms describe achievement in student teaching and other eld experiences.

Audit (AU). Auditing a course allows a student to attend classes and participate in discussions without the pressures of taking examinations, writing papers, or ful lling other requirements generally associated with earning credit. An audited course is reported on the student's record with the designation AU. It cannot be used to satisfy graduation requirements, nor is it considered in computing GPAs. Standard tuition and fees apply.

To register to audit a course, contact the registrar's of ce, Lyle Hall, for information and to obtain a permission form and submit it by the end of the add period. Audit privilege may not be changed to credit status. Audit privileges are ordinarily limited to one course per semester.

Pro ciency in Progress (X). This grade re ects progress toward, but not achievement of, pro ciency in pre-college developmental courses.

Z-Grade (Z). A grade of Z is treated the same as a grade of F in calculating the student's GPA. The Z grade may not be removed or changed except by the student registering for and satisfactorily completing the course. The receipt of a Z grade shall not entitle a student to a refund of fees. This grading procedure is intended to apply only to those students for whom there is no adequate evaluation for the determination of a grade. In those cases where the faculty member does not assign any grade the registrar may assign the Z grade if the student has of cially registered for the course.

Repeat Policy. A student, in consultation with the adviser, may repeat a course to improve the GPA, to meet minimum competency requirements, or to satisfy graduation requirements. Students only need to repeat a failed course if it is speci cally required for graduation. Students may repeat courses for which they have received a grade of C+, C, C-, D+, D, D-, F, W, Z, or U.

Courses failed at Millersville must be repeated at Millersville in order to earn course credit and credit toward graduation. Students may not transfer credit for any course taken at another institution that is the equivalent of a course previously taken at Millersville; this policy applies whether the course was passed or failed at Millersville University. Students may repeat courses at Millersville for which they have received transferred credit, but they will forfeit the transfer credit.

Once the course is repeated, the new grade, credits, and grade point value replace those earned previously in calculating the cumulative GPA. The earlier grade remains on the student's record even though it is no longer included in the computation of credits or cumulative GPA. In consultation with the adviser, students who nd it necessary to repeat a course will be informed of, and expected to use, support services available to them through the Of ce of Learning Services.

An undergraduate student may not take an undergraduate course of record more than three times. A course of record is de ned as a course in which a student receives a grade of A, B, C, D, (including + and -) F, U, Z or W. The academic department offering a course may drop a student from a course if the student attempts to take a course more than three times. Undergraduate students will be limited to a maximum total of six (6) repeats during their academic career

GRADE CHANGES

Students are responsible for reviewing grade reports as soon as they are available and contacting their instructor about any grade

Students with a CGPA of 2.00 or higher are in satisfactory academic standing. Students with less than satisfactory academic standing are subject to warning, probation or dismissal.

The following procedure applies to all students who do not meet the required minimum CGPA as speci ed:

Review Credits	CGPA	Action
0.5–16.0	Below 2.00	Warning letter
16.5–32.0	1.75–1.99	Warning letter
16.5–32.0	Below 1.75	Probation
32.5 or more	Below 2.00	Probation
32.5 or more	Below 2.00 (while on probation)	Dismissal

ACADEMIC PROBATION

When subject to academic probation, the full-time student will be placed on probation for one semester; the part-time student will be on probation for a maximum of 12 credit hours. Such students are not allowed to pre-register for more than 4 courses or 13 credits, whichever is less, in any term, session, or semester unless they have the written permission of the adviser, chair, head of academic,(2ttot)26(a

or minor may require carrying semester loads above 15 credits, attending summer school, and/or taking more than four years to complete a degree.

SUMMER AND WINTER SESSIONS

The recommended course load during any summer session (I, II, III) or winter session is two courses. Students should consult their academic adviser before registering for more than two courses in any session.

OVERLOADS

Normally students may not carry more than 21 credits in any one semester. Students enrolled in student teaching courses may enroll for one additional course if it does not con ict with the student teaching assignment.

Students enrolled for more than 18 credits are charged additional tuition.

LEAVING MILLERSVILLE UNIVERSITY

Students who wish to leave Millersville before graduating may take a temporary leave of absence or withdraw completely.

LEAVE OF ABSENCE

Students who wish to interrupt their studies at Millersville for up to two consecutive semesters may request a leave of absence. This allows them to register for courses upon their return without applying for readmission. To be eligible for a leave of absence, a student must be enrolled in degree status and have a minimum CGPA of 2.00.

To request a leave of absence, complete an of cial Leave of Absence Form, available from the registrar's of ce, Lyle Hall or on the Millersville website in the Student Forms Center. Contact the registrar's of ce for information on the effects of a leave of absence.

Students who take a leave of absence to study at another institution during the fall or spring semester should also complete an Authorization for Transfer of Credit form, available from the registrar's of ce or on the web.

A leave of absence is cancelled, and the student considered withdrawn, if the student fails to return by the established ending time or is dismissed by the University.

MILITARY LEAVE OF ABSENCE

Students who are callled to active duty must contact the registrar's of ce for assistance with arranging a leave of absence and their subsequent return to the University. A copy of the student's military orders must be presented to the registrar. Students who expect to return to class within the current semester to complete their course work, or who are called to duty after completing a signi cant part of the course requirements, should contact their faculty regarding missed work. Students who cannot complete the current semester will be granted a leave of absence for military duty and will be allowed to return for the next semester without penalty.

WITHDRAWING FROM THE UNIVERSITY

Students who wish to withdraw from the University must complete an Of cial Withdrawal Form, available from the registrar's of ce or on the Millersville website in the Student Forms Center. This applies to all students, whether withdrawing during or between semesters, regardless of reason for withdrawal. Failure to complete this form will jeopardize a student's chances of future readmission.

Students who have of cially withdrawn from the University and wish to return, should contact the admissions of ce, Lyle Hall, for an application for readmission. See the Admissions section for more information.

OTHER ACADEMIC POLICIES

REVIEW OF PROGRAMMATIC STANDARDS

The University's programmatic and assessment standards are established by the respective School and monitored by the School Dean. A student may discuss issues related to these standards with the School Dean. The School Dean(s) and the University's Provost, however, maintain ultimate authority to determine whether a student has successfully satis ed the programmatic and assessment standards, including preliminary, qualifying, and comprehensive examinations.

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

Academic Determination

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 speci ed 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 le 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 nal and not subject to further review.a(A)Tj EMC dedemic A

class due to participation in an of cial University activity must notify the instructor well in advance of the activity to assure that the absence is excused.

COURSE NUMBER SYSTEM

Millersville University uses the following course numbering system:

000-099	Pre-college developmental courses.
100-199	Courses primarily designed for freshmen.
200-299	Courses primarily designed for sophomores.
300-399	Courses primarily designed for juniors and seniors.
400-499	Courses primarily designed for seniors.
500-599	First-level graduate courses (these courses may be taken by advanced undergraduates but may not be required of an undergraduate student).
600-	Graduate level courses.

The following course numbers are reserved:

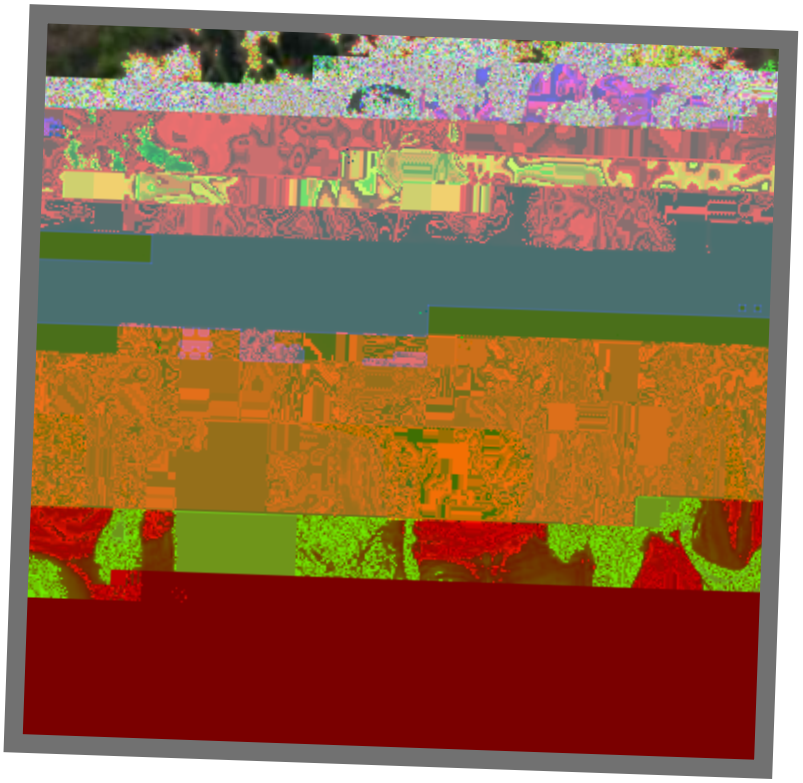
300, 400, 500	Cooperative Education experiences.
179, 279, 379, 479, 579, 679	Experimental courses.
489	Honors courses.
498	Independent study.
499	Departmental honors/thesis/University Honors College thesis.

DEAN'S LIST

A student is eligible for the Dean's List after a given semester if he or she has:

1. Earned a semester GPA of 3.50 or higher, and;

NUM



Campus Life

SERVICES FOR STUDENTS

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.

ACADEMIC ADVISEMENT

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 clari ca- tion 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 knowledge- able about University policies and procedures, helping students to understand and complete the general education curriculum, being accessible to their advisees via of ce 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 require- ments and meeting with their adviser on a regular basis to discuss their academic and career plans and questions.

The Office of Academic Advisement is located on the second floor of Lyle Hall. The office has a comprehensive website at www.millersville.edu/advisement. The Exploratory Program also has a website which includes relevant information for the undecided/ undeclared student at www.millersville.edu/ . The office has an email for advisement-related questions at adviser@millersville.edu.

CAREER SERVICES

The Of ce of Career Services, located in Lyle Hall, offers programs and services to help students/alumni clarify and attain educational and career goals. Choice of academic major, exploration and selection of an appropriate occupation, awareness of employment trends, and skill development for nding and landing prime jobs need to be an integral part of a college education. The career ser - vices of ce assists students/alumni with these important activities.

Career counseling, computer-assisted career guidance, current information on hundreds of occupations, and videos describing Millersville majors are available to students starting with their freshman year.

Interactive programs help students:

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All undecided majors or students who are not certain about their present major are encouraged to participate in this program.

Instructional workshops and videos on resumé writing, interviewing, and job search strategies are available to students and alumni.

On-campus interviews with employers, job vacancy announcements, graduate school information, resumé referrals, job fairs, and library resources to research potential employers are available. During fall and spring semesters, the career services of ce hours are 8 a.m.- 6 p.m. Monday through Thursday, and 8 a.m.- 5 p.m. on Friday. A counselor is available to answer general questions and critique resumés daily from 11 a.m.-1 p.m.

CENTER FOR COUNSELING & HUMAN DEVELOPMENT

The Center for Counseling & Human Development is located on the third oor of Lyle Hall. The center offers students the opportu- nity to discuss any matter freely and in a con dential, professional setting. There is no cost to students for this service. Licensed psychologists help students reach greater self understanding and enhance their abilities to manage immediate and future concerns. Individual counseling, crisis intervention, workshops, group experiences, and consultations are available. Alcohol and other drug counseling is available, and provided by a Certi ed Addiction Counselor. Counseling services are strictly con dential.

HEALTH SERVICES

University Health Services seeks to promote good health among students through education, diagnostic and treatment programs. A wide range of patient services are available including medical exams, screening tests, treatment of acute and chronic illnesses, and referral to other medical personnel and services.

Health Services is staffed by licensed and experienced physicians, nurse practitioners and registered nurses. The facility is well equipped for routine outpatient care and limited inpatient care for students who require more medical attention but not hospitalization.

MILLERSVILLE MENTORING ALLIANCE PROGRAM

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/mmap.

ORIENTATION

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.

Members of the University community who feel their individual rights have been violated or the policy of nondiscrimination has been abridged, should address their concern to Patricia Hopson-Shelton, Assistant to the President for Social Equity & Diversity, Delaware House. Questions or complaints regarding discrimination and sexual harassment should also be addressed to the Of ce of Social Equity & Diversity.

TUTORIAL SERVICES

Tutoring is available through the Millersville University Tutoring Center, a division of the Of ce of Learning Services, in the following areas: departments in the School of Education, departments in the School of Humanities and Social Sciences, the School of Science and Mathematics (math tutoring available only for students with disabilities, all other students should seek math tutoring directly through the Math Assistance Center), and Aim for Success Program/Act 101 students.

UNIVERSITY DINING SERVICES

Millersville operates a comprehensive dining services program for students and guests of the University. All students are eligible to participate in the dining program. Students who reside in the residence halls and Shenks Hall and Reighard Hall, are required to purchase a meal plan. Off-campus students and commuters may participate in any of the University's meal plans which offer exceptional exibility at various locations throughout the campus.

The University's main dining halls are located at the Upper Deck in Gordinier Hall and the North Side Bistro in Lyle Hall. Students and guests may dine at these locations as well as the Galley located in the Student Memorial Center (SMC). In addition, dining opportunities are available at the following retail operations: the Club de'Ville in the SMC, the Ganser Grind Coffee Shop in the library, Gordy's convenience store and Turkey Hill Creamery in Gordinier Hall, the deli-convenience store at The Cove in Lyle Hall and The Cyber Café at Caputo Hall.

For more information, see the section on Expenses.

UNIVERSITY TEST CENTER

The University Test Center administers a variety of standardized tests to candidates seeking teacher certi cation, graduate or professional program admission, and course credit by examination.

Services also include proctoring examinations for courses taken at other institutions and for individuals seeking to meet professional licensing or certi cation requirements.

For a full description of services and test schedules, contact the University Test Center, Lyle Hall, or www.millersville.edu/gps for the latest information.

WELLNESS AND WOMEN'S PROGRAMS

The Elsie S. Shenk Wellness and Women's Program provides a variety of services and programs to the Millersville University com-
ELLNESS

Recreational Activities.

George Street Carnival is a literary magazine featuring student poetry, essays, short stories, art work and photography.

MUTV 99, the student operated campus cable TV station, provides the University with 24/7 programming throughout the school year.

WIXQ-FM, the campus radio station, provides the University and local community with educational programming, news, sports, talk shows and music. The station adheres to all Federal Communications Commission regulations and is student operated.

MUSICAL GROUPS

A number of musical groups are open by audition to all University students. These groups include the Marauder Marching Band, the University Choir, the University Orchestra, the Symphonic Band, the Mixed Chorus, the Gospel Choir, the Jazz Ensemble and numerous small ensembles.

SPECIAL INTEREST CLUBS

Special interest clubs provide students with pre-professional activities. Accounting, art, English, dramatics, graphics, history and the human-powered submarine are some of the interests represented by clubs. Clubs that focus on social, political or environmental issues are also available.

FRATERNITIES AND SORORITIES

Millersville has nearly 20 Greek letter organizations, including national, local, and historically African- American fraternities and sororities, which offer something unique to each of their members. Greek Life at Millersville is full of great opportunities to meet people, develop leadership skills, give back to the community and prepare students for life after college. Members of the Greek community also bene t from the Armstrong House, also known as the Greek House, where members of the Greek community gather to study, hold meetings and host social events.

RELIGIOUS LIFE

Millersville University encourages students to maintain an interest in and devotion to their religious faith. Several religious organizations offer religious, social and cultural programming including: United Campus Ministry, Bible Campus Ministry, Hillel, Intervarsity 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 speci cally for students. Students who do not nd the church of their preference in Millersville will nd many places of worship available in the nearby city of Lancaster.

sion to the University. my'Ville is the student portal to the University's computing and networking systems - their access point to Millersville University's online services. Residence hall students must have a valid my'Ville account to access the Internet from their dorm room. This is also true for all students using computers in the various computer labs around campus. Network and internet usage are also governed by the Millersville University Policy for Responsible Use of Electronic Resources.

SCIENCE & MATHEMATICS F ACILITIES

The Millersville University Argires Complex includes the 88,000-square-foot Caputo Hall, the 55,000-square-foot Roddy Hall (renovated in 2001), Brossman Hall, and Nichols House. The complex includes 42 teaching laboratories, 39 individual student research laboratories, specialized support laboratories, 11 classrooms, four lecture halls, a student study lounge, a student café and lounge, seminar and conference rooms, and faculty of ces. Classrooms are all out tted with multimedia technology. The Department of Computer Science has two computer teaching laboratories, the human-computer interaction laboratory, and the graphics, virtual reality and haptics laboratory. There are over 300 computers located throughout the science facilities for student use. This is one of the nest science facilities in the region; it houses programs in biology, chemistry, computer science, earth sciences, physics and nursing.

Wickersham Hall, home of the Department of Mathematics, houses departmental and faculty of ces, as well as a mathematics computer laboratory with 36 networked PCs, each loaded with an array of mathematical software including the Mathematica computer algebra system and the Minitab statistical software package. Wickersham also has student study areas, a conference room, dedicated space for mathematics tutoring, eight classrooms, and was completely renovated during 2006.

Millersville University has an extensive inventory of modern instrumentation that students use in classroom work and for independent study and research. Included are four large environmental chambers, autoclaves, optical microscopes, atomic force microscope, scanning electron microscope, several types of spectrophotometers (FT infrared, visible-ultraviolet and 400 MHZ FT nuclear magnetic resonance), differential scanning calorimeter/thermogravimetric analyzer, gas chromatograph/mass spectrometer, Raman Spectrometer, a scintillation counter, phase contrast microscopes, optical bench components, a vibration-isolating table for holography and optical interferometry, a cryogenics unit, eximer laser, x-ray spectrometer, cosmic ray muon detector, electrophoresis equipment, thermocyclers, ultramicrotomes, high speed and table-top centrifuges and microfuges, laminar ow hoods, CO2 incubators for tissue culture, ultra-low freezers, an ultracentrifuge, several gas chromatographs, an electrochemical oxygen analyzer, an auto-analyzer, a high vacuum system, equipment for microwave behavior study, and hardware/software for data capture. Field equipment includes dissolved oxygen probes, ow meters, backpack electroshocker, PIT tagging equipment, active infrared monitors, uorometer, digital cameras, video cameras, turbidity meters and microbalance and extensive air sampling equipment. Additional science facilities include botanical glasshouses, a limnological research pond, the Keever ecological study area, several microcomputer-based laboratories, photographic darkrooms, and cold rooms. There are museum reference collections of mammals, birds, shes, insects, and other invertebrates and modern animal care facilities, including special aquatic "wet" rooms for maintenance of animals and research. There is an extensive botanical collection.

The meteorology program is supported by a large number of networked workstations, in three teaching laboratories, two research labs, and a state-of-the-art weather center. Equipment for acquisition and display of satellite imagery and other meteorological data is available, including a micro-pulse Lidar, a Sodar and a sun-tracking photometer as are standard instruments for making weather observations. A tethered atmospheric sounding system and instrument trailer is used for eldwork in meteorology. Four teaching labs, including a fully equipped soil mechanics laboratory, support the geology program. Geological eld equipment includes a surveyor's total station, a proton magnetometer, and a 12-channel engineering seismograph. Roddy Hall houses an earthquake seismograph station. The oceanography program is supported by one on-campus lab, which includes a wave tank, and the eld station of the Marine Science Consortium, Wallops Island, Virginia, including access to a modern research vessel.

STUDENT POLICIES

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.

IDENTIFICATION CARD

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

Identi cation cards may be obtained at the campus I.D. of ce in the lobby of Boyer Building. There is no charge for the rst card, and the current fee for replacement is posted in the campus I.D. of ce.

Of ce 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. of ce.

MOTOR VEHICLES

All vehicles parked on the properties of Millersville University must display a valid University issued parking permit. Permits may be secured at the University Police Parking Division located at Lebanon House (237 N. George St., rear lower level).

Violations of University parking regulations may result in parking violation tickets and possible disciplinary action, including cancel-

Millersville University students residing in campus housing who have less than 30 credits, who are less than 21 years of age, are generally not permitted to have vehicles on campus. Students covered by this restriction MAY be permitted to register a vehicle on a semester basis if they can demonstrate a compelling need due to medical, military, and educational circumstances. All resident parking spaces not sold by the end of the rst week of each semester will be made available to all resident students by means of a lottery. Upperclassmen resident students who fail to purchase a permit as required will become part of the lottery pool.

PRIVACY OF STUDENT REC

5. Using or possessing speci cally prepared, unauthorized materials during a test (e.g., notes, formula lists, formulas programmed into calculators, notes written on the student's clothing or person) that are unauthorized.

Academic Misconduct

Academic misconduct is the violation of University policies by tampering with grades or participating in the distribution of any part of a test before its administration. The below lists are for illustration only. They should not be construed as restrictive or exhaustive enumeration of the various forms of conduct that constitute violation of the academic honesty policy.

1. Stealing, buying, or otherwise obtaining all or part of an unadministered test.
2. Selling or giving away all or part of an unadministered test, including answers to an unadministered test.
3. Bribing, or attempting to bribe, any other person to obtain an unadministered test or any information about the test.
4. Buying, or otherwise acquiring, another's course paper and submitting it as one's own work, whether altered or not.
5. Entering a building, of ce, or computer for the purpose of changing a grade in a grade book, on a test, or on other work for which a grade is given.
6. Changing, altering, or being an accessory to changing and/or altering a grade in a grade book, on a test, on a "Change of Grade" form, or other of cial academic University record which relates to grades.
7. Entering a building, of ce, or computer for the purpose of obtaining an unadministered test.
8. Continuing to work on an examination or project after the speci ed allotted time has elapsed.
9. Taking a test or course for someone else or permitting someone else to take a test or course in one's place.
10. Giving or taking unauthorized aid in a take home exam or paper.
11. Submitting work for a class that was already submitted for another class, when unauthorized, or allowing another student to submit or copy from your previously submitted class work.

What can students do to protect themselves from being charged with violations of the Academic Honesty Policy?

1) Prepare thoroughly for examinations and assignments; this also implies attending class on a regular basis
2) Take the initiative to prevent other students from copying your exams or assignments (e.g. shield your answer sheet during examinations; don't lend assignments to other students for them to copy and turn in).
3) Check your instructor's course syllabus for a section dealing with academic honesty for that course and information on what style sheets or standards manuals to use, etc. If you can't nd such a section, ask the instructor about expectations in this area. Instructors should issue clear guidelines at the beginning of a course as to what constitutes dishonesty; ultimately, however, it is the student's responsibility to clear any uncertainties ahead of time.
4) Don't look in the direction of other student's papers during examinations.
5) Use a recognized handbook for instruction on citing source materials in papers. Consult with individual instructors or academic departments when in doubt.
6) Make use of tutorial services, or other services that may be available, to assist in preparing papers and completing other course assignments properly.
7) Discourage dishonesty among other students.
8) Refuse to assist students who cheat.

Actions which may be taken for violation of the Academic Honesty Policy.

When a faculty member suspects that an act of academic dishonesty has occurred, he/she will meet with the student to:

a) discuss the alleged act;
b) hear any defense the student may have;
c) discuss any proposed academic sanctions;
d) inform the student of his/her right to appeal faculty imposed sanctions to the department chair and/or dean of the school

Academic sanctions that may be imposed by the faculty member include:

a) a verbal reprimand;
b) a written reprimand;
c) requiring the student to redo/resubmit the assignment, test, or project;
d) lowering the grade for the assignment, test, or project.

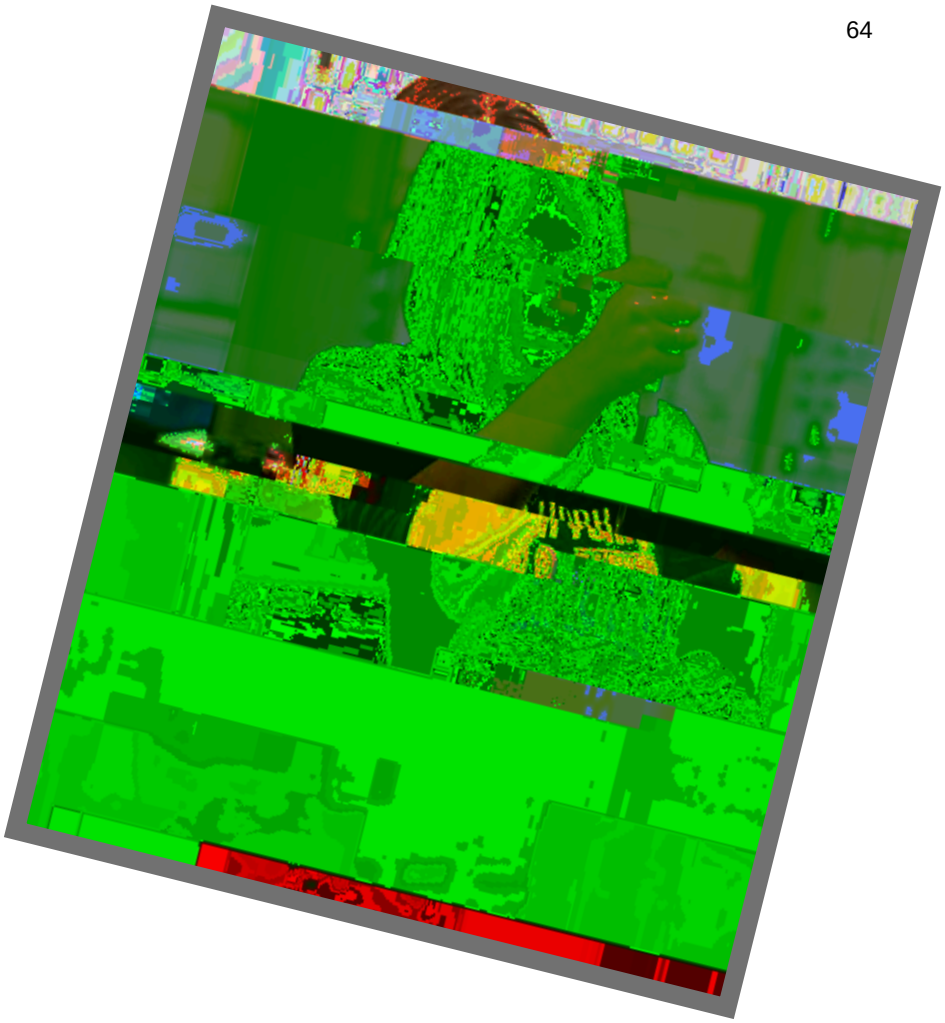
Academic sanctions that require a formal charge be led with the Associate Provost for Academic Administration include:

a) any sanction in excess of lowering the grade for an assignment, test ,or project;
b) failing the student for the course;
c)

student, even in the case of sanctions imposed only by the faculty member, then the Associate Provost for Academic Administration will meet with the student to discuss these occurrences and possibly impose additional academic sanctions.

Con dentiality

In accordance with the provisions of the Family Educational Rights and Privacy Act of 1974, any information relating to an alleged violation of the University's Student Code of Conduct or to the outcome of a judicial hearing must be treated as strictly con dential by members of the faculty.



Academic Programs

UNDERGRADUATE PROGRAMS

Millersville offers 51 undergraduate degree programs leading to an associate or baccalaureate degree as well as minor programs. Many majors offer options for ful lling requirements. These programs and options, subject to change, are listed on the following three pages. Teaching certi cation grades are given in parentheses. The speci c requirements for each program are given on the following pages under the department offering the program.

* Changes to the certi cations and the certi cation programs are anticipated at the direction of the Pennsylvania Department of Education.

BACCALAUREATE DEGREES & OPTIONS	DEPARTMENT
Allied Health Technology B.S.	Biology
Medical Technology (Clinical Laboratory Science)	
Nuclear Medicine Technology	
Pre-Athletic Training	
Respiratory Therapy	
Anthropology B.A.	Sociology-Anthropology
Archeology	
Art B.A.	Art
Art B.F.A.	Art
*Art Education B.S. Ed. (PreK-12)	Art
Biology B.A.	Biology
Biology B.S.	Biology
Botany	
Environmental Biology	
Marine Biology	
Medical Technology (Clinical Laboratory Science)	
Molecular Biology/Biotechnology	
Nuclear Medicine Technology	
Pre-Athletic Training	
Pre-Optometry	
Pre-Podiatry	
Respiratory Therapy	
*Biology B.S.Ed. (7-12)	Biology
Business Administration B.S.	Business Admin.
Accounting	
Finance	
International Business	
Management	
Marketing	
Chemistry B.A.	Chemistry
Cooperative Engineering	
Chemistry B.S.	Chemistry
Biochemistry	
Environmental Chemistry	
Nanotechnology	
Polymer Chemistry	
*Chemistry B.S. Ed. (7-12)	Chemistry
Computer Science B.S.	Computer Science
Early Childhood B.S.Ed. (PreK-4)	Elementary & Early Childhood
Earth Sciences B.A.	Earth Sciences
Environmental Geology	
*Earth Sciences B.S.Ed. (7-12)	Earth Sciences
Economics B.A.	Economics
Financial Economics	
Political Economy	
Quantitative	
Economics B.A.	Economics
Financial Economics	
Political Economy	
Quantitative	

BACCALAUREATE DEGREES &	DEPARTMENT

* Changes to the certi cations and the certi cation programs are anticipated at the direction of the Pennsylvania Department of Education.

BACCALAUREATE DEGREES & OPTIONS	DEPARTMENT

ASSOCIATE DEGREES & OPTIONS	DEPARTMENT

MINORS & OPTIONS	DEPARTMENT

Chemistry	Chemistry
Computer Science	Computer Science
Criminology	Sociology/Anthropology
Earth Sciences	Earth Sciences
Economics	Economics
Technical	
Environmental	(Multi-disciplinary)

GRADUATE PROGRAMS

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

Art Education M.Ed.	Art
Biology M.S.	Biology
Business Administration M.B.A.	Business Administration
Early Childhood Ed. 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.	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 Education	Nursing
Psychology School Counseling M.Ed. Clinical Psychology M.S. School Psychology M.S.	Psychology
English as a Second Language M.Ed.	Foreign Languages

Instructional Certi cation:
- Art
- Biology
- Chemistry
- Early Childhood Education
- Earth Sciences
- English
- French
- German
- Mathematics
- Music
- Physics
- Program Specialist-ESL
- Reading Specialist (requires Instructional II Certi cation)
- Social Studies/Citizenship Education
- Spanish
- Technology Education

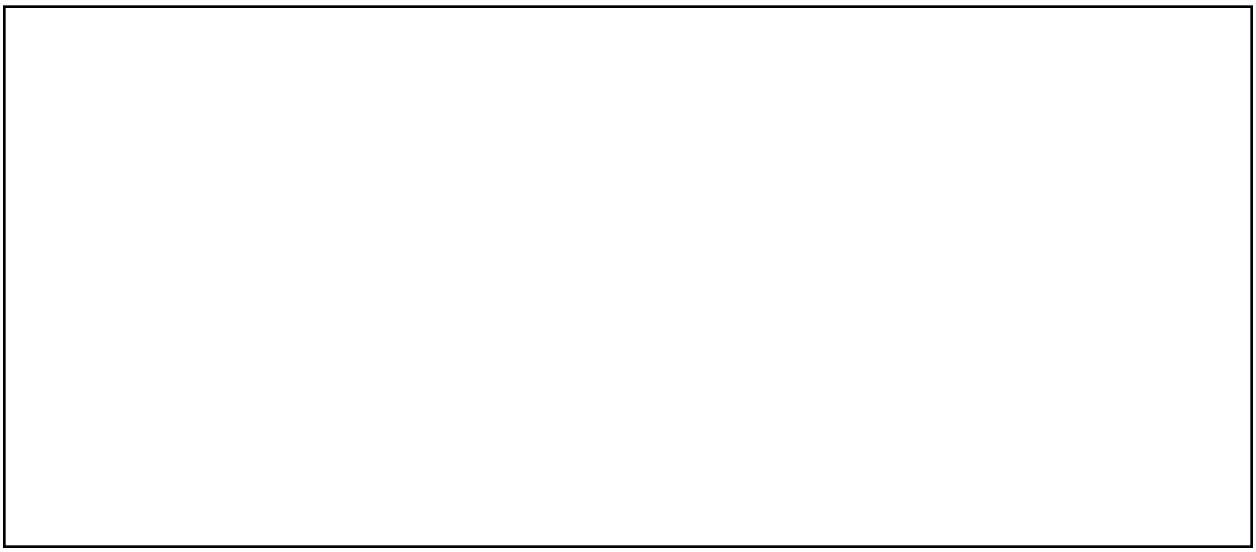
Post-Baccalaureate Certi cation/Educational Specialist:
- School Nurse

Post-Master's Certi cation/Educational Specialist:
School Psychology
Secondary School Counseling
Elementary School Counseling

Post-Master's Certi cation/Administrative:
Principal Certi cation K-12

Supervisory Certi cation Programs:
Art Education
Communication Arts (English)
Curriculum & Instruction K-12
Elementary Education
Foreign Languages
Mathematics
Music Education
Reading Education
School Guidance Services
School Health Services
School Psychological Services
Science
Social Studies
Special Education
Technology Education

Post-Master's Certi cate:
Family Nurse Practitioner
Nursing Education



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 bene cial that all students have a multicultural perspective of themselves and the world around them.

