Department of Earth Sciences

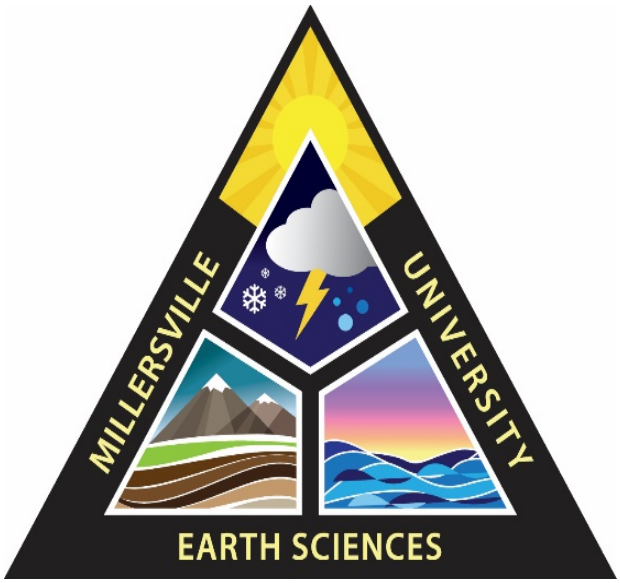
➔Ocean Sciences & Coastal Studies

➔Earth Sciences Education

➔Earth Sciences

➔Meteorology

➔Geology



Prospective Student....

Your link to the future.....

www.millersville.edu/esci/

Department of Earth Sciences
2020-2021

Prospective Student Booklet

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Millersville University
EARTH SCIENCES

Department of Earth Sciences
P.O. BOX 1002, Millersville, PA 17551
717-871-4359
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http://www.millersville.edu/esci

Welcome Prospective Student,

Soon you will be embarking on an exciting journey, one that will help you realize your goals and aspirations and prepare you for a rich and fulfilling career. We appreciate your interest in Millersville University's Department of Earth Sciences (DES) programs, and we are happy that you have taken this opportunity to visit with us, even if it is remotely during these times. You will be given a lot of information and when you sort it all out you may find that you have additional questions. We encourage you to contact us with any questions that may arise after you leave here today. Moreover, we invite you to come back again, in-person or online, sit in on a class, meet with students and faculty, and tour (in-person or virtually) the campus and the DES facilities. We are confident that you will discover that our programs are second to none in opportunity, quality, and value.

We know that you may have several options when it comes to selecting a college or university, so let me tell you a little about us. DES offers Bachelor of Science degree programs in the following majors: geology with an option in environmental geology, meteorology, ocean sciences and coastal studies with an option in physical oceanography, as well as secondary education in the earth and space sciences. We also offer an interdisciplinary Bachelor of Arts degree in earth sciences.

We currently enroll about 200 students across these five programs of study with the female/male ratio of about 40 percent. Your courses will be taught by dedicated and diverse faculty, all having Ph.D.s in their respective disciplines. We do not use graduate teaching assistants in any of our courses. Moreover, the faculty and staff are committed to providing you with a sound educational experience, while creating a nurturing environment through responsible advisement and personal mentoring to help you achieve your career goals. We understand the undergraduate student – you are our forté, and we know how to guide you from being a recent high school graduate to a competent and confident professional ready to embark on a career or pursue advanced studies.

The University and DES have considerable intellectual, physical, and cultural resources. *All the DES resources are directed toward our undergraduate programs, and these resources are many.* You will have the opportunity to gain hands-on experience with research-grade instruments such as the petrographic microscope, micropulse lidar, acoustic sodar, and the ocean profiler, either in the laboratory or through undergraduate research projects. Even during COVID, we provide excellent virtual learning through state-of-the-art software and online learning modules that are very authentic and allow you to develop your skills base while maintaining a safe environment. For in-person instruction, you will attend classes in either Caputo Hall or Roddy Hall, where rooms are outfitted with contemporary multi-media technology. Two new state-of-the-art shared immersive

workspaces have been recently installed to allow a high-tech video/audio classroom experience. We use the same technology to bring you online synchronous learning experiences during times when external circumstances require remote learning scenarios.

Our modern curriculum is rigorous and comprehensive, broad and deep; steeped in the concepts, content, and the context of the disciplines with an appropriate mix of theory and application, utilizing the current technology, where you can develop a knowledge base that leads to better understanding. We offer several skills-based courses such as Geospatial Information Systems (GIS), programming languages (FORTRAN, Python, MatLab, and Scripting), and specialized in-house workshops for you to develop proficiencies using the "tools-of-the-trade." Our graduates do extremely well no matter where they go after Millersville, whether it be graduate school for advanced education, private sector employment, or as civil servants in government agencies. Many of our graduates comment that their educational experience here at Millersville provided superior preparation compared to their peers at other institutions.

Each discipline has its own corresponding student club or chapter: students are members of the Millersville University Student Chapter of the American Meteorological Society (recently awarded the AMS Chapter of the Year for two consecutive years), the Geology Club, the Ocean Science Club, and the Student Chapter of the National Earth Sciences Teacher Association. In addition, the department places incoming freshmen in a living-learning community especially for its majors. Students live in the same residence halls, are enrolled in the same sections of general education courses and required-related courses during their first year and can participate in a student-led peer mentoring program. The purpose of the living-learning community is to build camaraderie, assist new students in acclimating to the university environment, and ensure that no student is left behind. Of course, for fall 2020, some of this has been affected by the necessary response to the COVID pandemic, but it in no way diminishes our focus on your success. During these times our attention is even more directed to ensuring that you have the best possible experience.

The handbook accompanying this letter has been prepared especially for you, the prospective student. While it is intended to provide a general overview of the department and its curricula, facilities, and activities, you are also encouraged to explore the department in greater detail through our web site at http://www.millersville.edu/esci. There you will find a plethora of information on the programs, student activities, research projects, faculty, staff, and resources, as well as contact information for individual faculty members.

We believe that there are many reasons for selecting Millersville University. But possibly the most important reason is our promise that you will receive an affordable education of the highest quality that will solidly prepare you for a career in your chosen Earth Sciences field. Our graduates are our success story. We invite you to be one of them.

Sincerely,

Richard D. Clark

Richard D. Clark, Ph.D.
Chair, Department of Earth Sciences

EARTH SCIENCES

From where we've been…

In 1967, Millersville State College, as Millersville University formerly was called, created a Division of Science and Mathematics. Four new departments – Biology, Chemistry, Physics and Earth Sciences – were founded at that time. Later, departments of Computer Science and Nursing were added to make, along with Mathematics, a total of seven departments in what became the School of Science and Mathematics. Dr. William M. Jordan was hired to be the first chairperson of the new Department of Earth Sciences. Later, Dr. Paul H. Nichols, for whom Nichols House is named, served as chairperson for more than 20 years. Dr. Russell L. DeSouza was chair for a short interim period, followed by Dr. Charles K. Scharnberger, who presided as chair for nine years until his retirement. The current chairperson is Dr. Richard D. Clark. In the summer of 2015, the School of Science and Mathematics became the College of Science and Technology, and added the departments of Geography and Applied Engineering, Safety and Technology, bringing to nine the total number of departments in the College.

From the beginning, the department recognized the multi-disciplinary nature of the Earth Sciences, and therefore sought faculty to develop programs in geology, meteorology and oceanography. At first, only two degree programs were offered by the department: a B.A. degree in Earth Sciences and a B.S.E. degree in Earth Sciences Education. In 1978, a B.S. degree program, with options in geology, meteorology and oceanography, was introduced. Nine years later, these three options became separate B.S. programs, bringing the total number of degree programs offered by the department to five. Minors in each of the major areas also were initiated at that time.

To what we are…

Presently, the department has ten faculty members - four in meteorology, three in geology, two in oceanography and one in emergency management, as well as one staff meteorologist, a systems administrator and a department secretary. The department currently has over 200 majors distributed among the five degree programs.

The department occupies space in each of the four buildings that form the James P. and Tasia K. Argires Science and Technology Complex, which houses the College of Science and Technology. The meteorology program is housed on the fourth floor of the Joseph A. Caputo Hall, completed in 1999. Geology labs, classrooms and the seismology lab are found on the ground floor of the recently renovated Roddy Science Hall and on the ground floor of Brossman Hall. Brossman also is where the oceanography lab, several faculty offices, and the main department offices are located.

