



B.S. Geoscience Handbook

Department of Earth and Space Sciences



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B.S. GEOSCIENCE MAJOR, EARTH SYSTEMS CONCENTRATION (120 CREDITS)

Name:	Semester Admitted to WCU: Major Declared Date:	FOR STUDENTS ADMITTED in AY 2025-26			
	CREDITS	COURSE	SEMESTER	GRADE	REP/W*
GENERAL EDUCATION AND ADDITIONAL BACCALAUREATE REQUIREMENTS (34 CREDITS)					
FIRST-YEAR EXPERIENCE (FYE 100)	4				
WRT120 or WRT 123	3				
WRT 200, or 204, or 205, or 206, or 208, or 220	3				
WRITING "W" EMPHASIS: 9 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS 201, ESS 204, AND ESS 331				
ETHICS "E" COURSE: 3 CREDITS	FULFILLED BY ESS 343 HYDROGEOLOGY				
DIVERSE COMMUNITIES "J" COURSE: 3 CREDITS	3				
INTERDISCIPLINARY "I" COURSE: 3 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS/SCB/ENV 102 OR SCB 210				
MATH (3 CREDITS) AND SCIENCE (6 CREDITS)	FULFILLED BY MAJOR REQUIREMENTS				
BEHAVIOR & SOCIAL SCI. (6 CREDITS FROM <u>TWO</u> OF THE FOLLOWING AREAS: ANT SOC PSY ECO GEO PSC)	3				
	3				
HUMANITIES (6 CREDITS FROM <u>TWO</u> OF THE FOLLOWING AREAS: LIT CLS HIS PHI)	3				
	3				
ARTS (ART, CINEMATOGRAPHY, MUSIC, PHOTOGRAPHY, THEATRE)	3				
SPEAKING "S" EMPHASIS: 9 CREDITS AT ANY LEVEL (3 CREDITS ARE FULFILLED BY ESS 499).	FULFILLED IN ESS 499				
	3				
	3				
CAPSTONE EXPERIENCE:	FULFILLED IN ESS 499				
MATH (6 OR 7 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
MAT 115 or MAT 131 or MAT 145 or MAT 161	3 or 4				
MAT 121 — Statistics I	3				
SCIENCE COGNATES (11 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
BIO 110 — General Biology	3				
CHE 103 — General Chemistry I	3				
CRL 103 — Experimental General Chemistry I	1				
Recommend CHE 104 — General Chemistry II					
Recommend CRL 104 — Experimental General Chemistry II					
PHY 130 — General Physics I or PHY 170 — Physics I	4				
Recommend PHY 140 — General Physics II or PHY 180 — Physics II					
CORE REQUIREMENTS (36 CREDITS) — AND WHEN OFFERED: A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS 101 — Introduction to Geology — both semesters	3	ESS 101			
ESS 201 — Field Geology (W) — both semesters	3	ESS 201			
ESS 204 — Historical Geology (W) — both semesters	3	ESS 204			
ESS 301 — Environmental Geochemistry — spring	3	ESS 301			
ESS 302 — Mineralogy — fall	3	ESS 302			
ESS 331 — Paleontology (W) — fall	3	ESS 331			
ESS 343 — Geomorphology — spring	3	ESS 343			
ESS 405 — Igneous and Metamorphic Petrology — spring	3	ESS 405			
ESS 420 — Structural Geology — spring	3	ESS 420			
ESS 439 — Hydrogeology — spring	3	ESS 439			
ESS 450 — Sedimentology and Stratigraphy — fall	3	ESS 450			
ESS 499 — Geoscience Capstone — spring	3	ESS 499			
ADDITIONAL REQUIREMENTS (14 CREDITS) A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS/SCB/ENV 102 — Humans & the Environment, or SCB 210 (I)	3				
ESS 311 — Introduction to Astronomy — spring	3	ESS 311			
ESS 330 — Introduction to Oceanography fall, spring	3	ESS 330			
ESS 370 — Introduction to Meteorology — fall	3	ESS 370			
ESS 347 — Seminar — fall	1	ESS 347			
ESS 447 — Seminar — fall	1	ESS 447			
ELECTIVE COURSES — 6 CREDITS OF ANY 300 - 400 LEVEL ESS COURSES (GRADE OF C- OR HIGHER) PLUS OTHER ELECTIVES TO COMPLETE A TOSPRINGTAL OF 120 CREDITS					
ESS elective at 300-400 level	3				
ESS elective at 300-400 level	3				
Other electives to achieve 120 credits — 12 or 13 credits (120 credits required for all baccalaureate degrees)	3				
	3				
	3				
	3				

Interdisciplinary "I" course cannot be applied as a distributive requirement (Science, Humanities, or Behavioral & Social Science)