African-American Studies

SOCY 307: 3 s.h.
African-American Social Thought (G3, W)

SOCY 441: 3 s.h.
Urban Sociology

SOWK 313: 3 s.h.
Family Violence (P)

SOWK 350: 3 s.h.
Encounter in Human Diversity (D,P)

SSCI 212: 3 s.h.
The Black Woman (G3)

ALLIED HEALTH TECHNOLOGY

See Biology

ANTHROPOLOGY

See Sociology/Anthropology

ARMY: MILITARY SCIENCE (ROTC)

Reserve Of cers T raining Corps

Professor Eckstein, Instructor Hilty

Participation in military science courses during the freshman and sophomore years is open to all students. Individuals who elect to continue in and successfully complete the program during their junior and senior years can receive a commission as a second lieutenant in the U.S. Army, National Guard or Army Reserves upon graduation. They will be required to serve from four months to four years in the active Army, depending upon the type of commission.

COURSE DESCRIPTIONS

MILS 101, 102: 1 s.h.
Introduction to Military Science
An introduction to the fundamental components of service as an of cer in the United States Army. Initial lessons form the building blocks of progressive lessons in values, tness, leadership and of cership. By means of both written and oral presentations regarding the history of military art, battle history, technical studies and the relationship of the armed forces with society, students will be encouraged to develop a habit of critical re ection. To complement their investigation of military history, students will receive practical instruction in the application of military art and basic soldier skills. Meets one hour per week.

MILS 210, 211: 2 s.h.
Self and Team Development & Military
Leadership
A continuation of the fundamentals introduced the previous year by focusing on leadership theory and decision making. “Life skills” lessons during this year include: problem solving, critical thinking, leadership theory, followership, group interaction, goal setting and feedback mechanisms. The use of practical exercise is signi cantly increased over previous semesters, as cadets are increasingly required to apply communication and leadership concepts. Meets two hours per week.

MILS 301, 302: 3 s.h.
Leadership and Management
& Military T actics
Advanced instruction in topics introduced during the basic course. Emphasis on leadership. Situations require direct interaction with other cadets and test the student’s ability to achieve set goals and to get others to do the same. Students master basic tactical skills of the small unit leader. Principles and techniques of effective leadership, methods of developing and improving managerial abilities and leadership qualities, and a basic understanding of interpersonal interactions. Use is made of recent developments in the administrative and the behavioral sciences to analyze the individual, group, and situational aspects of leadership, and the management of resources. Participation in operations and basic tactics to demonstrate leadership problem solving and to develop leadership skills. Meets two hours per week. Prereq: Open only to advanced course cadets.

MILS 401, 402: 3 s.h.
Contemporary Military Issues
Emphasis is placed on developing planning and decision-making capabilities in the areas of military operations, logistics and administration. Concepts of organization theory and the principles of management and management and leadership relationships are investigated as they apply to the general theory and practice of the management functions of planning, organizing, staf ng, direction, coordination, control, innovation and representation. Meets two hours per week each semester. Prereq: Open only to advanced course cadets.

ART

School of Humanities and Social Sciences

Assistant Professor Cunningham, chairperson.
Professor Robinson, co-chairperson.
Professors Andriulli, Kerlavage.
Associate Professors Bensur, Frischkorn, Mata, Schuller, Sigel.
Assistant Professors Bruntse, Miller, Panna no, Wolf.

All courses are available to students enrolled in any art curriculum.

The Department of Art is an accredited institutional member of the National Association of Schools of Art and Design and offers three baccalaureate degree programs: the bachelor of arts in art (B.A.), the bachelor of science in art education (B.S.Ed.), and the bachelor of ne arts in art (B.F.A.). The recommended course sequence during the rst two years for all three programs is similar, so that any change in degree program within the art department need not result in loss of time or credits.

Liberal arts, art education and ne arts degree programs are designed to offer the exibility needed to meet the unique needs of each student. To lend authenticity to this idea, each student, with the help of an adviser, assumes much of the responsibility for determining their program of study.

B.A. and B.F.A. art students must maintain a minimum grade average of 2.0 in their major, while B.S.Ed. students must maintain a minimum GPA of 3.0 overall. A portfolio review is mandatory at the end of the freshman year upon completion of the core foundation sequence.

The B.A. program in art provides a sound, broad-based educational foundation which, to a considerable extent, can be individually tailored to meet the speci c educational goals of each student. B.A. students may pursue a graphic design focus or take a mix of art courses, that will lead to entry into a variety of other art and art related elds.

The B.S. Ed. in art education program is designed for students who aspire to become art teachers. Upon completing this program, students are certi ed to teach art at both the elementary and secondary levels in the public and private schools of Pennsylvania.

The B.F.A. program offers greater depth in art studio and is the professional studies program designed for persons who either intend to become self-employed artists or graphic designers who wish to further their education in graduate school programs in studio art. Additionally, students may combine the B.F.A. degree with teaching certi cation.

The art department encourages highly motivated students from graphic design to participate in internship and cooperative education opportunities that exist in both the public and private sectors. These opportunities are described in the Special Academic Opportunities section.

Applicants for the art B.F.A., art B.A. or the art education B.S.Ed. programs, including transfer applicants, must submit an art portfolio for review after acceptance to the University. Accepted students will receive a letter with speci c details regarding electronic portfolio submission. No original work will be accepted. The portfolio should include a variety of the student's best work. Ten to 15 pieces will be requested in total, 3-5 of those should be drawings with at least two of the drawings from direct observation. There will be no in-person reviews. Portfolio review deadlines are October 1, November 1, January 1, and March 1, reviews will not take place at any other time..

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Fine Arts Major (B.F.A.): 126 s.h.
Foundation Courses: Students must complete the B.F.A. design-drawing foundation program: ART 142, 242, 133, 233 and 333, plus Art 312 and any three art history courses. Students will choose one course from at least ve of the following seven areas: ceramics, ne art metals, painting/watercolor/drawing, photography, printmaking, sculpture and graphic design/computer art.

Concentration: Students must complete a minimum of 15 s.h. in at least one of the following studio areas: ceramics, ne arts metals, painting/watercolor/drawing, photography, printmaking, sculpture and graphic design. The concentration may include work taken to satisfy the required art courses. Students must select* art electives to bring their total art major credits to 75 s.h. During the semester in which a student anticipates completing 60-75 s.h., a second portfolio review and evaluation must be approved by the art department portfolio review committee for continuance in the B.F.A. program. Along with completion of ART 490, a senior exhibition, professional portfolio, and slides of the student's artwork are graduation requirements.

Studio Art Minor
The studio art minor is a program of study designed for the student who wishes to pursue a sequence of courses in studio art in addition to those of his/her major eld. Students must complete ART 133, ART 142; select one beginning level course from the 2D or 3D studio areas; select one art history course; and select two additional art electives to complete the 18 s.h. program.**

Art History Minor
The art history minor is a program of study designed for the student who wishes to pursue a sequence of courses in art history in addition to those of his/her major eld. Students must complete 18 credits in art history.

* With the approval of the student's adviser.

** A minimum of two 300 level courses must be completed to satisfy program requirements.

COURSE DESCRIPTIONS

Art History and Criticism

ART 100: 3 s.h.
Art in Culture (G1)
A course designed for the non-art major which involves a general study of the role of historical and contemporary art in society. Discussions cover - What is art, why it is made, how it is made and the context in which it was created. Criticism and analysis are central to the course. Students will gain an understanding of the importance of art and the creative process in any culture and realize how it can enrich our human experience. Offered in fall, spring and periodically in the summer.

ART 201: 3 s.h.
History and Aesthetics of Photography (G1)
A survey of the history, principles and theory of photography in the 19th and 20th centuries as it is used as an aesthetic medium and for visual communication. Differentiation between photographs made as art vs. snapshots, photojournalism, scienti c record and commercial art is emphasized. A research project is required. Offered periodically.

ART 301: 3 s.h.
The Ancient World (G1)
A survey of Western painting and sculpture from the Paleolithic through the Hellenistic periods. Offered periodically.

ART 302: 3 s.h.
The Italian Renaissance (G1)
A comprehensive analysis of painting and sculpture produced in Florence and Siena from the 13th through the 15th centuries. Offered periodically.

ART 303: 3 s.h.
The 19th Century (G1)
A survey of European art of the 19th century. Offered periodically.

ART 304: 3 s.h.
The 20th Century (G1, W)
The varied schools and styles of painting and sculpture in the 20th century. Offered periodically. Prereq: ENGL 110.

ART 312: 3 s.h.
Survey of Art History (G1)
A general survey of the art of the Western World with emphasis on the nature of style, medium, aesthetic changes and continuity. Criticism, analysis and evaluation of works of art related to their aesthetic worth and cultural signi cance are central to the course. Offered fall and spring.

ART 313: 3 s.h.
Art in America (G1)

ART 588, 589: 3-6 s.h.
Topics in Art History
Offered periodically.

Art Education

ART 221: 3 s.h.
Introduction to Art Education
The history of art education, current issues and theories, and practical problems involving visual resources in selected two and three dimensional art processes used in art education. Field experiences include observing art classrooms in county and city schools. For art education majors only. Offered in spring and fall.

ART 322: 3 s.h.
Child Development in the V isual Arts (W)
Survey of the holistic development of children and adolescents; investigate theories of cognitive, social, physical, emotional and language development as it effects the artistic growth of the typical and atypical child. In uences of society, school culture, peers, economic status, race and gender. Analysis of artwork, media and material toward development of appropriate visual arts curricula. Field experience includes observing in city and county schools. Offered in fall and spring. PrerememememerT

Design

ART 141: 3 s.h.
Fundamentals of Studio Art (Non-Art Majors) (G1)
Introduces visual arts through studio experiences. Criticism, analysis and evaluation are central to the course as the student seeks creative, original solutions to artistic problems while working with various media and techniques. Emphasis on aesthetic expression and effective visual communication rather than on skills development. Offered in fall and spring, summer, and periodically in winter.

ART 142: 3 s.h.
2D Design (G1)

Painting

ART 352: 3 s.h.
Painting I
An introduction to painting in oil, acrylic and related media in which the student explores basic techniques and approaches to painting through the use of drawing, design and color. Offered in fall and spring. Prereq: ART 133, 142, or permission of instructor.

ART 354: 3 s.h.
Painting II
Continued development of painting skill with the emphasis on sustained individual development and technical expression. Offered in fall and spring. Prereq: ART 352 or permission of instructor.

ART 452: 3 s.h.
Painting III
Further study in painting as the individual student works toward developing a personal idiom of expression. Offered in fall and spring. Prereq: ART 354 or permission of instructor.

ART 454: 3 s.h.
Painting IV
An advanced course in which students continue to develop style and technique as they seek their own direction in painting. Offered in fall and spring. Prereq: ART 452 or permission of instructor.

ART 552, 554: 3-6 s.h.
Painting

ART 353: 3 s.h.
Watercolor I
Introduces watercolor techniques through a series of problems related to the development of skill in handling the medium. Prereq: ART 133 and ART 142.

ART 355: 3 s.h.
Watercolor II
Continued development of painting in watercolor with the emphasis on sustained individual development and technical expression. Prereq: ART 353 or permission of instructor.

ART 453: 3 s.h.
Watercolor III
Further study in watercolor as the individual student works toward developing a personal idiom of expression. Prereq: ART 355 or permission of instructor.

ART 455: 3 s.h.
Watercolor IV
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.

ART 553, 555: 3-6 s.h.
Watercolor and Related Media

Graphics

ART 167: 3 s.h.
Nontraditional Photography
A studio course in alternative photographic processes for the artist, photographer and craftsperson. Camera not required. Offered periodically.

ART 306: 3 s.h.
Fine Art Photography I (G1)
An introduction to the value, function and perception of ne art photography through study and practice. Student work is analyzed, criticized and evaluated in terms of the photograph as ne art. (For both non-art and art majors.) Offered in fall, spring.

ART 366: 3 s.h.
Color Photography
Introduces basic techniques and materials of color photography with an emphasis Color 4 OfQ4sic tech 1 Tf /Spasþÿ PPhotographyIntroduces basic techniques

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.

ART 363: 3 s.h.
Lithography Printmaking I
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.

ART 364: 3 s.h.
Relief Printmaking I
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.

ART 365: 3 s.h.
Intaglio Printmaking I
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.

ART 367: 3 s.h.
Water-based Silkscreen Printmaking I
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.

ART 368: 3 s.h.
Collage
Offers a historical look at the last 100 years of collage as a media for ne 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. Preq: ART: 133 and 142.

ART 463: 3 s.h.
Lithography Printmaking II
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.

ART 464: 3 s.h.
Relief Printmaking II
Builds on the information presented in Relief Printmaking I. Starts at an intermediate level technically and builds with each process into an advanced

ART 563, 564: 3-6 s.h.
Printmaking

3-Dimensional Studios

ART 282: 3 s.h.
Sculpture I (G1)
An introduction to sculpture as a three-dimensional form of artistic expression with an emphasis on lost wax casting. The critical, the productive and the evaluative aspects of sculpture as art are central to the course. (For both non-art and art majors.) Offered in fall, spring.

ART 382: 3 s.h.
Sculpture II
Continued development of individual artistic expression with emphasis on contemporary sculptural form. Offered in fall, spring. Prereq: ART 282.

ART 482: 3 s.h.
Sculpture III
Further study in sculpture as the student works toward developing a personal idiom of expression. Offered in fall and spring. Prereq: ART 382.

ART 483: 3 s.h.
Sculpture IV
Advanced study in sculpture in which the student continues to develop style and technique while discovering personal artistic direction. Offered in fall and spring. Prereq: ART 482.

ART 582, 583: 3-6 s.h.
Sculpture

ART 291: 3 s.h.
Fine Art Metals I (G1)
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.

ART 391: 3 s.h.
Fine Art Metals II
Continued development of individual artistic expression in jewelry and metals with the emphasis on artistic inventiveness and personal style. Offered in fall and spring. Prereq: ART 291.

ART 491: 3 s.h.
Fine Art Metals III
Further study of jewelry and metals as an art form in which the student is encouraged to develop an original aesthetic style while exploring and employing advanced technical processes. Offered in fall and spring. Prereq: ART 391.

ART 492: 3 s.h.
Fine Art Metals IV
Advanced study in jewelry and metals in which the student continues to develop style and techniques while discovering personal artistic direction. Offered in fall and spring. Prereq: ART 491.

ART 591, 592: 3-6 s.h.
Fine Art Metals

ART 295: 3-6 s.h.
Ceramics I: Handbuilding (G1)
Introduces clay and the ceramics process utilizing hand building methods. Emphasis on the productive, critical, cultural and historical aspects of ceramics as a form of artistic expression. Basic handbuilding and glazing techniques are employed as students seek creative solutions to visual problems (for both non-art and art majors). Offered in fall and spring.

ART 296: 3-6 s.h.
Ceramics I: Wheel Throwing (G1)
Emphasis on the productive, critical, cultural and historical aspects of ceramics as a form of artistic expression. Basic wheel throwing and glazing techniques are employed as students seek original creative solutions to visual problems (for both non-art and art majors).

ART 297: 3 s.h.
Ceramics II
Development of clay as a means for self expression. Introduces glaze preparation, experimentation and simpli ed glaze chemistry. Prereq: ART 295 or 296.

ART 396: 3 s.h.
Ceramics III
Continued development of the student's own style and means of self expression. An in-depth study in one technical aspect related to the work being produced. Prereq: ART 297.

ART 497: 3 s.h.
Ceramics IV
Advanced study in clay in which students continue to develop style and techniques as they pursue their own artistic direction. Prereq: ART 396.

ART 596, 597: 3-6 s.h.
Ceramics

Studio Topics

ART 686, 687: 3-6 s.h.
Topics in Art Studio

Independent Study

ART 498: 1-3 s.h.
Independent Study in Art
For further information on independent study, see the Special Academic Opportunities section.

ART 490: 3 s.h.
Professional Seminar and Exhibition
An independent problem culminating in the development of a portfolio and exhibition of the student's art work. The student is required to attend and participate in seminar activities for this course. Offered in spring. Prereq: Senior standing.

BIOCHEMISTRY

See Chemistry

BIOLOGY

School of Science and Mathematics

Professor Piperberg, chairperson
Associate Professor Ladd, allied health coordinator
Professors Ambler, Cosentino, Hepfer, Hoover, Reinking, Wallace, Whisenton-Davidson, Yocom, Zegers
Associate Professors Boal, DiBartolomeis, Moné
Assistant Professors Cebra-Thomas, Dagit, Hardy, Wagner, Zhong
Respiratory Therapy Clinical Faculty: Chrissos, Hughes, Rozans

Bachelor of Arts in Biology and Bachelor of Science in Biology

The Department of Biology offers three degrees and 10 options leading to the baccalaureate degree. The requirements are very similar for all programs during the first two years so any change in career emphasis need not involve any major loss of time or credits. The department also offers minors in biology and molecular biology/biotechnology.

The program leading to the bachelor of arts degree is broad, embracing interdisciplinary study of cell and molecular biology, plant and animal science and population biology. Programs can be tailored to prepare the student for employment or graduate study in a variety of biology subdisciplines.

The program leading to the bachelor of science provides the student with an opportunity to elect a substantial number of courses in

After completing three years of undergraduate study, students in the medical technology program are eligible to apply to an accredited hospital-based medical technology program for one year of clinical laboratory experience after which they will be awarded the bachelor of science degree and will be eligible to sit for the national certi cation examination. Currently, Millersville is af liated with two hospital-based medical technology programs.

After completing three years of undergraduate study, students in the nuclear medicine technology program are eligible to apply for admission to one of the member hospitals of the Lancaster General College of Nursing and Health Sciences School of Nuclear Medicine Technology for one year of hospital training after which they will be awarded the bachelor of science degree and will be eligible to sit for the national certi cation examination.

An agreement between Millersville University and the Pennsylvania College of Optometry in Philadelphia allows students in the optometry option to complete three years of undergraduate study at Millersville and then transfer to Philadelphia for the rst year of study in the doctoral program. Students who complete the year with good grades receive a B.S. in biology from Millersville University and after three additional years earn the doctor of optometry degree.

A cooperative option exists between Millersville University and the Temple University School of Podiatric Medicine. This 3/4 pre-podiatry program allows students to transfer to the professional school after satisfactorily completing 99 semester hours at Millersville University. After successful completion of the basic science courses at the Temple University School of Podiatric Medicine, students are awarded a B.S. in biology from Millersville University. Three recommended Millersville students a year have reserved spaces for admission to the podiatric college, where graduation after four years earns a D.P.M. degree.

Millersville University is the sponsoring institution for the respiratory therapy program. After successfully completing three years of study at the University, students enter the 16-month clinical phase. At the end of the clinical phase, they are awarded the bachelor of science degree, and a certi cate in respiratory therapy, and will be eligible to sit for the national credentialing examination.

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Biology Major (B.S.): 120 s.h.
Molecular Biology/Biotechnology Option
BIOL 101, 211, 221, 343, 362, 364, 462, 466 and 472. Electives to bring total biology credits to 39. 24 s.h. chemistry; 8 s.h. physics; 7 s.h. mathematics/computer science, including calculus (MATH 161).

Biology Major (B.S.): 120 s.h.
Medical T echnology Option
BIOL 101, 211, 257, 362, 364, 454 and 461. Biology electives or MATH 235 to bring total nonclinical major credits to 31.. 16 s.h. chemistry; MATH 160, 161 or 163. 30 s.h. of clinical laboratory study from a hospital program in medical technology approved by the National Accrediting Agency for Clinical Laboratory Sciences.

Biology Major (B.S.): 120 s.h.
Nuclear Medicine T echnology Option
BIOL 101, 211, 257, 356, 362, 364 and 375. 16 s.h. chemistry; MATH 160, 161 or 163; 8 s.h. physics. 28 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.

Biology Major (B.S.): 120 s.h.
Optometry Option
BIOL 101, 211, 362, 364, 375, 461, and 472. 20 s.h. chemistry, 7 s.h. mathematics/computer science including calculus (MATH 161 or 163); 8 s.h. physics, 3 s.h. psychology. 23 s.h. transfer credits upon completion of one year at the Pennsylvania College of Optometry.

Biology Major (B.S.): 149 s.h.
Pre-Athletic T raining Option
BIOL 101, 211, 254, 255, 352, 362 and 375. 16 s.h. chemistry, 8 s.h. physics, 4 s. h. mathematics (MATH 161), 54 s.h. MU-WCU-athletic training credits earned via distance learning and one summer of mandatory course work at West Chester University. Dual degree program with West Chester University. See the curriculum sheet for appropriate courses.

Biology Major (B.S.): 120 s.h.
Pre-Podiatry Option
BIOL 101, 211, 257, 356, 362, 364, and 435. 20 s.h. chemistry; 8 s.h. physics; MATH 161 or 163; 6 s.h. psychology, 24 s.h. transfer credits from Pennsylvania College of Podiatric Medicine.

Biology Major (B.S.): 120 s.h.
Respiratory Therapy Option
BIOL 101, 257, 356, 362, 364, 455 and 461. 16 s.h. chemistry; 4 s.h. physics; MATH 161 or 163. The student will be eligible to begin the clinical phase of the respiratory therapy clinical program at the completion of 84 s. h. After the successful completion of 36 s. h. in the clinical phase, the student would be eligible to apply for graduation for B. S. Biology degree, respiratory therapy option. In order to receive the respiratory therapy certi cate to be eligible to practice as a registered respiratory therapist (RRT), the respiratory therapy major will need to complete the second part of the clinical training, which includes an additional 27 hours s. h. (Clinical II course work.) The respiratory therapy certi cate is required for the

After completing three years of undergraduate study, students in the Allied Health Technology/Nuclear Medicine Technology program are eligible to apply for admission to one of the member hospitals of the Lancaster General College of Nursing and Health Sciences School of Nuclear Medicine Technology for one year of hospital training after which they will be awarded the bachelor of science degree and will be eligible to sit for the national certi cation examination.

Millersville University is the sponsoring institution for the respiratory therapy program. After successfully completing two years of study at the University, students enter the approximately two-year clinical phase at Lancaster Regional Medical Center (LRMC). At the end of the clinical phase, students are awarded the Bachelor of Science degree, and a certi cate in respiratory therapy, and will be eligible to sit for the national credentialing examination. This degree option differs from the other BSALHT and BS degree programs offered by the Biology Department in its format and is termed a 2+2 year program that begins the clinical year in the summer following the sophomore year, not the end of the junior year as is the case for the other degree options.

gross anatomy, function and pathophysiology of the endocrine, circulatory, respiratory, digestive, urinary, and reproductive systems. 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: BIOL 254.

B

BIOL 340: 3 s.h.
Perspectives in Environmental A wareness (P)
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.

BIOL 343: 4 s.h.
Principles of Ecology and Evolution (W)
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.

BIOL 345: 3 s.h.
Applied Ecology (W)
The application of ecological principles and methods to the solution of environmental problems in the elds of agriculture, forestry, sheries and preservation of biological diversity are examined. Impacts of pollutants on ecosystems are discussed. A major focus is the use of biological pro-

B

BIOL 375: 3 s.h.
Biometry
Use of statistical techniques in descriptive and experimental biology and the use of mathematical models in describing biological phenomena. 3 hrs. lec. Offered in fall, spring. Prereq: BIOL 100 or BIOL 101, and MATH 160.

BIOL 415: 3 s.h.
Mammalogy
Phylogeny, taxonomy, adaptations, behavior and ecological relationships of mammals. Acquisition of laboratory and eld techniques are stressed. 2 hrs. lec., 3 hrs. lab. Weekend eld trips. Offered periodically in fall. Prereq: BIOL 211.

BIOL 416: 3 s.h.
Entomology

BIOL 470: 1-2 s.h.
Biology Colloquium

BIOL 495 or ESCI 465: 3 s.h.
Biological Oceanography

RESP 419: 2 s.h.
Respiratory Care in Alternate Sites
Alternate sites for respiratory care are studied to give the students a better understanding of the career opportunities within their reach. The students will 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.

RESP 420: 3 s.h.
Arterial Blood Gas Analysis
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.

RESP 421: 2 s.h.
Physiology of Mechanical V entilation
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.

RESP 422: 3 s.h.
Pharmacology
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 103 and CHEM 104, for the B. S. in Allied Health Technology.

RESP 423: 2 s.h.
Infectious Diseases
Infectious diseases resulting in respiratory infections, host defense mechanisms, the immunology of the respiratory system, and temporary or permanent failure of many protective mechanisms of the body to ward off infectious agents. Fluid and electrolyte management is stressed. Prereq: BIOL 461.

RESP 424: 2 s.h.
Non-Infectious Diseases
Diseases of the airway, parenchyma and pleura are covered in an assessment-based format to understand the etiology, diagnosis, treatment, and management of patients with non-infectious pulmonary diseases. Prereq: RESP 413.

RESP 425: 2 s.h.
Neonatology for the Respiratory Therapist
Uterine development of the embryo is discussed with emphasis on the fetal pulmonary system. The respiratory and circulatory changeover of the neonate at birth is studied. Temperature regulation, signs of respiratory distress, oxygen administration, arterial blood analysis and congenital abnormalities and disease states are studied with respect to the newborn. Prereq: BIOL 356 or BIOL 254/255.

RESP 430: 2 s.h.
Clinical Practice I
A skills-oriented laboratory course designed to prepare the respiratory therapy student to perform the following procedures in patient care areas: oxygen and aerosol therapy set ups, oxygen analysis, bedside mechanics measurements, chest physical therapy, pulse oximetry, pulmonary function screening, peak ow determinations, hyperin ation therapy, calibration of the blood gas analyzer, analysis of an arterial sample, radial artery puncture, brachial artery puncture, understand the principle of operation of blood gas electrodes, (pH, PCO2, and PO2), and the administration of pharmacologic aerosols. Prereq: RT Clinical students only.

RESP 431: 4 s.h.
Clinical Practice II
A laboratory/patient care practice course including supervised clinical practice and mastery of skills learned in Clinical Practice I. The following new skills are mastered: endotracheal intubation, extubation and cuff management, tracheal aspiration, ventilator set up, ventilator check, ventilator circuit change, and complete pulmonary function testing. Prereq: RESP 413, 421, 430.

RESP 432: 13 s.h.
Clinical Practice III
A 680-hour clinical practicum focusing on supervised advanced practice in a variety of regional medical centers. Prereq: RESP 431.

RESP 495: 2 s.h.
Respiratory Care Research
Each student selects, designs, and conducts a research project, individually or with a research partner. The project culminates in a verbal presentation of the research and a manuscript from each student suitable for publication each project is assigned a faculty advisor to oversee and guide the research. Prereq: Permission of program director.

Millersville University Program in Respiratory Therapy ADA Standards Americans with Disabilities Act

In keeping with its mission, goals, and in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, Millersville University and its consortium-af liated hospital promote an environment of respect and support for persons with disabilities and will make reasonable accommodations. The de nition of individuals with disabilities are those who currently have, have a record of having, or are regarded as having a physical or mental impairment that substantially limits one or more major life activity. Major life activities include caring for oneself, performing manual tasks, walking, seeing, hearing, breathing, and working.

Individuals applying for admission, progression to clinical courses, and graduation from the program in respiratory therapy must be able to meet the physical and emotional requirements of the academic program. In addition, students admitted must possess the following qualities:

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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 ful

Foundations Block:
Students wishing to major in Business Administration must complete each of the following courses with a grade of C- or higher and maintain a GPA of 2.0 or higher in the Foundations Block prior to enrolling in any other courses within the Department of Business Administration: ECON 101, ECON 102, BUAD 161, BUAD 162 and BUAD 202.

Business Core
General Business: BUAD 202, 207, 306, 308

Accounting: BUAD 161, 162

Finance: BUAD 341

Management: BUAD 251, 352, 455

Marketing: BUAD 231

Required Related Non-business Support Courses
Economics: ECON 101, 102

Math: MATH 151 or 161 or 163; and MATH 235

English: ENGL 316

Professional Option Areas
(One of the following 5 options is required.)

Accounting: BUAD 361, 362, 364, 366, 461, 488 and 3 credits in accounting.

Finance: BUAD 342, 447 and 9 credits in nance.

International Business: BUAD 201; 9 credits from BUAD 344, 357, 435, ECON 325; 3 credits from ANTH 121, GOVT 251, GOVT 351, GEOG 222, ECON 206 or any BUAD course.

Management: BUAD 357, 452, 488 and 6 credits in management.

Marketing: BUAD 431, 488 and 9 credits in marketing.

Business Administration Minor: 18 s.h.
(Not available to business administration majors.)

BUAD 101 and ve courses from one of the following option areas:

General Business: BUAD 161, 162, 251, 231, 341.

Accounting: BUAD 161, 162, 361, 366, 364.

Finance: BUAD 161, 162, 341, 342, and either 345 or 445.

Management: BUAD 251, and 12 credits in management.

Marketing: BUAD 231, 431, 436 and 6 credits in marketing.

NOTE: Some of these courses have prerequisites.

COURSE DESCRIPTIONS

General Business

BUAD 101: 3 s.h.
Introduction to Business (G3)
Introduction of basic business concepts such as institutional setting, organizational structures, decision making, accounting, nance, labor relations, , , UADA187 TD77(makinr>>> BDC u(2onal)eusic)40 1 Tn , , the ganInveganBusinntain bec187ns8a[(Mark2gist 163in marketing.)]TJ /6, 308BUA2 101: 3 InterUADIB).DeADas NmADeAseAD 16oi.
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BUAD 300: variable credit, 3 s.h. minimum
Cooperative Education in Business Administration

BUAD 302: 3 s.h.
Law of Business Organizations and T ransactions
Continuation of BUAD 202. Includes such topics as consumer law, debtor-creditor law, secured transactions, bankruptcy, forms of business organization, securities regulation, antitrust, labor-management relations, employment discrimination, environmental law, international business, wills and trusts. Recommended for students studying for the CPA exam, or for business students who wish to broaden their knowledge of the legal environment of business. Counts as a business administration departmental elective, or as an accounting elective in the accounting option. Offered annually. Prereq: BUAD 202.

BUAD 306: 3 s.h.
Research Methods in Business
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, nance and accounting. Uses computer programs for data analysis, interpretation and presentation of research results. Offered in fall, spring. Prereq: MATH 235.

BUAD 308: 3 s.h.
Quantitative Methods For Business
An introduction to management science techniques in order to facilitate quantitative reasoning as an aid for managerial decision making. Emphasis on developing analytical skills. Decision-making cases and problems presented with the aid of computers. Topics include linear programming (including modeling, computer solution, and sensitivity analysis), assignment/transportation/transshipment problems, project management techniques (PERT/CPM), queuing models, simulation, inventory control models, decision theory, analytic hierarchy process (AHP), and Markov processes. Offered in fall, spring. Prereq: MATH 235.