The department faculty members are committed to offering undergraduate and graduate students learning experiences of the highest quality. While teaching, advising and mentoring undergraduate students remains our principal forté, students are exposed to research experiences that offer tremendous challenges and opportunities for the serious student. We are firmly committed to providing students with a thorough, contemporary, and comprehensive curriculum that is rich in the scientific discipline, couched in mathematics, steeped in the latest computer applications and technology and enveloped within a solid liberal arts core. You can be proud of your affiliation with the MU Department of Earth Sciences.

And where we are going...

The department has sustained solid growth since its founding. We will continue to provide each student with a contemporary and comprehensive curriculum that reflects long-term trends in the scientific disciplines, while moving toward a more holistic, integrated Earth systems approach so that our graduates gain the credentials needed to serve science and society in the 21st century. We will remain dedicated to creating authentic learning experiences for students by exposing them to the latest scientific equipment and technology, both in the classroom and in research settings. We are firmly committed to an educational experience that is both deep and broad, and tuned to address the workforce needs of today and tomorrow.

PHYSICAL RESOURCES

- Meteorology facility consisting of three fully networked teaching labs, research lab, Weather Center/Observatory, air chemistry lab, and offices for faculty and staff. Labs are configured with Dell workstations and server running the latest versions of (Windows XP/Linux), Unidata applications, IDL, Fortran 95, MatLab, ArcGIS with geostatistical, spatial analyst, and 3-D analyst. Millersville University is a member of Internet 2 and has a high bandwidth Access Grid node. Student-to-computer ratio is about one-to-one.

- Geology facility consisting of Soils Lab and Geochemistry Labs; dedicated geology seminar/ study room equipped with ARC GIS software; comprehensive geologic sample preparation laboratory for petrography and geochemistry.

- Dedicated remote sensing laboratory equipped with ENVI/IDL software from Research System Inc. for remote sensing and GIS applications; oceanography lab with networked Windows PCs, wave tank with variable-speed wave generator, and digital recorder. Acoustic current meter, Oceanic Winged current meter, Seabird wave gauge, Weatherpak portable weather station, and a Seabird SeaCat Conductivity-Temperature-Depth self-recording profiler are available for field studies.

- Weather Center housing the Campus Weather Service and the Weather Information Center; fully equipped with electronic map wall, large screen monitor, rooftop weather camera, TWI meteorological tower for current conditions, and computers for student use. The Weather Center opens to an observation deck.

- Mobile Atmospheric Research Facility (MARF), which includes a tethered multiple balloon system, particle counters, scatterometers, and meteorological sensors for airborne measurements; complete mobile ground-based facility including trace gas analyzers, 3-wavelength nephelometer, flux tower, micropulse lidar, acoustic sodar, sun photometer, and equivalent sensors to those used for aloft measurements.

- High resolution (mm) SuomiNet GPS site for derived total ionospheric electron density and column integrated precipitable water vapor.

- Dell Enterprise multi-processor cluster for running the Weather Research Forecast (WRF) mesoscale modeling system in research, operational, and educational modes.

- Off-campus precipitation collection site for the National Acid Deposition Program and the Mercury Deposition Network.

- Modern TV studio for broadcast communications

- Founding member in the Wallop's Island VA Marine Science Consortium, with full access to the Chincoteaque shore environment and Assateaque beach with oceanographic equipment; 45-foot research vessel for offshore cruise and smaller boats (skimmers) for channel cruises.

- Fixed, 42-inch diameter rotating table, plus portable rotating table for in-class use, to conduct experiments in geophysical fluid dynamics for teaching and research.

- Dedicated petrographic microscope lab with digital photography capabilities for advanced geology students.

- Research-grade petrographic microscope for students engaged in research with a faculty members.

- Geophysical field equipment including magnetometer and geophones used by students throughout the semester during classes such as geophysics and structural geology.

- Extensive hydrologic field equipment including weirs, flow velocity meters, and conductivity meters.

- Total station surveying transit and prism

- MLV drum and broadband seismic station that records local as well as global earthquakes that is part of a global network coordinated through Columbia University.

Phone - E-mail Directory – Office Location

Dr. Richard Clark Chair, Department of Earth Sciences Professor of Meteorology Richard.Clark@millersville.edu	CAP	409	717-871-7434
Dr. Alex DeCaria Professor of Meteorology Alex.DeCaria@millersville.edu	CAP	410	717-871-4739
Dr. Sam Earman Associate Professor of Geology Sam.Earman@millersville.edu	BROSS	108	717-871-4336
Mr. David Fitzgerald Distributed Systems Specialist, II David.Fitzgerald@millersville.edu	CAP	411	717-871-7436
Dr. Duane Hagelgans Associate Professor of Emergency Management Duane.Hagelgans@millersville.edu	LANC	202	717-871-7536
Dr. Ajoy Kumar Professor of Ocean Sciences and Coastal Studies Ajoy.Kumar@millersville.edu	BROSS	117	717-871-4356
Dr. Lynn Marquez Professor of Geology Lynn.Marquez@millersville.edu	BROSS	107	717-871-4339
Dr. Todd Sikora Professor of Meteorology Todd.Sikora@millersville.edu	CAP	404	717-871-7435
Dr. Robert Vaillancourt Associate Professor of Ocean Sciences and Coastal Studies Robert.Vaillancourt@millersville.edu	BROSS	106	717-871-4190
Dr. Talor Walsh Associate Professor of Geology Talor.Walsh@millersville.edu	BROSS	109	717-871-4270
Dr. Sepideh Yalda Professor of Meteorology Sepi.Yalda@millersville.edu	CAP LANC	405 201	717-871-7433 717-871-7550
Marty Devlin Secretary Martha.Devlin@millersville.edu	BROSS	113	717-871-4359

BROSS: Brossman; CAP: Caputo; LANC: Lancaster House

Department of Earth Sciences

Major Programs:

Earth Sciences (B.A.) ..... 120 s.h.

Earth Sciences (B.A.) ..... 120 s.h.
Geology Option

Earth Sciences (B.S.E.) ..... 126 s.h.
(Certification in Secondary Education)

Geology (B.S.) ..... 120 s.h.

Geology (B.S) ..... 120 s.h.
Environmental Geology Option

Meteorology (B.S.) ..... 120 s.h.

Ocean Sciences and Coastal Studies (B.S.) ..... 120 s.h.

Ocean Sciences and Coastal Studies (B.S.) ..... 120 s.h.
Physical Oceanography Option

Multidisciplinary Studies:

Environmental Hazards and Emergency Management (B.A.) ..... 120 s.h.

Minor Programs:

Earth Sciences ..... 21 s.h.

Environmental Hazards and Emergency Management ..... 18 s.h.

Geology ..... 19 s.h.
(Track 1, BSE Earth Sciences Majors)
..... 20 s.h.
(Track 2, all other majors)

Heliophysics and Space Weather ..... 18 s.h.

Hydrology Minor ..... 18 s.h.

Meteorology ..... 19 s.h.

Oceanography ..... 19 s.h.

Option:

Broadcast Communication Option ..... 20 s.h.
(Suggested for Meteorology majors interested in enhancing their communication skills.)

Other Minor Programs to Consider:

Environmental Chemistry ..... 20.0 s.h.

Government and Political Affairs ..... 18.0 s.h.

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE: BA
MAJOR: ESCI
OPTION:

MAJOR REQUIREMENTS FOR A BA DEGREE IN EARTH SCIENCES

Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BA EARTH SCIENCES MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Earth Sciences major by the Office of Admissions upon admission to the University.
2. Admission into the Earth Sciences major from other departments is upon approval of the chairperson of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Earth Sciences major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 131, and at least one of the following: ESCI 221, ESCI 241, or ESCI 261.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BA EARTH SCIENCES**
Option:
Major Field Requirements: **30.0 credits**
Other Requirements: **34.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

REQUIRED EARTH SCIENCES COURSES (12.0 credits)

Course No.		Short Title	C.H.	Grade
ESCI	221	Physical Geology	4.0	
ESCI	241	Meteorology	4.0	
ESCI	261	Intro to Oceanography	4.0	

EARTH SCIENCES ELECTIVES (18.0 credits)

Choose at least 18.0 credit hours of Earth Science courses at the 200 level or higher.