B.S. Geoscience, Earth Systems Concentration – SUGGESTED sequence

	Fall	Spring
YEAR 1 32 credits	ESS 101 (3) ESS 102 or SCB 210 "I" course (3) MAT 115 or 121 (3) WRT 120 or WRT 123 (3) FYE 100 (4)	MAT 115 or 121 (3) WRT 200 204 205 206 208 or 220 (3) ESS 201 or 204 "W" course (3) CHE/CRL 103 (4) Gen Ed Soc/Behav (3)
YEAR 2 30 or 31 credits	ESS 201 or 204 "W" course (3) ESS 302 (3) Gen Ed Hum (3) Gen Ed "J" course (3) Gen Ed "S" course (3)	ESS 301 (3) BIO 110 (3) or PHY 130 (4) Gen Ed Soc/Behav (3) Gen Ed Hum (3) Elective (3)
YEAR 3 31 or 32 credits	ESS 331 "W" course (3) ESS 330 (3) ESS 347 (1) ESS 370 (3) BIO 110 (3) or PHY 130 (4) Gen Ed "S" course (3)	ESS 311 (3) ESS 343 (3) ESS 405 (3) ESS 420 (3) Gen Ed "S" course (3)
YEAR 4 26 credits	ESS 447 (1) ESS 450 (3) Upper-Level ESS elective (3) Gen Ed Art (3) Elective (3)	ESS 499 (3) ESS 439 (3) Upper-Level ESS elective (3) Elective (3)

See the Undergraduate Catalog for a complete listing and descriptions of approved General Education courses.
<https://catalog.wcupa.edu/undergraduate/general-education-requirements/>

NOTES:

B.S. GEOSCIENCE MAJOR, GEOLOGY CONCENTRATION (120 CREDITS)

Name:	Semester Admitted to WCU: Major Declared Date:	FOR STUDENTS ADMITTED in AY 2025-2026			
	CREDITS	COURSE	SEMESTER	GRADE	REP/W*
GENERAL EDUCATION AND ADDITIONAL BACCALAUREATE REQUIREMENTS (34 CREDITS)					
FIRST-YEAR EXPERIENCE (FYE 100)	4				
WRT120 or WRT 123	3				
WRT 200, or 204, or 205, or 206, or 208, or 220	3				
WRITING "W" EMPHASIS: 9 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS 201, ESS 204, AND ESS 331				
ETHICS "E" COURSE: 3 CREDITS	FULFILLED BY ESS 439 HYDROGEOLOGY				
DIVERSE COMMUNITIES "J" COURSE: 3 CREDITS	3				
INTERDISCIPLINARY "I" COURSE: 3 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS/SCB/ENV 102 OR SCB 210				
MATH (3 CREDITS) AND SCIENCE (6 CREDITS)	FULFILLED BY MAJOR REQUIREMENTS				
BEHAVIOR & SOCIAL SCI. (6 CREDITS FROM TWO OF THE FOLLOWING AREAS: ANT SOC PSY ECO GEO PSC)	3				
	3				
HUMANITIES (6 CREDITS FROM TWO OF THE FOLLOWING AREAS: LIT CLS HIS PHI)	3				
	3				
ARTS (ART, CINEMATOGRAPHY, MUSIC, PHOTOGRAPHY, THEATRE)	3				
SPEAKING "S" EMPHASIS: 9 CREDITS AT ANY LEVEL; 3 ARE FULFILLED BY ESS 499	FULFILLED IN ESS 499				
	3				
	3				
CAPSTONE EXPERIENCE	FULFILLED IN ESS 499				
MATH (6 OR 7 CREDITS) AND COMPUTER SKILLS (3 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
MAT 115 or MAT 131 or MAT 143 or MAT 145 or MAT 161	3 or 4				
MAT 121 — Statistics I	3				
ESS 321 — Geometrics, or GEO 324 or GEO 325 — GIS, or CSC 115 or higher — Computer Science	3				
SCIENCE COGNATES (8 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
Recommend BIO 110 — General Biology					
CHE 103 — General Chemistry I	3				
CRL 103 — Experimental General Chemistry I	1				
Recommend CHE 104 — General Chemistry II					
Recommend CRL 104 — Experimental General Chemistry II					
PHY 130 — General Physics I or PHY 170 — Physics I	4				
Recommend PHY 140 — General Physics II or PHY 180 — Physics II					
CORE REQUIREMENTS (36 CREDITS) — AND WHEN OFFERED: A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
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ESS 201 — Field Geology (W) — both semesters	3	ESS 201			
ESS 204 — Historical Geology (W) — both semesters	3	ESS 204			
ESS 301 — Environmental Geochemistry — spring	3	ESS 301			
ESS 302 — Mineralogy — fall	3	ESS 302			
ESS 331 — Paleontology (W) — fall	3	ESS 331			
ESS 343 — Geomorphology — spring	3	ESS 343			
ESS 405 — Igneous and Metamorphic Petrology — spring	3	ESS 405			
ESS 420 — Structural Geology — spring	3	ESS 420			
ESS 439 — Hydrogeology — spring	3	ESS 439			
ESS 450 — Sedimentology and Stratigraphy — fall	3	ESS 450			
ESS 499 — Geoscience Capstone — spring	3	ESS 499			
ADDITIONAL REQUIREMENTS (5 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS/SCB/ENV 102 — Humans & the Environment, or SCB 210 (I)	3				
ESS 347 — Seminar — fall	1	ESS 347			
ESS 447 — Seminar — fall	1	ESS 447			
ELECTIVE COURSES — 9 CREDITS OF ANY 300 - 400 LEVEL ESS COURSES (GRADE OF C- OR HIGHER) PLUS OTHER ELECTIVES TO COMPLETE A TOTAL OF 120 CREDITS					
ESS elective at 300-400 level	3				
ESS elective at 300-400 level	3				
ESS elective at 300-400 level	3				
Other electives to achieve 120 credits — 18 or 19 credits (120 credits required for all baccalaureate degrees)	3				
	3				
	3				
	3				
	3				