BUAD 310: 3 s.h.
The Economics of Justice (P)
Economic concepts and models used to explain legal principles. The effects of legal decision making on economic ef ciency. Topics include property, contracts, torts and criminal law. Offered annually. Prereq: BUAD 202, ECON 102, COMM 100, ENGL 110, junior status.

BUAD 400: variable credit, 3 s.h. minimum
Cooperative Education in Business Administration

BUAD 405: 3 s.h.
Special T opics in Business Administration
Advanced, innovative, or exploratory topics and disciplines within business administration. Speci c content items developed by instructor. Most topics will be for business majors only. Offered periodically. Prerequisites may vary. Consult the current course offering.

BUAD 488: 3 s.h.
Seminar in Business Administration (W)
Research on a topic including preparation and critical analysis of a paper. Topic need not be from student's option. Offered in fall, spring. Prereq: ENGL 110 and senior status. Prerequisites will vary.

BUAD 498: variable credit
Independent Study in Business Administration
For the de nition of independent study and eligibility, refer to the Academic Policies section of this catalog.

Accounting

BUAD 161: 3 s.h.
Introduction to Financial Accounting
Examination of the account cycle and systems and procedures for developing nancial information; introduction to the conceptual and theoretical foundation of nancial information systems; and interpretation of nancial statements. Offered in fall, spring. Prereq: MATH 101 or MATH placement beyond MATH 101 (MATH 160, 161, 151, 163H, 155H).

BUAD 162: 3 s.h.
Introduction to Managerial Accounting
Problem-oriented introduction to the interpretation and application of accounting information from the viewpoint of management with emphasis on planning and control and long-range strategies. Offered in fall, spring. Prereq: C- or higher in BUAD 161 for BUAD majors/minors.

BUAD 361: 3 s.h.
Intermediate Accounting I
Financial statement preparation with special attention to revenue recognition and asset valuation. Emphasis on generally accepted accounting principles and accounting theory. Students will develop a familiarity with the of cial pronouncements. Offered in fall, spring. Prereq: C- or higher in BUAD 162 for BUAD majors/minors.

BUAD 362: 3 s.h.
Intermediate Accounting II
Examination of generally accepted accounting principles as they apply to long term liabilities and equity. This course is a continuation of Intermediate Accounting I. Includes issues of current interest. Selected readings from pronouncements. Offered in fall, spring. Prereq: C- or higher in BUAD 361 for BUAD majors/minors.

BUAD 363: 3 s.h.
Accounting Information Systems
Special emphasis on current problems and issues using small business accounting software. Offered infrequently. Prereq: C- or higher in BUAD 361 for BUAD majors/minors.

ematical model in banking, management science in banking, computers and checkless banking. Offered periodically. Prereq: C- or higher in BUAD 341 for BUAD majors/minors.

BUAD 347: 3 s.h.
Risk and Insurance
Introduces principles and mechanics of insurance. Includes the conceptual and historical framework of insurance and the actual mechanics of insurance risk management as they pertain to personal and business needs. Offered periodically. Prereq: C- or higher in BUAD 341 for BUAD majors/minors.

BUAD 445: 3 s.h.
Financial Markets (W)
Classical and modern thought on markets. Numerous modern markets are investigated in terms of functionality, strategy and development. Offered annually. Prereq: ECON 101, BUAD 342 and ENGL 110.

BUAD 447: 3 s.h.
Cases in Finance (W)
Continuation of the study of nancial theory and its application using the case method. Real world nancial problems, for which elementary or

BUAD 452: 3 s.h.
Production and Operations Management
Survey of basic principles, concepts, and techniques of operations management applicable to manufacturing as well as service organizations. Examines positioning, design, and operating decisions and their interrelationships in the context of the overall competitive strategy of the rm. Explores current trends and innovations in operations management theory and practice. Topics include operations strategy, quality control/TQM, product/service design, capacity planning, process design, facility layout, design of work systems, location planning, supply chain management, inventory control, MRP/ERP, just-in-time systems, scheduling and project management. Offered in fall, spring. Prereq: MATH 130 or 235, C- or higher in BUAD 251 for BUAD majors/minors.

BUAD

CHEMISTRY

School of Science and Mathematics

Professor Turchi, chairperson
Professors Hill, Iannone, Rajaseelan, Rickard, Wismer
Associate Professors Anna, Mbindyo
Assistant Professors Bonser, Miller, Schiza
Instructor C. Greco

The Department of Chemistry, accredited by the American Chemical Society, offers three degree programs leading to the baccalaureate degree with a major in chemistry. The recommended course sequence during the first year is identical for the three programs and thereafter differs only slightly through the junior year; thus a change in career emphasis in chemistry need not delay graduation.

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 three 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 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.

For those students desirous of pursuing a career in high school teaching, the bachelor of science in education degree (B.S.Ed.) provides a sound background in chemistry as well as the necessary methods courses.

324, 326, 327, 328, 381, 391, 392, 435, 452, 486, 498, 499; COOP 300, 400. Required related courses: competency equivalent to BIOL 100, plus MATH 161, 211, 311 and PHYS 231, 232. Additional electives (9 s.h.) selected from BIOL 241, ESCI 245, 349, 426, GEOG 202, OSEH 321.

Chemistry Major (B.S

CHEM 104: 3 s.h.
General, Organic and Biochemistry II (G2, L)
Solutions, acids and bases, oxidation-reduction, and organic chemistry; including nomenclature and basic reactions with relevancy to biochemistry. Appropriate for nonscience majors and satis es general education requirements. 2 hrs. lec., 2 hrs. lab. Offered in spring. Prereq: CHEM 103.

CHEM 110: 3 s.h.
Fundamentals of Chemistry
An intensive review of the fundamentals of chemistry, with particular emphasis placed on solving chemistry problems. Topics include: measurements, formulas and nomenclature, equations, stoichiometry, atomic and molecular structure, solution concentrations, acids and bases. This course is designed to prepare students majoring in the sciences for their general chemistry sequence, CHEM 111 and CHEM 112. This course may be counted only as an elective beyond normal graduation requirements. Placement in CHEM 110 on the basis of placement examination before registration. 3 hrs. lec./problem solving. Offered fall, spring and online in summer.

CHEM 111: 4 s.h.
Introductory Chemistry I (G2, L)
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. Pro ciency 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 chair.

CHEM 112: 4 s.h.
Introductory Chemistry II (G2, L)
Continuation of CHEM 111. The interactions of matter and energy-thermodynamics, kinetics and electrochemistry. Equlibria in aqueous systems-theory and practice. Coordination chemistry and descriptive chemistry of the elements. 3 hrs. lec., 1 hr. discussion, 2 hrs. lab. Prereq: CHEM 111 with a grade of C- or higher; C for chemistry majors.

CHEM 113H: 1 s.h.
Honors Seminar for Introductory Chemistry
The ideas of introductory chemistry are studied in extended depth, using problems, laboratory exercises, readings and discussion. Grades of B- or better in both CHEM 112 and CHEM 113 will result in honors designation for the pair. The pair of courses counts as one entry in the science component of general education and results in 5 hours of general education credit. 1 hr. discussion. Corequisite: concurrent registration in CHEM 112 is required. Prereq: CHEM 111 grade B- or better and consent of Honors College Committee.

CHEM 188: 1 s.h.
Freshman Seminar in Chemistry

explained. Acid-base and oxidation-reduction behavior will be emphasized along with coordination chemistry. Periodic trends are an integral part of the course. 3 hrs. lec. Offered in spring. Prereq: CHEM 112 with a grade of C- or higher; C for chemistry majors, or Coreq: CHEM 112.

CHEM 265: 4 s.h.
Quantitative Analysis (G2, L)
An integrated study of advanced chemical equilibrium, activity, experimental uncertainty and accepted practice in the analytical laboratory. Titrimetry, potentiometry, extraction theory, introductory spectroscopy and chromatography are discussed. 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: CHEM 112 with a grade of C- or higher; C for chemistry majors.

CHEM 302: 3 s.h.
Chemistry in Nanotechnology
A study of principles, methods and applications of chemistry in nanotechnology. Nanoscale processes, materials and surfaces will be studied from a chemistry perspective. Topics include chemistry of surfaces, synthesis of nanometer scale materials, surface functionalization, sensors, colloids and nanofabrication. A study of techniques used to characterize nanoscale materials including scanning, transmission and atomic force microscopy. 2 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: CHEM 104 or CHEM 111 and NMT 313 or CHEM 112 or permission of instructor.

CHEM 324: 4 s.h.
Plant Biochemistry
A study of enzymes and pathways involved in plant intermediary metabolism 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 263, CHEM 232 or 235.

CHEM 326: 4 s.h.
Biochemistry I
The structure and physical and chemical properties of carbohydrates, lipids, nucleic acids, and other biological compounds and their importance in life processes. Introduction to metabolic processes. Laboratory studies include the properties of chemicals of biological origin, techniques in isolation, identi cation, qualitative and quantitative analysis. 3 hrs. lec., 3 hrs. lab. Offered fall, spring. Prereq: CHEM 232 or 235.

CHEM 327: 4 s.h.
Biochemistry II
Dynamic aspects of biochemistry; enzyme reactions including energetics, kinetics and mechanisms. Major emphasis on intermediary metabolism of fats, carbohydrates, lipids, proteins, nucleic acids and other macromolecules. Photosynthesis, electron transport phosphorylation and replication mechanisms also presented in detail. 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: CHEM 232 and 326.

CHEM 328: 1 s.h.
Analytical Biochemistry Laboratory
Introduction to biochemistry literature research, methodology of enzyme assays and peptide synthesis, and techniques used for separation, analysis and characterization of all major classes of biologically important compounds. 3 hrs. lab. Offered in spring. Prereq or Coreq: CHEM 327.

CHEM 341: 4 s.h.
Physical Chemistry I (W)
A thermodynamic study of chemical systems including ideal and nonideal solutions, chemical and phase equilibria, and electro-chemistry. Investigation of the macroscopic behavior of gases and its theoretical explanations. Summary of the determination and application of additive properties. 3 hrs. lec., 3 hrs. lab. Offered in fall. Prereq: CHEM 265, PHYS 232, MATH 311 and ENGL 110.

CHEM 342: 4 s.h.
Physical Chemistry II (W)
Chemical kinetics, statistical mechanics, the development and present state of quantum theory including chemical bonding theories, atomic and molecular spectroscopy, and methods of structure determination. 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq: CHEM 341, and ENGL 110.

CHEM 372/372H: 3 s.h.
The History of Chemistry and Society (D, P)
The history of the development of the science of chemistry from its roots in Egyptian and Greek societies through its specialization in the early twentieth century. The relationships between chemical developments and society are explored, as well as the in uences of chemistry on Western thought. 3 hrs. discussion. Offered in spring. Prereq: COMM 100, ENGL 110; junior status; CHEM 102, 104, or 111; 2 social science courses, including one history course: HIST 101, 102, or 410 preferred.

CHEM 375: 4 s.h.
Environmental Chemistry (G2, L)
The application of modern chemical principles to the chemical and physical intera of the the chydoscphreq,citehscphreq,catmscphreqand iiolcphreq.aAlsodesc

CHEM 392: 1 s.h.
Advanced Laboratory II
A continuation of CHEM 391 including advanced techniques in inorganic synthesis and analysis. 3 hrs. lab. Offered in spring. Prereq or Coreq: CHEM 251.

CHEM 435: 3 s.h.
Advanced Organic Chemistry
Current theories of organic chemistry with major emphasis on physical aspects as applied to structure, reactions, spectroscopy and reaction mechanisms. 3 hrs. lec. and reading in current literature. Offered in spring. Prereq: CHEM 232.

CHEM 452: 3 s.h.
Inorganic Chemistry
Theories of bonding and structure of inorganic elements and compounds, acid-base theories, coordination chemistry, organometallic chemistry, bioinorganic chemistry. 3 hrs. lec. Offered in fall. Prereq: CHEM 251 and 342 or permission of instructor.

CHEM 465: 4 s.h.
Analytical Chemistry
Theory and practice of modern analytical techniques in chemical separations and instrumental analysis. 3 hrs. lec., 3 hrs. lab. Offered in spring. Prereq or Coreq: CHEM 342.

CHEM 476: 4 s.h.
Environmental Chemistry II
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, pesticides and pollutants, hazardous waste and disposal methods. All topics will be studied from chemical, political and socioeconomic perspectives. 3 hrs. lec., 3 hrs. lab. Offered alternate spring semesters. Prereq: CHEM 375.

CHEM 482: 3 s.h.
Polymer Chemistry II
Topics in polymer physical chemistry, including conformation of polymer molecules, polymer solutions, theory of molecular weight determination methods, rheology, orientation, time-temperature dependence of physical properties, thermodynamics and kinetics of polymerization, rubber elasticity and spectroscopic methods of polymer characterization. 3 hrs. lec. Offered alternate spring semesters. Prereq: CHEM 342 and 381 or permission of instructor.

CHEM 486: 1-4 s.h.
Topics in Chemistry
Detailed investigation of a topic in chemistry of current interest. Topic to be announced each time course is offered. Offered infrequently. Prereq: permission of instructor.

CHEM 487: 0.5 s.h.
Seminar in Chemistry I
Topics of current chemical interest. 1 hour. Offered in fall. Prereq: senior standing or permission of instructor.

CHEM 488: 0.5 s.h.
Seminar in Chemistry II
Topics of current chemical interest. 1 hour. Offered in spring. Prereq: CHEM 487 and co-req: GRAD 999 or permission of instructor.

CHEM 498: 1-3 s.h.
Introduction to Research/Independent Study in Chemistry
A course for quali ed students to investigate problems in chemistry. Guidance in the methods of chemical research. Prereq: permission of instructor. For further information on independent study, see the Special Academic Opportunities section.

CHEM 489, 499: 1-3 s.h.
Honors Courses/Thesis
For the de nition of honors course/thesis and eligibility, refer to the Special Academic Opportunities section of this catalog.

CLINICAL LABORATORY SCIENCE

See Biology, Medical Technology

COMMUNICATION & THEATRE

School of Humanities and Social Sciences

Associate Professor Boyle, chairperson
Professors Dorman, Seigworth, Umble
Associate Professors Chang, Elliott, Russell-Loretz, Wood
Assistant Professors Capecce, Igyor, Irwin, Screiber
Instructor Ellis

The Department of Communication & Theatre offers a bachelor of science degree in speech communication. The liberal arts program prescribes a common core of required courses and allows the choice of one of four options including broadcasting, communication

studies, public relations and theatre. Each option contains a speci c group of required courses and an additional group of electives chosen in consultation with a departmental adviser.

COURSE REQUIREMENTS

C

COMM 326: 3 s.h.
Broadcast Workshop I (W)
Basic news writing and reporting, stressing electronic media. Offered in fall. Prereq: ENGL 110 or permission of instructor.

COMM 330: 3 s.h.
Media and Women's Culture (P)
The course focuses on the role of the media in the creation and reproduction of culture. It examines how gender, race and class are constructed in media texts, and how women in various social and cultural positions negotiate their own meanings in relation to media portrayals. Offered periodically. Prereq: Junior status, COMM 100, ENGL 110.

COMM 421: 3 s.h.
Television Production II
An advanced lecture-demonstration-laboratory application of the various phases of electronic eld production, with special attention to directing and advanced editing techniques. Offered in spring. Prereq: COMM 321.

COMM 422: 3 s.h.
Advanced Audio Production
Intensive analysis of eld and studio techniques with emphasis on multi-track audio production and engineering. Lecture/lab course designed for students with a strong commitment to audio production. Emphasizes techniques of sound engineering, live/ eld recording, music studio and television control room. Offered periodically. Prereq: COMM 320.

COMM 426: 3 s.h.
Broadcast Workshop II (W)
Emphasis on the writing of dramatic scripts with selective production. Offered in spring. Prereq: COMM 320, 326, ENGL 110.

Theatre

THEA 120: 3 s.h.
Stagecraft

THEA 350: 3 s.h.
Theatre Management

C. Required Related MATH Courses: 14-15 s.h.

MATH 161, 211, 235 and (PHIL 312, or MATH 236 or above but not 301, 304, 405).

D. Required Related Natural/Physical Sciences: 12 s.h.

speci cation, design, implementation, veri cation, validation and relationship of paradigms to languages. Offered in fall, spring. Prereq: C- or higher in CSCI 140 and CSCI 162.

CSCI 340: 4 s.h.
Computational Models

centered design; interfacing specialized hardware devices; interaction methods such as Morse code, voice recognition and generation, scanning techniques, word expansion and word prediction; modes of communication, such as single or multi-switch, audio and voice; alternative languages; web accessibilty; and usability testing as a means of user/device evaluation and product acceptance. Offered periodically. Prereq: C- or higher in CSCI 362.

CSCI 435: 4 s.h.
Compiler Construction
Students implement a compiler for a simpli ed modern programming language. Theory of compiler construction including nite state automata, LL(1) grammars and top-down parsing. Project includes lexical and syntax analysis, name storage, scope and type analysis, error recovery and code generation. Advanced topics covered as time permits including LR(k) grammars, bottom-up parsing, compiler generators (e.g., LEX and YACC) and code optimization. Offered periodically. Prereq: C- or higher in CSCI 330, 340, 362.

CSCI 450: 4 s.h.
Arti cial Intelligence (W)
Introduction to arti cial intelligence including problem solving, search, heuristic methods, machine learning, knowledge representation, natural language processing, computer vision, expert systems, theorem proving and current applications. Concepts illustrated through programs developed in LISP or Prolog. Offered periodically. Prereq: C- or higher in CSCI 340, 362; ENGL 110.

CSCI 456: 4 s.h.
Robotics and Computer V ision
Intelligent robotic systems that deal with physical world through visual, acoustic or tactile sensing. Fundamentals of robot vision including image acquisition and camera geometry, pattern recognition, representation and analysis of shape, pixel neighborhoods, connectivity, distance measures, arithmetic operations on pixels and images, computations of area, centroid, moments, axis of least inertia, correlation techniques, histogram computation, manipulation of robot end effectors, robot task coordination and simple Cartesian robot manipulation. Offered infrequently. C- or higher in CSCI 362.

CSCI 466: 4 s.h.
Database Management Systems
Introduction to software design using a relational and pro-relational database management systems. Data modeling, data normalization, database and application design, foundations of relational implementation, SQL, embedded SQL, and web-publishing of database contents. Offered periodically. Prereq: C- or higher in CSCI 362.

CSCI 467: 4 s.h.
Design and Analysis of Algorithms
Theory and techniques of algorithm design and analysis. For design, students will study variety of algorithmic solutions to problems from application areas including searching, selecting, sorting, graph theory, number theory and encryption. Design paradigms including greedy method, divide and conquer,

COOPERATIVE EDUCATION/INTERNSHIP

The minimum number of credits for any cooperative experience is 3 credits. The maximum number of credits allowed for one cooperative education course is 12. For information on cooperative education and internships, see the Special Academic Opportunities section.

COURSE DESCRIPTIONS

* 300: 3-6 s.h.
Entry-level cooperative education or internship experience giving initial exposure to departmentally approved job assignment.

* 400: 3-6 s.h.
Cooperative education or internship assignment with increased work responsibility over the COOP 300 level. Prereq: 300-level or equivalent.

* 500: 3-6 s.h.
Cooperative education or internship assignment with increased work responsibility over the COOP 400 level. Prereq: 400 level or equivalent.

*Subject abbreviation is dependent upon the department through which the cooperative education credit is earned, e.g., CSCI 300.

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CRIMINOLOGY

See Sociology/Anthropology

EARTH SCIENCES

School of Science and Mathematics

Professor Clark, chairperson
Professor Yalda
Associate Professors DeCaria, Marquez, Price, Sikora,
Assistant Professors 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 certi cation 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 eld.

The program leading to the bachelor of science degree in education in earth sciences with secondary education certi cation 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 certi cation 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 pro ciencies in these areas.

Millersville University is a founding member of the Marine Science Consortium, and the Earth Sciences Department actively participates in this program. Several ocean sciences and coastal studies courses are available through the Consortium. In particular, one course required in the oceanography major (Field Methods in Oceanography) must be taken through the Consortium at Wallops Island, Virginia. For more information see Marine Science Consortium in the Special Academic Opportunities section.

The Department of Earth Sciences is an Academic Affiliate of the University Corpor ation for Atmospheric Research and is an insti-tutional member of the American Meteorological Society. Fo r more information, see www.millersville.edu/e sci.

COURSE REQUIREMENTS

Earth Sciences Major (B.A.): 120 s.h.
ESCI 110, 221, 241, 261; plus 18 s.h. in one or more Earth sciences disciplines (geology, meteorology or oceanography) at the 200 level or higher, as approved by adviser. Required related courses: CHEM 111, 112; PHYS 131, 132; MATH 161, 235.

Earth Sciences Major (B.A.): 120 s.h.
Environmental Geology Option
ESCI 110, 221, 222, 227, 261, 385 plus 15-16 s.h. of Earth science electives. Required related courses: CHEM 111, 112; PHYS 131, 132; BIOL 211, 221, 241; MATH 161, 235.

Geology Major (B.S.): 120 s.h.
ESCI 110, 221, 222, 227, 321, 326, 328, 423, 425. Choose 6 s.h. from: ESCI 225, ESCI 281 or GEOG 295, 320, 322, 323, 329, 422, 424, 426, 428 or 429. Required related courses: MATH 161, 211, 235 or 333, PHYS 231, 232, CHEM 111, 112. Also choose additional 15 s.h. of science electives.

Meteorology Major (B.S.): 120 s.h.
ESCI 110, 241, 282, 340, 341, 342, 343, 386, 441, 443, 444, 446. Choose 4 from: ESCI 261, 322, 344, 347, 349, 364, 380, 390, 440, 445, 447, 448, 449, 485. Required related courses: CHEM 111; MATH 161, 211, 311, 235 or 333, 365; PHYS 231, 232.

Ocean Sciences and Coastal Studies Major (B.S.): 120 s.h.
ESCI 110, 241, 261, 267*, 362, 363, 364, 366, 380, 465*, 466*, 467* (*available only at Wallops Island). Required related courses:. MATH 161, 235; or BIOL 375, CHEM 111, 112, BIOL 211, 221, PHYS 131, 132 or 231, 232. Also choose additional 11-13 s.h. of electives from Earth science, biology, chemistry, mathematics or physics that apply towards a major in that department.

Ocean Science and Coastal Studies Major (B.S.): 120 s.h.
Physical Oceanography Option
ESCI 110, 221, 241, 261, 267, 282, 362, 363, 364, 365, 380, 485. ESCI 423, 466 and MATH 467 are highly recommended. Required related courses: CHEM 111, 112; MATH 161, 211, 311, 365; PHYS 231, 232, 311, 312, 334.

Earth Sciences (Education) Major (B.S. Ed.): 126 s.h.
Certi cation in Secondary Education
ESCI 110, 221, 222, 241, 245, 261, 366 plus ESCI 202 or 428. Required related courses: BIOL 241; CHEM 111, 112; MATH 160, 161; PHYS 131, 132, 117 or 317; EDFN: 211, 241, 330; EDSE: 321, 435, 461. Demonstrated competency in BIOL 100 is required. Refer to Admission to Advanced Professional Studies and Certi cation (Education Majors) in this catalog for more information.

Geology Minor
ESCI 221, 222, plus 12 s.h. of geology course work at the 200, 300 and/or 400-level. Total 20 s.h.

Meteorology Minor
ESCI 241, 340, 341, 342 plus 6 s.h. of electives from ESCI 34_, 4 a8 essio2o<FEF*il. Tot19s 6 s.nt.

Oceanography Minor

ESCI 109: 4 s.h.
The Atmosphere with Laboratory (G2, L)
Origin and evolution of the atmosphere; solar and terrestrial radiation; horizontal and vertical structure of the atmosphere; temperature, pressure and water in the air; vertical motion; cloud formation and cloud type; circulation systems, severe weather, climate and climate change. 3 hrs. lec., 2 hrs. lab. Does not count toward any earth sciences major. Offered in fall, spring and online in summer and winter.

ESCI 110: 2 s.h.
Introduction to Earth Sciences Programs
General introduction to each of the earth sciences disciplines and to college life. 2 hrs. lec. Offered in fall. Restricted to earth sciences majors with less than 30 credits.

ESCI 202/202H: 4 s.h.
The Earth in Space (G2, L)
A quantitative scienti c experience directed toward an understanding of the dynamic earth, its origin and evolution and its place in the universe. Physical concepts from classical and modern physics, astronomy, cosmology, and the earth and atmospheric sciences, couched in the language of calculus, supported by observation, experiment and theory. 3 hrs. lec., 2 hrs. lab. Offered periodically in spring. Prereq: MATH 161 or MATH 163 or MATH 155. Restricted to students in the University Honors College, B.S. Ed. in earth sciences, or who have at least a 3.35 GPA.

Geology

ESCI 221: 4 s.h.
Physical Geology (G2, L)
The nature and distribution of materials of the solid Earth–the dynamic processes by which they are formed and modi ed and the character of resulting geologic structures. 3 hrs. lec., 2 hrs. lab. Offered in fall, spring and periodically in summer.

ESCI 222: 4 s.h.
Historical Geology (G2, L)
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, eld trips required. Offered in spring. Prereq: ESCI 221.

ESCI 225: 3 s.h.
Geomorphology
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.

ESCI 227: 4 s.h.
Mineralogy
Identi cation, crystal chemistry, crystallography and occurrence of common minerals; optical theory and interaction of light with crystals; mineral iden-ti cation through use of transmitted polarized light. 3 hrs. lec., 2 hrs. lab. Offered in fall of odd years. Prereq: ESCI 221, Prereq or Coreq: CHEM 112.

ESCI 320: 3 s.h.
Roads West: Geology, T echnology, Society and the American Experience (P)
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.

ESCI 321: 3 s.h.
Structural Geology (W)
Principles and processes of rock deformation; architecture of the Earth's crust and distribution of major structural elements. 2 hrs. lec., 3 hrs. lab, eld trips required. Offered in fall of even years. Prereq: ESCI 221; ENGL 110.

ESCI 322: 3 s.h.
Environmental Hydrology
Theory and practice of quantifying hydrologic phenonmena; eld 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 221, ESCI 241or GEOG 230 and MATH 160.

ESCI 326: 4 s.h.
Sedimentation and Stratigraphy
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, eld trips required. Offered in spring of odd years. Prereq: ESCI 222.

ESCI 328: 4 s.h.
Petrography/Igneous and Metamorphic Petrology (W)
Optical characteristics and identi cation 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. Offered in spring of even years. Prereq: ESCI 227; ENGL 110.

ESCI 329: 3 s.h.
Aqueous Geochemistry (W)
Inorganic chemistry of surface waters; equilibrium thermodynamics, solubility, stability relationships of silicates and calcium carbonates; kinetics, acid-base reactions, redox equilibria; contaminants transport in natural waters; sur cial materials weathering. 3 hrs. lec. Offered spring of odd years. Prereq: ESCI 221, CHEM 112; ENGL 110.

ESCI 422: 3-6 s.h.
Geological Field Mapping
Examination and interpretation of geologic materials and structures in the eld. Students prepare a geologic map, stratigraphic column and struc-tural cross-sections of an assigned eld area. Offered infrequently. Prereq: ESCI 321.

radar and interpretation techniques; wind velocity, rainfall rates and detection of individual cells, multiple cells and turbulence. 3 hrs. lec. Offered in spring of even years. Prereq: ESCI 241, MATH 311. Coreq or Prereq: ESCI 342.

Ocean Sciences and Coastal Studies

ESCI 261: 4 s.h.
Introduction to Oceanography (G2, L)
Methods and techniques of oceanography; physical, chemical, biological and geological aspects of the oceans; unity of oceanographic science and its relationship to other environmental sciences. 3 hrs. lec., 2 hrs. lab. Overnight eld trip required. Offered in fall, spring. Prereq: MATH 155H, MATH 160, MATH 161 or MATH 163.

ESCI 267 or MAR. SCI. 221: 3 s.h.
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ESCI 282: 3 s.h.
FORTRAN Programming for Earth Sciences Applications
Programming in computational methods emphasizing FORTRAN applied to the earth sciences; numerical solution of equations of motion; statistical properties of digital images; analysis of periodical phenomena; use of National Center for Atmospheric Research graphics library. 2 hrs. lec., 2 hrs. lab. Offered in fall. Prereq: MATH 211 and PHYS 231.

ESCI 380: 3 s.h.
Remote Sensing and Image Interpretation
Principles of remote sensing; fundamentals of image enhancement; radiative transfer equation; use of Landsat and NOAA environmental satellite data in earth sciences; use of Environment for Visualizing Images (ENVI) software for image analysis and interpretation. Basic computer literacy is assumed. 2 hrs. lec., 2 hrs. lab. Research project is required.

ESCI 385: 3 s.h.
Global Change (W)
Evolution of the Earth's habitable atmosphere and oceans; mechanisms that control climate processes and change; past global climate change as deciphered through paleoclimatic and paleoceanographic methods; recent rapid climate uctuations and possible future changes. 3 hrs. lec. Offered fall of odd years. Prereq: ENGL 110; ESCI 241 or 261 or GEOG 230.

ESCI 386: 3 s.h.
IDL Programming for Advanced Earth Sciences Applications
Overview of existing global data sets in geology, meteorology, and oceanography; HDF and Net CDF scienti c data formats; use of Interactive Data Language (IDL) to analyze and display data. 2 hrs. lec., 2 hrs. lab. Offered in spring. Prereq: ESCI 282, MATH 211 and PHYS 231.

ESCI 485: 3 s.h.
Air/Sea Interaction
Physics of wind waves; turbulent uxes 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

ESCI 390: 1-4 s.h.
Topics in the Earth Sciences
Detailed investigation of a topic of current research interest. Topic to be announced each time course is offered. Credit and meeting hours variable, depending on topic offered. Offered infrequently. Prereq: completion of 60 credits.

ESCI 497: 1 s.h.
Seminar in the Earth Sciences
The interrelationships of the earth sciences disciplines as environmental sciences, viewed in the context of contemporary science. Offered infrequently. Prereq: completion of 60 credits.

ESCI 498: 1-3 s.h.
Independent Study in the Earth Sciences
Supervised independent research in the earth sciences. Subject determined jointly by student and the problem supervisor. Permission of department chair and school dean rI depart-A

ECONOMICS

School of Humanities and Social Sciences

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

The Department of Economics offers a B.A. degree in economics with options in quantitative economics, nancial 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 elds in the government, manufacturing and service sectors, students will nd economics to be an especially attractive eld 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. Those who plan to do graduate studies in economics or business are advised to take the B.A. in economics–quantitative option, which offers more preparation in mathematics, statistics and theoretical economics. Students interested in government, politics and law may take the political economy option. Students interested in nancial services and investments may take the nancial economics option.

Potential areas of employment for economics students are diverse. They include the nancial sector, government sector and manufacturing sector. The exibility of the programs not only provides internship and cooperative education opportunities with local industry, but, with the proper advisement, also permits students to combine course work with computer science, mathematics, social sciences, business, humanities, natural sciences and communication arts.

The economics minor program is intended to provide a background in economics to the student with a major in another eld. The technical economics minor is intended to serve the needs of students from mathematics and the sciences who are interested in combining their degrees with economics and related areas and/or planning to pursue their graduate studies in economics and related areas. This minor is open to all interested students.

Students should consult the department for the most recent curriculum and career information.

COURSE REQUIREMENTS

Economics Major (B.A.)
Core course requirements for all liberal arts economics majors: ECON 101, 102, 215, 231, 318, 319, 488 and 12 additional credit hours in economics electives; plus one required related course (3-4 credit hours): MATH 151 or 161. Students may substitute a maximum of two selected business administration courses for elective courses in economics. Consult the economics department for a currently approved list.