ESCI				
ESCI				
ESCI				
ESCI				
ESCI				
ESCI				

REQUIRED RELATED (34.0 credits)

Mathematics (7.0 credits)

Course No.		Short Title	C.H.	Grade
MATH	161	Calculus I	4.0	
MATH	235	Survey of Statistics	3.0	

Physics (8.0 credits)

PHYS	131	Physics I with Algebra	4.0	
PHYS	132	Physics II with Algebra	4.0	

Chemistry (8.0 credits)

CHEM	111	Intro Chemistry I	4.0	
CHEM	112	Intro Chemistry II	4.0	

Science Electives (11.0 credits)

Choose a minimum of 11.0 c.h. of courses from Biology, Chemistry, Computer Science, Mathematics, or Physics. Course chosen must be ones that count toward a major in those subjects. PHYS 317 also may be counted in this block.

General Electives (as necessary)

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE: BA
MAJOR: ESCI
OPTION: GEOL

MAJOR REQUIREMENTS FOR A BA DEGREE IN EARTH SCIENCES / GEOLOGY
Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BS GEOLOGY MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Geology major by the Office of Admissions upon admission to the University.
2. Admission into the Geology major from other departments is upon approval of the chair person of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Geology major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 131 or 231, and ESCI 221.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.
No more than one "P" or "D" course can be counted toward major requirements.
Per University policy, cumulative GPA in major courses must be 2.0 or higher.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BA EARTH SCIENCES**
Option: **GEOLOGY**
Major Field Requirements: **36.0-39.0 credits**
Other Requirements: **23.0-26.0.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

Course No.	Short Title	C.H.	Grade
REQUIRED EARTH SCIENCES COURSES (11.0-14.0 credits)			
ESCI 221	Physical Geology	4.0	____
ESCI 222	Historical Geology	4.0	____
ESCI 422	Geological Field Mapping	3.0-6.0	____
EARTH SCIENCES ELECTIVES (25.0 credits)			
Choose at least 25 credit hours of Earth Sciences courses from the following list:			
ESCI 225	Geomorphology	3.0	____
ESCI 226	Geology of Earth Resources	3.0	____
ESCI 321	Structural Geology	3.0	____
ESCI 322	Environmental Hydrology	3.0	____
ESCI 326	Sedimentation & Stratigraphy	4.0	____
ESCI 327	Mineralogy	4.0	____
ESCI 328	Petrog./Ign.-Met. Petrol. (W)	4.0	____
ESCI 329	Aqueous Geochemistry (W)	3.0	____
ESCI 382	Water Wars (P)	3.0	____
ESCI 421	Advanced Geology (W)	2.0	____
ESCI 423	Applied Geophysics	3.0	____
ESCI 424	Geology Assessment Exam	1.0	____
ESCI 426	Groundwater Geology	3.0	____
ESCI 427	Field Studies of Mtn. Belts (W)	3.0	____
ESCI 428	Planetary Geology (W)	3.0	____
ESCI 241	Meteorology	4.0	____
ESCI 245	Environmental Meterology	3.0	____
ESCI 261	Introduction to Oceanography	4.0	____
ESCI 385	Global Climate Change (P)	3.0	____
ESCI 281	GIS Applications for ESCI	3.0	____
---OR---			
GEOG 295	Geographic Info. Systems	3.0	____

Course No.	Short Title	C.H.	Grade
REQUIRED RELATED (23.0-26.0.0 credits)			
Mathematics and Computer Science (7.0-8.0 credits)			
MATH 161	Calculus I	4.0	____
---AND---			
Choose one course from the following:			
MATH 211	Calculus II	4.0	____
MATH 235	Survey of Statistics	3.0	____
CSCI 161	Intro. to Programming I	4.0	____
ESCI 282	FORTRAN for Erth Sci Apps	3.0	____
ESCI 446	Statistical Meteorology	3.0	____
NOTE: some graduate programs may require MATH 211 and/or MATH 235.			
Physics (8.0-10.0 credits)			
PHYS 131	Physics I with Algebra	4.0	____
PHYS 132	Physics II with Algebra	4.0	____
---OR---			
PHYS 231	Physics I with Calculus	5.0	____
PHYS 232	Physics II with Calculus	5.0	____
NOTE: some graduate programs may require PHYS 231/232.			
Chemistry (8.0 credits)			
CHEM 111	Introductory Chemistry I	4.0	____
CHEM 112	Introductory Chemistry II	4.0	____

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE: BSE
MAJOR: ESCI
OPTION:

MAJOR REQUIREMENTS FOR A BSE DEGREE IN EARTH SCIENCES

Total credit hours required: 126.0 minimum

REQUIREMENTS AND POLICIES FOR THE BSE EARTH SCIENCES MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Earth Sciences major by the Office of Admissions upon admission to the University.
2. Admission into the Earth Sciences major from other departments is upon approval of the chairperson of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Earth Sciences major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 131, ESCI 221, ESCI 241, ESCI 261.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.

D. 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 certified. A listing of Advanced Professional Studies courses and requirements is available in each department office, the Early Field Experience office, and on the Early Field Experience website.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BSE EARTH SCIENCES**
Option:
Major Field Requirements: **28.0 credits**
Other Requirements: **63.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

REQUIRED EARTH SCIENCES COURSES (28.0 credits)

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 221	Physical Geology	4.0		
ESCI 222	Historical Geology	4.0		
ESCI 241	Meteorology	4.0		
ESCI 245	Environ Meteorology	3.0		
ESCI 261	Intro Oceanography	4.0		
ESCI 366	Ocean Resources*	3.0		
ESCI 428	Planetary Geology	3.0		
	-or-			
ESCI 202	Earth in Space	3.0		

*Another Oceanography course may be substituted with the approval of your adviser.

EARTH SCIENCES ELECTIVES

Choose an additional 3.0 credit Earth Science course which is approved by your adviser.

ESCI ____ _____				

PROFESSIONAL EDUCATION (33.0 credits)

EDFN 211	Found Modern Educ	3.0		
EDFN 241	Psych Found Teach	3.0		
EDSE 321	Issues in Sec. Educ.	3.0		
EDFN 330	Instr. Tech. Design	3.0		
EDSE 435	Teaching Science	3.0		
EDSE 340	Content Area Literacy	3.0		
SPED 346	Sec Students w/Dis.	3.0		
EDSE 471	Differentiating Instruct	3.0		
EDSC 461	Student Teaching	9.0		

REQUIRED RELATED (30.0 credits)

Mathematics (8.0 credits)

MATH 160	Pre-Calculus	4.0		
MATH 161	Calculus I	4.0		

Physics (11.0 credits)

PHYS 131	Physics I w/Algebra	4.0		
PHYS 132	Physics II w/Algebra	4.0		
PHYS 117	General Astronomy	3.0		
	---- ---- or ---- ----			
PHYS 317	Intro to Astronomy	3.0		

Chemistry (8.0 credits)

CHEM 111	Intro Chemistry I	4.0		
CHEM 112	Intro Chemistry II	4.0		

Biology (3.0 credits)

BIOL 241*	Principles of Ecology	3.0			

General Electives (as necessary)

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

*Requires demonstrated competency in Biology as prerequisite. Competency may be demonstrated by one of the following:
1. a course grade of A or B in AP Biology;
2. a score of 3 or better in the national AP exam.
3. a successful score on the CLEP exam;
4. a successful score on a General Biology challenge or placement examination.
5. a passing grade for General Biology (BIOL 100)

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE: BS
MAJOR: GEOL
OPTION:

MAJOR REQUIREMENTS FOR A BS DEGREE IN GEOLOGY

Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BS GEOLOGY MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Geology major by the Office of Admissions upon admission to the University.
2. Admission into the Geology major from other departments is upon approval of the chair person of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Geology major by the Office of Admissions.