Interdisciplinary "I" course cannot be applied as a distributive requirement (Science, Humanities, or Behavioral & Social Science)

B.S. Geoscience, Geology Concentration – SUGGESTED sequence

	Fall	Spring
YEAR 1 32 credits	ESS 101 (3) ESS/SCB/ENV 102 "I" course (3) WRT 120 or WRT 123 (3) FYE 100 (4) Gen Ed Hum (3)	MAT 121 (3) WRT 200 204 205 206 208 or 220 (3) ESS 201 or 204 "W" course (3) CHE/CRL 103 (4) Gen Ed Soc/Behav (3)
YEAR 2 30 or 31 credits	ESS 201 or 204 "W" course (3) ESS 302 (3) Gen Ed Hum (3) Gen Ed "J" course (3) Elective (3)	ESS 301 (3) PHY 130 (4) Gen Ed Soc/Behav (3) Elective (3) MAT 143 (3) or MAT 161 (4)
YEAR 3 31 credits	ESS 331 "W" course (3) ESS 347 (1) Upper-Level ESS elective (3) Gen Ed "S" course (3) Gen Ed Art (3) Elective (3)	ESS 343 (3) ESS 405 (3) Upper-Level ESS elective (3) Elective (3) Elective (3)
YEAR 4 28 credits	ESS 447 (1) ESS 450 (3) Upper-Level ESS elective (3) Gen Ed "S" course (3) Elective (3)	ESS 420 (3) ESS 439 "E" course (3) ESS 499 "S" course (3) Elective (3) Elective (3)

See the Undergraduate Catalog for a complete listing and descriptions of approved General Education courses.
<https://catalog.wcupa.edu/undergraduate/general-education-requirements/>

NOTES:

Undergraduate Course Rotation

Every Semester

- ESS 101 Introduction to Geology, including Summer
- ESS 102 Humans and the Environment
- ESS 201 Field Geology
- ESS 204 Historical Geology
- ESS 330 Oceanography
- ESS 460 Internship, including Summer
- ESS 491 Independent Studies, including Summer

Fall of Even Years

- ESS 307 Geology of the Solar System
- ESS 549 Advanced Hydrogeology – Note: Graduate only section; must be enrolled in Accelerated Program (see page 14)

Fall of Odd Years

- ESS 355 Intermediate Astronomy
- ESS 490 Soils

Spring of Even Years

- ESS 371 Advanced Meteorology
- ESS 435 Remote Sensing

Spring of Odd Years

- ESS 332 Advanced Oceanography
- ESS 362 History of Astronomy
- ESS 442 Geophysics

Every Fall

- ESS 302 Mineralogy
- ESS 321 Geometrics
- ESS 331 Paleontology
- ESS 347/447 Earth and Space Science Seminar
- ESS 370 Introduction to Meteorology
- ESS 450 Sedimentology & Stratigraphy

Every Spring

- ESS 301 Geochemistry
- ESS 311 Introduction to Astronomy
- ESS 343 Geomorphology
- ESS 336 Environmental Geology
- ESS 405 Petrology
- ESS 420 Structural Geology
- ESS 439 Hydrogeology
- ESS 499 Professional Geology (Capstone)