Economics Major (B.A.)
Quantitative Option
Core course requirements ECON 101, 102, 215, 231, 235, 318, 319, 333 and 488; 6 additional credit hours in economics electives; and a minimum of 2 required related courses (6-8 credit hours): either MATH 151 or 161.

Economics Major (B.A.)
Financial Economics Option
Core course requirements ECON 101, 102, 215, 231, 318, 319, 325 and 333; 6 additional credit hours in economics electives; and 18 credit hours of required related courses BUAD 161, 162, 341, 342, 345 and MATH 151 or 161.

Economics Major (B.A.)
Political Economy Option
Core course requirements ECON 101, 102, 225, 231, 316, 318, 319 and 365; 12 additional credit hours in electives; and 10 credit hours of required related courses which must include one of the following: MATH 151 or 161; and two of the following: GOVT 111, 112, 205 and 241.

Social Studies Major (B.S. Ed.)
Certi cation in Secondary Education
This program is designed for students planning to teach economics, geography, government or history. The program consists of 30 s.h. of required core courses, 2 in economics, geography and government and 4 in history. In consultation with an academic adviser, each student will select a concentration totalling 30 s.h. from among 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 and history courses should be at the 200-level or above. Students who concentrate in economics are highly encouraged to take 15 s.h. in economics. The program also consists of 27 s.h. of professional education courses, two math courses and two courses in the humanities or sciences that support the concentration.

Students wishing to teach anthropology, psychology or sociology in the secondary schools are required to complete the B.S.Ed. As part of that program the students should select a number of courses in anthropology, sociology and psychology to prepare for the certi cation exams

in the social sciences. Additional courses beyond the social studies program may be necessary. Upon receiving certi cation, students can take the test for Social Sciences Certi cation which will allow them to teach anthropology, psychology and sociology.

labor history, political economy, con ict-theory and other socioeconomic issues. The course utilizes lm as a bridge between real economic life and scholarly treatment of the relevant issues. The course emphasizes critical thinking and synthesis of economic ideas. Students must participate in critical thought, questioning the obvious, exploring meaning and incisive analytical writing. Offered infrequently. Prereq: ECON 100 or 101 or 102, COMM 100, ENGL 110 and junior status.

ECON 310: 3 s.h.
The Economics of Justice (P)
Economic concepts and models are used to explain laws and legal situations. Economics is applied in some of the principal areas of the law: property, contracts, torts and crime. Offered infrequently. Prereq: ENGL 110; junior status; COMM 100, ECON 102, BUAD 202, or permission of instructor.

ECON 316: 3 s.h.
Public Finance (G3)
Economic aspects of governmental budgeting emphasizing scal 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.

ECON 318: 3 s.h.
Intermediate Microeconomics (G3)
Similar in scope to ECON 102 with major emphasis on the further development and re nement of tools of economic analysis. Offered in spring. Prereq: ECON 101, 102.

ECON 319: 3 s.h.
Intermediate Macroeconomics (G3)
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.

ECON 325: 3 s.h.
International Economics (G3)
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.

ECON 326: 3 s.h.
Economic Growth and Development (G3, W)
Introduction to economic characteristics and problems of less developed economies and to associated theories and policies. Offered annually. Prereq: ECON 101, 102; ENGL 110.

ECON 327: 3 s.h.
Women and Global Economic Development (P)
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.

ECON 333: 3 s.h.
Econometrics
The estimation and hypothesis-testing of economic models, principally using regression techniques. Topics include linear models, time series analysis and simultaneous equations models. The uses and limitations of these models for economic forecasting are examined with the aid of computers. Offered in spring. Prereq: ECON 101, 102 and either 231 or 332.

ECON 345: 3 s.h.
Labor Economics (G3)
The labor market and labor forces, theories of wages and employment, security, determinants of trade union policy, and governmental manpower policies. Offered in spring. Prereq: ECON 101, 102.

ECON 365: 3 s.h.
History of Economic Thought (G3)
Examination of a variety of theoretical and philosophical perspectives in economics developed during the past few hundred years. The ideas of well known economists such as Adam Smith and Karl Marx are typically analyzed as is the thought of a selection of lesser known contributors to the discipline. Offered once every two years. Prereq: ECON 101, 102.

ECON 375: 3 s.h.
The Economics of Industrial Organization (G3, W)
The study of (1) how enterprises function within a variety of market structures and (2) how well the outcomes t the public interest. Speci c topics include market share, barriers, concentration, vertical power, economies of scale, pricing behavior, mergers and ef ciency. Offered in spring. Prereq: ECON 101 and 102; ENGL 110.

ECON 488: 3 s.h.
Seminar in Economics (W)
Students participate in the process of knowledge creation by generating a research question in economics and undertaking in-depth analysis of that question. The course is structured to support student development and application of critical analytical skills through theoretical and/or empirical methods, research and information management skills, and writing and presentation skills. The course emphasizes the process of research and writing, culminating in three nal products: the paper, the poster and the presentation. Majors only. Offered annually. Prereq: ENGL 110, minimum 12 hours of economics or permission of instructor.

ECON 489, 499: Variable Credit (1-3 s.h.)
Honors Courses/Thesis

ECON 498: Variable Credit (1-3 s.h.)
Independent Study
For further information on independent study, see the Special Academic Opportunities section.

ECON 586, 686: 3 s.h.
Topics in Economics

EDUCATIONAL FOUNDATIONS

School of Education
Associate Professor Ward, Chairperson
Professors Desmond, McDowell, Smith, Stengel
Associate Professors Deemer, Hanich
Assistant Professors, Dietrich, Dreon, Seda, Scott
Instructor Lauris

Millersville University provides certi cation in secondary education in the following elds: biology, chemistry, citizenship, social studies, earth and space science, English, foreign languages (French, German, Spanish), mathematics and physics. PreK-12 certi cation

tions and opportunities shape women, but also how the presence of women in educational activities alters the nature of that enterprise. Offered periodically. Prereq: COMM 100, ENGL 110, junior status.

EDFN 320/520: 3 s.h.
Instructional T echnology in Elementary Education

EDFN 498: 1-3 s.h.
Independent Study in Educational Foundations
For further information, see the Special Academic Opportunities section.

Urban Education Program. 15 to 18 s.h.
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. Prereq: ELED Majors - ELED 100, SPED 101.

Secondary Education Majors: You must have declared as your major.

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

ELECTRONICS/CONTROL SYSTEMS TECHNOLOGY

See Industry & Technology

ELEMENTARY & EARLY CHILDHOOD EDUCATION

School of Education

Associate Professor West, chairperson
Professors Gray-Schlegel, Kerper, Meckley, Topping, Wenrich
Associate Professors Heilshorn, Hoffman, King, Rudden
Assistant Professors Anthony, Colabucci, P. Himmele, W. Himmele, Hossain, Labant, Nell, Shettel, Valle

Major changes to the various certi cations, and to certi cation programs are anticipated at the direction of the Pennsylvania Department of Education. Please consult with your academic adviser.

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 eld 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 certi cate. Students are strongly urged to complete an academic minor from the list of minors available at Millersville University.

Dual Certi cation in Elementary Education and Early Childhood Education
Students may elect to earn dual certi cation in elementary education (K-6) and early childhood education (N-3). This additional cer - ti cation would allow students to teach, as well, children from preschool through 3rd grade. Students earning the additional early childhood certi cation 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.

Dual Certi cation in Elementary Education and Special Education
Students may elect a double major (elementary education and special education) with dual certi cation (elementary education and special education) through a cooperative program offered by both academic departments. Students may then apply for a Penn- sylvania Instructional I teaching certi cate in elementary education (K-6) and a certi cate in special education allowing students to teach children from preschool through 12th grade (N-12 or ages 3-21), speci cally individuals identi ed as developmentally delayed, learning disabled, mentally retarded, behaviorally disordered, autistic or pervasively developmentally disordered, physically disabled, health impaired, neurologically impaired or multiply handicapped.

Elementary Education Major with Science Option
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.

COURSE REQUIREMENTS

Elementary Education Major (B.S. Ed.): 120 s.h.

K-6 Certi cation 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 101 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.

EDUC 215: 3 s.h.
The Young Child and Education
Elective for an education major, but not for an early childhood education certi cation 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.

EDUC 220: 3 s.h.
Foundations of Reading
Introduces topics in the eld of teaching reading, including: emergent literacy, approaches to reading instruction, word recognition and vocabulary development, comprehension instruction, assessment techniques and reading instruction for the multicultural and the exceptional child. Supplemented by a eld experience. Offered in fall, spring. Prereq: ELED 100 or SPED 101.

EDUC 305: 1-3 s.h.
Field Experiences
Speci c work and study assignments constituting the eld experience will be developed. Regular discussions, conferences and group seminars will be conducted by faculty members and eld supervisors to clarify generalizations that link practice to theory. The assignments will be in public schools. Offered in fall, spring.

ELED 312: 3 s.h.
Seminar: Prekindergarten
A practical application of prekindergarten teaching philosophies and methods. Includes eld experiences in nursery schools, Head Start, public pre-K classrooms and/or day care centers. Includes group discussions, conferences, reading, independent study. Developmental characteristics of pre-K children and curriculum experiences studied in relation to research, program models and philosophies that in uence early childhood programs. Emphasis on importance of play, the learning environment, behavior observation. For early childhood certi cation students only. Offered in fall, spring and alternate summers. Prereq: ELED 210.

ELED 313: 3 s.h.
Seminar: Kindergarten
A practical application of kindergarten teaching methods. Includes eld experiences in a kindergarten classroom. Includes group discussions, conferences, reading, independent study. Emphasis on programs and materials, use of screening and assessment procedures/tools toward developing a program that allows individualization, cultural diversity and the value of play in the K-3rd grade learning experience. For early childhood certi cation students only. Offered in fall, spring and alternate summers. Prereq: ELED 210.

ELED 314: 3 s.h.
The Parent-T eacher Relationship in Early Childhood Education (D, W)
A concentration on cooperation between teachers and parents of young children. Considers issues relevant to successful home-school-community relationships, such as home-based early childhood programs, infant-toddler development and education, parents as teachers, home-school communication techniques, conferencing, parent involvement in the classroom, family crisis and family agency services. For early childhood certi cation students only. No credit given if credit earned in EDUC 316. Offered in fall, spring. Prereq: ELED 210, ENGL 1</ActualText<FEFF0045>>> BDC (E)Tj EMC (a
cert1 par3i1
Early Childhood

ELED 340: 3 s.h.
Teaching of Social Studies
An overview and examination of social studies curriculum for the elementary classroom. Emphasis on philosophy, methods and materials for the teaching of social studies. Special emphasis on integration of the social sciences, especially economics, history and geography. Offered in fall, spring. Prereq: 60 s.h. and admission to Advanced Professional Studies (APS).

ELED 351: 3 s.h.
Teaching of Mathematics
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 ndings. Offered in fall, spring. Prereq: MATH 105, 60 s.h. and admission to Advanced Professional Studies (APS).

ELED 361: 3 s.h.
Teaching of Science
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).

ELED 371: 3 s.h.
Teaching Gifted and Able Children
Designed to acquaint prospective teachers with some viable techniques for dealing with gifted and able children in their classrooms. Some attention will also be paid to reviewing existing programs and means of identi cation. Some work with gifted students in the schools will be another component of the course. Offered infrequently. Prereq: ENGL 110.

ELED 376: 3 s.h.
Assessment for Instructional Planning (W)
Principles, procedures and use of traditional and alternative testing and measurement to make curricular decisions to enhance student learning in the elementary classroom. Emphasizes analysis of student learning to inform teacher decision making. Prereq: ENGL 110, EDUC 220, EDFN 211, EDFN 241, MATH 104. Coreq: MATH 105. Offered in fall, spring.

EDUC 376: 3 s.h.
Strategies for Classroom Management
Covers contemporary classroom management in today's elementary schools. Emphasis on prevention of management breakdown and developing a positive success-based environment. Offered in fall, spring.

EDUC 403: 3 s.h.
Cultural Diversity: Pluralism in the Classroom (D, W)
Provides historical and present day information about different racial, cultural and linguistic groups represented in our society. Explores the challenge of providing an equitable and effective education to all and provides methods and materials that can be used in the classroom. Offered in fall, spring. Prereq: ENGL 110.

ELED 405: 3 s.h.
Creative Activities in the Elementary School
General theory of creativity. Consideration of the basic principles of creative teaching as they relate to the various curricular areas in the elementary school. Activities and experiences applied to creative teaching. Offered in spring, summer.

ELED 419: 3 s.h.
Seminar in Early Childhood Education
Investigation of contemporary goals of early childhood education. Provides analysis of organizational plans, classroom environment, teaching strategies and resources and noteworthy trends and innovations. Application to individual situations is stressed. Focus will vary. Offered infrequently.

EDUC 424: 3 s.h.
Diagnostic Reading (W)
The rst of two elective courses in diagnostic reading for undergraduate students will be an introduction to various formal and informal means to assess the reading strengths and needs of children. Offered in fall, spring. Prereq: EDUC 220; ENGL 110.

EDUC 425: 3 s.h.
Prevention and Correction of Reading Problems
The prevention and correction of reading problems. Through practicum experiences students must then make some instructional decisions about speci c children with reading disabilities. Offered infrequently. Prereq: EDUC 220; ENGL 110.

EDUC 430: 3 s.h.
Teaching Reading Through Writing (W)
Instruction in the integration of reading and writing in the elementary grades. Discussion of the in uence of the writing process on reading. Offered annually. Prereq: EDUC 220; ENGL 110.

EDUC 433: 3 s.h.
Gender and Race Issues in Children's Literature (P)
Children's literature will be examined in the light of recent psychological, sociological and educational research on sexism and racism. Offered in fall, spring. Prereq: COMM 100, ENGL 110, junior status.

EDUC 434: 3 s.h.
Creative Dramatics
Developing programs in creative dramatics for the classroom teacher who wishes to gain insight into the dramatic process and learn how this process can stimulate language study and enhance the development of a language arts program. Offered infrequently.

EDUC 535: 3 s.h.
Literature for Children and Y oung Adolescents
Offered in fall, spring.

EDUC 536: 3 s.h.
Picture Book Communication
Offered infrequently.

EDUC 551: 3 s.h.
Measurement, Problem Solving and the Metric System
Offered infrequently.

EDUC 561: 3 s.h.
Second Language Acquisition: Theory, Programs and Assessment
Offered fall, spring.

EDUC 562: 3 s.h.
Methods for T eaching English Language Learners
Offered fall, spring.

EDUC 563: 3 s.h.
Linguistic and Cultural Diversity in the Classroom
Offered fall, spring.

EDUC 564: 3 s.h.
Current T rends and Policies in the T eaching of English Language Learners: Seminar and Community Service
Offered annually.

EDUC 575: 3 s.h.
Current T rends in Education
Offered periodically.

ELED 576: 3 s.h.
Assesment for Instructional Planning
Offered fall, spring.

EDUC 586-589: 3 s.h.
Topics in Education
Offered periodically.

ENGINEERING

See Chemistry and Physics

ENGLISH

School of Humanities and Social Sciences

Professor Schneller, chairperson
Assistant Professor Corkery, assistant chairperson
Professors Carballo, Kelly, T. Miller, Sheaffer, Shields
Associate Professors Craven, Duncan, Halden-Sullivan, Mayers, McCollum-Clark, S. Miller, Skinner
Assistant Professors Alden, Archibald, Corkery, Duba, Farkas, Jakubiak, Rineer, Rosenthal, Shea, Shin, Widmayer, Zhang
Instructors Anderson, Dougherty

English majors may pursue a B.A. or B.S.Ed. degree.

Required 100-level and 200-level major courses must be completed by the end of the sophomore year. Liberal arts majors must complete ENGL 110, 220, 233, 231(or 238H) or 235, 237 and 311 with a minimum ENGL GPA of 2.0. Secondary education majors must complete ENGL 110, 220, 231 or 232 (or 238H or 239H), 233 or 235, 237, 311 and 321, with a minimum ENGL GPA of 2.0. These courses must be completed before English majors may enroll in 400-level courses, unless the department chairperson sanctions concurrent enrollment in lower and upper division courses.

A total of 42 credit hours in English (which includes ENGL 311) is required for graduation. If English composition competency is satis ed by examination without credit, one additional English elective is required.

All B.A. students must complete a minor. All students also may elect to pursue options in Comparative Literature, English as a Second Language, Film Studies, Linguistics and Print Journalism.

Cooperative education courses provide opportunities for English majors to apply their eld of study in professional contexts. Consult your adviser or the Of ce of Community and Academic Partnerships (CAP) for more information.

The department participates in the pre-law advisory committee, School of Humanities and Social Sciences. English majors planning careers in law should contact the department's pre-law adviser, Dr. S. Miller.

In planning a course of study, English majors must consult with their departmental academic advisers on a regular basis, because major revisions in programs of study offered in whole or in part by the English department may occur to modify or expand existing requirements.

COURSE REQUIREMENTS

English Major (B.A.): 120 s.h.
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.

A minor should be declared by the end of the sophomore year (before the completion of 60 credits) in consultation with a department adviser. See the beginning of the Academic Programs section for a listing of currently approved minors.

English Major (B.S. Ed.): 120 s.h.
Certi cation in Secondary Education
ENGL 220, 231 or 232 (or 238H or 239H), 233 or 235, 237, 311, 321, 405, 486; 3 s.h. of literature (400 level) prior to 1800; 3 s.h. of American literature (400 level); 3 s.h. of literary genre (400-level); 9 s.h. of English electives. Required related courses: 3 s.h. of art, music or theatre; 3 s.h. of history; EDFN 211, 241 and 330; EDSE 321; ENGL 487 (to be completed prior to the student teaching semester) and EDSE 461.

At least one required or elective course in the degree program must contain a substantial component in female authors or writers of color, and one course must satisfy the non-print media competency requirement. A list of courses ful lling this requirement is available in the English depart-

English Major (B.A

English Major (B.A. or B.S. Ed.)
Film Studies Option
The lm studies option enables English B.A. or B.S.Ed. majors to develop skills and pro ciency in the discipline of lm studies, including its history, aesthetics, terminology, methods of analysis, theoretical frameworks and interrelationships with society/culture.

All candidates will take:

Candidates will select two of the following elective courses—at least one must be from the English department and a least one must be at the 400 level:

ENGL 280: Rhetoric of Color Line
ENGL 312: Technical Writing
ENGL 313: Fundamentals of Journalism
ENGL 316: Business Writing
ENGL 340: Visual Rhetoric
ENGL 342: Reading and Writing for Civic Change
ENGL 466: Special Topics in Writing Studies Seminar
ENGL 471: Creative Writing
ENGL 472: Writing Workshop
COMM 342: Theories of Rhetoric
COMM 403: Persuasion
COMM 430: Culture and the Semiotics of Communication

Candidates will select one of the following capstone courses:
ENGL 400: Cooperative Education
ENGL 491: Thesis (3-credit)

Print Media Studies Minor
Track 1 required for English Majors taking Print Journalism Option 18 s.h.
English majors who have chosen the option in print journalism and also wish to receive the minor in print media studies must select six additional courses from ENGL 250, 300, 318, 327, 328, 330, 400, 435, 473. Students may not count any course toward the minor in print media studies that they have used to meet requirements for the print journalism option.

Print Media Studies Minor
Track 2 required for Non-English Majors or English Majors without Print Journalism Option 18 s.h.
18 credits minimum (beyond required compsition courses) including: ENGL 313, 315, 317 or 318 or 330, 473 and two of the following: ENGL 250, 300, 318, 327, 328, 330, 400, 435.

General English Minor
18 credits minimum (beyond the required composition courses) including at least one course in each of the following areas: language/linguistics, literature and writing. Selection of individual courses must be consistent with University-wide curricular policies for minors.

American Literature Minor

ENGL 280: 3 s.h.
Rhetoric of the Color Line (D, W)
Introduces student to the way race relations in this country have been shaped through racial dominance and resistance arguments, using the black-white binary as the guiding paradigm. The course will study rhetorical principles to critique primary texts to ultimately examine contemporary racial identities. Prereq: ENGL 110, 30 credit hours.

ENGL 292: 3 s.h.
Science Fiction (G1, W)
The nature and development of science ction from Jules Verne and H. G. Wells to major writers of the present, with emphasis on methods of extrapolation—descriptions of consistent, altered frames of references based on scienti c knowledge and historical, social or cultural patterns. Emphasis on multiple lines of inquiry or analysis. Offered in spring. Prereq: ENGL 110.

ENGL 300/400: 3-6 s.h.
Cooperative Education
A variety of options are available for English majors to apply their elds of study in professional contexts. Prereq: 24 s.h. and permission of COOP coordinator. Prereq: ENGL 110.

An (AW) indicates that the course counts toward the advanced writing part of the general education requirements.

ENGL 311: 3 s.h.
Advanced Composition (A W)
Practice in expository, descriptive and argumentative writing through reviews, critical reports, essays and analyses. Prereq: ENGL 110 or equivalent, 60 s.h.

ENGL 312: 3 s.h.
Technical Writing (A W)
Writing of scienti c and technical reports, manuals, technical articles and correspondence. Emphasis on data collection and analysis. Prereq: ENGL 110 or equivalent, 60 s.h.

ENGL 313: 3 s.h.
Fundamentals of Journalism (A W)
Journalistic writing with emphasis on news and feature writing for the print media. Includes course work in journalistic law and ethics. Offered in fall, spring. Prereq: ENGL 110 or equivalent, 60 s.h.

ENGL 315: 3 s.h.
Advanced Reporting (W)
A course in reporting news and features that emphasizes experience in the eld completing authentic journalistic assignments. Includes the study of traditional and nontraditional journalistic forms. Offered in fall. Prereq: ENGL 313.

ENGL 316: 3 s.h.
Business Writing (A W)
Informative and persuasive writing in business and industry. Extensive practice in writing letters, memorandums, proposals and reports. Emphasis on business writing strategies and processes. Prereq: ENGL 110 or equivalent, 60 s.h.

ENGL 317: 3 s.h.
Editing for Publication
Principles and practices of editing for publication. Develops skills in improving copy, writing headlines and cutlines, selecting and sizing photographs, page design and layout. Includes legal, ethical and philosophical aspects of editor's role. Offered annually. Prereq: ENGL 110 or equivalent.

ENGL 318: 3 s.h.
Technical Skills for Journalists
Focus on shorthand, journalistic network searches and digital-media applications. Course is an elective for the print media studies minor. Offered periodically. Prereq: ENGL 110 or equivalent.

ENGL 321: 3 s.h.
Transformational Grammar (G1)
Analysis of the syntax of American English from the perspective of generative linguistics. Offered periodically. Prereq: ENGL 110, 220, 221 or permission of instructor.

ENGL 322: 3 s.h.
History of English (G1, W)
Examines language change and its effects on the development of English phonology, morphology, syntax and semantics. Offered periodically. Prereq: ENGL 110.

ENGL 327: 3 s.h.
Feature Writing and Magazine Journalism
Writing and analysis of features and advertising for print media, including features behind the news. Includes assessment and selection of ap-

ENGL 330: 3 s.h.
Computer-Assisted Journalism
Covers the use of email for journalistic purposes, accessing websites and databases, writing follow-up stories based on electronically acquired data, plus contacting identi ed sources. Includes digital editing techniques. Prereq: ENGL 313.

ENGL 331: 3 s.h.
Special Topics in Literature
Thematic investigation of a signi cant literary topic, major author, or literary style. May be taken more than once for credit since the topic varies. Offered periodically. Prereq: ENGL 110.

ENGL 332: 3 s.h.
Literature of the Bible
A literary survey of the Bible in English emphasizing narrative, didactic and poetic forms within historical contexts. Not a course in religion. Offered infrequently. Prereq: ENGL 110.

ENGL 333/333H: 3 s.h.
African-American Literature I:
The Beginnings through the Harlem Renaissance (D, G1, W)
Major writers and genres to circa 1935, with emphasis on the cultural roots and aesthetics within the American literary tradition. Offered in fall. Prereq: ENGL 110.

ENGL 334/334H: 3 s.h.
African-American Literature II:
The Depression through the Black Arts Movement (D, G1, W)
Major writers from circa 1935 to the present, with emphasis on literary theory, critical discourses and literary movements. Offered in spring. Prereq: COMM 100, ENGL 110.

ENGL 337: 3 s.h.
Women Writers in the Middle Ages (P)
Investigates the work of women who lived and wrote in the medieval period, primarily (though not entirely) in Europe. Offered periodically. Prereq: COMM 100, ENGL 110, junior status.

ENGL 338: 3 s.h.
Folklore and Literature (G1, W)
Folklore, with emphasis on literature, history, region, gender and class. Ballads, tales, riddles, legends, proverbs and other forms from American, English and international sources. Includes eld collection projects. Offered periodically. Prereq: ENGL 110.

ENGL 340: 3 s.h.
Visual Rhetoric (W)
Studies the interanimation of text and images and the rhetorical and theoretical problems of visual design by focusing on design as a means of communication. Prereq: ENGL 110

ENGL 342: 3 s.h.
Reading and Writing for Civic Change (W)
An introduction to the theory and practice of public discourse with emphasis on civic discourse. Focuses on exploring the nature and function of being a citizen within a community and developing discourse skills to effect change in communities. Prereq: ENGL 110.

ENGL 347: 3 s.h.
Studies of Ethnicity in Film-Ethnicity (G1)
Examines issues of ethnicity in cinema. Studied ethnicities vary by semester. Course may be repeated two times for credit when the focal ethnicity differs. Technology intensive course. Offered biannually. Prereq: ENGL 110, 60 credit hours.

ADVANCED COURSES

ENGL 405/405H: 3 s.h.
Shakespeare
Shakespeare's life, works and times; detailed consideration of major plays. Prereq: ENGL 110.

ENGL 406/406H: 3 s.h.
17th Century Literature Before the Restoration
Metaphysical and cavalier poetry and other nondramatic literature from 1600 to 1660, exclusive of Milton's poetry. Prereq: ENGL 110.

ENGL 407/407H: 3 s.h.
Milton
A study of Milton's major poetry and selected prose works against the background of the Puritan Revolution. Prereq: ENGL 110.

ENGL 408: 3 s.h.
Restoration and 18th Century Literature
Study of English language literature written and/or published in Britain, Ireland and Scotland between 1660 and 1800. Includes female and male authors. Prereq: ENGL 110.

ENGL 411: 3 s.h.
Romantic Literature
Rise of romanticism in later 18th century to the beginning of Victorianism. Emphasis on poetry and criticism between 1798 and 1832. Prereq: ENGL 110.

ENGL 412: 3 s.h.
Victorian and Edwardian Literature
Literary gures and their works (exclusive of ction) against social and political backgrounds from 1832 to 1914. Prereq: ENGL 110.

ENGL 413: 3 s.h.
British Literature Since 1914
Literary gures 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.

ENGL 414: 3 s.h.
The English Novel
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.

ENGL 415: 3 s.h.
Seminar in Selected British Writers
Intensive study of the works of selected British writers. May be taken more than once for credit since the content varies. Prereq: ENGL 110.

ENGL 416: 3 s.h. (G1, W)
The Woman Writer and Her World
Chronological study of British women writers of poetry, prose, criticism and/or drama. Authors studied varies. Prereq: ENGL 110.

ENGL 418: 3 s.h. (G1, W)
Literature of Scotland and Ireland: 18th Century to the Present
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.

ENGL 421: 3 s.h.
Early American Literature to 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.

ENGL 422: 3 s.h.
The American Renaissance
Focuses on transcendentalism and authors including Hawthorne, Poe, Thoreau, Melville, Emerson, Whitman and Dickinson. Prereq: ENGL 110.

ENGL 423: 3 s.h.
Development of the American Novel: 19th Century
Narrative ction from early and middle parts of nineteenth century to " n de siecle." Emphasizes the Romance, the Gothic tale and the rise of the novel. Prereq: ENGL 110.

ENGL 424: 3 s.h.
The Emergence of Modern American Fiction: Realism and Naturalism to 1920
Studies stylistic, thematic and philosophic issues relating to literary realism and naturalism. Selections from writers including Twain, Howells, James, Crane, Norris, London and Dreiser. Prereq: ENGL 110.

ENGL 425: 3 s.h.
Modern American Fiction, 1920-1945
Important American ction writers of the twentieth century with emphasis on major developments in ideas and techniques. Special attention to Anderson, Fitzgerald, Hemingway, Faulkner, Steinbeck and others. Prereq: ENGL 110.

ENGL 463: 3 s.h.
Applied Linguistics (G1, W)
Application of linguistic theory to selected problems of language teaching and research. Prereq: ENGL 110 and one course in linguistics or permission of instructor.

ENGL 464: 3 s.h.
Teaching English to Speakers of Other Languages
Approaches, methods and techniques appropriate to teaching standard English to speakers of other languages. Includes international tutoring opportunities. Prereq: ENGL 110 and permission of instructor.

ENGL 465: 3 s.h.
Special Topics in Language: Seminar
Investigation of topics in linguistic science, may include generative metrics, morphophonics, tagmemic analysis; investigation of English language problems selected by students in conference with instructor. May be taken more than once for credit as topic varies. Prereq: ENGL 110 and 3 hours in English language study or permission of instructor.

Writing

ENGL 466
Writing

Elective Courses

CHEM 101: 3 s.h.
Chemistry! Better Things for Better Living

OSEH 221: 3 s.h.
Industrial Fire Prevention, Protection and Control

GEOG 295: 3 s.h.
Geographic Information Systems

EHEM 498: 3 - 6 s.h.
Internship or Special Independent Project in Emergency uggested (Elective Courses)Tj 0 0 0 s/T1_0 1 Tf 0 Bndependent

Elective Courses (Choose T wo)

ECON 316: 3 s.h.
Public Finance

GEOG 372: 3 s.h.
Urban and Regional Planning

SOCY 313: 3 s.h.
Sociology of Disaster

Industrial and Environmental Health Minor: 21-22 s.h.
This minor provides the background needed to understand the link between environmental issues and public health.

Core Courses

OSEH 321: 4 s.h.
Environmental and Industrial Health I

OSEH 435: 3 s.h.
Environmental T echnology

ENVI 330: 3 s.h.
Environmental Statistics and Risk Assessment

BIOL 356: 5 s.h.
Functional Human Anatomy

ENVI 495: 3 s.h.
Environmental Clinic

Elective Courses (Choose One)

CHEM 232: 4 s.h.
Organic Chemistry II

CHEM 235: 4 s.h.
Short Course in Organic Chemistry

CHEM 375: 4 s.h.
Environmental Chemistry

ESCI 349: 3 s.h.
Chemistry of the Atmosphere (P)

Land Use Minor: 21 s.h.
This minor explores the physical and economic impact of human land use practices and the ways in which land use can be sustainable both for human life and for the maintenance of essential biological diversity.

Core Courses

ECON 207: 3 s.h.
Environmental Economics

GEOG 295: 3 s.h.
Geographic Information Systems

GEOG 372: 3 s.h.
Urban and Regional Planning

ENVI 495: 3 s.h.
Environmental Clinic

BIOL 241: 3 s.h.
Principles of Ecology

Elective Courses

Choose One of the Following:

GEOG 230: 3 s.h.
Physical Geography

ESCI 225: 3 s.h.
Geomorphology

Choose One of the Following:

GEOG 227: 3 s.h.
Urban Geography

GEOG 305: 3 s.h.
Geography of Energy (W)

GEOG 333: 3 s.h.
Biogeography

ESCI 426: 3 s.h.
Groundwater Geology

OSEH 220: 3 s.h.
Legal Aspects of Environmental Safety

Quantitative Methods in Environmental Science Minor: 21-22 s.h.
This minor emphasizes the quantitative and technical skills valued by both employers and graduate programs in environmental science.