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In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 131 or 231, ESCI 221, and ESCI 222.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.
No more than one "P" or "D" course can be counted toward major requirements.
Per University policy, cumulative GPA in major courses must be 2.0 or higher.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS GEOLOGY**
Option:
Major Field Requirements: **41.0-44.0 credits**
Other Requirements: **23.0-26.0.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

REQUIRED EARTH SCIENCES COURSES (32.0-35.0 credits)

Course No.	Short Title	C.H.	Grade
ESCI 221	Physical Geology	4.0	____
ESCI 222	Historical Geology	4.0	____
ESCI 321	Structural Geology	3.0	____
ESCI 326	Sedimentation & Stratigraphy	4.0	____
ESCI 327	Mineralogy	4.0	____
ESCI 328	Petrog./Ign.-Met. Petrol. (W)	4.0	____
ESCI 421	Advanced Geology (W)	2.0	____
ESCI 422	Geologic Field Mapping	3.0-6.0	____
ESCI 423	Geophysics	3.0	____
ESCI 424	Geology Assessment Exam	1.0	____

GEOLOGY ELECTIVES (9.0 credits)

Choose three courses from the following:

ESCI 225	Geomorphology	3.0	____
ESCI 226	Geology of Earth Resources	3.0	____
ESCI 322	Environmental Hydrology	3.0	____
ESCI 329	Aqueous Geochemistry (W)	3.0	____
ESCI 382	Water Wars (P)	3.0	____
ESCI 426	Groundwater Geology	3.0	____
ESCI 427	Field Studies of Mtn Belts (W)	3.0	____
ESCI 428	Planetary Geology (W)	3.0	____
ESCI 281	GIS Applications for ESCI	3.0	____
---OR---			
GEOG 295	Geographic Info. Systems	3.0	____

REQUIRED RELATED (23.0-26.0.0 credits)

Mathematics and Computer Science (7.0-8.0 credits)

MATH 161	Calculus I	4.0	____
---AND---			
Choose one course from the following:			
MATH 211	Calculus II	4.0	____
MATH 235	Survey of Statistics	3.0	____
CSCI 161	Intro. to Programming I	4.0	____
ESCI 282	FORTRAN for Erth Sci Apps	3.0	____
ESCI 446	Statistical Meteorology	3.0	____

NOTE: some graduate programs may require MATH 211 and/or MATH 235.

Physics (8.0-10.0 credits)

PHYS 131	Physics I with Algebra	4.0	____
PHYS 132	Physics II with Algebra	4.0	____
---OR---			
PHYS 231	Physics I with Calculus	5.0	____
PHYS 232	Physics II with Calculus	5.0	____

NOTE: some graduate programs may require PHYS 231/232.

Chemistry (8.0 credits)

CHEM 111	Introductory Chemistry I	4.0	____
CHEM 112	Introductory Chemistry II	4.0	____

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE:	BS	**MAJOR REQUIREMENTS FOR A BS DEGREE IN GEOLOGY / ENVIRONMENTAL GEOLOGY**
MAJOR:	GEOL	Total credit hours required: 120.0 minimum
OPTION:	ENV GEOL	

REQUIREMENTS AND POLICIES FOR THE BS GEOLOGY MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Geology major by the Office of Admissions upon admission to the University.
2. Admission into the Geology major from other departments is upon approval of the chair person of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Geology major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 131 or 231, ESCI 221, and ESCI 222.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.
No more than one "P" or "D" course can be counted toward major requirements.
Per University policy, cumulative GPA in major courses must be 2.0 or higher.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS GEOLOGY**
Option: **ENVIRONMENTAL GEOLOGY**
Major Field Requirements: **41.0-44.0 credits**
Other Requirements: **23.0-26.0.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

Course No.	Short Title	C.H.	Grade
REQUIRED EARTH SCIENCES COURSES (32.0-35.0 credits)			
ESCI 221	Physical Geology	4.0	____
ESCI 222	Historical Geology	4.0	____
ESCI 321	Structural Geology	3.0	____
ESCI 326	Sedimentation & Stratigraphy	4.0	____
ESCI 327	Mineralogy	4.0	____
ESCI 328	Petrog./Ign.-Met. Petrology (W)	4.0	____
ESCI 421	Advanced Geology (W)	2.0	____
ESCI 422	Geological Field Mapping	3.0-6.0	____
ESCI 423	Applied Geophysics	3.0	____
ESCI 424	Geology Assessment Exam	1.0	____
GEOLOGY ELECTIVES (9.0 credits)			
Choose two courses from the following:			
ESCI 322	Environmental Hydrology	3.0	____
ESCI 329	Aqueous Geochemistry (W)	3.0	____
ESCI 382	Water Wars (P)	3.0	____
ESCI 426	Groundwater Geology	3.0	____
Choose one course from the following:			
ESCI 225	Geomorphology	3.0	____
ESCI 226	Geology of Earth Resources	3.0	____

Course No.	Short Title	C.H.	Grade
REQUIRED RELATED (23.0-26.0.0 credits)			
Mathematics and Computer Science (7.0-8.0 credits)			
MATH 161	Calculus I	4.0	____
---AND---			
Choose one course from the following:			
MATH 211	Calculus II	4.0	____
MATH 235	Survey of Statistics	3.0	____
CSCI 161	Intro. to Programming I	4.0	____
ESCI 282	FORTRAN for Erth Sci Apps	3.0	____
ESCI 446	Statistical Meteorology	3.0	____
NOTE: some graduate programs may require MATH 211 and/or MATH 235.			
Physics (8.0-10.0 credits)			
PHYS 131	Physics I with Algebra	4.0	____
PHYS 132	Physics II with Algebra	4.0	____
---OR---			
PHYS 231	Physics I with Calculus	5.0	____
PHYS 232	Physics II with Calculus	5.0	____
NOTE: some graduate programs may require PHYS 231/232.			
Chemistry (8.0 credits)			
CHEM 111	Introductory Chemistry I	4.0	____
CHEM 112	Introductory Chemistry II	4.0	____

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE: BS
MAJOR: MET
OPTION:

MAJOR REQUIREMENTS FOR A BS DEGREE IN METEOROLOGY

Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BS METEOROLOGY MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Meteorology major by the Office of Admissions upon admission to the University.
2. Admission into the Meteorology major from other departments is upon approval of the chairperson of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Meteorology major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 231, ESCI 241.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS METEOROLOGY**
Option:
Major Field Requirements: **51.0 credits**
Other Requirements: **32.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

REQUIRED EARTH SCIENCES COURSES (39.0 credits)

Course No.		Short Title	C.H.	Grade
ESCI	241	Meteorology	4.0	
ESCI	282	FORTRAN Prog. ES Applications	3.0	
ESCI	340	Cloud Phys & Precip Processes	3.0	
ESCI	341	Atmospheric Thermodynamics	3.0	
ESCI	342	Atmospheric Dynamics I	3.0	
ESCI	343	Atmospheric Dynamics II	3.0	
ESCI	345	Atmospheric Radiative Transfer	3.0	
ESCI	386	Scientific Prog. Analy. & Visual.	3.0	
		---OR---		
ESCI	281	GIS for Earth Science	3.0	
		---OR---		
GEOG	295	Geographic Info. Systems	3.0	
ESCI	441	Synoptic Meteorology Lec-Lab	3.0	
ESCI	443	Climate Dynamics	3.0	
ESCI	444	Meso. & Storm-Scale Met.	4.0	
ESCI	446	Stats., Uncertainty, & Decision Making in Earth Sciences	3.0	

EARTH SCIENCES ELECTIVES (12.0 - 13.0 credits)

ESCI	261	Intro to Oceanography	4.0	
ESCI	322	Environmental Hydrology	3.0	
ESCI	344	Tropical Meteorology	3.0	
ESCI	347	Satellite Meteorology	3.0	
ESCI	349	Chemistry of Atmosphere	3.0	
ESCI	369	Physical Oceanography	3.0	
ESCI	380	Remote Sensing	3.0	
ESCI	390	Topics (Meteorology)*	3.0	
ESCI	440	Space Weather & Environment	3.0	
ESCI	445	Numerical Modeling	3.0	
ESCI	447	Meteorological Instrumentation	3.0	
ESCI	448	Boundry Layers & Turbulence	3.0	
ESCI	449	Radar Meteorology	3.0	
ESCI	485	Air-Sea Interaction	3.0	

* Topics: Meteorology Communications does NOT count towards the ESCI electives.