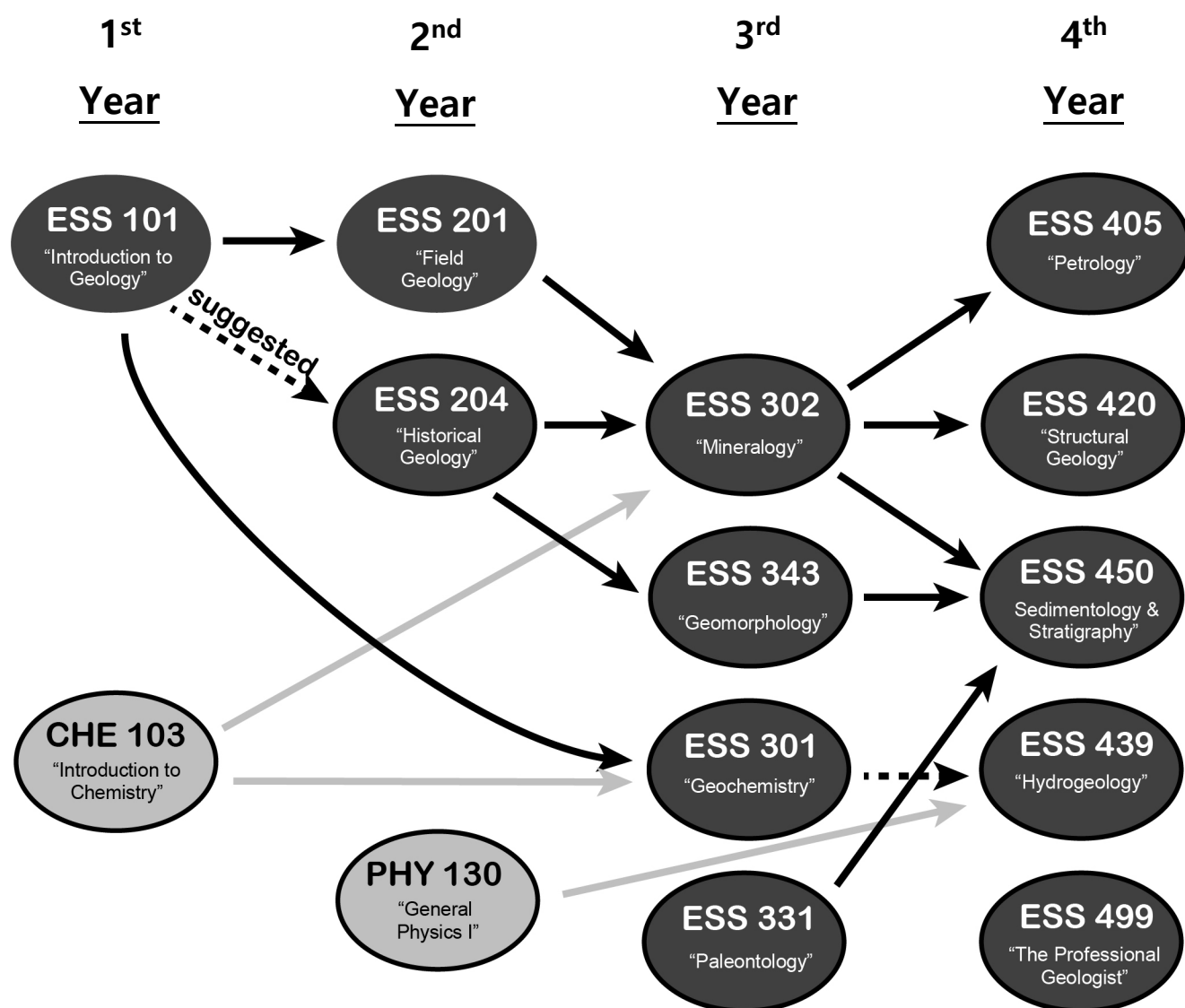
Every Summer

- ESS 323 Field Geology of Southeastern PA

Courses Offered Outside of Rotation

- ESS 344 Advanced Geomorphology
- ESS 355 Intermediate Astronomy
- ESS 362 History of Astronomy
- ESS 394 Geology of National Parks
- ESS 448 International Geology Field Studies
- ESS 480 Special Topics

CORE PREREQUISITE COURSE PATHS



ADVISING NOTES

- It is ultimately your responsibility to understand the rules and take the correct sequence of courses to graduate on time!
- Use your **Degree Audit** In RamPortal
 - 120 credits is the magic number
 - Some courses, such as developmental (e.g., MATQ20) or repeated classes don't count
 - Be careful of courses that are less than 3 credits
 - The Degree Audit will **always** have the correct number of credits
- Department advising sheets
 - Use the one found on Page 2 (Earth Systems Concentration) or Page 4 (Geology Concentration)
 - Add courses and grades at the end of each semester
 - Bring with you to advising appointments
- When do I schedule courses?
 - Check RamPortal or Navigate (you should receive an email or text update)
 - The "enrollment appointment" is NOT the appointment with your advisor
 - **You need to make the appointment to meet with your advisor**
 - Email your advisor and request a time, preferably during office hours; provide information about your schedule if needed

COURSE REQUIREMENT NOTES: Non-Core Courses

- General Education distributive requirements:

- Required of all students
- Must take the **approved** General Education courses (see the [Undergraduate Catalog](#))
- You cannot take Gen. Ed. courses Pass/Fail
- The science and math distributive requirements are automatically fulfilled within the Geoscience major
- **TRANSFERS**: can transfer in other courses different from the approved list if the prefix transfers as ANT, PSY, SOC, ECO, GEO, PSC, LIT, CLS, HIS, PHI, and the Arts
- However, there must be:
 - 2 **different** prefixes from the Behavioral/Social Sciences (ANT, PSY, SOC, ECO, GEO, PSC), and
 - 2 **different** prefixes from the Humanities (LIT, CLS, HIS, PHI)

- Writing requirements:

- Start where you need to start in writing – build a solid foundation
- Take Gen. Ed. writing courses (**WRT 120** and **WRT 200-level**) your first year
- Difficult to transfer in 200-level writing courses; expectations of amount and kind of writing by the English Department
- Also, 3 Writing Emphasis (**W**) courses -- this is different from the WRT 120/200 requirement! -- are required
- The W requirement is fulfilled within the Geoscience major via ESS 201, 204, and 331
- If you take one of these courses elsewhere, it will NOT transfer in with the W designation.