Core Course

ENVI 495: 3 s.h.
Environmental Clinic

Elective Courses

Choose One Statistics Course from:

ENVI 330: 3 s.h.
Environmental Statistics and Risk Assessment

BIOL 375: 3 s.h.
Biometry

Choose One of the Following:

ESCI 386: 3 s.h.
IDL Programming for Advanced Earth Sciences Applications

GEOG 295: 3 s.h.
Geographic Information Systems
Choose Four of the Following:

ESCI 267: 3 s.h.
Field Methods in Oceanography

ESCI 349: 4. s.h.
Chemistry of the Atmosphere (P)

ESCI 426: 3 s.h.
Groundwater Geology

ESCI 447: 3 s.h.
Meteorological Instrumentation, Measurement, and Observing Systems (W)

CHEM 265: 4 s.h.
Quantitative Analysis

CHEM 375: 4 s.h.
Environmental Chemistry

CHEM 476: 4 s.h.
Environmental Chemistry II

BIOL 449: 3 s.h.
Plant Communities

OSEH 321: 4 s.h.
Environmental and Industrial Hygiene I

ITEC 465: 3 s.h.
Instrumentation and Control

Water Resources Analysis

CHEM 375: 4 s.h.

BIOL 445: 3 s.h.
Aquatic Biology

ENVI 495: 3 s.h.
Environmental Clinic

COURSE DESCRIPTIONS
Course descriptions are found in the appropriate departmental section.

ENVI 330: 3 s.h.
Environmental Statistics and Risk Assessment
Methods of statistical analysis and risk assessment applied to environmental science including: characteristics of environmental quality data; statistical measures and distributions; identifying system changes; hypothesis testing of environmental quality; risk, hazards and exposures; bioassays. Team-taught. Offered periodically. Prereq: MATH 130 or 235 or 333 or BIOL 375.

ENVI 495: 3 s.h.
Environmental Clinic
A capstone course devoted to the de nition and assessment of an environmental problem from watershed, airshed, biodiversity, and human health perspectives. Case studies will be used as models of how environmental problems can be de ned/documented and solutions can be implemented. Student teams will de ne a problem and implement a solution using interdisciplinary approaches while working with a faculty team. Students are encouraged to take this course at the conclusion of the minor. Offered periodically. Prereq: 12 credits of environmental science minor.

FINANCE

See Business Administration

FIRST YEAR INQUIRY SEMINAR

UNIV 103: 3 credits
First Year Inquiry Seminar
Each First Year Inquiry (FYI) Seminar section focuses on a different topic of strong interest to faculty and students. Seminars jump start the process of intellectual inquiry through a free exchange of ideas during and outside of class. FYI instructors mentor and assist students in developing a meaningful and purposeful approach to their college experiences. The FYI Seminar counts in the Connections and Exploration area of the new General Education curriculum (for students entering fall 2008).

FOREIGN LANGUAGES

School of Humanities and Social Sciences

Associate Professor Gaudry-Hudson, chairperson
Professor Hopkins
Associate Professors Börger-Greco, Moine, Nimmrichter, Rivera-Hernández
Assistant Professors Antolín, Valentín-Márquez

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 rst 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 pro ciency interview at the end of their sophomore year.

All modern language majors are required to take, prior to graduation, an oral pro ciency interview and to compile a portfolio. BSE students are required to take the of cial OPI and receive a rating of Advanced Low or higher prior to graduation.

STUDY ABROAD

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 Of ce of Global Education and Partnerships at an early date.

Millersville has of cial 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

Of ce of Global Education and Partnerships. For more information about study abroad, contact the Of ce of Global Education and Partnerships, Cumberland House, phone: (717) 872-3884 or email globaleducation@millersville.edu.

COURSE REQUIREMENTS

French, German or Spanish Major (B.A.): 120 s.h.
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.

French, German or Spanish Major (B.S. Ed.): 120 s.h. Certi cation in Secondary Education
FORL 201, 202, 311, 312 or 313, 331 (or 332 or 333), 351, 352, 470 (with a grade of B- or higher) and 480, ENGL 220 and one course in history related to the foreign language area of study with the adviser's approval. Three courses (9 credits) in a second language. Certi cation may be earned in two language areas. Early planning with adviser is essential and study abroad is strongly recommended. For those seeking dual certi cation the 101 and 102 courses in the second language count toward certi cation.

In addition to the above, EDFN 211, 241 and 330; and EDSE 321 and 461 are also required.

Foreign Language Major
(B.A. or B.S. Ed.): 120 s.h.
International Business Option
(French, German, Spanish)
Foreign language majors who wish to prepare for a career in international business should take FORL 211, 212, 301 and 460. It is recommended that students exercising this option take one of the minors offered by the business department.

German majors with the international business option will be prepared to pass the "Zerti kat Deutsch für den Beruf."

French majors have been successful in achieving the Paris Chamber of Commerce Certi cate.

Spanish majors have been successful in achieving the Madrid Chamber of Commerce Certi cate.

French, German, Greek, Latin or Spanish Minor
Consists of a minimum of 18 s.h. including 201*, 202*, (*higher level courses may be substituted for these courses) 351 and/or 352 plus electives at the 300 or 400 level for a total of 18 credits. (See foreign languages adviser.) Greek and Latin minors are offered in cooperation with Franklin & Marshall College.

COURSE DESDESRIPTIOMN1afa(bub6j EMC)Tj0

the needs and interests of the students and the faculty involved. Speci c topics will be identi ed 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.

FREN 301: 3 s.h.
Commercial French
Commercial vocabulary and stylistics of French for the professions. The parts of the business letter; study of general types of business correspondence, oral and written interactions in a professional context, including letters requesting and offering information, mail orders, sales letters, applications for employment, complaints, claims, collection, credit, etc. Includes the opportunity to take the Certi cate of Professional French given by the Paris Chamber of Commerce. Offered periodically. Prereq: FREN 202 or 351.

FREN 311: 3 s.h.
Survey of Literature I
Life and work of foremost French writers through the 18th century. Reading and discussion of selected works in various genres. Offered in spring. Prereq: FREN 351 or 352.

FREN 312: 3 s.h.
Survey of Literature II
Life work wf foremostfrench wFrancophon wiscussion wf felected work warious wenres. wffered Ppring. ereq: FREN 351 or 3erimision

FREN 313: 3 s.h.
Crench I

affered periodically. Prereq: FREN 202 or 351.

FREN 3132 3 s.h.
Crench II

FREN 3133 3 s.h.
Crench

af feredt, edgons Offered periodicallyereq: FREN 202 or 351.

FREN

aA grammar edview Offered pi ereq: FENGL: 110,FREN 202 or 3placeent, exam

FREN 3113 3 s.h.

af fered pi foeuesnty. Prereq: FREN 202

FREN

FREN 431: 3 s.h.
French Prose I
Study of essays, letters, maxims, memoirs and novels to the end of the 17th century. Works of Rabelais, Montaigne, Pascal, La Bruyère will be included. Outside readings, class reports. Offered infrequently. Prereq: FREN 311 and 312.

FREN 432: 3 s.h.
French Prose II
Short stories, essays and novels by 18th and 19th-century authors. Works of Voltaire, Rousseau, Diderot, Stendhal, Balzac, Hugo, Flaubert, Maupassant, Zola, etc., will be included. Outside readings, class reports. Offered infrequently. Prereq: FREN 311 and 312.

FREN 433: 3 s.h.
French Prose III
Essays, short stories and novels from the beginning of the 20th-century to the present. Works by Camus, Gide, Malraux, Proust, Sartre, Saint-Exupéry and the “nouveau roman.” Outside readings and class reports. Offered infrequently and/or online. Prereq: FREN 311 and 312.

FREN 460: 3 s.h.
Introduction to T ranslation and Interpretation
Expert guidance for avoiding the pitfalls inherent in transposing thought from one language to another, for students with a rm oral and written command of French. Emphasis on idiomatic translation of newspaper and magazine articles. Offered infrequently. Prereq: FREN 351 and 352.

FREN 470: 3 s.h.
French Linguistics
Introduction to linguistics and its terminology in the context of modern French. Study of the major branches of the discipline: phonetics, phonology, syntax, morphology, semantics and sociolinguistics. Review of various French grammar issues from a linguistics perspective. To be taken before FORL 480. Prereq: FREN 351 and 352.

FORL 480: 3 s.h.
Teaching of Foreign Languages
Study of current theories of second language acquisition and methods of teaching foreign languages in elementary and secondary schools. Students will develop techniques for teaching language for pro ciency in all skill areas; planning lessons and units; selecting, adapting and developing materials; assessment; and the use of new technologies. Must be taken simultaneously with EDSE 321 and EDFN 330. Offered in fall. Prereq: Admission to Advanced Professional Studies, FREN 470 or GERM 470 or SPAN 470.

FREN 490: 3 s.h.
Teaching of Foreign Languages
in the Elementary School
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.

FREN 498: 1-3 s.h.
Independent Study
For further information on independent study, see the Special Academic Opportunities section.

Conversation: No Credit
French majors are offered the opportunity to participate on a regular basis in a small conversation group under staff supervision.

NOTE: The graduate courses in French listed below are open to undergraduates with the recommendation of the adviser and consent of the instructor. (See the Graduate Catalog for course descriptions.) U 3(below)-3below((See T* [endation)0* [endi5(Uh40(U 3(below)-3)for)numbe 1 Tf [e beion on i

FREN 446 (541): 3 s.h.
History of France to 1789

FREN 447 (542): 3 s.h.
History of France from 1789 to the Present

FREN 451 (551): 3 s.h.
Geography of France, Physical and Economic

FREN 461 (561): 3 s.h.
Survey of French Art

FREN 462 (562): 3 s.h.
Survey of French Architecture

FREN 463 (531): 3 s.h.
Evolution of the French Language

FREN 471 (571): 3 s.h.
Aspects of Contemporary France

FREN 481 (581): 3 s.h.
Seminar in Medieval French Literature

FREN 482 (582): 3 s.h.
Seminar in Renaissance Literature

FREN 483 (583): 3 s.h.
Seminar in Seventeenth Century Literature

FREN 484 (584): 3 s.h.
Seminar in Eighteenth Century Literature

FREN 485 (585): 3 s.h.
Seminar in Nineteenth Century Literature

FREN 486 (586): 3 s.h.
Seminar in T wentieth Century Literature

FREN 491 (589): 3 s.h.
Current T opics

German

GERM 101: 3 s.h.
Elementary German I (G1)
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.

GERM 102: 3 s.h.
Elementary German II (G1)
Continuation of GERM 101 with emphasis on more complex syntactical structures while working towards greater pro ciency in both productive (speaking and writing) and receptive (reading and listening) skills. Offered in spring. Prereq: GERM 101 or 2 yrs. of h.s. German.

GERM 201: 3 s.h.
Intermediate German I (G1)
Emphasis is placed on further developing skills through varied realistic exercises and in authentic real-life situations. Contemporary cultural and

HUMN 220: 3 s.h.
German Literature in English (G1, W)
German masterpieces taught in English by an instructor of German. Designed primarily as an elective for non-majors with interest in foreign literature. May be selected by majors with consent of adviser to ful ll humanities course requirements. Offered in fall, spring. Prereq: ENGL 110.

HUMN 230: 3 s.h.
The Amish and Other Pennsylvania Germans (G1)
The Amish and other Pennsylvania Dutch, their history, culture, language and lifestyle, with emphasis on Lancaster County, Pa. Student written and oral reports on historical sites, museums and other subjects. Offered infrequently.

HUMN 391: 3 s.h.
Topics in the Humanities (G1,W)
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. Speci c topics will be identi ed 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, junior or senior class level.

GERM 301: 3 s.h.
Business German
Advanced study of the four skills and translation. Extensive use of German language tapes and articles from business periodicals, supplemented by an introduction to business correspondence and grammar. Offered infrequently. Prereq: GERM 202 or placement exam.

GERM 311 and 312: 3 s.h. each
Survey of German Literature I & II
Orientation to various periods of German literature from the earliest times up to the present. Lectures on outstanding literary gures. Reading and discussion of representative work. Prereq: GERM 202 or placement exam.

GERM 331 and 332: 3 s.h. each
German Civilization I & II
An introduction to German culture dealing with the history, economics, philosophy, religion, sciences, education, language, literature, art, architecture, sculpture and music of the German speaking peoples from prehistoric times to the present. Offered periodically. Prereq: GERM 202.

GERM 351 and 352: 3 s.h. each
Composition and Oral Expression I & II (G1, W)
Systematic practice in the language designed to hone students' oral and written skills to a level of pro ciency enabling them to express themselves with a high degree of accuracy and uency on a variety of topics. Contemporary culture and literature texts provide the thematic basis. Offered in fall (351) and spring (352). Prereq: ENGL 110, GERM 202 or placement exam.

GERM 361 and 362: 3 s.h. each
Oral German I and II
Recommended particularly for secondary education majors, as considerable attention is given to the speci c linguistic needs of prospective teachers. Intensive experience with the spoken language. Conversations dealing with everyday life with emphasis on acquisition of appropriate vocabulary. Emphasis on modern society and customs: schools, sports, holidays, literature, etc. Remedial treatment of phonetics and grammar. Prereq: GERM 202 or equivalent.

GERM 370: 3 s.h.
Advanced Grammar and Stylistics
A condensed review of basic grammar and its terminology, a systematic and detailed treatment of the basic elements of advanced grammar and an introduction to the basic elements of stylistics. Offered periodically. Prereq: GERM 351, 352.

GERM 411: 3 s.h.
German Poetry I
Study of representative poems from old high German to the death of Goethe. Biographical sketches of poets. Lectures on metrics and genres. Student research papers. Offered infrequently. Prereq: GERM 311 and 312.

GERM 412: 3 s.h.
German Poetry II
From romanticism up to and including the present. Procedure similar to GERM 411. Question and answer periods based on research papers. Offered infrequently. Prereq: GERM 311 and 312.

GERM 421: 3 s.h.
German Drama I
Dramas covering the 18th and rst half of the 19th centuries. Lectures on dramatists and changes within the structure of dramas. Student research papers. Offered infrequently. Prereq: GERM 311 and 312.

GERM 422: 3 s.h.
German Drama II
Dramas covering the second half of the 19th century and into the 20th century. Procedure similar to GERM 421. Offered infrequently. Prereq: GERM 311 and 312.

GERM 431: 3 s.h.
The Novelle in German Literature
Lectures on the development and theory of the genre from its beginnings to about 1870. Reading and discussion of outstanding Novellen as examples of a theory and a literary era. Research papers and oral reports. Offered infrequently. Prereq: GERM 311 and 312.

GREK 312: 3 s.h.
Survey of Literature II
Continuation of GREK 311; introduces Greek poetry and metrics. Offered infrequently. Prereq: GREK 311.

GREK 498: 1-3 s.h.
Independent Study
For further information on independent study, see the Special Academic Opportunities section.

NOTE: Major works of epic, tragedy, comedy, philosophy, oratory, history and lyric poetry constitute the advanced courses.

Latin

LATN 101: 3 s.h
Elementary Latin I (G1)
Introduction to language and culture of ancient Rome. Study of forms, syntax and idioms. Emphasis on analytical thinking and English vocabulary building. Intended for beginners. Offered in fall.

LATN 102: 3 s.h.
Elementary Latin II (G1)
Continuation of the approach used in the rst semester. Supplementary readings in unadapted Latin prose and poetry. Offered in spring. Prereq: LATN 101.

HUMN 163: 3 s.h.
Latin and Greek T erminology (G1)
Latin and Greek components in English words. Study of pre xes, suf xes and roots integrated with the combinative principles, orthography and

JAPN 202: 3 s.h.
Intermediate Japanese II (G1)
Continuation of JAPN 201. Further development of syntactical and phonological structures. Thematic basis for oral and written communication. Builds on pro ciency attained in JAPN 201. Offered infrequently. Prereq: JAPN 201.

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

RUSS 101: 3 s.h.
Elementary Russian I (G1)

SPAN 211: 3 s.h.
Spanish for Business I (G1)
The Spanish language and culture needed to perform basic business transactions in Spanish-speaking countries. Offered infrequently. Prereq: SPAN 102 or placement exam.

SPAN 212: 3 s.h.
Spanish for Business II (G1)
Continuation of SPAN 211. Emphasis on business terminology, commercial correspondence, similarities and differences in business transactions and international procedures. Offered infrequently. Prereq: SPAN 201 or 211, or placement exam.

HUMN 280: 3 s.h.
Spanish Literature in English (G1)
Outstanding Spanish and Spanish-American literary works. Course taught in English by an instructor of Spanish. Offered periodically.

SPAN 301: 3 s.h.
Commercial Spanish
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 311: 3 s.h.
Survey of Literature I
Life and works of outstanding literary gures and movements in Spain through the 17th century. Lectures, outside readings and reports. Offered annually. Prereq: SPAN 351.

SPAN 312: 3 s.h.
Survey of Literature II
Life and works of outstanding literary gures and movements in Spain from 1700 forward. Lectures, outside readings and reports. Offered annually. Prereq: SPAN 351.

SPAN 313: 3 s.h.
Survey of Spanish American Literature
Life and works of outstanding literary gures and movements in Spanish America from its discovery and colonization to the present. Emphasis given to the Latin American contribution to universal literature. Offered annually. Prereq: SPAN 351 or 352.

SPAN 331: 3 s.h.
Spanish Civilization I
History and development of Spain from prehistoric times to 1700. Includes the civilization, art and in uence of the Romans, Visigoths and Moslems; uni cation of the country and the Hapsburgs. A study of the art of each period. Considerable use of slides and lms. Offered annually. Prereq: SPAN 202 or 351.

SPAN 332: 3 s.h.
Spanish Civilization II
Spanish history and culture from 1700 forward from the beginning of the Bourbon dynasty through the present. Emphasis on the intellectual, social, cultural and political aspects of life in Spain. Outside readings, class reports. Considerable use of slides and lms. Offered annually. Prereq: SPAN 202 or 351.

SPAN 333: 3 s.h.
Spanish-American Civilization I
History of pre-Columbian Americans, the conquest, exploration and colonization of the New World to the Wars of Independence. Includes a history of Spanish American cultures, societies and institutions. Use of audio visual material to emphasize the differences among pre-Columbian countries. Offered annually. Prereq: SPAN 202 or 351.

SPAN 334: 3 s.h.
Spanish American Civilization II
History and culture of the Spanish Americas from 1824 to contemporary times. The formation and development of the new Spanish-American countries once they reached their independence from Spain will be explored and analyzed. Emphasis will be given to the traits that make each one of these countries unique as well as part of the Spanish American world. Offered annually Prerequisties: SPAN 202 or 351.

SPAN 351 and 352: 3 s.h. each
Composition and Oral E

a living culture with a rich historical context. Interdisciplinary in nature, combing literature with history and cultural studies, but also comparative, since the diversity of cultures will be explored under the rubric of “Latino,” which includes Chicanos, Puerto Ricans, Cubans and Dominicans, among others. Knowledge of Spanish not necessary. Offered periodically. Prereq: COMM 100, ENGL 110, junior status.

HUMN 391: 3 s.h.
Topics in the Humanities (G1, W)
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 interest of the students and the faculty involved. Speci c topics will be identi ed 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.

SPAN 411: 3 s.h.
Spanish Poetry I
Development of principal types of Spanish or Spanish American poetry from the early Kharjas and Cantar de Mio Cid to the Renaissance. Study of the main works of representative poets. Class discussions, lectures, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 412: 3 s.h.
Spanish Poetry II
Continuing development of Spanish or Spanish American poetry from the Golden Age to the end of the 19th century. Main works of representative poets are studied. Class discussions, lectures, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 413: 3 s.h
Spanish Poetry III
A study of the representative works of 20th-century Spanish or Spanish American poets, such as Juan Ramón Jiménez, Gabriela Mistral, Frederico García Lorca, César Vallejo, Pablo Neruda and others. Class discussions, lectures, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 421: 3 s.h.
Spanish Drama I
Traces the development of Spanish drama from its beginnings with a study of representative plays of Spain’s Golden Age. Lecture, discussions, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 422: 3 s.h.
Spanish Drama II
A study of the Spanish theater from 1700 through the 19th-century. Includes the neoclassic, romantic and realist dramatists such as Echegaray, Tamayo y Baus and Zomilla. Lecture, discussions, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 423: 3 s.h.
Spanish Drama III
Reading of representative plays of 20th-century Spanish or Spanish American dramatists. Lecture, outside readings, discussions and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 428: 3 s.h.
Women in 19th-Century Peninsular Drama
An advanced Spanish literature course which examines the development of romantic and realist peninsular theatre and focuses speci cally on the female protagonists of the genre. The course is given in Spanish: readings are in Spanish. Lectures, discussions, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 431: 3 s.h.
Spanish Prose I
Development of narrative in Spain from the 13th-century origins of these forms to the end of the 17th century. Includes historical, didactic, narrative, pastoral, picaresque, mystic and novels of chivalry. Lecture, discussion, outside readings and reports: Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 432: 3 s.h.
Spanish Prose II
Study of Spanish narrative forms from the 18th century to the present day. Lecture, discussions, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 433: 3 s.h.
Spanish-American Prose
A study of Spanish-American prose forms —history of discovery, conquest, exploration and colonization, romanticism, realism, naturalism, the essay and ction to the present day. Lectures, outside readings and reports. Offered periodically. Prereq: any two of SPAN 311, 312 or 313.

SPAN 460: 3 s.h.
Introduction to T ranslation and Interpretation
Intended for students with a rm oral and written command of Spanish, who need expert guidance for avoiding the pitfalls inherent in transposing thought from one language to another. Emphasis on idiomatic translation of newspaper and magazine articles. Offered in spring. Prereq: SPAN 351 and 352.

SPAN 470: 3 s.h.
Spanish Linguistics
Introduction to Spanish phonetics. Comparative study of the morphology and the syntactic structures of Spanish and English. To be taken before FORL 480. Offered in fall. Prereq: SPAN 351 and 352. Recommended: SPAN 361.

SPAN 485 (585): 3 s.h.
Seminar in Nineteenth-Century Literature

SPAN 486 (586): 3 s.h.
Seminar in T wentieth-Century Literature

SPAN 487 (587): 3 s.h.
Seminar in Spanish-American Literature

SPAN 491 (589): 3 s.h.
Current T opics

FRENCH

See Foreign Languages

GEOGRAPHY

School of Humanities and Social Sciences

Associate Professor Cuthbert, chairperson
Professor Shanahan
Associate Professors Geiger, Schreiber, Thompson
Assistant Professor Kelly

Geography is the study of how people relate to their natural and human surroundings. Geography is a bridge discipline: an environmental science which brings together principles of physical sciences and other social sciences; a social science which looks at the spatial characteristics of culture, history, politics, economies and business decisions; and a liberal arts discipline which provides background for study in art, languages, literature, music, education and many other subjects. Geographers can bring to analyses of current issues an understanding of global interrelationships and specialized map-related skills. Many geographers develop professional skills in map interpretation, cartography and computer-based mapping and analysis. Geographic understanding and skills create the potential for employment in such diverse areas as planning and other government agencies, environmental and cartographic service companies and the business community. Contact the department chairperson for more detailed information on career opportunities.

The liberal arts program in geography offers emphases in environmental studies, global studies and geospatial applications for geography majors and minors. A minor in geography brings an added dimension to any major and current geography minors hold majors in many different University departments. The program in secondary education, providing certi cation for social studies teaching with a geography emphasis, is also serving a growing demand. Every student will bene t from the liberal arts value of the introductory and regional geography courses.

COURSE REQUIREMENTS

Geography Major (B.A.): 120 s.h.
Environmental Studies Option
GEOG 120, 202, 230, 281; three from GEOG 20x, 30x, 23x, 33x, 43x or GEOG 372; one from GEOG 22x; one from GEOG 24x, 34x, 44x; 300 or 488; 6 s.h. in geography electives. Required related courses: MATH 130 or 235; an approved minor.

Geography Major (B.A.): 120 s.h.
Global Studies Option
GEOG 120, 141, 230, 281; two from GEOG 22x, 350, 32x; three from GEOG 24x, 34x, 44x (not 245); GEOG 300 or 488; 6 s.h. in geography electives. Required related courses: MATH 130 or 235 and two from ANTH 121, 322, 342, 344, ECON 203, 225, 325, 326, 327, GOVT 221, 251, 351, 352, HIST 102; an approved minor.

Geography Major (B.A.): 120 s.h.
Geospatial Applications Option
GEOG 120, 230, 281, 292, 295, 372; one from GEOG 28x, 29x, 38x, 39x; two from GEOG 278, 304, 305, 306, 329, 336; one from GEOG 14x, 24x, 34x, 44x; 300 or 488; 3 s.h. in geography electives. Required related courses: MATH 130 or 235 and MATH 151 or 160; an approved minor.

Social Studies Major (B.S.Ed.): 120 s.h.
This program is designed for students planning to teach economics, geography, government or history. The program consists of 30 s.h. of 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 among 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, government and history courses should be at the 200-level or higher. Students who concentrate in geography are highly encouraged to take 15 s.h. in geography. The program also consists of 27 s.h. of professional education courses, two math courses and two courses in the humanities or sciences that support the concentration.

Students wishing to teach anthropology, psychology or sociology in the secondary schools are required to complete the B.S.Ed. As part of that program the students should select a number of courses in anthropology, sociology and psychology to prepare for the certi cation exams in the social sciences. Additional courses beyond the social studies program may be necessary. Upon receiving certi cation, students can take the test for Social Sciences Certi cation which will allow them to teach anthropology, psychology and sociology.

GEOG 278: 3 s.h.
Transportation Geography (G3)
Transportation is de ned as the movement of goods and people from place to place. This course introduces the principles underlying these movements with discussion of the economic, social and environmental impacts. Offered periodically.

GEOG 281: 3 s.h.
Map Interpretation and Analysis (G3)
Introduction to maps as the basic analytical tool of geographers. Map reading, measurement, interpretation and basic spatial data collection and analysis are examined in the contexts of general map use and of geographic research. Offered in fall, spring.

GEOG 292: 3 s.h.
Quantitative and Spatial Analysis (G3)
Advanced spatial analytical techniques in a computer environment. Data collection methods and sources are reviewed. Descriptive and inferential statistical methods are surveyed and are applied to spatial analytical problem solving. Offered periodically. Prereq: GEOG 281.

GEOG 295: 3 s.h.
Geographic Information Systems
Introduction to Geographic Information Systems (GIS) computer technology and software. Combines understanding of geographic data and research with training in digital mapping, geographic databases and spatial analysis. Offered annually. Prereq: GEOG 281.

GEOG 300, 400: 3 s.h.
Cooperative Education in Geography
Assignment with a public agency or private organization. Requirements include design of an approved job description relevant to employer's func-

GEOG 344: 3 s.h.
North America (G

Course Descriptions

GERT 100: 3 s.h.
Interdisciplinary Introduction to Gerontology (G3)
An introduction to the eld of aging and examination of the physiological, sociological, psychological and economic perspectives. This course also focuses on problems of the aged at levels of self, interactions with others and the broader societal context.

GERT 210: 3 s.h.
Aging and the Law (G3, W)
Introduction to legal concepts and thinking. Study of the laws, regulations, social policies and psychological factors that affect delivery of services to the elderly in area of economic security, employment, health care, wills, mental health, housing, criminal justice, consumer protection. Offered periodically. Prereq: ENGL 110.

GERT 300/301: 3 s.h.
Field Practicum
Supervised practicum at cooperating agencies and organizations active in serving elderly, for a minimum of 150 hours (10hrs/week). Involvement in meeting physiological and/or psychological and/or social needs of the elderly. Prereq: GERT 100 and at least 30 s.h. of general education and gerontology courses. Faculty involvement in and approval of practicum plan. Malpractice liability insurance required.

GOVERNMENT AND POLITICAL AFF AIRS

School of Humanities and Social Sciences

Professor Glenn, chairperson
Professors K. Bookmiller, Lee
Associate Professors R. Bookmiller, Greenawalt
Assistant Professors Bagchi, Lawrence

The Department of Government and Political Affairs offers a liberal arts major and minor. Departmental honors option is available to quali ed majors, as are pre-law advising and internship opportunities.

COURSE REQUIREMENTS

Government and Political Affairs (B.A.): 120 s.h.
Complete both A and B:

A. 33 s.h. in government and political affairs, including 15 s.h. at the 300 level or above. Students must complete GOVT 111: Introduction to American Government, GOVT 221: Introduction to Comparative Political Systems, GOVT 231: Introduction to Political Theory, GOVT 251: Introduction to Global Affairs.

Students should check the course description portion of the catalog for prerequisites and recommended courses.

It is recommended that students planning graduate or other advanced study in government and political affairs complete GOVT 301: Political Research Skills and Methods.

B. Students must complete any University approved minor (18 s.h.). A second major will also ful ll this requirement.

Social Studies Major (B.S.Ed.): 120 s.h.
This program is designed for students planning to teach economics, geography, government or history. The program consists of 30 s.h. of 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 taken at the 200-level or higher. Students who concentrate in government are highly encouraged to take 15 s.h. in government. The program also consists of 27 s.h. of professional education courses, two math courses and two courses in the humanities or sciences that support the concentration.

Students wishing to teach anthropology, psychology or sociology in the secondary schools are required to complete the B.S.Ed. As part of that program the students should select a number of courses in anthropology, sociology and psychology to prepare for the certi cation exams in the social sciences. Additional courses beyond the social studies program may be necessary. Upon receiving certi cation, students can take the test for Social Sciences Certi cation which will allow them to teach anthropology, psychology and sociology.

The professional education courses required are: EDFN 211, 241 and 330; EDSE 321, 433 and 461.

Government & Political Affairs Minor: 18 s.h.

18 s.h. with at least one course in each of the two following areas: American politics and international/comparative politics. 6 s.h. at the 300 level or above are required.

COURSE DESCRIPTIONS

GOVT 101: 3 s.h.
Introduction to Political Studies (G3)
Fundamental problems of politics and government. The involvement of human beings in the exercise of power and in uence, con ict, political leadership and political groups. Offered in fall, spring.

GOVT 111: 3 s.h.
Introduction to American Government (G3)
Introduction to the major tenets of the American political system. Offered in fall, spring.

GOVT 112: 3 s.h.
Introduction to State and Local Government (G3)
The federal system and state and local governmental problems. Emphasis on Pennsylvania when possible. Offered in fall, spring.

GOVT 205: 3 s.h.
Introduction to Public Policy (G3)
Decision making by governments in response to public problems. The policy process. Current policy issues, selected from such possible examples as education, abortion, energy and environment. Some problems of policy evaluation. Offered in fall, spring.

GOVT 215: 3 s.h.
The American Presidency (G3, W)
Examination of the presidency and the executive branch of national government. Emphasis on the growth and development of presidential power. Offered in spring. Prereq: ENGL 110.

GOVT 221: 3 s.h.
Introduction to Comparative Political Systems (G3)
Introduction to the comparative analysis of government and politics through an examination of different political systems including advanced

GOVT 332: 3 s.h.
Recent Developments in Political Theory
Selected issues and problems and an examination of the works of various contemporary political theorists. Offered in spring. Prereq: GOVT 231.

GOVT 333: 3 s.h.
American Political Thought

HISTORY

School of Humanities and Social Sciences

Professor Bremer, chairperson
Professor Downey
Associate Professors Frankum, Kevorkian, McLarnon, Weis
Assistant Professors, Maxwell, Shelor, Sommar

The Department of History offers courses in U.S. and world history and major degrees in both the liberal arts and secondary education. In addition, it offers applied history, which enables students to learn skills in historical editing, museum work and other related areas. A history minor is also available to the nonhistory majors. The department's program in secondary education provides teaching certi cation. Academic counseling is available for students choosing careers in history.

COURSE REQUIREMENTS

History Major (B.A.): 120 s.h.
HIST 101, 102 ,105, 106, 406. Then 27 s.h. of history electives according to departmental guidelines with at least 9 s.h. of these at the 300 level or above.

History Minor: 18 s.h.
Students who choose a minor in history are required to take a minimum of 18 s.h. of history courses distributed according to departmental guidelines.

General Guidelines for the Minor

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Social Studies (B.S. Ed.): 120 s.h.
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 humanities or sciences that support the concentration.