Skill Courses
(Do not count towards the degree)

ESCI	348	Broadcast Meteorology	1.0	
ESCI	442	Advanced Weather Analysis/ Forecasting Practicum	2.0	

REQUIRED RELATED (32.0 - 33.0 credits)

Course No.		Short Title	C.H.	Grade
Chemistry (4.0 credits)				
CHEM	111	Introductory Chemistry I	4.0	
Mathematics (18.0-19.0 credits)				
MATH	161	Calculus I	4.0	
MATH	211	Calculus II	4.0	
MATH	311	Calculus III	4.0	
MATH	365	Differential Equations	3.0	
		AND		
MATH	235	Survey Statistics	3.0	
		OR		
MATH	333	Probability & Statistics	4.0	
		OR		
MATH	335	Math Statistics I	3.0	
Physics (10.0 credits)				
PHYS	231	Physics I with Calculus	5.0	
PHYS	232	Physics II with Calculus	5.0	

GENERAL ELECTIVES (as necessary)

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE: BS
MAJOR: OSCS
OPTION:

MAJOR REQUIREMENTS FOR A BS DEGREE IN OCEAN SCIENCES AND COASTAL STUDIES

Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BS OCEAN SCIENCES AND COASTAL STUDIES MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Ocean Sciences and Coastal Studies major by the Office of Admissions upon admission to the University.
2. Admission into the Ocean Sciences and Coastal Studies major from other departments is upon approval of the chairperson of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Ocean Sciences and Coastal Studies major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 161, CHEM 111, PHYS 131, PHYS 231, ESCI 261.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS OCEAN SCIENCES AND COASTAL STUDIES**
Option:
Major Field Requirements: **35.0 credits**
Other Requirements: **31.0 - 33.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

REQUIRED EARTH SCIENCES COURSES (35.0 credits)

Course No.		Short Title	C.H.	Grade
ESCI	241	Meteorology	4.0	____
ESCI	261	Intro to Oceanography	4.0	____
ESCI	267	Field Methods in Ocean*	3.0	____
ESCI	362	Marine Geology	3.0	____
ESCI	363	Chemical Oceanography	3.0	____
ESCI	366	Ocean Resources	3.0	____
ESCI	369	Physical Oceanography	3.0	____
ESCI	380	Remote Sens & Image Interp.	3.0	____
ESCI	464	Ocean Ecosystems	3.0	____
ESCI	465	Biological Oceanography*	3.0	____
ESCI	468	Data Analysis & Presentation	3.0	____

*Available only at Wallops Island Marine Science Center.

REQUIRED RELATED (31.0 - 33.0 credits)

Course No.		Short Title	C.H.	Grade
Mathematics (7.0 credits)				
MATH	161	Calculus I	4.0	____
MATH	235	Survey of Statistics	3.0	____
		OR		
BIOL	375	Biometry	3.0	____
Chemistry (8.0 credits)				
CHEM	111	Introductory Chemistry I	4.0	____
CHEM	112	Introductory Chemistry II	4.0	____
Biology (8.0 credits)				
BIOL	211	Concepts of Zoology	4.0	____
BIOL	221	Concepts of Botany	4.0	____
Physics (8.0 - 10.0 credits)				
PHYS	131	Physics I w/ Algebra	4.0	____
PHYS	132	Physics II w/ Algebra	4.0	____
		OR		
PHYS	231	Physics I w/ Calculus	5.0	____
PHYS	232	Physics II w/ Calculus	5.0	____

ELECTIVES (Minimum of 11.0 - 13.0 credits)

Choose courses from Biology, Chemistry, Earth Sciences, Mathematics, or Physics that apply towards a major in that department.

A minor in Physics, Chemistry, Mathematics, or Biology is strongly recommended especially for those planning to go to graduate school.

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D.#_____

DEGREE:	BS	**MAJOR REQUIREMENTS FOR A BS DEGREE IN OCEAN SCIENCES AND COASTAL STUDIES / PHYSICAL**
MAJOR:	OSCS	
OPTION:	PHYS	Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BS OCEAN SCIENCES AND COASTAL STUDIES MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Ocean Sciences and Coastal Studies major by the Office of Admissions upon admission to the University.
2. Admission into the Ocean Sciences and Coastal Studies major from other departments is upon approval of the chairperson of the Earth Sciences Department.
3. Non-degree and continuing education students must be admitted to the Ocean Sciences and Coastal Studies major by the Office of Admissions.

B. Policies for Retention in the Major

In order to remain a major in good academic standing in the Department of Earth Sciences, a student must earn a grade of at least a C- in the following courses: MATH 211, CHEM 111, PHYS 231, ESCI 261.

C. Policies for Completion of the Major

Completion of all Departmental and University curricular requirements.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS OCEAN SCIENCES AND COASTAL STUDIES**
Option: **PHYSICAL**
Major Field Requirements: **35.0 credits**
Other Requirements: **42.0-43.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

REQUIRED EARTH SCIENCES COURSES (35.0 credits)

Course No.	Short Title	C.H.	Grade
ESCI 241	Meteorology	4.0	
ESCI 261	Intro to Oceanography	4.0	
ESCI 267	Field Methods in Ocean*	3.0	
ESCI 282	FORTRAN Prog. for ES App.	3.0	
ESCI 363	Chemical Ocean	3.0	
ESCI 369	Physical Oceanography	3.0	
ESCI 380	Remote Sensing	3.0	
ESCI 443	Climate Dynamics	3.0	
ESCI 464	Ocean Ecosystems	3.0	
ESCI 468	Ocean Data Analy. & Present.	3.0	
ESCI 485	Air/Sea Interaction	3.0	

*Available only at Wallops Island Marine Science Center.

RECOMMENDED COURSES (no minimum)

In addition, the following courses are highly recommended:

Course No.	Short Title	C.H.	Grade
PHYS 395	Tech in Mathematical Physics	3.0	
ESCI 466	Coastal Environ. Ocean*	3.0	
MATH 467	Partial Differential Equations	3.0	

REQUIRED RELATED (42.0-43.0 credits)

Mathematics (15.0 credits)

Course No.	Short Title	C.H.	Grade
MATH 161	Calculus I	4.0	
MATH 211	Calculus II	4.0	
MATH 311	Calculus III	4.0	
MATH 365	Differential Equations	3.0	

Physics (19.0-20.0 credits)

Course No.	Short Title	C.H.	Grade
PHYS 231	Physics I w/Calculus	5.0	
PHYS 232	Physics II w/Calculus	5.0	
PHYS 311	Mechanics I	3.0	
	OR		
ESCI 342	Atmospheric Dynamics I	3.0	
PHYS 312	Mechanics II	3.0	
	OR		
ESCI 343	Atmospheric Dynamics II	3.0	
PHYS 334	Thermodynamics	4.0	
	OR		
ESCI 341	Atmos. Thermodynamics	3.0	

Chemistry (8.0 credits)

Course No.	Short Title	C.H.	Grade
CHEM 111	Introductory Chemistry I	4.0	
CHEM 112	Introductory Chemistry II	4.0	

General Electives (as necessary)

ENVIRONMENTAL HAZARDS AND EMERGENCY MANAGEMENT

ENVIRONMENTAL HAZARDS AND EMERGENCY MANAGEMENT - BA MDST MAJOR

Emergency Management is the academic discipline that educates and trains those interested in protecting and building disaster resilient communities. The field of emergency management has shown significant growth and continues to further develop as disasters and major emergencies become more frequent and costly and as response and recovery from these events require collaboration and coordination.

CAREERS OPPORTUNITIES

Emergency management professionals are employed at each level of government (e.g., local, state, and federal) and within various governmental agencies at each level.

- Departments of Emergency Management
- Departments of Public Health
- Departments of Transportation
- Departments of Public Works
- Non-profit disaster relief organizations
- Domestic and international nongovernmental organizations
- Energy sector
- Private sector emergency management consulting
- Information technology

This multi-disciplinary concentration of study with a focus on environmental hazards and emergency management will prepare you to apply the theoretical underpinnings of emergency management to practice, obtain a knowledge of natural hazards from a scientific perspective and the global, national, regional, and local impacts of these events, interpret and analyze appropriate data and information technology related to natural hazards and emergency management, recognize the effective methods for decision making and problem solving related to emergency management, and exhibit competency in assessing risk susceptibility, resilience and vulnerability within a community or organizations.