- Speaking Emphasis

- Students must complete 9 credits of Speaking Emphasis (**S**) coursework, 3 credits of which must be at the 300-400 level.
- ESS 499 The Professional Geologist fulfills the 400-level **S** requirement
- ESS 365 The Science and Media Connection is recommended

TRANSFER STUDENTS who enter with:

- 40-70 transfer credits take 2 W and 2 S courses
- > 70 transfer credits take 1 W and 1 S course

- Other Gen. Ed. requirements:

- 1 Interdisciplinary (**I**) course is required
 - Fulfilled within our major via ESS 102 (Humans & the Environment)
 - I course can only be applied toward the Interdisciplinary requirement. It **cannot** fulfill a Gen. Ed. distributive requirement
- 1 Diverse Communities (social justice) (**J**) course is required
 - You **must** take at WCU. It is (almost) impossible to transfer in a J course from another university
 - J course **can** also count as a Gen. Ed. distributive requirement
- 1 Ethics (**E**) course is required.
 - Fulfilled within our major via ESS 439 (Hydrogeology)

- **Math requirement:**

- Start with the math course that best fits your skills and comfort level
- Complete **MAT 115** (Algebra, Functions, and Trigonometry) within the first year of entering major since it is needed for CHE, PHY, and ESS courses
 - For the Earth Systems concentration: Register for the MAT 115 section set aside for BIO/ESS majors
- Do not expect to substitute MAT 113 (Algebra and Functions) for MAT 115.
- You can substitute MAT 131 (Pre-calculus) for MAT 115, but you will not get review of trigonometry
- **TRANSFERS:**



- If you have **not** taken a math course in college, you must take the math placement exam. Prepare for the exam, and take it seriously. You can re-take the exam. More information can be found at:

<https://www.wcupa.edu/sciences-mathematics/mathematics/placementPolicy.aspxx>

- If you **have** transferred a math course, and the equivalent is **BELOW** the required math course on the advising sheet, also take the math placement exam so you can enroll in the most appropriate math course for you.
- If you **have** transferred a math course, and the equivalent is **AT or ABOVE** the required math course on the advising sheet, the Chair or advisor will verify the course transfers correctly.
- Students interested in astronomy, meteorology, and/or graduate school should take MAT 161 (Calculus) and beyond.

- **Biology requirement:**



- **BIO 110** -- only required for the Earth Systems concentration
- Some BIO 110 lab sections are closed for block-scheduling

- **Physics requirement:**



- Enroll in **PHY 130** (includes lab, 4 credits)
- Offered in summer during Session 1 only
- Can transfer in; check online "Transfer Equivalency Matrix" to make sure it is PHY 130

- **Chemistry requirement:**



- Enroll in both **CHE 103** and **CRL 103**. You **must** take CHE 103 before or concurrently with CRL 103; you **cannot** take CRL 103 first
- If enrolled in both, you can withdraw from CHE 103 and remain in CRL 103 for credit
- Take CHE 103 as early as possible (it's a prerequisite for ESS 301 and ESS 302)
- However, it is encouraged you take MAT 115 before CHE 103
- Can transfer in; check online "Transfer Equivalency Matrix" to make sure it is CHE 103 and CRL 103

COURSE REQUIREMENT NOTES: Core (ESS) Courses

- Take ESS 301 (Geochemistry) and ESS 302 (Mineralogy) your junior year to graduate on time!
- Your final year will be ESS 450 (Sedimentology & Stratigraphy) in the fall, and ESS 405 (Petrology) and/or ESS 420 (Structural Geology) and/or ESS 439 (Hydrogeology) and ESS 499 (Professional Geologist) in the spring. Note that if you plan to graduate in the fall, you must take ESS 499 the prior Spring semester.
- How to enroll in **ESS 491 (Independent Studies)**:
 - Students can submit a request to earn credits for a course through Independent Study/Individualized Instruction. The student fills out the necessary portion of the form on RamPortal and submits it for approval. Before completing this form, make sure to discuss this option with your advisor and instructor who will oversee and evaluate your work.
 - Refer to the instructions at the following link:
https://www.wcupa.edu/academicEnterpriseSystems/training/ramportal-training/documents/Indepenent_Study_Individualized_Instruction_Form.pdf
- How to enroll in **ESS 460 (Internship)**:
 - Communicate your intent to use an internship opportunity for credit to Dr. Gagne, Department Internship coordinator
 - In the e-mail provide a paragraph summarizing the internship opportunity and emphasizing its relationships to the Geosciences.
 - Also specify the # of credits (1-6). **One (1) credit corresponds to 45 hours of work per semester, including academic activities.**
 - The internship coordinator will then have ESS 460 created for you.
 - Register for the course!
 - Midway through the course, both you and your employer will e-mail your internship coordinator for verification.
 - In order to receive a grade, you will then need to **by the end of the course** write a paper summarizing the internship experience.
 - Your grade will also be based on a letter of evaluation from the employer to the internship coordinator.