Students wishing to teach anthropology, psychology or sociology in the secondary schools are required to complete the B.S.Ed. As part of that program the students should select a number of courses in anthropology, sociology and psychology to prepare for the certi cation exams in the social sciences. Additional courses beyond the social studies program may be necessary. Upon receiving certi cation, students can take the test for Social Sciences Certi cation which will allow them to teach anthropology, psychology and sociology.

The professional education courses required are: EDFN 211, 241 and 330; EDSE 321, 433 and 461.

Department Honors
Minimum of 18 s.h. of history courses and approval of department chair required to submit an honors thesis.

COURSE DESCRIPTIONS

HIST 101: 3 s.h.
Europe and the World, 1350-1789 (G3)
Europe and its world relationships during the centuries of the Reformation, the scienti c revolution, overseas expansion and revolution. Offered in fall, spring.

HIST 102: 3 s.h.
Europe and the World, 1789 to Present (G3)
Europe and its world relationships in the age of industrialization and democratization. Offered in fall, spring.

HIST 105: 3 s.h.
Introduction to the Craft of History
This course introduces students to the philosophy of history, major schools of historiography and skills of research and writing history. This course does not count for general education requirements. Offered in fall, spring.

HIST 106: 3 s.h.
Contours of U.S. History (G3)
A survey of United States history from the peopling of the Americas to the present. Identi es and examines the key themes in the creation and transformation of the nation and its peoples. Offered in fall, spring.

HIST 206: 3 s.h.
The World to 1500 (G3)
Survey of world history from known beginnings to 1500. Offered in spring.

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HIST 360: 3 s.h.
The Second World War (G3)
The course focuses on the military strategy and tactics employed by the combatants during the Second World War (1939-1945). Offered annually.

HIST 380: 3 s.h.
U.S.-Latin American Relations (G3)
Traces the historical evolution of the inter-America organizations. Emphasis on U.S.-Latin American relations. Offered infrequently.

HIST 381: 3 s.h.
History of West Africa to 1800 (G3, W)
Explores the internal dynamics of state formation in the medieval era, the development of socio-political and economic institutions, as well as, the development and impact of such external factors as Islam, Christianity and the transatlantic slave trade. Offered annually. Prereq: ENGL 110.

HIST 401: 3 s.h.
Cultural Interactions in the Atlantic World, 1450-1820 (P)
This perspectives course will compare the social, economic, political and religious relations of three areas: Africa, Europe and the Native Societies of the Americas in and during the period of the formation of the Atlantic World. Offered periodically. Prereq: COMM 100, ENGL 110 and junior status.

HIST 406: 3 s.h.
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HIST 503
Readings in United States History 1919 to the Present

HIST 505
Readings in Early Modern Europe, 1500-1789

HIST 506
Readings in the European Age of Revolution, 1789-1914

HIST 507
Readings in Modern Europe, 1914 to the Present

HIST 508
Readings in Regional History

HIST 510
Topics in United States History

HIST 511
Topics in European History

HIST 512
Topics in Regional History

HONORS COLLEGE

Professor Dennis B. Downey, director

Regulations governing admission, retention and graduation in the University Honors College are found in the Special Academic Opportunities section.

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component of general education and results in 5 hours of general education credit. 1 hr. discussion. Coreq: concurrent registration in CHEM 112 is required. Prereq: CHEM 111 grade B- or higher and consent of Honors College Committee.

CHEM 372H: 3 s.h.
The History of Chemistry and Society
The history of the development of the science of chemistry from its roots in Egyptian and Greek societies through its specialization in the early twentieth century. The relationships between chemical developments and society are explored, as well as the in uences of chemistry on Western thought. 3 hrs. of discussion. Offered in spring. Prereq: CHEM 102, 104, or 111; 2 social science courses, including one history course: HIST 100, 101, or 310 preferred.

COMM 100H: 3 s.h.
Fundamentals of Speech
Required fundamentals course in general education. An introductory study of the principles of public speaking with particular emphasis upon the selection and organization of information for persuasive purposes. Satis es competency requirement. Offered in fall, spring

ESCI 202H: 4 s.h.
The Earth in Space (G2, L)
A quantitative scienti c experience directed toward an understanding of the dynamic earth, its origin and evolution and its place in the universe. Physical concepts from classical and modern physics, astronomy, cosmology and the earth and atmospheric sciences, couched in the language of calculus, are supported by observation, experiment and theory. 3 hrs. lec., 2 hrs. lab. Offered periodically in spring. Prereq: MATH 161 or MATH 163 or MATH 155-156. Restricted to students in University Honors College, B.S. Ed. in Earth sciences, or who have at least a 3.35 GPA.

ENGL 110H: 3 s.h.
Honors English Composition
Emphasis on development of research and analytical skills; presumes basic writing ability. Students who demonstrate competency in English 110 are exempt from this requirement. Offered in fall, spring.

ENGL 238H: 3 s.h.
The Western Literary T radition I (G1, W)
Works of the Western literary tradition from the Ancient World and through the Renaissance. Offered annually. Prereq: ENGL 110, member University Honors College or 3.35 GPA.

ENGL 239H 3 s.h.
The Western Literary T radition II (G1, W)
Works of the Western literary tradition from the Neoclassical period to the present. Offered annually. Prereq: ENGL 110, member University Honors College or 3.35 GPA.

MATH 163H: 5 s.h.
Honors Calculus I (G2)
Concepts of calculus intended primarily for students majoring in mathematics and the sciences. The notions of limit, derivative, de nite and inde nite integral are developed in detail as well as underlying philosophy of the mathematics and use of calculus in a modern computational environment. Offered in fall. Prereq: Permission of instructor; math placement exam.

MATH 301H: 3 s.h.
History of Mathematics (P)
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 230H: 1 s.h.
General Physics Seminar (G2)
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 318H: 3 s.h.
The Psychology of Racism (P)
Examination of individual and institutional racism in all its aspects with an emphasis on the various psychological explanatory therories 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.

SSCI 201H: 3 s.h.
The Western Intellectual T radition I (G3, W)
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.

SSCI 202H: 3 s.h.
The Western Intellectual T radition II (G3, W)
Currents of thought in Western civilization since the French Revolution, focusing on seminal thinkers and their impact on the culture of the West. Offered annually. Prereq: Member University Honors College or 3.35 GPA.

HUMANITIES

School of Humanities & Social Sciences

HUMN 380: 3 s.h.
Latino Issues of Identity (P)
Critically examines a variety of poetry, ction, short stories and essays produced by U.S. Latino/a writers and artists. Analysis of lms and newspaper clippings related to the Latino experience will be discussed. Texts examined will be approached not as isolated words on a page, but as part of a living culture with a rich historical context. Interdisciplinary in nature, combing literature with history and cultural studies, but also comparative, since the diversity of cultures will be explored under the rubric of “Latino”, which includes Chicanos, Puerto Ricans, Cubans and Dominicans, among

INDUSTRY & TECHNOLOGY

School of Education

Professor David, chairperson

C

Technology Education (EDTE) Major (B.S.Ed.): 126 s.h.
K-12 Teacher Certi cation

ITEC 262: 3 s.h.
Semiconductor Electronics
In-depth study of semiconductor theory, including diodes, transistors and silicon-controlled recti ers. Emphasizes digital, linear and hybrid integrated circuits. Covers surface mount and emerging technologies, such as nanotechnology and biotechnology. Practical applications include prototyping circuits, design and problem solving, use of test equipment and troubleshooting. 2 hrs. lec., 3 hrs. lab. Offered fall, spring. Prereq: ITEC 261 or permission of instructor.

ITEC 271: 3 s.h.
Processing Nonmetallic Materials
Various nonmetallic materials, processes, products and impacts, including polymers, ceramics, wood, clay, composites and glass. Instruction and experiences provided on safety and the use of tools and machines associated with nonmetallics. Includes production activities in each of the speci ed nonmetallic material areas. 2 hrs. lec., 3 hrs. lab. Offered fall, spring. Prereq: ITEC 130.

ITEC 281: 3 s.h.
Processing Metallic Materials
Design, manufacturing and assembly of metallic products. Covers metallic material properties, metallurgy, heat treatment, alloying and impacts. Scienti c and mathematical concepts are stressed to transform metallic materials into useful products. Includes safe utilization of associated tools and machines. 2 hrs. lec., 3 hrs. lab. Offered fall, spring. Prereq: ITEC 130.

ITEC 301: 3 s.h.
Technology and Its Impact on Humans (P)
Analysis of the development of technology and its impact on humans and a realization of the importance of human technological behavior on the environment, social/cultural systems and the future. Students use analytical skills on a written independent research project and oral skills to present and defend positions on technological problems facing our society. Prereq: COMM 100, ENGL 110 and junior class standing.

ITEC 302: 3 s.h.
Futurology: T echnology, Society and Change (P)
A nontechnical interdisciplinary course to help students identify and analyze forces causing technological and social change. Using an understanding of the processes of technological and social change and research techniques for forecasting the future, students complete a written independent research project. Develops skills to project future technological and social developments and their impacts. Offered periodically. Prereq: COMM 100, ENGL 110 and junior class standing.

ITEC 303: 3 s.h.
Technology Assessment: The Amish and Others (D,P)

inks, watercolors, paints and dyes. Employs a variety of support materials: paper, illustration board, cloth and three-dimensional surfaces. Single and double action airbrushes are incorporated into various projects, along with layout, frisket and masking techniques. 2 hrs. lec., 3 hrs. lab. Offered spring. Prereq: ITEC 243 or permission of instructor.

ITEC 344: 3 s.h.
Product DE

ITEC 427: 3 s.h.
Designing Industrial Control Systems
A synthesis of production systems, electricity and the basics of control systems. Students design, construct and troubleshoot a variety of industrial control systems utilizing programmable logic controllers, networks, control loops and off-line programs. A research and development component required. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 261 and 325.

ITEC 433: 3 s.h.
Construction Project 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.

ITEC 435: 3 s.h.
Manufacturing Enterprise
Exploration of the technological and management processes for conceptualizing and manufacturing a product. Experiences with product engineer - ing, production engineering, manufacturing management and enterprise operations in a student-centered learning environment. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 110, 120, 130, 140, 241 and 271, and a major in technology education (EDTE).

ITEC 445: 3 s.h.
Design for Manufacture and Assembly
Methodologies and tools to de ne product development phases. Experiences with working in teams to design high-quality competitive products. Primary goals are to improve ability to reason about design, material and process alternatives and apply modeling techniques appropriate for different development phases. Topics covered are user requirements, including quality function deployment (QFD), design for assembly, design for manufacture and optimizing for cost and producibility. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 130 and ITEC 342 or permission of instructor.

ITEC 446: 3 s.h.
Computer-Aided Drafting/Design
Advanced aspects of computer-aided drafting/design (CADD) and information on features and application capabilities of numerous software packages. Includes a series of activities on solids modeling, menu customization, attribute les, advanced dimensioning and editing features. Requires completion of major projects and a research and development activity. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 342 or permission of instructor.

ITEC 448: 3 s.h.
Machine T ool Design
Analysis, planning, design, construction and application of tools, methods and procedures necessary to increase manufacturing productivity. Integrated with machining and fabrication practices. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 342.

ITEC 455: 3 s.h.
Color Separation and Reproduction
Color theory, mechanical color separations, process color separations, color corrections, quality control methods and color reproduction. Experiences with computer separations, proo ng, platemaking and printing. Includes a research and development component. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 251.

ITEC 456: 3 s.h.
Digital Imaging
Digital images developed for printed and electronic publications and presentations. Emphasis on hardware and software technologies, their applications and interfaces. Hands-on activities require designing, composing and converting of printed and electronic images and establishing a digital workstation and electronic publishing site. 2 hrs. lec., 3 hrs. lab. Offered annually. Prereq: ITEC 356 or permission of instructor.

ITEC 465: 3 s.h.
Instrumentation and Control
Utilization of electronics instrumentation and mechanical systems to make quantitative determinations and control functions for detecting the physical presence or activity of light, heat, uids and force. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 262 or permission of instructor.

ITEC 466: 3 s.h.
Electronic Communication Systems
Common communication and broadcast systems. Emphasis on AM/FM radio and monochrome television, including transmission, resonance, heterodyning action, detection and troubleshooting/problem solving procedures. A research and development activity required. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 262 or permission of instructor.

ITEC 467: 3 s.h.
Microprocessor Electronics
Introduction of the microprocessor, microprocessor systems, programming and interfacing for practical applications. Covers a variety of microprocessors, including their structure, communication language and how the processor communicates with the system under its control. A research and development activity required. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 364 or permission of instructor.

ITEC 476: 3 s.h.
Wood Manufacturing Processes
Experiences to develop pro ciency in wood furniture production. 2 hrs. lec., 3 hrs. lab. Offered periodically. Prereq: ITEC 271 or permission of instructor.

ITEC 483: 3 s.h.
Computer-Aided Manufacturing (CAM)
Applies computer aided design (CAD) principles, part design speci cations and producibility concepts to create part geometry, tool paths and machining parameters for high volume discrete part production. Design and hands-on experience enable advanced skills in employing automated

lation, electromigration, corrosion, stress effects and adhesion. 2 hrs. lec., 2 hrs. lab. Prereq: NFMT 311. Completed at Penn State University in State College during “Capstone Semester.”

NFMT 316: 3 s.h.
Characterization, Packaging and T esting of Nanofabricated Structures
Examines a variety of techniques and measurements essential for testing and for controlling nal device performance and nal packaging. Problems and solutions concerning the interfacing of the macro-world with micro- and nano-scale devices will be analyzed and examined. 2 hrs. lec., 2 hrs. lab. Prereq: NFMT 311. Completed at Penn State University in State College during “Capstone Semester.”

Occupational Safety and Environmental Health

OSEH 120: 3 s.h.
Fundamentals of Safety, Health and Environmental Issues (G3)
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.

OSEH 220: 3 s.h.
Legal Aspects of Safety and Hygiene
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.

OSEH 221: 3 s.h.
Industrial Fire Prevention, Protection and Control
Basic principles, chemistry of re, re hazards determination, workforce noti cation, alarm and sprinkler systems, protective equipment, evacuation procedures and re ghting methods. Offered fall, spring.

OSEH 320: 3 s.h.
Safety Engineering Principles
Methods for the identi cation and analysis of industrial hazards. Emphasis on application of basic safety engineering principles for the control of

OSEH 440: 6 s.h.
Internship in Occupational Safety and Environmental Health
Students work full time for nine weeks or more under the direct supervision of an OSEH professional in industry, insurance, government agencies or other approved location. University supervision, seminars and evaluation are provided. Students experience problems, practices and principles in the management of occupational safety and/or industrial hygiene programs. To be taken twice, concurrently or consecutively, with increased work and research responsibilities. Prereq: Senior OSEH majors and permission of OSEH coordinator.

Technology Education

EDTE 291: 3 s.h.
Foundations of T echnology Education
An introduction to the social, historical and philosophical foundations of technology education leading to contemporary programs. Provision is made for observation of classroom and laboratory practices in selected schools. Offered fall, spring. Prereq: Sophomore standing. Must achieve a “C” or higher for admission to advanced professional studies (APS).

EDTE 391: 3 s.h.
Curriculum and Instruction in T

COURSE REQUIREMENTS

International Studies Major (B.A.): 120 s.h.
A. Major Field Requirements: 39 credits
1. Required courses (6 s.h.): INTL 201 and INTL 488.
2. Required core courses (12 s.h.): ANTH 121, ECON 203, GEOG 101, GOVT 251.
3. International Studies Electives (12 s.h.): Students choose two from the following four areas and take two courses from each area:
   Comparative Societies
   Economic Interdependence
      Comparative Societies eas and takeReland tsDC (M9>>> BDC lFF0009>>4D>>> BDC (M)Tj EMC (ajor Fie BDC lFF000>G 8 48 7:ext<FEFF00539>A)T

the minor will emphasize Latino perspectives, the development of critical thinking as well as written and oral communication skills within this eld 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.

Latino Studies Minor: 18 s.h.
Required courses: LATS 201, HUMN 380 and LATS 488, plus two courses from two different departments chosen from the list of race, culture and ethnicity courses and one course from the approved list of LATS elective courses. Students are encouraged to carefully plan their Latino studies curriculum and then discuss their plans with their minor and major advisers.

COURSE DESCRIPTIONS

HUMN 380: 3 s.h.
Latino Issues of Identity (P)
Critically examines a variety of poetry, ction, short stories and essays produced by U.S. Latino/a writers and artists. Analysis of lms and newspaper clippings related to the Latino experience will be discussed. Texts examined will be approached not as isolated words on a page, but as part of a living culture with a rich historical context. Interdisciplinary in nature, combing literature with history and cultural studies, but also comparative, since the diversity of cultures will be explored under the rubric of “Latino”, which includes Chicanos, Puerto Ricans, Cubans and Dominicans, among others. Knowledge of Spanish not necessary. Offered in fall. Prereq: COMM 100, ENGL 110 and junior status.

LATS 201: 3 s.h.
Introduction to Latino Studies (D, G1)
An introductory course designed to study the history, politics, economics and culture of the major Latino groups in the United States: Mexicans, Puerto Ricans, Cubans, Dominicans and Central Americans. Offered in fall.

LATS 488: 3 s.h.
Latino Studies Senior Seminar
Upper-level interdisciplinary study of Latino cultures through readings, independent student research and service-learning experiences. Prerequisites: LATS 201 and two additional courses that count toward the Latino/a studies minor. Offered annually.

LATS 498: 1-6 s.h.
Independent Study
Allows students to pursue an academic area of interest not available through an established course under the guidance and supervision of a faculty member. For further information, see the Special Academic Opportunities section of the catalog and consult with the director of Latino Studies or your adviser.

APPROVED LATINO STUDIES COURSES

Descriptions of these courses may be found under the appropriate departmental heading.

CORE COURSES

HUMN 380: Latino Issues of Identity
LATS 201: Introduction to Latino Studies
LATS 488: Latino Studies Senior Seminar

Race, Culture and Ethnicity (choose from two different departments)

ANTH 226: Comparative Societies (Latino Cultures)
ANTH 227: Culture through Film (Latino)
ANT 265: Hispanic Cultures in the U.S. (F&M)
ANTH 344: Gender, Race and Class
EDUC 403: Cultural Diversity: Pluralism in the Classroom
HIST 284: Modern Latin America
HIST 380: U.S.-Latin American Relations
SPAN 201: Intermediate Spanish I
SPAN 202: Intermediate Spanish II
SPAN 361: Oral Spanish I
SOCY 216: Human Population

Latino Electives (choose one)

ANTH 221: Peoples and Cultures of Mexico
ANT 263: Indians of Mexico (F&M)

ECON 203: Introduction to World Economics
ECON 226: Area Studies (with approval of LATS)
EDUC 433: Gender and Race Issues in Children's Literature
GEOG 343: Latin America
HI 231: Latin American Civilization – I (F&M)
HI 232: Latin American Civilization – II (F&M)
HIST 283: Colonial Latin America
HI 373: Modern Mexico (F&M)
HUMN 280: Latin American Women Writers
INTL 491: Topics in International Studies (with approval of LATS)
MATH 102: Survey of M

mathematics sequence with Calculus I. Students who have completed a calculus course in high school are encouraged to take the College Board Advanced Placement Exam and have their score sent to MU for evaluation. University credit for freshman-level mathematics course(s) may be offered to students with scores of 3 or higher. For further information, see Advanced Placement Examinations in the Admissions section.

In an effort to ensure that each student is properly placed, the department administers mathematics placement tests to all new students during the spring and early summer. For more information, see the Curriculum section.

The cooperative education program allows students valuable experience in a full-time or part-time professional position related to their career goals, adding practical relevance to their program of study as well as signi cant nancial remuneration. This often leads to full-time employment after graduation. Students may elect one or more cooperative education experiences.

COURSE REQUIREMENTS

Mathematics Major (B.A.): 120 s.h.
A. Mathematics Courses Required: 43-44 s.h.

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.

Statistics Option
A student ful lls this option by including the following required courses as part of his/her B.A., B.S. or B.S.Ed. mathematics program: MATH 335, 435, 535, 536, 537. In addition, the following courses are recommended: MATH 370, 375, 422.

Mathematics Minor 22-23 s.h.
A. Required Mathematics Courses: MATH 161 or 163, 211, 311, 322.

B. Mathematics Electives: Any two mathematics courses (at least 3 credits each) chosen from courses numbered 330 or above, or MATH 310.

Statistics Minor 23-26 s.h.
A. Required Mathematics Courses: MATH 161 or 163, 211, 311.

B. Core Statistics Courses: Either MATH 335 and 435 or MATH 333.

C. Applied Statistics Courses: MATH 535, 536 (or 438), 537.

COURSE DESCRIPTIONS

MATH 090: 3 s.h.
Basic Mathematics
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 ful ll 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 ful llment of the baccalaureate or associate degree.

MATH 100: 3 s.h.
Survey of Mathematical Ideas (G2)
A liberal arts course for students who will not be scheduling a technical/professional math course. A survey of mathematics important to the history of Western civilization and to the modern world. Introductory modules covered usually include: number theory, geometry, topology, probability, statistics, computers, consumer mathematics, and set theory. No credit in math/science block for math and science majors. Prereq: MATH 090 with a grade of “C-” or higher or math placement testing/evaluation before registration.

MATH 101: 3 s.h.
College Algebra

MATH 304: 3 s.h.
Mathematics for the Mentally & Physically Handicapped, K-12
Speci cally designed for the special education major; emphasizes the content, methods, strategies and materials for use in an effective educational program for LD, ED, EMR, TMR, SPMR and physically handicapped students. MATH 304 helps students become more competent and con dent when working with mathematics in special education. Offered infrequently. Prereq: MATH 104 and completion of 60 s.h. For special education majors only.

MATH 310: 3 s.h.
Introduction to Mathematical Proof (W)
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. In nite sets, both countable and uncountable. Offered in fall, spring and periodically in summer. Prereq: ENGL 110 and MATH 211.

MATH 311: 4 s.h.
Calculus III (G2)
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 s.h.

chains, queuing theory, simulation and inventory models. Applications and theory will be examined. Offered periodically. Prereq: MATH 322 and one of MATH 235, 333 or 335.

MATH 375: 3 s.h.
Numerical Analysis
Numerical methods for solving systems of linear equations, solving nonlinear equations, integration, interpolation, approximation and least squares curve tting. Error theory. Offered in fall. Prereq: CSCI 161, MATH 311 and 322.

MATH 393: 3 s.h.
Number Theory
The study of the properties of integers with respect to the fundamental operations. Primary emphasis on the logical derivations of these properties. Includes: induction, divisibility, congruences, theorems of Fermat and Euler, continued fractions and quadratic reciprocity. Offered periodically. Prereq: MATH 310.

MATH 395: 3 s.h.
Introductory Combinatorics
Mathematical foundation for the concepts and techniques used in combinatorics. Topics include recurrence relations, nite 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 s.h.
Teaching of Mathematics in the Secondary School
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 s.h.
Linear Algebra II
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.

MUSIC

School of Humanities and Social Sciences

Professor Houlahan, chairperson
Professor Renfroe
Associate Professors Heslink, Tacka, Wiley
Assistant Professors Ardrey, Banks, Blundell, Corley, Darmiento, Gemmell
Instructors Behrens, Englar, Staherski

MUSI 140: 3 s.h.
The Singing V oice in Musical Theatre (G1)
Trains students in good vocal technique in order to handle the many vocal challenges of musical theatre. Ranging from singing in different musical styles, singing while performing demanding dance routines, dealing with ampli cation, the switch from spoken to sung characterization, the health care of the voice, development of stamina to perform eight shows a week for a year or more and basic theory in order to read and learn music. Offered in the summer.

MUSI 141: 1 s.h.
Vocal Methods
A basic study of the technique of singing to adequately train the voice for practical and aesthetic reasons. Development of range quality, projection, control and the fundamentals of correct breathing is pursued through the use of suitable solo and choral literature. 2 hrs. lab. Enrollment limited to music education majors or permission. Offered in fall.

MUSI 144, 145, 244, 245, 344, 345, 444, 445: 1-2 s.h.
Major Performance (V oice)
Includes private study and participation in master classes. Music majors and minors only. Offered in fall, spring.

Instrumental Class Instruction
The instruments of the band and orchestra. Emphasis on basic skills for performance through materials and methods suitable for school instruction. 2 hrs. lab. MUSI 151 through 253, below, are offered periodically.

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

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

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

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

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

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

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

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

MUSI 154, 155, 254, 255, 354, 355, 454, 455: 1-2 s.h.
Major Performance (Instrument)
Includes private study and participation in master classes. Music majors and minors only. Offered in fall, spring.

MUSI 162: 2 s.h.
Introduction to Art Music
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 s.h.
Introduction to Music Education
Introduction to music teaching for prospective music educators, (K-12). Emphasis 0049>>peeric teachirs, prand

MUSI 212: 3 s.h.
Solfege, Harmony and Analysis II
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 har - monic 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 s.h.
Class Piano II
Intermediate course in practical keyboard facility accomplished through technique, sight-reading, improvisation, harmonization, composition and analysis. Primary and secondary harmonies are explored in selected multicultural folk songs, art songs and original piano compositions. MUSI 231 is designed to be taken concurrently with MUSI 212. Offered in fall. Prereq: MUSI 112. Note: music students majoring in piano take MUSI 377 instead of this course.

MUSI 263: 3 s.h.
Popular Music (G1)
Musical derivatives and development of pop, jazz and rock styles. Lecture, live and recorded musical demonstration, discussion and analysis. Offered in fall, spring.

MUSI 265: 3 s.h.
Symphonic Music (G1)
Development of symphonic music from the mid-18th century through the present. Relationships between the symphony and other musical genres. Emphasis on listening and analytical observation. Offered in fall, spring. Prereq: MUSI 100 or 162.

MUSI 267: 3 s.h.
Survey of American Music (G1)
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 s.h.
Elementary Methods (K-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 eld 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 s.h.
Solfege, Harmony and Analysis III

MUSI 368: 3 s.h.
World Music (P)
Introduction to terminology and cultural areas of the world. General introduction to the study of world music, the ethnomusicological approach and classi cation and symbolism of musical instruments. The process of musical innovation and acculturation in the world and the impact of technology and the communications media on contemporary musical styles of non-European cultures. Topics include the music of South and West Africa, Ethiopia and folk music of the Arabic Near East, the classical music of Iran and Asia and the musical cultures of North and South India. Offered in spring. Prereq: COMM 100, ENGL 110 and junior status.

MUSI 369: 3 s.h.
Introduction to West African Music (P)
Survey course designed to provide an in-depth analysis of West African culture and history focusing on the musical traditions found in this region of the world. General introduction to the study of West African music and dance, the ethnomusicological approach and classi cation and sym-

MUSI 498: 1-3 s.h.
Independent Study
For further information on independent study, see the Special Academic Opportunities section of the University Catalog. Offered fall, spring.

MUSI 587: 3 s.h.
Music in the Kindergarten and Preschool Classroom
Offered periodically in summer.

NANOFABRICATION MANUF ACTURING TECHNOLOGY

See Industry & Technology

NANOTECHNOLOGY

See Chemistry & Physics

NUCLEAR MEDICINE TECHNOLOGY

See Biology

NURSING

School of Science and Mathematics

Professor Zimmerman, chairperson
Professor Davis, Palmer
Associate Professors, Castellucci
Instructor Kuhns

The Department of Nursing offers an NLNAC-accredited upper division program in nursing leading to a bachelor of science in nursing (B.S.N.) degree. This program is designed for registered nurses who are graduates of accredited diploma or associate degree nursing programs with a GPA of 2.0. Nursing courses may only be taken after attaining junior level status (60-90) credits. NURS 320, Conceptual Basis of Professional Nursing Practice, is the introductory course for the nursing major and should be taken rst.

The goals of the nursing program are to provide an atmosphere and opportunities that develop intellectual curiosity, critical thinking and sound reasoning and judgment; provide knowledge from the humanities, the physical, biological, psychological and social sciences to complement nursing theory and practice; provide a theoretical and clinical foundation in nursing to prepare a professional nurse who provides rational evidence based and humanistic health care within institutional and communitv(i)5(t)5(vol0))vol0 in5(t);l and providl

NURS 438: 3 s.h.
Issues in Nursing
Discussion of the political, economic, legal, ethical and related societal issues that in uence nursing practice and education. Professional nursing roles and responsibilities are emphasized. 3 hrs. lec. Offered in summer. Nursing majors only.

NURS 498: 1-3 s.h.
Independent Study in Nursing
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.

GRADUATE LEVEL COURSES

Several 500 level nursing courses are open to quali ed undergraduates with permission from the instructor. For course descriptions, please refer to the Graduate Catalog.

NURS 501: 3 s.h.
Theoretical Foundation of Advanced Practice

NURS 503: 3 s.h.
Issues and Roles in Advanced Nursing Practice

NURS 511: 3 s.h.
Pathophysiology for Advanced Practice

NURS 514: 2 s.h.
Family Health Nursing

NURS 530: 3 s.h.
Vulnerable Populations

NURS 560: 5 s.h.
School Nursing

OCCUPATIONAL SA

Philosophy Fli97

PHIL 345: 3 s.h.
Humanity and Environment (P)
Critical examination of the ways in which our understanding of the natural world affects our relationship with it as well as our concepts of human nature and society. Emphasis will be on how knowledge gained through the biological sciences (historically and presently) changes the way we think about ourselves and our place in the natural world. Speci c topics include the social impact of evolutionary theory, sociobiology and evolutionary psychology, genetic engineering and aspects of environmental philosophy. Offered periodically Prereq: COMM 100, ENGL 110 and junior status.

PHIL 351: 3 s.h.
Contemporary European Philosophy (G1, W)
A study of the European philosophical traditions of hermeneutics, phenomenology, existentialism and structuralism in their historical context, their relations to contemporary culture, particularly to psychology, literature, theology and political action. Offered infrequently. Prereq: ENGL 110.

PHIL 361: 3 s.h.
Asian Philosophy (G1, W)
A study of signi cant ideas in the philosophical thought of Asia. Offered infrequently. Prereq: ENGL 110.

PHIL 371: 3 s.h.
Advanced Seminar in Philosophy (G1, W)
Explores the core philosophical issues concerning theories of truth, knowledge and objective values. Emphasizes the development of the skills of critical reading and writing as well as performing philosophical research. May be taken any number of times for credit. Offered periodically. Prereq: ENGL 110 and 3 credits in PHIL at the 200-level or higher (excluding PHIL 211 & 312)

PHIL 373: 3 s.h.
Metaphysics (G1, W)
Description and criticism of various metaphysical theories of reality. Offered infrequently. Prereq: ENGL 110.

PHIL 381: 3 s.h.
Ethical Theories (G1, W)
A study of selected moral issues and a critical analysis of the principal ethical theories. Offered infrequently. Prereq: ENGL 110.

PHIL 382: 3 s.h.
Philosophy of Religion (G1, W)
An examination of the justi ability of religion and of the naturejusti abiliSiajustip9e1sferis,ility of edit. Offered infrerequently. Prereq: ENGL 110.

PHIL 373: 3 s.h.
Philosophy of G1, W)

major plus two years in residence in the engineering program at one of the cooperating institutions: Pennsylvania State University or the University of Southern California. At the end of the ve years, the student receives two baccalaureate degrees: a B.A. in physics from Millersville and a B.S. in engineering from the cooperating engineering school.

In addition to the 3/2 arrangement, we have two other cooperative programs, one of these is a 4/2 program with Penn State. A student studies for four years at Millersville and earns a B.S. degree in physics. After transferring to Penn State, in two years the student earns a master's degree from the Department of Engineering Science and Mechanics. In practice, it is possible to complete this program in less than two years. Up to six undergraduate credits at the 400 level in physics or mathematics may be transferred as graduate credit towards the master's degree at Penn State. Summer research programs at Penn State are also available and can generate graduate credit in this program. A student can nish the graduate portion of this program in a year and a half.