Learn more about Millersville

Contact the Program Coordinator

Download 4-Year Degree Plan

ENVIRONMENTAL HAZARDS AND EMERGENCY MANAGEMENT

CORE PROGRAM 1 (18 CREDITS)

- ESCI 101 Earth System and Natural Hazards (3 credits)
- OSEH 120 Introduction to Occupational Safety (3 credits)
- EHEM 201 Introduction to Emergency Management (3 credits)
- EHEM 305 Disaster Management and Community Risk Assessment (3 credits)
- EHEM 316 Introduction to Terrorism, WMO, and Homeland Security (3 credits)
- EHEM 319 Emergency Management Planning (3 credits)

CORE PROGRAM 2 (18 CREDITS)

- ESCI 107 The Atmosphere (3 credits)
- ESCI 221 Physical Geology (3 credits)
- ESCI 245 Environmental Meteorology (3 credits)
- ESCI 366 Ocean Resources (3 credits)
- ESCI 385 Global Change (3 credits)
- GEOG 295 Geographic Information Systems (3 credits)

CAPSTONE EXPERIENCE (3 CREDITS)

EHEM 498: Independent Study or Internship in Emergency Management.

GENERAL EDUCATION (45 CREDITS)

Millersville University's General Education curriculum is designed to cultivate the intellect by educating students to reason logically, to think critically, to express themselves clearly, and to foster an understanding of the human condition. The General Education requirements are detailed here

ELECTIVES (36 CREDITS)

All baccalaureate majors require students to complete a minimum of 120 credits. Completing Core 1, Core 2, the Capstone Experience, and all General Education requirements typically requires 84 credits. Students therefore need to take an additional 36 elective credits to reach the requirement of 120. Students work with advisors to select additional courses, minors, or second majors as part of this elective block.

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Earth Sciences

Minor: Earth Sciences
Department: Earth Sciences

Total credit hours required: 21.0 minimum

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward your major may be counted toward your minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major.

REQUIRED EARTH SCIENCES COURSES (12.0 credits)

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 221	Physical Geology	4.0	____	____
ESCI 241	Meteorology	4.0	____	____
ESCI 261	Intro to Ocean	4.0	____	____

EARTH SCIENCES ELECTIVES (9.0 credits)

Choose one Geology course from the following:

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 32_	_____	3.0	____	____
or				
ESCI 42_	_____	3.0	____	____

Choose one Meterology course from the following:

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 34_	_____	3.0	____	____
or				
ESCI 44_	_____	3.0	____	____

Choose one Ocean Sciences and Costal Studies course from the following:

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 36_	_____	3.0	____	____
or				
ESCI 46_	_____	3.0	____	____

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Environmental Hazards and Emergency Mgmt.

Minor: Environmental Hazards & Emergency Mgmt. Total credit hours required: 18.0 minimum
Department: Interdepartmental

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward your major may be counted toward your minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major.

REQUIRED COURSES (12.0 credits)

Course No.	Short Title	C.H.	Grade
EHEM 201	Intro to Emergency Mgmt.	3.0	____
EHEM 305	Disaster Mgmt & Comm. Risk	3.0	____
ESCI 101	Earth Sys. & Natural Hazards	3.0	____
OSEH 120	Fundamentals Safety, Health & Environmental Issues	3.0	____

ELECTIVES (6.0 credits)

Choose at least two of the following electives, in consultation with your adviser, to total minor credits to 18.0.

Course No.	Short Title	C.H.	Grade
CHEM 101	Chem! Better Things/Better Living	3.0	____
CHEM 103	Gen, Org & Biochemistry I	3.0	____
CHEM 111	Introductory Chemistry I	4.0	____
EHEM 316	Intro to Terrorism, WMD & Homeland Security	3.0	____
EHEM 498	Ind. Study/Internship	3.0	____
GEOG 295	Geographic Info Systems	3.0	____
GEOG 372	Urban & Regional Planning	3.0	____
OSEH 221	Industrial Fire Prevention	3.0	____
SOCY 313	Sociology of Disaster	3.0	____

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Geology

Minor: Geology
Department: Earth Sciences

Total credit hours required: see below

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward the major may be counted toward the minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major. (Exceptions have been approved for specific departments including Earth Sciences. Please see department for specific combinations).

Track 1 (19 credits)
Required for BSE Earth Science Majors

Required Earth Sciences Course (4 credits)

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 221	Physical Geology	4.0	____	____

Choose 9 credits Geology courses at the 200 level or higher.

ESCI 22_	_____	3.0	____	____
ESCI 22_	_____	3.0	____	____
ESCI 32_	_____	3.0	____	____
ESCI 32_	_____	3.0	____	____
ESCI 42_	_____	3.0	____	____

At least 6 credits must be taken at the 300 level or higher for the above electives courses.

ESCI 32_	_____	3.0	____	____
ESCI 42_	_____	3.0	____	____

Track 2 (20 credits)
Requirements for all other majors

Required Earth Science Courses (8 credits)

Course No.	Short Title	C.H.	Grade	Q.P.
ESCI 221	Physical Geology	4.0	____	____
ESCI 222	Historical Geology	4.0	____	____

Choose 6 credits Geology courses at the 200 level or higher.

ESCI 22__	_____	3.0	____	____
ESCI 22__	_____	3.0	____	____
ESCI 32__	_____	3.0	____	____
ESCI 32__	_____	3.0	____	____
ESCI 42__	_____	3.0	____	____

At least 6 credits must be taken at the 300 level or higher for the above electives courses.

ESCI 32__	_____	3.0	____	____
ESCI 42__	_____	3.0	____	____

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Heliophysics and Space Weather

Minor: Heliophysics and Space Weather Total credit hours required: 18.0 minimum
Department: Interdepartmental

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward your major may be counted toward your minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major.

Course No.	Short Title	C.H.	Grade
REQUIRED COURSES (18.0 credits)			
PHYS 233	Mod Theories Waves/Particles	3.0	____
PHYS 321	Electromagnetic Fields I	3.0	____
PHYS 322	Electromagnetic Fields II	3.0	____
ESCI 341	Atmospheric Thermodynamics	3.0	____
OR			
PHYS 334	Macro Phenom & Thermodyn	3.0	____
PHYS 335	Multi Quantum Systems	3.0	____
ESCI 440	Space Weather & Environment	3.0	____

Please note the following:

Prerequisite for admission to the program: C or higher in PHYS 231 & PHYS 232

ALL required courses in minor have pre-requisites or corequisites in Mathematics and/or Physics and are NOT included in the minor credit total. Please consult University catalog and advisor for these prerequisites.

Course No.	Short Title	C.H.	Grade
RECOMMENDED COURSE (0.0-3.0 credits)			
PHYS 435	Statistical Physics *	3.0	____

* Course recommended, not required

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.*

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Meteorology

Minor: Meteorology
Department: Earth Sciences

Total credit hours required: 19.0 minimum

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward your major may be counted toward your minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major. (Exceptions have been approved for specific departments including Earth Sciences. Please see department for specific combinations).

REQUIRED EARTH SCIENCES COURSES (13.0 credits)

Course No.		Short Title	C.H.	Grade	Q.P.
ESCI	241	Meteorology	4.0	____	____
ESCI	340	Physical Meteor	3.0	____	____
ESCI	341	Atmos. Thermodynamics	3.0	____	____
ESCI	342	Atmos. Dynamics I	3.0	____	____

EARTH SCIENCE ELECTIVES (6.0 credits)

Course No.	Short Title	C.H.	Grade	Q.P.

Any ESCI 34X or 44X course that would count toward the B.S. Meteorology program. ESCI 385 and ESCI 485 would also apply.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Oceanography

Minor: Oceanography
Department: Earth Sciences

Total credit hours required: 19.0 minimum

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward the major may be counted toward the minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major. (Exceptions have been approved for specific departments including Earth Sciences. Please see departments for specific combinations).