ELECTIVE AND MINOR RECOMMENDATIONS

Recommended courses outside the Department:

- ENV 230 (HAZWOPR course). 40-hr course providing training required by OSHA and EPA to work sites where hazardous materials may be stored or used.
- ENV 333 (Water Quality and Health)
- ENV 345 (Risk Assessment)
- ENV 347 (Environmental Regulations)
- ENV 351 (Environmental Toxicology)
- GEO 324 (Introduction to GIS)
- GEO 325 (Business Geographics)
- MAT 162 (Calculus II)
- MAT 311 (Linear Algebra)

Recommended minors:

- | | |
|---|---|
| • Sustainability | • Ecology |
| • Geography & Planning | • Chemistry |
| • Geographic Information Systems | • Physics |
| • Applied Community and Environmental Sustainability (ACES) | • Math |
| | • Environmental Health (if strong CHE/BIO coursework) |

PG LICENSURE

PG licensure is obtained by first passing the Fundamentals of Geology (FG) exam. **You must have taken ESS 201 (Field Geology) and ESS 420 (Structural Geology) to take the FG exam.** Upon successful completion of the FG exam, you become a Geologist-in-Training (GIT).

After 5 years in a working environment (of which 1 year can include graduate school) as a GIT, you become eligible to take the Practice of Geology (PG) exam. **You must also have taken 30 credits of geology courses to take the PG exam.**

Students interested in learning more about licensure may contact the State Registration Board for Professional Engineers, Land Surveyors and Geologists at www.dos.pa.gov/eng.

TRANSFER CREDIT INFORMATION

- Transfer Credit Center
 - **WCU website** → **Current Students** → **Registrar**
- If you want to take a course off-campus. BEFORE you take the class:
 - Check the **Transfer Equivalency Matrix** at the Transfer Credit Center, available here:
<http://www.wcupa.edu/registrar/transferCredit.aspx>
 - Next, download the “**Transfer Credit PERMISSION**” form found here:
[https://www.wcupa.edu/registrar/documents/Transfer Credit Permission FormDec 2017 - EN.pdf](https://www.wcupa.edu/registrar/documents/Transfer%20Credit%20Permission%20FormDec%202017%20-%20EN.pdf)
 - Submit completed form to the Registrar.
 - Enroll in the class; do very well; credits transfer in!
- If you already took the course, and it doesn't transfer in the way you want:
 - Download the “**Transfer Credit APPEAL**” form found here:
<https://www.wcupa.edu/registrar/documents/TransferCreditAppealForm2017-EN.pdf>
 - Take the completed form, with a copy of the course syllabus, to the appropriate Department Chair.
 - Submit completed form to the Registrar.

This information is subject to change as the Registrar is updating forms for electronic submission.

IMPORTANT ACADEMIC NOTES

1. **Academic probation** will occur if your cumulative GPA falls below 2.00.
 - You then must schedule an appointment with your advisor by the beginning of the next semester to develop an Academic Recovery Plan (ARP).
2. A single course may not be repeated more than **twice**.
3. If you *take* and *complete* a course at WCU, you **cannot** repeat the course elsewhere.
4. The Department -- as does the University -- takes **Academic Integrity** seriously.
 - Plagiarism, fabrication, cheating, academic misconduct, facilitating academic dishonesty, and breach of standard of professional ethics constitute violations of academic integrity.
 - If academic integrity is suspected, the faculty member fills out a “Report of Violation of Academic Integrity” form with supporting documentation.

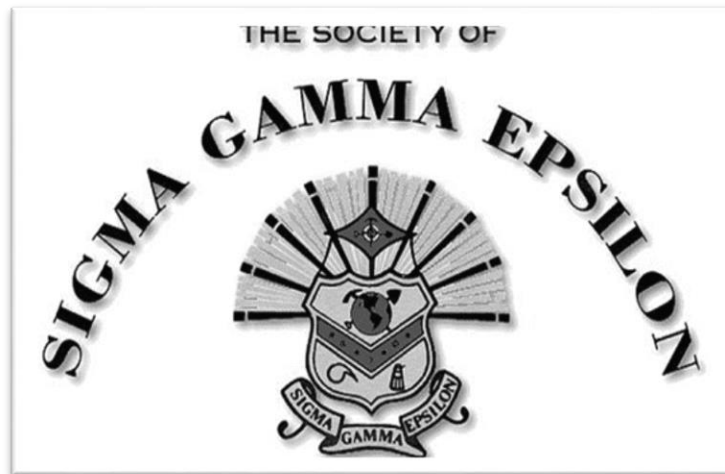
Additional information relating to Academic Integrity can be accessed at:

<http://catalog.wcupa.edu/undergraduate/academic-policies-procedures/academic-integrity>

OTHER DEPARTMENT OPPORTUNITIES

- **Sigma Gamma Epsilon (SGE)**

- Membership to SGE, the national geological honor society, is eligible for Geoscience majors who: a) have taken at least 10 credits in ESS courses, and b) have a GPA of at least 2.67.
- The honor society consists of dozens of active students who hold monthly meetings to organize – and participate in! – events, including camping, hiking, social events, the initiation ceremony, bake sales, and other fund raisers.
- For more information or participation, contact a member of the SGE cabinet.