The other cooperative program we have with Penn State leads to a B.A. degree from Millersville with an option in nanotechnology. The standard courses for our B.A. Physics degree are required. However, the student also spends a semester at the Penn State Nanofabrication Facility and earns 18 credits learning the use of specialized nanotechnology devices and techniques. The semester

Physics Major (B.A.): 120 s.h. minimum
Physics/Philosophy Option
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 ful ll the requirements for a minor in philosophy.

Physics Major (B.A.): 120 s.h. minimum
Polymer Chemistry Option
33 s.h. in physics: PHYS 198, 231, 232, 233, 266, 311, 321, 334, 335, 351, 492, 498. 20 s.h. in chemistry: CHEM 111, 112, 231, 232, 381. Required related courses: FORL 101, 102 or competency; MATH 161, 211, 311, 365. Foreign language competancy required through elementary level. Students presenting two years of successful high school study in one language satisfy this requirement.

Physics Major (B.A.): 120 s.h. minimum
Physics-3/2 Cooperative Engineering Option
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. Speci c engineering curricula have additional requirements. Students MUST consult their advisers or the physics department coordinator for cooperative engineering.

Physics Major (B.S.Ed.): 125 s.h.
Secondary Education Certi cation
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 Certi cation (Education Majors) in this catalog for more information.

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

COURSE DESCRIPTIONS

PHYS 103: 4 s.h.
Elements of Physics (G2, L)
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. Offered in fall, periodically in spring.

PHYS 104: 4 s.h. (G2, L)
Applied Physics
A study of application of mathematics to practical problems in physics, using Newtonian ideas, and emphasizing applications to devices such as machines and engines and systems such as electrical circuits. 3 hrs. lec., 2 hrs. lab. No credit in block G2 for majors in the School of Science and Mathematics. Offered in spring. Prereq: Math placement at the 100 level or above.

PHYS 117: 3 s.h.
General Astronomy (G2)
Astronomy for a general audience; emphasis on the physical nature of the universe. Terrestrial astronomy, light, telescopes, spectra, stars, stellar evolution, galaxies, cosmology, the solar system. 3 hrs. lec. and discussion. No credit in block G2 for majors in the School of Science and Mathematics. Offered in fall, spring.

PHYS 131: 4 s.h.
Physics I with Algebra (G2, L)
An introductory algebra-based course. Fundamental laws and properties of matter, mechanics and heat. Problems dealing with these laws. 3 hrs. lec., 1 hr. recitation and 2 hrs. lab. Competence in algebra and trigonometry is assumed. Offered fall, summer.

PHYS 132: 4 s.h.
Physics II with Algebra (G2, L)
Continuation of Physics 131. Fundamental laws and properties of electricity, magnetism, waves, sound, light and radiation. 3 hrs. lec., 1 hr. recitation and 2 hrs. lab. Offered spring, summer. Prereq: PHYS 131.

PHYS 198: 1 s.h.
Seminar: Perspectives in Physics
An overview of the history, practice, philosophy and unity of physics and its application to other disciplines orienting beginning physics majors to the study of physics. Mandatory for, and only open to, physics majors in their freshman year. 1 hr. discussion. Offered in fall.

PHYS 205: 3 s.h.
Musical Acoustics (G2, L)
Intended for musicians dealing with the physical nature of sound and sound sources and the relation of these to music and musical instruments. The use of mathematics is kept to a minimum. 2 hrs. lec. recitation, 2 hrs. lab. Offered in spring. Prereq: MUSI 112.

PHYS 230H: 1 s.h.
General Physics Seminar (G2)
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. 1 hr. discussion. Offered in fall, spring. Coreq: concurrent registration in PHYS 231 required and either good standing in the Honors Program or a 3.35 GPA or permission of instructor.

PHYS 231: 5 s.h.
Physics I with Calculus (G2, L)
An introductory course in classical physics dealing with mechanics, uids, waves and thermodynamics. 3 hrs. lecture,1 hr. recitation, one 3 hr. lab. Offered in fall, spring, summer. Prereq: MATH 161.

PHYS 232: 5 s.h.
Physics II with Calculus (G2, L)
Continuation of PHYS 231. An introductory course in classical physics dealing with electricity, magnetism and optics. 3 hrs. lec., 1 hr. recitation, one 3 hr. lab. Offered in fall, spring, summer. Prereq: PHYS 231. Coreq: MATH 211.

PHYS 233: 3 s.h.
Modern Theories of Waves and Particles
Selected topics from the areas of waves and optics, special relativity, an introduction to the concepts and development of modern physics and single particle quantum mechanics. 3 hrs. lec. Offered in spring. Prereq: PHYS 232. Coreq: MATH 311.

PHYS 266: 3 s.h.
Electronics
The fundamentals of analog devices and their application to electronic circuits. Operational ampli ers, power supplies, semiconductor devices, oscillators and an introduction to integrated circuits. Two 3-hr. labs. Offered in spring. Prereq: PHYS 132 or 232. Coreq: MATH 161.

PHYS 302: 3 s.h.
Physics and the Evolution of Western Civilization (P)
The history of the mechanization of the world picture. A study of physics in the evolution of Western civilization and thought relating the impact of the Newtonian revolution on technology, society and thought. 3 hrs. lec. and discussion. Offered periodically. Prereq: A physical science course, COMM 100, ENGL 110 and junior status.

PHYS 311: 3 s.h.
Mechanics I
Lectures, problems and demonstrations developing the ì íî - Ìá ÊÊ ì¬ îÑ "'A ò !Ü Î¢ ê!-!ê Ê!â ¢ Ò ¢ Î! ¾ 2 Â þ í!ú áŽ#, ê'6Q ú¬®þÿ PPHYS 312: 3 s.h.Mechan
ics, systems of cou(yud oscillators, plus special topics. 3 hrs. lec. Of)18(fer)18(ed in spring. Pr)18(er)18(eq: PHYS 311.)]TJ /T1_0 1 Tf /Span<</ActualText<FEF
astronomy, ceyustial mechanics, cosmology and the fered in fall of odd years. ereq: year of college
level physics and calculus.

PHYS 321: 3 s.h.
Electromagnetic Fields I
Electrostatic and magnetic elds 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 s.h.
Electromagnetic Fields II
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 s.h.
Optics
Lab-based course in physical optics, ineluding applications of geometical optics such as image Pormation by mirrors and ltuses, microscopy, re ection, refraction, and basic phenomena in wave and quantum optics such as interference, diffraction, color mixing and lrration, 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 s.h.
Macroscopic Phenomena and Thermodynamics
Lectures, problems and demonsrrations which develop the basic ideas of classical continuum physics and the macroscopic behavior of liquids and gases, ineluding an introduction to uid dynamics, stress-srrain relationships in solids, electric and magnetic properties of materials, phase rransitions, superconductivity and the classical laws of thermodynamics. 3 hrs. lec. and discussion. Offered in spring. Prereq: PHYS 232. Coreq: MATH 311.

PHYS 335: 3 s.h.
Multi-Particle Quantum Systems and
Statistical Physics
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 s.h.
Symbolic Computational Methods in Physics
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 s.h.
Intermediate Physics Laboratory I
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 s.h.
Intermediate Physics Laboratory II
Continuation of PHYS 351. 3 hrs. lab. Offered in spring. Prereq: PHYS 351.

PHYS 360: 4 s.h.
Linear Circuit Analysis

PHYS 495: 1-3 s.h.
Special Topics in Theoretical Physics
Lecture course in selected topics of current interst in theoretical physics such as nuclear structure, elementary particle physics, advanced quantum mechanics, plasma physics, general relativity, nonlinear dynamics, Lie groups and their physics application, statistical mechanics, condensed matter physics and biophysics. Permission of instructor. Offered infrequently.

PHYS 496: 1-3 s.h.
Topics in Applied Physics
A study of the application of selected physics concepts in experimental physics. Permission of instructor. Offered infrequently.

PHYS 497: 1-3 s.h.
Topics in Modern Physics
Topics chosen from areas of modern physics. Permission of instructor. Offered infrequently.

PHYS 498: 1-3 s.h.
Physics Research and Seminar/Independent Study
An independent research experience supervised by a faculty mentor. Attendance at the weekly seminars associated with PHYS 492 is also required. Prereq: PHYS 492 or permission of instructor. Offered in fall, spring.

POLITICAL SCIENCE

See Government & Political Affairs

POLYMER CHEMISTRY

See Chemistry and Physics

PRE-ATHLETIC TRAINING

See Biology and Wellness & Sport Sciences

PRE-LAW

Students interested in pursuing a career in law should consult with the Department of Government and Political Affairs.

PRE-MEDICINE

See Biology and Chemistry

PRE-OPTOMETRY

See Biology

PRE-PODIATRY

See Biology

PSYCHOLOGY

School of Education
Professor Tuleya-Payne, chairperson
Associate Professor Haferkamp, assistant chairperson
Professors Kelly, Luek, Hill, Smith-Wade-El, Woo
Associate Professors Benns-Suter, Foster-Clark, Gallagher, Garner, Szollos, Thyrum, Vrendenburg
Assistant Professors Baker, Cook, Lopez, Rudy, Rush

The Department of Psychology offers a B.A. degree in psychology, double majors with sociology, philosophy, special education, a departmental honors program and a selection of elective courses for all Millersville University students. Psychology majors, through departmental advisement, usually plan a program that leads to one of three goals: (1) graduate with a bachelor's degree and enter the human service eld, (2) graduate with a bachelor's degree and enter the business/industrial eld or (3) graduate with a bachelor's degree and enter graduate school for advanced study in psychology or related ror related ror related([(degr)7hol47hol47hol47hol47hol47hol47h

The cooperative education program in psychology is an optional arrangement whereby students combine practical on-the-job experience with their formal classroom instruction. The co-op program is available to all psychology majors who satisfy the departmental admissions requirements. For further information, see Cooperative Education in the Special Academic Opportunities section of this catalog.

DEPARTMENTAL POLICIES

The Admission to the Major Policy and the Retention in the Major Policy apply to all majors enrolled in the Psychology B.A. program.

Admission to the Major Policy

Readmitted students must have a 2.25 or higher GPA at Millersville University since readmission in order to be admitted to the psychology major. Current students at Millersville University will be permitted to declare psychology as a major only if they have a CGPA of 2.25 or higher based on at least 15 credit hours including PSYC 100, and if space is available.

Retention in the Major Policy

At the end of each semester, the psychology department will review the academic performance of its majors. If any student with zero to 29.5 earned credits has a GPA below 2.0 or if any student with 30 to 59.5 earned credits has a GPA below 2.25, he/she will be noti ed by the department that he/she has been placed on probation in the major status for the semester in which noti cation is made. The department will specify what the student must achieve that semester to be continued in the major. If the student is not successful in meeting the requirements during the probationary semester, he/she will be removed from the major.

Policy Regarding Advanced Placement (AP) Credit in Psychology

Entering students who receive a score of 3 on the Advanced Placement (AP) Examination in Psychology shall be awarded three credits for an elective course designated as a 100-level PSYC course. Entering students who receive a score of 4 or 5 on the AP examination shall be awarded three credits for PSYC 100.

Pass/Fail Restriction on Courses for Psychology Majors and Minors

Psychology majors may not take any psychology courses or any required related courses on a pass/fail basis. Psychology minors may not take any psychology courses on a pass/fail basis.

Policy on Credit Restriction for Developmental Psychology Courses

The psychology department offers three undergraduate developmental psychology courses: PSYC 227; PSYC 228; and PSYC 229. Credit is awarded for any of the individual courses. Credit is also awarded for the combination of PSYC 227 and PSYC 229, but not for any other combination of developmental psychology courses.

Policy Regarding Cooperative Education and Directed Projects in Psychology

A limit of 6 s.h. of cooperative education (PSYC 300, 400 or 500) or PSYC 495 or any combination of the two may be taken by a student and counted in the psychology major. In unusual circumstances, and with written permission of the student's faculty adviser, the directed projects 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.

COURSE REQUIREMENTS

Psychology Major (B.A.): 120 s.h.

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, 356, 415, 417, 437, 454) and 6 s.h. of psychology general electives (PSYC 234, 256, 311, 318, 319, 328, 346, 350, 403, 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 12 s.h. may be substituted for psychology general electives. Required related courses are BIOL 100, MATH 100 or any advanced mathematics course or a computer science course (none of the following satis es this requirement: MATH 090, 104, 105, 110, 313, 304, 405); one philosophy course; one sociology course.

The following categories are suggested to help the student organize his/her curriculum in psychology.

Human Services: Select courses from among the following psychology electives: PSYC 227, 228, 229, 234, 256, 328, 335, 346, 356, 403, 417, 437 and 447. Recommended related courses are: BIOL 256; SPED 212; SOCY 210, 214, 216, 316, 317.

Business and Industrial: Select courses from among the following psychology electives: PSYC 234, 256, 311, 317, 318, 319, 329, 335 and 346. Recommended related courses are: CSCI 101; BUAD 101, 201, 202; ECON 100, 101, 102.

Preparation for Graduate Study: In addition to the required psychology courses, all of the following are strongly recommended: PSYC 314, 315, 316, 317, 335, 415, 417, 437 and 454.

Psychology-Sociology Double Major (B.A.): 120 s.h.

Psychology requirements: 33 credits of psychology and the required related courses as listed above for the major. Two courses from SOCY 210 (Sociology of the Family), SOCY 214 (Aging and the Aged: Social Gerontology), SOCY 315 (Race and Ethnic Relations), SOCY 316 (Social Psychology), SOCY 230 (Criminology), SOCY 338 (Sociology of Deviance), ANTH 323 (Culture and Personality) or ANTH 328 (Male/Female) may be credited as general electives in psychology.

Sociology requirements: 30 credits of sociology and the required related courses as listed under the sociology major. One course from PSYC 227 (Development of the Child and Adolescent), PSYC 228 (Life Span Human Development), PSYC 317 (Social Psychology) or PSYC 335 (Personality Theory) may be credited as an elective in sociology. PSYC 211 (Principles of Statistics and Experimental Design I) or PSYC 212 (Principles of Statistics and Experimental Design II) may be substituted for MATH 130 (Elements of Statistics).

Psychology-Philosophy Double Major (B.A.): 120 s.h.
Psychology requirements: 33 credits of psychology and the required related courses as listed above for the major. PHIL 201 (Philosophical Psychology), PHIL 202 (Philosophies of Love and Sexuality) and PHIL 211 (Introduction to Logic) may be credited as psychology general electives, as long as neither is used as the required related philosophy course.

Philosophy requirements: 30 credits of philosophy and the required related courses as listed under the philosophy major. PSYC 454 (History and Systems of Psychology) may be credited as an elective in philosophy.

Psychology-Special Education Double Major
(B.A. and B.S.Ed.): 133 s.h.
Special Education requirements: See the Special Education section of the catalog.

Psychology requirements: 33 s.h. of psychology as listed above for the psychology major. PSYC 437 (Abnormal Psychology) may be counted as both a special education elective and as a psychology core elective. PSYC 227 (Development of the Child and Adolescent) or PSYC 228 (Life Span Human lective. lTJ 1ay 22 437 educatio elective ed relat ed ourses 22 437 and 22elective PSY ayi87 TD [TD187 TD-1.687 TDe.

PSYC 314: 4 s.h.
Cognitive Psychology
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. No credit given if credit earned in PSYC/CSCI 350.

PSYC 315: 4 s.h.
Sensation and Perception
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.

PSYC 316: 4 s.h.
Learning and Motivation
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.

PSYC 317: 3 s.h.
Social Psychology
A review of the principles of social psychology derived from experimental study. Offered in spring. Prereq: PSYC 100, PSYC 211 recommended.

PSYC 318/318H: 3 s.h.
The Psychology of Racism (D, P)
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.

PSYC 319: 3 s.h.
Psychology of African Americans (G3, W)
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.

PSYC 328: 3 s.h.
Selected Issues in Psychology and Religion: The Western Search for Meaning (P)

PSYC 328: 3 s.h.

PSYC 328: 3 s.h.sychology and

PSYC 328: 3 s.h.sychology and

PSYC 415: 3 s.h.
Physiological Psychology
A systematic examination of the nervous and sensory systems and their regulation of human behavior. May not be used in place of PSYC 314, 315 or 316 to ful ll the laboratory requirement. Offered in fall. Prereq: PSYC 100 and one course in biology. Chemistry helpful. Junior or senior standing.

PSYC 417: 3 s.h.
Tests and Measurements
An introduction to the basic principles of psychological testing and measurement. Focus upon issues in test construction and design, evaluations of psychometric properties and applications of tests in various elds of psychology. Offered fall or spring. Prereq: PSYC 211 or permission of instructor.

PSYC 437: 3 s.h.
Childhood Disorders
An in-depth look at major childhood psychological disorders. Diagnostic criteria, etiology and developmental progression presented. Introduction to diagnostic assessment techniques and commonly used interventions. Offered annually. Prereq: PSYC 100 and PSYC 227 or 228. Junior/Senior status.

PSYC 454: 3 s.h.
History and Systems of Psychology
Study of the development of psychology from a branch of philosophy to a modern science. Offered in fall. Prereq: PSYC 100.

PSYC 447: 3 s.h.
Counseling Strategies
An introduction to the process and practice of counseling. Emphasis is placed on learning counseling theories and on counseling skills. Offered in fall, spring. Prereq: PSYC 100.

PSYC 455: 3 s.h.
Senior Seminar in Psychology
An advanced course devoted to critical analysis of student and professional research using staff consultant leadership. Offered periodically. Prereq: Senior psychology majors only.

PSYC 462: 3 s.h.
Psychology and Creativity in Art, Music and the Written Word (P)
Study of psychological processes involved in the production and experience of music, art and literature coupled with a review of psychological theories of human creativity. Key principles within the domain of psychology will be illustrated and explored through the study of the works of artists, musicians and writers. Offered annually. Prereq: PSYC 100, COMM 100, ENGL 110 and junior status. PSYC 335 recommended.

PSYC 489, 499: 1-4 s.h.
Departmental Honors
For the de nition of departmental honors and eligibility, refer to the Academic Policies section of this catalog.

PSYC 490: 1 s.h.
Honors Seminar
Examination and discussion of current research issues in psychology. May be taken a maximum of three times. Enrollment limited to students with at least 45 s.h. who are applying to the psychology department honors program and to those already admitted to that program. Offered in fall, spring. Prereq: Permission of instructor.

PSYC 495: 1-6 s.h.
Directed Projects in Psychology
Supervised eld experience involving the application of psychological principles. Junior or senior standing. Offered in fall, spring. Prereq: Permission of instructor.

PSYC 496: 1-3 s.h.
Topics in Psychology
Detailed investigation of a topic of current research interest. Topic to be announced each time course is offered. Credit and meeting hours variable, depending on topic offered. May be taken more than once for credit as topic varies. Offered periodically. Prereq: Junior or senior standing and permission of instructor.

PSYC 498: 1-3 s.h.
Independent Study in Psychology
For further information on independent study, see the Special Academic Opportunities section of this catalog.

GRADUATE LEVEL COURSES

The following 500 level courses are open to quali ed undergraduates with permission. For course descriptions, please refer to the Graduate Catalog.

PSYC 500: Variable credit
Cooperative Education in Psycholgy

PSYC 505: 3 s.h.
Recent Developments in Psychology

PSYC 511: 3 s.h.
Substance Related Disorders

PSYC 525: 3 s.h.
Advanced Child Psychology

PSYC 526: 3 s.h.
Advanced Adolescent Psychology

PSYC 530: 3 s.h.
The Child in the Family System

PSYC 536: 3 s.h.
Applications of Biopsychology

PSYC 537: 3 s.h.
Introduction to Assessment and Intervention

PSYC 546: 3 s.h.
Learning Theories and Their Application

PSYC 547: 3 s.h.
Applied Social Psychology

PSYC 566: 3 s.h.
Clinical Hypnosis

PUBLIC RELATIONS

See Communication & Theatre

RESPIRATORY THERAPY

See Biology

RUSSIAN

See Foreign Languages

SECONDARY EDUCATION

See Educational Foundations

SOCIAL SCIENCES

School of Humanities and Social Sciences

SSCI 201H 3 s.h.
The Western Intellectual T radition I (G3, W)
Main 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 and ENGL110H.

SSCI 202H 3 s.h.
The Western Intellectual T radition II (G3, W)
Main currents of thought in Western civilization since the French Revolution, focusing on seminal thinkers and their impact on the culture of the West .Offered annually. Prereq: member, University Honors College or 3.35 GPA and ENGL110H.

SSCI 212 3 s.h.
The Black Woman (G3)
A multidisciplinary course examining the history, sociology, anthropology and psychology of the black woman from antiquity to the present.The course will focus on the black woman in non-Islamic Africa and the United States. Offered in spring.

NOTE: These courses do not satisfy the general education policy; “two courses must be from a single department.”

SOCIAL STUDIES

School of Humanities and Social Sciences

Social Studies (B.S.Ed.): 120 s.h.
This program is designed for students planning to teach economics, geography, government or history. The program consists of 30 s.h. of 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 of 30 s.h. from among the following disciplines: anthropology, economics, geog-

ing public policy agendas in social welfare and alternative strategies for problem resolution, societal values and trends affecting service delivery; understanding social work in action; examining core concepts, values and ethics.

SOWK 202: 3 s.h.
Social Welfare as a Social Institution
Introduction to the structure of the social services delivery system and the role of social policy in it; social systems perspective; analysis of agencies as systems; introduction to professional and legal references; analysis of a social problem. Agency volunteer work required. Prereq: SOWK 102 and sophomore status or permission of instructor.

SOWK 203: 3 s.h.
Human Behavior and the Social Environment I
Examines the life span approach to human development with focus on interaction between the individual's biopsychosocial functioning and the social environment. Analyzes the impact of human diversity on behavior in social situations with particular emphasis on populations at risk. Studies how factors of human diversity affect social policy. Volunteer work required. Prereq: SOWK 102 and sophomore status or permission of instructor. Prereq or Co-req: BIOL 204, PSYC 100, SOCY 210.

SOWK 301: 3 s.h.
Social Work Practice I (W)
Study of the wide range of activities that constitute the generalist social work approach. Designed to assist students to develop basic entry level professional social work competencies within a systems framework. Junior eld experience required. Offered in fall. Prereq: ENGL 110, Prereq or Co-req: SOWK 202 and 203. SOWK majors only.

SOWK 302: 3 s.h.
Social Work Practice II
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 eld experience required. Offered in spring. Prereq: SOWK 301. SOWK majors only.

SOWK 303: 3 s.h.
Social Welfare and the Law
Signi cant 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.

SOWK 304: 3 s.h.
Social Work and Corrections
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.

SOWK 305: 3 s.h.
Social Work and Child Welfare
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.

SOWK 306: 3 s.h.
Social Work and Aging
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 eld visits as available. Volunteer experience with an older person or persons required. Offered in spring.

SOWK 307: 3 s.h.
Social Work and Health Care
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 even years.

SOWK 308: 3 s.h.
Social Work and Alcoholism
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 identi cation, intervention and use of network of community resources. Offered in spring.

SOWK 309: 3 s.h.
Social Work and Mental Health (W)

SOWK 312: 3 s.h.
Social Work and Women's Issues (W)
Scope and contribution of professional social work in regard to women's issues and concerns in contemporary society. Emphasis on the analysis of individual and community women's needs, the social and behavioral aspects of women's concerns, the essential practice components and skills required of social workers, social welfare policy and women, issues and trends, alternative women's programs and research needs. Offered in fall. Prereq: ENGL 110.

SOWK 313: 3 s.h.
Family Violence (P)
Professionals and society at large have recognized violence in the family against children, spouses and the elderly as a social problem. Other emerging related issues include cross-cultural violence, partner violence in gay/lesbian relationships, courtship violence and date rape. Focus will also include theories of abuse with various populations as well as treatment approaches to the various forms of family violence. Offered in fall, spring. Prereq: COMM 100, ENGL 110 and junior status.

SOWK 320: 3 s.h.
Social Work Statistics (W)
Social work research skills, values and knowledge. Research design, statistical usage and data analysis in social work practice and research. Students develop a research proposal. Offered in fall. Prereq: ENGL 110, SOWK 102. SOWK majors only.

SOWK 321: 3 s.h.
Social Work Research
Emphasis on the scienti c method in development of beginning evaluative skills that contribute to practice competence. Knowledge to evaluate critically the research ndings of others; use of research methods to improve practice. Students are required to participate in a research study. Offered in spring. Prereq: SOWK 320. SOWK majors only.

SOWK 350: 3 s.h.
Encounters in Human Diversity: Dynamic Problem-Solving in the Context of Diversity (D,P)

Anthropology Major

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 eld 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 nd 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 which leads to careers in teaching and research at colleges, universities or museums or research/ consultative careers with local, national or international organizations.

Sociology Major

Sociology is the rigorous, scienti c 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 in uences 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 in uence 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.

Minors and Department Options

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 speci c 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 eld 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, eld 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 consult the Sociology/Anthropology Department website.

these are prerequisites. A student who does not earn the necessary grade in these prerequisite courses by the second attempt will be dismissed from the sociology or sociology/criminology major.

4. The departmental academic review is a mandatory, nongraded activity designed to enhance departmental advising. It will take place after the completion of 45 semester hours but no later than the semester following the completion of 60 semester hours. If the student fails to participate in the review, she/he will be placed on probation in the major for one semester, during which time she/he will be given a nal opportunity to complete the departmental academic review. Failure to complete the review during the probationary period will result in the student being dismissed from the major.

COURSE REQUIREMENTS

Anthropology Major (B.A.): 120 s.h.
Required courses: ANTH 121, 122, 123, 220, 422; 3 additional ANTH credits at the 200 level above 220; 3 ANTH credits at the 300 level; 3 additional ANTH credits at the 400 level; 6 additional s.h. in ANTH to equal 30 s.h. Required related courses: one of the following options: foreign language (6 s.h.), area option (9-12 s.h.), statistics and computer science (9-11 s.h.) or a minor.

Anthropology Major/Archaeology Option (B.A.): 120 s.h.
Required courses: ANTH 121, 122, 123, 220, 233, 320, 422 and 425 and 6 s.h. at the 200 level or above (excluding ANTH 201).

Sociology Major (B.A.): 120 s.h.
Required courses: SOCY 101, 302, 303, 305, 448 and 15 s.h. of electives in sociology. Required related courses: Math 130 (Prereq: for SOCY 302) and 12-18 credits of non-sociology courses.

Sociology Major/Criminology Option (B.A.): 120 s.h.
Required courses: SOCY 101, 302, 303, 305, 448 or co-op/internship and SOCY 230, 331, 332 and 3 s.h. of SOCY 334-339 and 3 s.h. of electives in sociology. Required related courses: MATH 130 (Prereq: for SOCY 302) and 9 s.h. of related criminology electives.

Social Studies Major (B.S.Ed.): 120 s.h.
Secondary Education Certi cate
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 chairperson of sociology/anthropology department and see the Social Studies section of this catalog to learn how to ful ll their career goals.

Sociology-Psychology Double Major (B.A.): 120 s.h.
One course from PSYC 227, 228, 317, 335, SOCY 316, 319, ANTH 323 or 342 may be credited toward both majors.

Anthropology Minor: 18 s.h.
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.

Sociology Minor: 18 s.h.
Required courses: SOCY 101, 3 s.h. at the 200 level and 12 additional s.h. of sociology at the 300 or 400 level.

Criminology Minor: 18 s.h.
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.

COURSE DESCRIPTIONS

Sociology

SOCY 101: 3 s.h.
Introduction to Sociology (G3)
Introduction to the scienti c study of human groups, organizations and societies. Examination of major sociological questions and approaches to studying them.

SOCY 148: 1 s.h.
Major Orientation Course
Introduction to the social sciences of anthropology and sociology, department faculty, and opportunities for study and participation. Offered fall.

SOCY 210: 3 s.h.
Sociology of the Family (G3)
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. Speci c topics may vary.

SOCY 211: 3 s.h.
Social Problems (G3, W)
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.

SOCY 214: 3 s.h.
Aging and the Aged: Social Gerontology (G3)
Human aging, with emphasis on social, cultural and psychological aspects; an orientation to social gerontology as a multi-disciplinary social science; examination of scienti c studies and theories of aging; social situations faced by aging people; societal responses to older people; the prospects of aging in the future. Offered infrequently.

SOCY 216: 3 s.h.
Human Population (G3)
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.

SOCY 230: 3 s.h.
Criminology (G3, W)
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.

SOCY 302: 4 s.h.
Social Statistics
Emphasis on learning and presenting ndings from applied statistical techniques including frequency tables and graphs, contingency tables, measures of central tendency and dispersion, hypothesis testing, con dence 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.

SOCY 303: 3 s.h.
Sociological Theory
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.

SOCY 305: 3 s.h.
Social Research Methods
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.

SOCY 307: 3 s.h.
African-American Social Thought (G3)
Examination of the development of African-American social theory through the history of the American republic. Looks at the relationship between African-American social thought, civil rights movements and the larger Afro-Caribbean diaspora. Offered infrequently. Prereq: 9 s.h. in African-American Studies or SOCY 101 and 9 s.h. in sociology (SOCY 303 recommended) or permission of instructor.

SOCY 310: 3 s.h.
Sociology of Religion
Religion as a social institution; religion and the individual; institutionalization of religion; religion and social change; secularization of society. Offered infrequently.

SOCY 313: 3 s.h.
Sociology of Disaster (G3)
Behavioral and organizational response to environmental hazards and disasters. Case studies of major natural disasters and hazardous materials

SOCY 329: 1-6 s.h.
Topics in Sociology
Offered periodically.

SOCY 331: 3 s.h.
Introduction to the Criminal Justice System (G3)
Overview of the American system for the administration of justice focused on the apprehension, prosecution and adjudication of criminal defen-

ANTH 148: 1 s.h.
Major Orientation Course
Introduction to the social sciences of anthropology and sociology, our department faculty and opportunities for study and active participation. Offered fall semester.

ANTH 201: 3 s.h.
People, Primates and Prehistory (G3)
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.

ANTH 220: 3 s.h.
Ethnographic Methods
Introduces ethnographic research methods through individual or group eldwork, emphasizing the ethnographic interview and participant observation. Prereq: permission of instructor.

ANTH 221: 3 s.h.
Peoples and Cultures of Mexico (G3)
Examines the cultures of the native and peasant societies of Mexico from an archaeological, ethnohistoric and ethnographic perspective. The

ANTH 328: 3 s.h.
Male/Female (G3)
Cross-cultural study of sex roles among Western and non-Western societies, including social concepts of the masculine and feminine and biological aspects of gender. Offered periodically.

ANTH 342: 3 s.h.
World Hunger (P)
Cross-cultural and interdisciplinary study of famine and world hunger. Critical examination of the political, economic and ecological causes of famine and the psychological and social effects of starvation. Offered periodically. Prereq: COMM 100, ENGL 110 and junior status.

ANTH 344: 3 s.h.
Gender, Race and Class (P)
The intersecting role of gender, race and class on human social life in the U.S. and other cultures. An interdisciplinary and comparative examination of the ways social categories de ne, limit and liberate human potential. Offered periodically. Prereq: COMM 100, ENGL 110, junior status and at least two social science courses.

ANTH 422: 3 s.h.
History of Anthropological Theory
Examines, in a developmental fashion, the attempts made by anthropologists to explain human similarities and differences and the dynamics of culture change. Offered in annually. Prereq: junior/senior status and a minimum of 9 s.h. in anthropology.

ANTH 425: 1-6 s.h.
Field/Research Experience in Anthropology
Individual or group research in any of the subdisciplines of anthropology which include the summer archaeological eld school and ethnographic eld projects. Offered periodically. Prereq: permission of instructor.

ANTH 458: 3-6 s.h.
Senior Seminar in Anthropology
Research and group discussions for advanced students on various topics of interest. A total of 6 s.h. may be taken. Offered alternate years. Prereq: permission of instructor.