REQUIRED EARTH SCIENCES COURSES (16.0 credits)

Required Earth Science Course (4.0 credits)

Course No.	Short Title	C.H.	Grade
ESCI 261	Intro to Oceanography	4.0	____

Required Core Courses (6.0 credits)

Choose two courses from the following:

Course No.	Short Title	C.H.	Grade
ESCI 362	Marine Geology	3.0	____
ESCI 363	Chemical Oceanography	3.0	____
ESCI 369	Physical Oceanography	3.0	____
ESCI 465	Biological Ocean.	3.0	____

Required Methods Courses (6.0 credits)

Choose two courses from the following:

Course No.	Short Title	C.H.	Grade
ESCI 267	Field Methods in Ocean.	3.0	____
ESCI 282	Computer App. in ESCI	3.0	____
ESCI 380	Remote Sensing	3.0	____
ESCI 386	Scientific Prog, Analy & Vis	3.0	____
ESCI 466	Coastal Env Ocean.	3.0	____

EARTH SCIENCE ELECTIVE (3.0 credits)

Choose one course from the following:

Course No.	Short Title	C.H.	Grade
ESCI 366	Ocean Resources	3.0	____
ESCI 385	Global Change	3.0	____
ESCI 445	Num. Modeling	3.0	____
ESCI 464	Ocean Ecosystems	3.0	____
ESCI 468	Ocean Data Analy. & Present	3.0	____
ESCI 485	Air/Sea Interaction	3.0	____

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

BROADCAST COMMUNICATION OPTION

The following sequence of courses is suggested for any Meteorology major that would like to enhance his/her communication skills. It is specifically intended for students who may want to pursue broadcast meteorology as a career. The Communication Department does not offer a minor. This 20-credit option is essentially a minor in broadcast communication.

Recommended Sequence:

COMM 100: 3 s.h. Fundamentals of Speech (Univ Gen Ed Requirement)

COMM 121: 3 s.h. Introduction to Audio and Video

COMM 320: 3 s.h. Radio Production

COMM 321: 3 s.h. Television Production I

COMM 326: 3 s.h. Broadcast Workshop I (W)

ESCI 348: 2 s.h. Broadcast Meteorology

Choose one of the following:

COMM 421: 3 s.h. Television Production II

OR

COMM 426: 3 s.h. Broadcast Workshop II (W)

Please note: If you are planning to pursue this option, it is imperative that you notify your Earth Sciences advisor. The COMM courses listed here are generally not open to students outside the COMM major, so in order for you to be allowed to register for any COMM course beyond COMM 100, the communications department will have to be notified through your advisor.

For more information see: http://www.millersville.edu/commtheatre/

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Environmental Chemistry

Minor: Environmental Chemistry
Department: Chemistry

Total credit hours required: 20.0 minimum

Regulations Governing Minor Course Work:

1. There shall be a minimum of 20.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward your major may be counted toward your minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major.

Course No.	Short Title	C.H.	Grade	Q.P
REQUIRED CHEMISTRY COURSES (20.0-24.0 credits)				
CHEM 111	Intro to Chemistry I	4.0	____	____
CHEM 112	Intro to Chemistry II	4.0	____	____
CHEM 375	Environ. Chemistry	4.0	____	____
CHEM 476	Environ. Chemistry II	4.0	____	____
CHEM 231	Organic Chemistry I	4.0	____	____
CHEM 232	Organic Chemistry II	4.0	____	____
	or			
CHEM 235	Organic Chemistry	4.0	____	____

Course No.	Short Title	C.H.	Grade	Q.P
CHEMISTRY ELECTIVES (0-4.0 credits)				
CHEM 265	Quant. Analysis	4.0	____	____

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

MILLERSVILLE UNIVERSITY

Student Name:_____ Student I.D. #:_____

Curriculum Record Form for an Academic Minor in Government & Political Affairs

Minor: Government & Political Affairs Total credit hours required: 18.0 minimum
Department: Government & Political Affairs

Regulations Governing Minor Course Work:

1. There shall be a minimum of 18.0 credit hours with a minimum Millersville QPA of 2.0.
2. Only one course which counts toward your major may be counted toward your minor.
3. Courses that count toward a minor are also eligible to be used to satisfy the current University-wide General Education requirements subject to normal distribution requirements.
4. At least two courses should be at the upper-division level (300-400). Exceptions may be requested upon evidence of program depth.
5. No course needed for the minor may be taken Pass-Fail.
6. One-half or more of the work required for the minor must be completed at Millersville University.
7. No student may minor in his or her major.

Course No.	Short Title	C.H.	Grade
REQUIRED GOVERNMENT COURSES (6.0 credits)			
Choose 3.0 credit hours of American Politics:			
GOVT ___	_____	3.0	____
Choose 3.0 credit hours of International or Comparative Politics:			
GOVT ___	_____	3.0	____
NOTE:			
1. All GOVT courses may count toward the major.			
2. No more than three (3) 100 level courses may be taken.			

Course No.	Short Title	C.H.	Grade
ELECTIVES (12.0 credits)			
Choose 12.0 credit hours of Government electives in consultation with your adviser.			
GOVT ____	_____	3.0	____
GOVT ____	_____	3.0	____
GOVT ____	_____	3.0	____
GOVT ____	_____	3.0	____

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your adviser to be aware of changes and curriculum details which are not incorporated on this form.*

DEPARTMENT OF EARTH SCIENCES
STUDENT LEARNING OUTCOMES

- Exhibit knowledge and understanding of the Earth system specific to their discipline.
- Demonstrate quantitative skills appropriate to their Earth Sciences discipline.
- Demonstrate proficiency in the application of tools and skills appropriate to their discipline.
- Demonstrate effective oral and written communication skills appropriate to their discipline.
- Demonstrate a broad understanding of the scientific method to address and solve problems.

Effective Fall Semester, 2018

MILLERSVILLE UNIVERSITY

General Education Curriculum Guide *(Purple Sheet)*

Student Name:_____ **Student I.D. #_____**

Critical Thinking Across the Liberal Arts (G1-G3)

General Guidelines:

- Only approved General Education (GenEd) courses may be used.
- Courses must be taken from at least two departments within each G1, G2, and G3 block.
- No more than two courses can be taken from any one department throughout the G1, G2, and G3 blocks.
- At least three courses taken throughout blocks G1, G2 &/or G3 must be at the 200 level or above.
- Up to six "Required Related" courses may be counted toward GenEd requirements.
- Courses from the primary major may not fulfill the G1, G2, and G3 blocks; courses from a minor or secondary major may fulfill these blocks.

G1. Humanities and Fine Arts: Three courses minimum totaling at least 9 credit hours.

G1 courses typically occur within the following departments: Art, Communications & Theatre, English, Foreign Language (which includes HUMN courses), Music or Philosophy. Students majoring in a Humanities & Fine Arts department may not count courses from the major department in this block.

Subject/Course#	Course Title	Cr. Hrs.	Grade
1.			
2.			
3.			

G2. Science and Mathematics: Three courses minimum totaling at least 9 credit hours.

G2 courses typically occur within the following departments: Biology, Chemistry, Computer Science, Earth Sciences, Mathematics, Nursing or Physics. Students majoring in a Science or Mathematics department may not count courses from the major department in this block.

Additional Guidelines:

- At least two courses must be taken from the "natural sciences": Biology, Chemistry, Earth Sciences and Physics. This can be two courses from any one of these departments **OR** one course from any two of these departments.
- One course taken within the G2 block must be a Lab course.

Subject/Course#	Course Title	Cr. Hrs.	Grade	✓ 2 from Natural Sci.	✓ 1 Lab Course
1.					
2.					
3.					

G3. Social Sciences: Three courses minimum totaling at least 9 credit hours.

G3 courses typically occur within the following departments: African-American Studies, Anthropology, Business Administration, Economics, Geography, Government, History, International Studies, Occupational Safety & Environmental Health, Psychology, Sociology, Social Work/Gerontology, or Women's Studies. Students majoring in the Social Sciences areas may not count courses from their major department in this block.

Subject/Course#	Course Title	Cr. Hrs.	Grade
1.			
2.			
3.			

Additional General Education Requirements

Foundations for Lifelong Learning (4 courses minimum 12 credit hours)

This category requires: **1. ENGL 110, 2. COMM 100, 3. GenEd (G2) approved Mathematics course (MATH 1XX), and 4. Advanced Writing (AW) course (ENGL 311, 312, 313, 316, 318, or 319).**

Guidelines:

- ENGL 110 must be completed with a grade of C- or better.
- COMM 100 must be completed with a grade of C- or better.
- The upper level writing (AW) course has a prerequisite of ENGL 110 (C- or better) and a minimum of 60 credit hours completed. Many majors recommend or require a specific AW course. Check the catalog for further details.
- G2 Math course must be different from that used towards the G2 block in the Liberal Arts Core.