- **Scholarships**

- Each semester, the Department offers scholarships (typically \$1000) for tuition. Recipients are chosen based on GPA, academic achievement, articulated career goals, and need.
- Advertisements and scholarship applications are disseminated via e-mail midway through the semester.

- **Professional Development Grants**

- In addition, the Department offers professional development grants (typically \$500 each) for students who wish to pursue -- and present -- research projects.
- Professional Development Grants have a rolling deadline to accommodate the calendar of professional meetings and conferences.

ACCELERATED OPTION **TOWARD THE M.S. GEOSCIENCE DEGREE**

Students earning a B.S. Geoscience degree from West Chester University have the option to complete the M.S. Geoscience degree during their 5th year.

Program Overview:

1. Enroll in the B.S. Geoscience “Accelerated” program your junior year. Directions on how to apply are given below. **You must have a minimum cumulative GPA of 3.0 and have earned at least 60 credits to be accepted.**
2. Take up to 9 credits of graduate substitution courses (a list is included in the B.S. Geoscience Accelerated program advising sheets on the next page) during your 3rd and/or 4th years. These courses will count toward your 120-credit B.S. Geoscience degree.
3. Undergraduates pay undergraduate tuition and applicable fees for graduate substitution courses, and are bound by the undergraduate academic policies and regulations.
4. Upon graduation, you have the option to enroll in the M.S. Geoscience program. **Note: You are not obligated or contracted to remain in the Department to pursue an M.S.**
5. The 9 credits of graduate substitution courses you took as an undergraduate will now count toward your M.S. Geoscience degree.
6. Therefore, you will have 36 – 9, or 27, outstanding graduate credits -- plus the final project -- to complete in the forthcoming year (i.e., Year 5).

For additional policies and information regarding the accelerated program, go to:

- <http://catalog.wcupa.edu/undergraduate/accelerated-programs/>

To Enroll in the Accelerated Program:

1. **In your junior year**, obtain the necessary signatures on the form below, and submit to the Department Graduate Coordinator.
<https://www.wcupa.edu/registrar/documents/AcceleratedProgramEnrollmentRequestForm06.2021EN.pdf>
2. After processing, contact the Graduate Coordinator stating which graduate course(s) in which you would like to enroll. He or she will then give you permission to enroll. **You will need to enroll in the graduate courses yourself.**

To Enroll in the M.S. Geoscience Program:

In your senior year, you will be given the option via RamPortal to pursue your M.S. in Geoscience. If you decide to do so, please click to accept.

ACCELERATED B.S. GEOSCIENCE MAJOR, EARTH SYSTEMS CONCENTRATION (120 CREDITS)