ANTH 489, 499: 1-4 s.h.
Departmental Honors in Anthropology
Two to four semesters of supervised research by highly motivated students capable of conducting independent research projects. Prerequisite 3.0 GPA and recommendation by faculty mentor. For further information, see the Special Academic Opportunities section.

ANTH 498: 1-6 s.h.
Independent Study in Anthropology
For further information, see the Special Academic Opportunities section.

ANTH 586: 3-6 s.h.
Topics in Anthropology
Offered periodically.

SPANISH

See Foreign Languages

SPECIAL EDUCATION

School of Education

Associate Professor Rohena, chairperson
Professor Ridley
Associate Professors Edeh-Herr, Neuville, Papalia-Berardi, Rohena
Assistant Professor Long, Mehrenberg

The special education program at Millersville University prepares students to teach individuals with disabilities. Major changes to the various certi cations and to certi cation programs are anticipated at the direction of the Pennsylvania Department of Education. Please consult with your academic adviser.

Currently students who complete the special education program at Millersville receive a bachelor of science in education degree and may apply for a Pennsylvania Instructional I teaching certi cate. This comprehensive certi cate allows students to teach children from preschool through 12th grade (N-12 or ages 3-21), speci cally individuals identi ed as developmentally delayed, learning disabled, mentally retarded, seriously emotionally disturbed, autistic or pervasively developmentally disordered, orthopedically impaired, health impaired, neurologically impaired or multiply disabled. According to current Pennsylvania regulations and standards, this certi cate may be made permanent upon the completion of 24 post-baccalaureate credits, three years of satisfactory teaching in one's eld of certi cation and completion of an induction year program.

Students are encouraged to elect a double major (special education and elementary education) with dual certi cation (special education and elementary education) through a cooperative program offered by both academic departments. Both majors will be recorded on the student's transcript.

WELLNESS AND SPORT SCIENCES

School of Education

Associate Professor Lombardi, chairperson
Professors Mowrey, Wushanley
Associate Professors Audette, Halawa, Keefer, Nesbitt, Wimer
Assistant Professors Dupain, Ruszak, Schaeffer

WSSD Mission: The Wellness & Sport Sciences department strives to improve the personal and professional lives of Millersville University students and the surrounding region through teaching, continued scholarly growth and service.

The vefold mission for WSSD is: To provide wellness education to every undergraduate student; to provide sport management education for students in the M.Ed. in Sport Management Degree; to provide athletic coaching education to undergraduate students in the athletic coaching minor; to provide clinical education and administrative oversight for the dual degree program in athletic training and biology and to provide a pedagogical foundation in wellness and physical education for education majors.

The department focuses primarily on the undergraduate teaching of wellness, which is required for graduation of all Millersville University students. The department assists in the coordination of a dual degree program in biology at Millersville University and athletic training at West Chester University. Please also refer to the B.S. Biology, Pre-Athletic Training Option description in the biology section of this catalog for course requirements and further information. In addition, the department offers a minor in athletic coaching for those wishing to develop the knowledge and skills necessary to safely coach athletes. Students are eligible to receive certi cation in the American Sport Education Program. Further, the department offers an elective course which grants national certi cation in

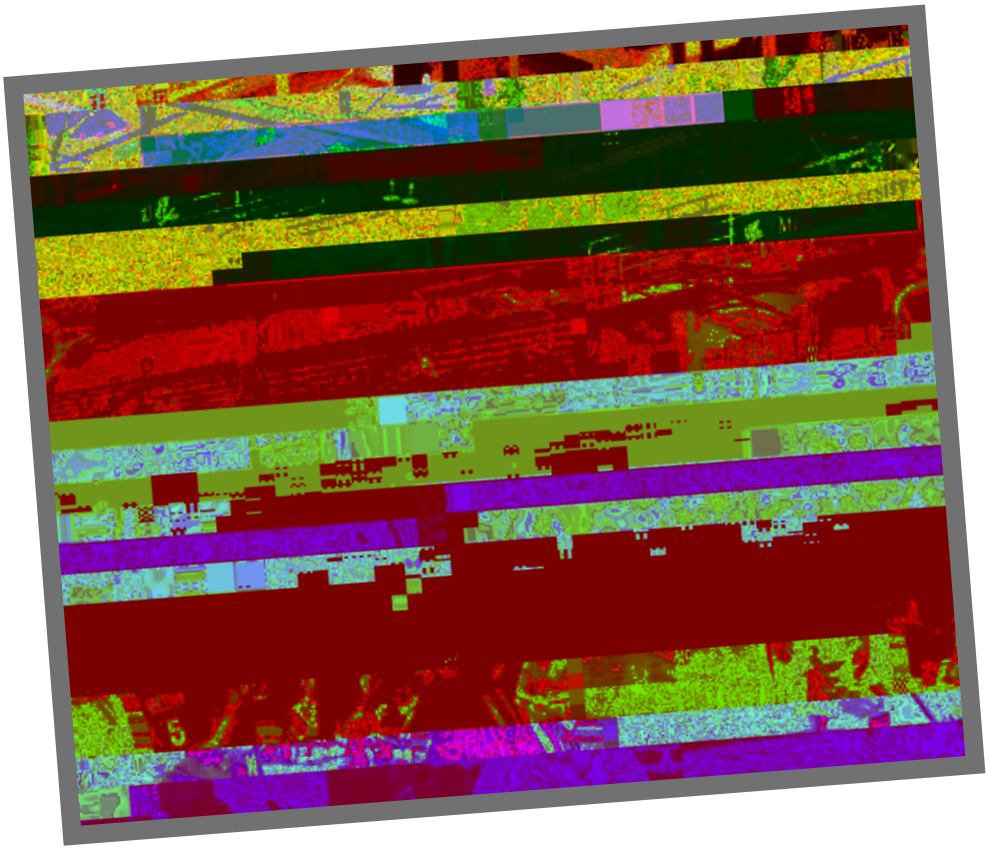
WSTU 345: 3 s.h.
Feminist Research M

SOWK 312
Social Work and Women's Issues (G3, W)

SOWK 313
Family Violence (P)

SSCI 212
The Black Woman (G3)

WSSD 486
Topics: Women in Sport



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McCollum, James (2006). B.A., Youngstown State University, 1977; J.D., University of Akron, 1987. Executive Assistant to the President

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FACULTY

Allen, Melvin R. (1969). B.A., Millersville University, 1969; J.D., Dickinson Law School, 1984. Associate Professor of Philosophy

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Trussell, Timothy (2006). B.S., Oregon State University, 1991; M.S., Ibid., 1997; Ph.D., Texas A&M University, 2004. Assistant Professor of Sociology and Anthropology

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Vahradian, Haig M. (2002). B.S., California State University-Fresno, 1988; M.S., Ibid., 1992; Ph.D., University of Northern Iowa, 1997. Assistant Professor, Department of Industry & Techology

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Weis, Tracey M. (1992). B.A., Duke University, 1977; M.A., Rutgers University, 1988; Ph.D., Ibid, 1994. Associate Professor of History

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White, Janet Ann (2002). B.A., Grove City College, 1988; M.Ed., Millersville University, 1994; Ph.D., American University, 2002. Associate Professor, Department of Mathematics

White, Michelle M. (2002). B.A., Youngstown State University, 1971; M.S., Ibid., 1973; Ed.D., University of Akron, 2000. Associate Professor, D1d92yShipnAcademic AdvD (eparience)]TJ /T1_0 1 Tf 0 -1.625 Tidmay(eisser)92(,)]TJ /Span<</ActualText<FEFF004D>>> BDC (M)Tj E, Dhahelle R. 9(199 ProfessoEnglishienceR. (1994). BMbra eldrican University, 197M; M.Marstown State University, 1D77; M.D., Ibid., 1994. Associate ProfessoMusic;„

Rosenberg, Lawrence A. (1987). B.A., Beloit College, 1971; M.A., University of New Hampshire, 1975; Ph.D., Ibid., 1981. Assistant Professor of Sociology

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CLINICAL FACULTY

Family Nurse Practitioner:

Bakken, William, B.S., Lincoln University, 1970; M.D., Temple University, 1974; Lancaster General Hospital Family Practice Residency, 1977; American Academy Family Practitioners Board Certi cation, 1995. Private practice.

Fisher, Todd R., B.S., Muhlenberg College, 1981; M.D., Pennsylvania State University College of Medicine, 1985; Harrisburg Hospital Family Practice Residency, 1988; American Academy Family Practice Board Certi cation 1995. Private practice.

Gard, Cheryl A., B.S.N., Pennsylvania State University, 1985; M.S.N., University of Maryland, 1996; Adult Nurse Practitioner Certi cation, 1996; Women's Health Nurse Practitioner, 1996. Practice: Drs. Eichenlaub and May, OBGYN

Gort-Walton, Linda, B.S.N., University of Delaware, 1982; M.S.N., University of Delaware, 1990; Post Masters Certi cate, Widener University, 1996; Family Nurse Practitioner Certi cate, American Nurses Credential Center, 1996. Practice: Southeast Health Clinic, Family Practice Associates of Lancaster.

Gray, Louis P., B.A., Johns Hopkins University, 1975; M.D., New Jersey Medical School, 1979; Lancaster General Hospital Family Practice Residency, 1982; American Board of Family Practice, 1982. Private practice.

Hostetter, Jonathan D., R.N., Lancaster General Hospital School of Nursing, 1990; B.S.N., Millersville University, 1992; M.S.N., University of Pennsylvania, 1994; American Nurses Credentialing Center Family Nurse Practitioner Certi cation, 1996. Practice: Cornerstone Family Health Associates.

Knaub, Marilyn A., B.S., Lebanon Valley College, 1975; M.S., Medical College of Pennsylvania, 1979; American Academy Family Practice Board Certi cation, F.A.A. F. P., 1986. Medical Director, Southeast Health Clinic.

Krantz, Taunia S., R.N., St. Joseph Hospital School of Nursing, 1990; B.S.N., Millersville University, 1991; M.S.N., Old Dominion University, 1994; American Nurses Credentialing Center Family Nurse Practitioner Certi cation, 1995. Practice: East Petersburg Family Health Center.

Larrabee, Roland, J., B.A., University of Maine, 1976; M.D., University of Vermont College of Medicine, 1980; Lancaster General Hospital Family Practice Residency Program, 1983; American Board of Family Practice, 1995; Practice: Walter L. Aument Family Health Center.

Minnick, Sandra S., R.N. Lancaster General Hospital School of Nursing, 1979; B.S.N., University of Kentucky, 1983; M.S.N., University of Pennsylvania, 1985; Post-Master's Certi cate, Wilmington College, 1995; American Nurses Credentialing Center Family Nurse Practitioner, 1995. Practice: Elco Family Health Center.

Rast, Mark L., Sc.B., Brown University, 1982; M.S., University of Pennsylvania, 1987; Residency in Family Practice Ventura County Medical Center, 1990; American Board of Family Practice Certi cation, 1996; Practice: Lancaster General Hospital Department of Family Medicine.

Stream, Charles E., B.S., Juniata College, 1987; M.P.H., George Washington University, 1997; George Washington University Physician Assistant Certi cation, 1994. Practice: Family Practice Associates of Lancaster.

Sturgis, Donita M., B.S.N., University of Michigan, 1991; M.S.N., Widener University, 1995; American Nurses Credentialing Center Certi cation, 1995; American Academy of Nurse Practitioners Certi cation, 1995. Practice: Susquehanna Family Health Center.

Szada, MaryJo, A.A., Harrisburg Area Community College, 1979; B.S., Elizabethtown College, 1983; M.D., Autonomous University of Guadalajara, 1989; Private practice.

Wolfe, Dwight, D., B.S., Pennsylvania State University, 1975; M.D., Jefferson Medical College, 1977; American Board of Family Practice Certi cation, 1992; American Board of Family Practice Certi cate in Geriatrics, 1988; Medical Review Of cer Counsel Certi cation, 1994. Private practice.

Medical Technology:

Darr, Carolyn S. B.S., York College, 1972; MT, York Hospital, 1972; MT (ASCP), 1972; M.A., Central Michigan University, 1980; Program Director, Clinical Laboratory Science Program, York Hospital.

Davis, Abby W. B.S., Albright College, 1988: M.D., Pennsylvania State University, 1994; Am Board of Pathology Certi cation, 1999. Medical Director, Clinical Laboratory Science Program, York Hospital

Gayle, Wendy S., B.A., Temple University, 1989; MT (ASCP), CLS (NCA), U.S. Air Force Biomedical Laboratory Of cer Internship Program, 1991; M.S., Concordia College, 2004. Coordinator, Clinical Laboratory Science Program, Lancaster General College of Nursing and Health Sciences.

Nuclear Medicine:

Aten-Longenecker, Penni, B.S., Millersville University, 1985; CNMT, 1985; M.Ed. Pennsylvania State University, 2001. Program Director, School of Nuclear Medicine Technology, Lancaster General College of Nursing and Health Sciences.

Barkdoll, Theresa, A.A., Hagerstown Community College; ARRT 1994; CNMT 1994. Clinical Supervisor, Washington County Hospital.

Basarab, Robert, B.A., Cornell University, 1974; M.D., Medical College of Pennsylvania, 1978. Medical Director, Department of Nuclear Medicine, Lancaster General Hospital.

Corcoran, Robert J., M.D., Tulane University, 1970; ABR 1974; ABNM 1975. Chief, Division of Nuclear Medicine, Peninsula Regional Medical Center.

Davis, Abby W., B.S., Albright College, 1988; M.D., Pennsylvania State University, 1994; Am. Board of Patholgy Certi cation, 1999. Medical Director, Clinical Laboratory Science Program, York Hospital.

DiPietro, Richard, B.S., Franklin & Marshall College, 1958; D.O., Pennsylvania College of Osteopathic Medicine, 1962. Chief of Division of Nuclear Medicine, Memorial Hospital, York.

Eberle, Dwayne, B.S., York College, 1987; CNMT 1987. Clinical Supervisor, Nuclear Medicine, Lewistown Hospital.

Horst, Jessica, B.S., Bloomsburg University, 2005; RT(N) 2005; CNMT 2005. Clinical Supervisor, Nuclear Medicine, Good Samaritan Hospital.

James, Cherie, A.A.S., Reading Area Community College, 1980; AART(N) 1980; CNMT 1980. Clinical Supervisor, Nuclear Medicine, Reading Hospital and Medical Center.

Ladd, Christopher D., B.S., University of Dayton, 1985; M.D., Medical College of Ohio, 1991; ABR, 1996. Medical Director, Nuclear Medicine, Carlisle Regional Medical Center

Levin, Robert, M.D., University of Pittsburgh, 1977; ARB 1983. Medical Director, Nuclear Medicine, Lewistown Hospital.

Magrim, Martin, M.D., University of Maryland, 1973; ABN, ABNM 2002. Af late Medical Director, Nuclear Medicine, Washington County Hospital.

Mancini, Paula, B.S., Millersville University, 1987; M.H.A., Penn State University, 2002; AART 1987; CNMT 1987. Clinical Coordinator, Nuclear Medicine Program, Lancaster General College of Nursing and Health Sciences.

Miles, Connie,

Brandon, Seymour (1976-2000). B.S., M.S., A mus. D., Professor of Music
Brown, Nicholas C. (1969-1979). B.A., M.A., Ph.D., Provost and Vice President for Academic Affairs
Brown, Robert V . (1962-1980). B.S., M.S., Ed.D., Assistant Vice President for Academic Affairs
Brye, Peter (1981-2007). B.M., M.Mu., Assistant Professor of Music
Buehler, Ruth M. (1969-2002). B.S., M.Ed., D.Ed., Professor of Special Education
Burkhardt, Gerald W. (1968-1998). A.B., M.Ed., Assistant Professor of Developmental Studies
Butler, Margaret N. (1969-1985). A.B., Instructor of English
Caminero, Rosario (1990-2006). B.A., M.A., Ph.D., Professor of Foreign Languages
Carpenter, Gene A. (1979-2001). B.A., M.A., Ed.D., Professor of Wellness & Sport Sciences;Head Football Coach
Carson, S. Kent (1966-1979). B.F.A., B.S., M.Ed., Associate Professor of Art
Casselberry, Samuel E. (1970-2004). B.A., M.A., Ph.D., Professor of Anthropology
Cassidy, Jack Wm. Jr. (1978 - 1998). A.B., M.Ed., Ph.D., Professor of Elementary and Early Childhood Education
Cavanaugh, Dorothy L. (1971-1976). B.S., Librarian
Chamberlin, David B. (1968 -1998). A.B., M.A., Assistant Professor of English
Champa, V.A. (1948-1980). A.B., M.A., Ph.D., Professor of Educational Media
Clark-Newman, Linda L. (1970-2003). B.A., Ph.D., Professor of History
Colangelo, John W. (1968-1996). B.S., M.M., Associate Professor of Music
Coley, Robert E. (1972-1999). B.A., M.A., M.S.L.S., Associate Professor of Librarianship
Cooney, Patrick. (1980-2007). B.S., M.A., Ph.D., Professor of Physics
Czap, Linus J. (1967-1997). B.S., M.A., Associate Professor of Special Education
Davis, Donald A. (1967-1979). B.S., M.F.A., Associate Professor of Art
DeCamp, Joseph E. (1967-1989). B.A., M.A., Associate Professor of Foreign Languages
DeHart, Richard C. (1956-1985). B.S., M.S., Associate Professor of Wellness & Sport Sciences
Denlinger, Charles (1964-2005). A.B., M.S., Ph.D., Professor of Mathematics
Denenberg, Dennis (1987-2002). B.A., M.Ed., D.Ed., Professor of Elementary and Early Childhood Education
Dianna, Michael A. (1969-2001). B.S., M.Ed., Ed.D., Professor of Elementary and Early Childhood Education
Dilgard, Cynthia C. (1979-2004). B.A., M.A., Ph.D., Professor of English
Dixon, Mary E. (1947-1981). B.S., M.Ed., Ed.D., Professor of Wellness & Sport Sciences
Dobbins, David. (1977-2007). A.B., M.A., Ph.D., Professor of Biology
Doering, Laura E.B., (1953-1976). B.S., M.A., Librarian
Donner, Marvin (1967-1994). A.B., Ph.D., Assistant Professor of Administrative Faculty
Dorwart, Ione L. (1959-1986). B.S., Instructor of Wellness & Sport Sciences
Doutt, Richard R. (1966-1986). B.S., M.Ed., Ed.D., Professor of Industry & Technology
Drake, Harold L. (1981-1998). B.S., M.A., Ph.D., Associate Professor of Communication & Theatre
Eidam, Donald A. (1967-2002). B.S., M.S., Associate Professor of Mathematics
Etter, Ermaleen B. (1968-1993). B.S., M.Ed., Ph.D., Professor of Special Education
Evans, June L. (1989-1999). B.A., Ph.D., Assistant Professor of Anthropology
Fanani, Dominick J. (1961-1982). B.S., M.Ed., D.Ed., Professor of Art
Finney, Betty J. (1968-2001). B.D., M.A., Ph.D., Professor of Psychology
Fischel, Jack R. (1965-2003). A.B., M.A., Ph.D., Professor of History
Fisher, Paul G. (1966-1984). B.S., M.A., M.M., Ed.D., Professor of Music
Flora, Hugo J. (1956-1982). B.S., B.F.A., M.A., Associate Professor of Industrial Arts
Foley, Denis J. Jr. (1970-1991). B.S., M.S., Ed.D., Professor of Industry & Technology
Fontes, Antone K. (1966-1985). B.S., M.S., Ph.D., Professor of Biology
Fonzi, Samuel (1966-1981). B.S., M.Ed., Associate Professor of Educational Foundations
Foreman, Stuart (1979-2005). B.S., M.Ed., Ph.D., Associate Professor of English.
Forsyth, G. Alfred (1986-2002). B.A., M.S., Ph.D., Professor of Psychology
Foster, Abram J. (1952-1979). B.S., M.A., Ph.D., Professor of History
Foster, Marion G. (1974-1984). B.A., M.S.W., D.S.W., Professor of Social Work
France, S. Richard (1969-2003). B.S., M.S., Associate Professor of Mathematics

Francis, George H. (1963-1983). B.S., M.S., Ph.D., Professor of Industrial Arts
Frerichs, Richard L. (1969-2004). B.S., M.Ed., Ph.D., Professor of Educational Foundations
Fritz, Eugene “Cy”

Kenawell, William W. (1966-1981). A.B., M.A., Assistant Professor of History
Kent, Charles I. (1954-1977). B.S., M.S., Associate Professor
Kettering, W. R

Olds, Richard E. (1970-1991). B.A., M.A., Ph.D., Professor of Psychology
Oostdam, Bernard L. (1966-1997). B.S., M.S., Ph.D., Professor of Earth Sciences (Oceanography)
Oppenheimer, Fred E. (1971-1998). B.A., M.A., Ph.D., Professor of Foreign Languages
Osburne, John B. Jr. (1970-2003). B.A., M.A., Ph.D., Professor of History
Ostrovsky, David S. (1973-2004). B.A., M.S., Ph.D., Professor of Biology
Ottinger, Edward Jr. (1971-1998). B.A., M.Ed., Associate Professor of Special Education
Parks, James C. (1968-2002). B.S., Ph.D., Professor of Biology
Pease, Elaine K. (1977-2004). B.A., M.L.S., M.A., Associate Professor of Librarianship
Peters, Sandra L. (1966-1999). B.S., M.Ed., Assistant Professor of Wellness & Sport Sciences
P um, Anita H. (1970-1998). B.S., M.Ed., Ph.D., Professor of Elementary and Early Childhood Education
Phillips-Hershey, Elizabeth (1992-1998). B.S., Associate Professor of Psychology
Plank, Edward D. (1969-1995). B.S., Ed.M., Ed.D., Professor of Elementary and Early Childhood Education
Price, Clifton W. (1971-2005). B.S., Ph.D., Professor of Physics
Quick, Austin G. (1969-1994). B.S., M.Ed., D.Ed., Professor of Industry & Technology
Ragouzeos, Leonard (1980-2005). B.A. M.F.A., Professor of Art
Randolph, Clarence J. (1963-1991). A.B., M.Ed., Associate Professor of Government & Political Affairs
Ratzlaff, Willis (1963-1988). B.S., M.S., Ph.D., Professor of Biology
Reinhard, Jane L. (1958-1991). B.S., M.Ed., Associate Professor of Art
Risser, David T . (1991-2004). A.B., M.A., Ph.D., Associate Professor of Government and Political Affairs
Risser, Irene K. (1973-2005). B.S., M.S.L.S., Assistant Professor of Librarianship
Robb, J. Robin (1982-2000). B.A., M.A., M.S.S.A., Ph.D., Assistant Professor of Social Work
Romig, Jean M. (1965-1994). B.S., M.A., Associate Professor of Music
Ross, Paul W. (1978-2000). B.E., M.E., D.E., Professor of Computer Science
Ross, Robert S. (1971-2001). B.S., M.S., Ph.D., Professor of Earth Sciences (Meteorology)
Rousseau, Joseph L. (1969-1996). B.A., M.A.L.S. Professor of Elementary and Early Childhood Education
Rotz, Robert A. (1963-1987). B.S., M.Ed., A.M., Associate Professor of Sociology
Rudy, Donald (1980-1996). B.A., M.Ed., Ph.D. Associate Professor of Educational Foundations
Ruiz y Ruiz, Lina A. (1967-1983). B.A., M.A., Ph.D., Professor of Foreign Languages
Rummel, Paul Z. (1948-1968). A.B., M.A., Ph.D., Professor of Psychology
Rupp, Theodore, H. (1946-1982). A.B., M.A., Ph.D., Professor of Foreign Languages
Ruthart, Robert H. (1959-1972). B.S., M.A., Associate Professor of Mathematics
Sanders, Minda M. (1969-1978). B.S., M.L.S., Associate Professor of Educational Media
Sasin, Richard (1968-1988). B.S., M.A., Ph.D., Professor of Chemistry
Schack, Y vonne R. (1964-1986). B.S., M.Ed., Associate Professor of Elementary and Early Childhood Education
Scharnberger, Charles K. (1973-2003). B.A., M.A., Ph.D., Professor of Earth Sciences (Geology)
Schmmidtke, Carl O. (1967-1985). B.S., M.Ed., Ph.D., Professor of Educational Foundations
Schotta, L. William (1973-1999). B.S., M.Ed., Ed.D., Professor of Industry & Technology
Seadle, Irene P . (1966-1979). A.B., M.A., Ph.D., Professor of Foreign Languages
Shaak, Robert S. (1962-1991). B.S., M.Ed., Associate Professor of Mathematics
Sharrow, Sheba G. (1968-1988). B.F.A., M.F.A., Associate Professor of Art
Shelley, Leo (1967-2008). B.S., M.L.S., Associate Professor of Librarianship> BDC (R)Tj EMC (obert H.)Tj /T1_1 1 Tf [((1959-1972). B.S., M.A2CcetdTj /Spar
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Rupp,

Snavely, M. Joanne (1968-1987). B.S., M.Ed., Assistant Professor of Elementary and Early Childhood Education

Solera, Rodrigo (1970-2002). A.B., M.A., Ph.D., Professor of Foreign Languages

Sperry, Carol (1997-2001). B.S., M.A., Ph.D., Instructor of Educational Foundations

Stephenson, Glenn V . (1960-1990). B.S., M.A., Ed.D., Professor of Geography

Steucek, Guy L. (1969-2004). B.S., M.F., Ph.D., Professor of Biology

Stevens, Evelyn S. (1969-1984). B.S., Ed.M., Associate Professor of Psychology

Stine, George F. (1966-2003). A.B., M.Ed., Ph.D., Professor of Sociology

Suzielis, Saulius (1990-2008). A.B., M.A., Ph.D., Professor of History

Swope, Jerry J. (1970-2002). B.S., M.S., Associate Professor of Wellness & Sport Sciences

Sykes, Ronald E. (1956-1998). B.S., M.Ed., Ed.D., Professor of Art

Symonds, Gordon P . Jr. (1963-1998). A.B., M.Ed., Associate Professor of English

Talley, Paul M. (1965-1997). A.B., M.S., Ph.D., Professor of Communication & Theatre

Tannehill, John E. (1970-1999). B.A., M.A., Assistant Professor of Government & Political Af ars

Tassia, Margaret R. (1971-2002) B.S., M.S., Ph.D., Professor of Elementary and Early Childhood Education

Taylor, Clark E. (1956-1994). B.S., M.S., Associate Professor of Mathematics

Taylor, Robert N. (1969-1990). B.A., B.D., M.A., Associate Professor of English

Ting, Shih-Fan (1966-1983). B.A., M.S., Ph.D., Professor of Chemistry

Tirado, Thomas C. (1965-2000). A.B., M.A., Ph.D., Professor of History

Tribit, Donald K. (1961-1998). B.S., M.A.S.L.S., Associate Professor of Librarianship

Trout, Marjorie A. (1964-2001). B.S., Instructor of Wellness & Sport Sciences; Director of Women's Athletics

Tuleya, Edward A. (1969-1981). B.S., M.A., Ph.D., Professor of History

Tully, John A. (1967-1981). B.A., M.A., Associate Professor of Foreign Languages

Van Gorden, Charles L. (1969-1995). B.A., M.A., Associate Professor of Mathematics

Van Wyk, Josophine (1988-1999). B.A., M.A., Professor of English

Vincens, Simone J. (1971-1991). M.S.L.S., Ph.D., Professor of Foreign Languages

VonDorster, Nellie S. (1969-1977). A.B., B.S.L.S., Librarian

Warshawsky, Lawrence (1969-1991). B.S., M.S., Associate Professor of Wellness & Sport Sciences

Weaver, Jay D. (1959-1988). B.S., M.S., Professor of Mathematics

Weber, Earl M. (1960-1978). B.S., M.A., Ed.D., Professor of Industrial Arts Education

Weiman, Donald E. (1964-1987). B.S., M.S., Ph.D., Professor of Chemistry

Weiss, Gerald S. (1967-1997). B.S., Ph.D., Professor of Chemistry

Wenger, A. Grace (1966-1979). B.S., M.A., Associate Professor of English

White, James W. (1966-1998). A.B., M.A., Ph.D., Professor of Educational Foundations

Wighaman, Paul M. (1976-1986). B.S., M.Ed., Assistant Professor of Industry & Technology

Will, Richard S. (1969-1990). B.S., M.Ed., Professor of Educational Foundations

Wilson, Roger B. (1988-1995). B.S., M.Ed., Ed.D. Assistant Professor of Science Education

Wine, Jacob C. (1960-1978). B.S., B.S.L., M.Ed., Associate Professor of Psychology

Winkeljohann, Rosemary J. (1985-1995). B.A., M.Ed., Ed.D. Associate Professor of Elementary and Early Childhood Education (Reading/ Language Arts)

Winter, John Ellsworth (1964-1994). A.B., M.A., Ph.D., Professor of Philosophy

Wirls, Charles J. (1966-1984). B.S., Ph.D., Professor of Psychology

Wise, R. Gordon (1969-1997). B.S., M.A., Ed.D.Professor of Art

Wolf, Charles T . (1961-1991). B.S., M.S., Associate Professor of Mathematics

Wooby, Philip F. (1968-1984). B.A., M.A., Associate Professor of Foreign Languages

Woodbridge, Margaret C. (1955-1984). A.B., M.A., Associate Professor of English

Woodward-Miller, Sally (1989-2003). B.A., M.A., Instructor of English

Woskowiak, LeonaFrances (1973-1997). B.S., M.M., D.Ed., Professor of Music

Wright, Ralph L. (1969-1990). A.B., M.D., M.Ed., Ed.D., Associate Professor of Developmental Studies

Wright, William J. Jr. (1965-1985). B.S., M.S., Assistant Professor of Communication & Theatre

Wynn, Philip D. (1963-1991). B.S., M.A., D.Ed., Professor of Industry & Technology

Yeager, Sandra (1974-2000). B.A., M.S., Ph.D., Associate Professor of Chemistry
Yelagotes, George J. (1968-2000). B.A., M.S., Ph.D., Professor of Sociology and Anthropology
Yoder, Carolyn (1987-2003). A.B., Ph.D., Assistant Professor of Chemistry
Yurkiewicz, William J. (1966-2004). B.S., M.S., Ph.D., Professor of Biology
Zancu, Lilana (1980-2001). B.A., Ph.D., Professor of English
Zerby, J. Richard (1959-1982). B.S., M.S., Ed.D., Professor of Education
Zwally, James E. (1954-1976). B.S., M.S., Professor of Music

ADMINISTRATOR EMERITI

Caputo, Joseph A. (1981-2003). B.S., M.S., Ph.D., President
Davis, Darrell (1989-2002). M.S., Director of Admissions
Duncan, William H. (1946-1981). B.S., M.Ed., Ed.D., President
Kovach, Michael G. (1959-1985). B.A., B.D., Ph.D., Assistant Vice President for Academic Affairs and Dean of Graduate Studies
Labriola, Robert J. (1969 - 1999). B.S., M.Ed., D.Ed., Dean of Graduate Studies and Extended Programs
Lovin, Keith H. (1981-1986). B.A., Ph.D., Provost and Vice President for Academic Affairs
Maurey, James E. (1958-1987). B.S., M.E., Ed.D., Dean of Education
Phillips, Carol (1985-2006). R.N., B.S., M.S.Ed., M.S., Ph.D., Executive Assistant to the President/Associate Provost
Reighard, Gary W. (1967-1996). B.S., M.Ed., Ed.D., Vice President for Student Affairs
Stager, James A. (1967-2001) A.B., M.S., Ph.D., Associate Provost for Academic Administration
Thomas, Edgar R. (1972-1981). B.A., M.A., Ph.D., Dean of Graduate School
Treasure, Blair E. (1968-1988). B.A., M.Ed., Dean of Admissions
Wise, Gene R. (1966-1997). B.S., M.S., Director of Financial Aid

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D A 1990.
C : D D . B ,D , L ,L
H , 717-872-3178; I I M . H - , A E
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Policy on Auxiliary Aids
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