Subject/Course#	Course Title	Cr. Hrs.	Grade
1. ENGL 110	English Composition	3.0	
2. COMM 100	Fundamentals of Speech	3.0	
3. MATH			
4. ENGL 31X			

Connections & Exploration Courses (minimum 9 credit hours)

Guidelines/Prerequisites:

1. **First-Year Inquiry (FYI) Seminar – UNIV 103 (3 credit hours) or Open Elective (3 credit hours)**
   - Open electives must be 100 level or above and must be taken outside of primary major.
   - For BSE students, required professional education courses **cannot** count as open electives.
2. **Perspectives (P) Course (3 credit hours)**
   - May be satisfied with approved courses from the major, the minor, the required related area, or general electives.
   - ENGL 110 and COMM 100 completed with grades of C- or better.
   - Minimum of 60 credit hours completed.
3. **Wellness/Health Education course (3 credit hours)**
   - Any WELL 175 course will fulfill this requirement.
   - Early Childhood Education or Early Childhood/Special Education majors are required to take WELL 240.

Subject/Course#	Course Title	Cr. Hrs.	Grade
1.			
2.			
3.			

Cultural Diversity & Community (D) Course

- May be satisfied with approved courses from the GenEd requirements (including Perspectives), the major, the minor, the required related area, or general electives.

Subject/Course#	Course Title	Cr. Hrs.	Grade
1.			

Writing Intensive (W) Courses (3 courses)

Guidelines/Prerequisites:

- May be satisfied with approved courses from the GenEd requirements, the major, the minor, the required related area, or general electives.
- ENGL 110 must be completed with a grade of C- or better.

Subject/Course#	Course Title	Cr. Hrs.	Grade
1.			
2.			
3.			

Developmental Courses (COMM 010, EDUC 090, ENGL 010, MATH 090)

These do not count toward the 120 credit hours required for graduation.

Revised by L. Lynn Marquez 8/17/2018

Student Organizations

Geology Club
https://getinvolved.millersville.edu/organization/geologyclub

The Geology Club is an organization devoted to the study of geology beyond the classroom. In addition to fundraising and hosting guest speakers, there are local and extended trips planned throughout the United States. The club meets biweekly during the semester, and all Millersville students are welcome to join.

Ocean Science Club
https://getinvolved.millersville.edu/organization/oceanscienceclub

The Ocean Science Club is open to any student who has an interest in the marine sciences. Students meet weekly to discuss current topics in the marine sciences, sponsor special lectures and go on field trips.

American Meteorological Society
http://snowball.millersville.edu/~ams/

American Meteorological Society's Millersville University Chapter has a membership of over 70 students and is open to all Millersville students. Activities and events, including attending conferences, are scheduled for each semester. In addition, the Chapter hosts a number of guest speakers who present relevant topics during the course of the year. An annual banquet is held in the spring semester.

Campus Weather Service

The Campus Weather Service is a student-run forecast service that issues forecasts at 9:00 AM, 2:00 PM and 7:00 PM EST Monday through Friday and at approximately 9:30 AM on the weekends. Students are paired, freshman or sophomore with a junior or senior, and are responsible for issuing local forecasts. The Weather Station is located in Caputo 401.

Honors and Awards

1. *Earth Sciences Award for Academic Excellence in Liberal Arts*
   The name of the outstanding Earth Sciences' senior will be inscribed on a plaque permanently housed in Brossman Hall.

2. *Earth Sciences Award for Academic Excellence in Secondary Education*
   The name of the outstanding Earth Sciences' senior will be inscribed on a plaque permanently housed in Brossman Hall.

Scholarships

1. *Dr. William B. McIlwaine Endowed Scholarship in Earth Sciences*
   Awarded to a student majoring in the Earth Sciences who has completed 60 semester hours of academic credit at Millersville University with a GPA of 3.2 or higher and demonstrates financial need. Scholarship is awarded in the spring semester.

2. *Paul H. Nichols Earth Sciences Scholarship*
   Awarded to a junior who is chosen on the basis of outstanding motivation and academic excellence. Scholarship is awarded in the spring semester.

3. *Rettew Associates Scholarship in Geology*
   Awarded to an outstanding student majoring in Earth Sciences (Geology) with a GPA of 3.0 or higher.

4. *Clark-Yalda Scholarship in Atmospheric Science*
   Awarded to an incoming freshman majoring in Meteorology. The recipient must be in the top 25% of her or his high school class and show evidence of strong science and mathematics skills demonstrated by a combination of class work and standardized tests. First preference is to a student from outside of Pennsylvania who is also of an under-represented group; otherwise a qualifying out-of-state student; otherwise an under-represented student from Pennsylvania; and finally, a qualifying student from Pennsylvania. (Gender is not to be considered an under-represented category unless a particular gender falls below 30% of total enrollment in meteorology.)

5. W*illiam Malcolm Jordan Earth Sciences Scholarship*
   Awarded to an incoming freshman student planning to major in Geology or in Earth Sciences with a Geology emphasis. It will be awarded for the first year of study only. Preference is to be given to graduates of Penn Manor High School, secondly to students entering from other school districts in Pennsylvania, and lastly from any school district in that order.

Scholarships

The department is pleased to announce the establishment of five new scholarships.

6. *Scott and Deborah Jacobs Meteorology Scholarship*
   Awarded to a returning Millersville University student majoring in Meteorology; has completed at least 15 credits; is in good academic standing with first preference to a student with a minimum cumulative GPA of 3.25 and the consideration of financial aid (not required). The first recipient for this scholarship will be selected for the 2020-2021 academic year.

7. *James and Judith Hower Scholarship in the Earth Sciences*
   Awarded to a junior or senior Millersville University student with a major in the Department of Earth Sciences and who is in good academic standing with first preference to a student with a minimum cumulative GPA of 3.25 and the consideration of financial aid (not required). The first recipient for this scholarship will be selected for the 2020-2021 academic year.

8. *Harry A. '65 and Carolyn J. Lohss Geology Scholarship*
   Awarded annually to a full-time student pursuing a major in Geology. If recipient is a freshman, the student should have a GPA of at least 3.0 on a 4.0 scale. If awarded to other than a freshman, the recipient must have a GPA of 3.0 or greater. Financial need is a consideration but not a requirement. With the annual approval of the Earth Sciences department chair or designee, the scholarship may be renewed annually for a maximum six additional semesters beyond the freshman year provided the student continues to maintain a departmental and overall GPA of 3.0 or greater. The first recipient for this scholarship will be selected for the 2020-2021 academic year.

9. *Harry A. '65 and Carolyn J. Lohss Meteorology Scholarship*
   Awarded annually to a full-time student pursuing a major in Meteorology. If recipient is a freshman, the student should have a GPA of at least 3.0 on a 4.0 scale. If awarded to other than a freshman, the recipient must have a GPA of 3.0 or greater. Financial need is a consideration but not a requirement. With the annual approval of the Earth Sciences department chair or designee, the scholarship may be renewed annually for a maximum six additional semesters beyond the freshman year provided the student continues to maintain a departmental and overall GPA of 3.0 or greater. The first recipient for this scholarship will be selected for the 2020-2021 academic year.

10. *Dr. Charles Scharnberger Geology Scholarship*
    Awarded to one or more junior or senior students majoring in Geology and in good academic standing. First preference to a student(s) with a minimum cumulative GPA of 3.25. Financial aid is a consideration but not required. The scholarship is renewable at the discretion of the Dean but not automatically renewed.

Sources of Information

On-Line Information:

1. Millersville University Home Web Page: www.millersville.edu
2. Admissions Web Page: www.millersville.edu/admissions/
3. Registrar's Web Page: www.millersville.edu/registrar/
   (The Undergraduate Catalog can be found on this site.)
4. Financial Aid: www.millersville.edu/finaid/
5. Office of Student Accounts: http://www.millersville.edu/osa/
   (Tuition and fees can be found on this site)

Offices:

1. Admissions Office 717-871-4625
   Lombardo Welcome Center
2. Athletics 717-871-7694
   Jefferson Hall
3. Office of Student Accounts.....717-871-5101
   Lyle Hall
4. Financial Aid 717-871-5100
   Lyle Hall
5. Learning Services 717-871-5554
   Lyle Hall
6. Registrar's Office 717-871-5005
   Lyle Hall

Millersville University

Your link

to the future.....

www.millersville.edu/esci/

Earth Sciences Geology Meteorology

Ocean Sciences & Coastal Studies

Earth Sciences Education