Name:	Semester Admitted to WCU: Major Declared Date:	FOR STUDENTS ADMITTED in AY 2025-26			
	CREDITS	COURSE	SEMESTER	GRADE	REP/W*
GENERAL EDUCATION AND ADDITIONAL BACCALAUREATE REQUIREMENTS (34 CREDITS)					
FIRST-YEAR EXPERIENCE (FYE 100)	4				
WRT120 or WRT 123	3				
WRT 200, or 204, or 205, or 206, or 208, or 220	3				
WRITING "W" EMPHASIS: 9 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS 201, ESS 204, AND ESS 331				
ETHICS "E" COURSE: 3 CREDITS	FULFILLED BY ESS 343 HYDROGEOLOGY				
DIVERSE COMMUNITIES "J" COURSE: 3 CREDITS	3				
INTERDISCIPLINARY "I" COURSE: 3 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS/SCB/ENV 102 OR SCB 210				
MATH (3 CREDITS) AND SCIENCE (6 CREDITS)	FULFILLED BY MAJOR REQUIREMENTS				
BEHAVIOR & SOCIAL SCI. (6 CREDITS FROM TWO OF THE FOLLOWING AREAS: ANT SOC PSY ECO GEO PSC)	3				
	3				
HUMANITIES (6 CREDITS FROM TWO OF THE FOLLOWING AREAS: LIT CLS HIS PHI)	3				
	3				
ARTS (ART, CINEMATOGRAPHY, MUSIC, PHOTOGRAPHY, THEATRE)	3				
SPEAKING "S" EMPHASIS: 9 CREDITS AT ANY LEVEL (3 CREDITS ARE FULFILLED BY ESS 499).	FULFILLED IN ESS 499				
	3				
CAPSTONE EXPERIENCE:	FULFILLED IN ESS 499				
MATH (6 OR 7 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
MAT 115 or MAT 131 or MAT 145 or MAT 161	3 or 4				
MAT 121 — Statistics I	3				
SCIENCE COGNATES (11 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
BIO 110 — General Biology	3				
CHE 103 — General Chemistry I	3				
CRL 103 — Experimental General Chemistry I	1				
Recommend CHE 104 — General Chemistry II					
Recommend CRL 104 — Experimental General Chemistry II					
PHY 130 — General Physics I or PHY 170 — Physics I	4				
Recommend PHY 140 — General Physics II or PHY 180 — Physics II					
CORE REQUIREMENTS (36 CREDITS) — AND WHEN OFFERED: A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS 101 — Introduction to Geology — both semesters	3	ESS 101			
ESS 201 — Field Geology (W) — both semesters	3	ESS 201			
ESS 204 — Historical Geology (W) — both semesters	3	ESS 204			
ESS 301 — Environmental Geochemistry — spring	3	ESS 301			
ESS 302 — Mineralogy — fall	3	ESS 302			
ESS 331 — Paleontology (W) — spring	3	ESS 331			
ESS 343 — Geomorphology — fall	3	ESS 343			
ESS 405 — Igneous and Metamorphic Petrology — spring	3	ESS 405			
ESS 420 — Structural Geology — spring	3	ESS 420			
ESS 439 — Hydrogeology — spring	3	ESS 439			
ESS 450 — Sedimentology and Stratigraphy — fall	3	ESS 450			
ESS 499 — Geoscience Capstone — spring	3	ESS 499			
ADDITIONAL REQUIREMENTS (14 CREDITS) A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS/SCB/ENV 102 — Humans & the Environment, or SCB 210 (I)	3				
ESS 311 — Introduction to Astronomy — spring	3	ESS 311			
ESS 330 — Introduction to Oceanography — fall	3	ESS 330			
ESS 370 — Introduction to Meteorology — fall	3	ESS 370			
ESS 347 — Seminar — fall	1	ESS 347			
ESS 447 — Seminar — fall	1	ESS 447			
GRADUATE ELECTIVE COURSES — CONSULT NEXT PAGE FOR AVAILABLE COURSES (MAXIMUM 9 CREDITS); PLUS OTHER ELECTIVES TO COMPLETE A TOTAL OF 120 CREDITS					
ESS Graduate Substitution Course:	3				
ESS Graduate Substitution Course:	3				
Other electives to achieve 120 credits — 12 or 13 credits (can include one additional ESS Graduate Substitution Course) (120 credits required for all baccalaureate degrees)	3				
	3				
	3				
	3				

Interdisciplinary "I" course cannot be applied as a distributive requirement (Science, Humanities, or Behavioral & Social Science)

B.S. Geoscience, Earth Systems Concentration – SUGGESTED sequence

	Fall	Spring
YEAR 1 32 credits	ESS 101 (3) ESS 102 or SCB 210 "I" course (3) MAT 115 or 121 (3) WRT 120 or WRT 123 (3) FYE 100 (4)	MAT 115 or 121 (3) WRT 200 204 205 206 208 or 220 (3) ESS 201 or 204 "W" course (3) CHE/CRL 103 (4) Gen Ed Soc/Behav (3)
YEAR 2 30 or 31 credits	ESS 201 or 204 "W" course (3) ESS 302 (3) Gen Ed Hum (3) Gen Ed "J" course (3) Gen Ed "S" course (3)	ESS 301 (3) BIO 110 (3) or PHY 130 (4) Gen Ed Soc/Behav (3) Gen Ed Hum (3) Elective (3)
YEAR 3 31 or 32 credits	ESS 343 (3) ESS 347 (1) ESS 311 (3) ESS 330 (3) BIO 110 (3) or PHY 130 (4) Gen Ed "S" course (3)	ESS 311 (3) ESS 331 "W" course (3) ESS 405 (3) ESS 420 (3) Gen Ed "S" course (3)
YEAR 4 26 credits	ESS 447 (1) ESS 450 (3) ESS Graduate Substitution (3) Gen Ed Art (3) Elective (3)	ESS 499 (3) ESS 439 (3) ESS Graduate Substitution (3) ESS Graduate Substitution (3)

See the Undergraduate Catalog for a complete listing and descriptions of approved General Education courses.

<https://catalog.wcupa.edu/undergraduate/general-education-requirements/>

Approved Graduate Substitution Courses

ESS 507 (Geology of the Solar System)
ESS 527 (Electron Microscopy)
ESS 535 (Remote Sensing)
ESS 544 (Geomorphology II)
ESS 549 (Advanced Hydrogeology)
ESS 562 (History of Astronomy)
ESS 580 (Special Problems)
ESS 591 (Independent Studies)
ESS 595 (Geology of SW Nat'l Parks)

ESS 523 (Field Geology)
ESS 532 (Advanced Oceanography)
ESS 542 (Geophysics)
ESS 548 (International Field Studies)
ESS 555 (Intermediate Astronomy)
ESS 571 (Advanced Meteorology)
ESS 590 (Soils)
ESS 594 (Geology of NW Nat'l Parks)
ESS 596 (Earth Systems Science)

B.S. GEOSCIENCE MAJOR, GEOLOGY CONCENTRATION (120 CREDITS)

Name:	Semester Admitted to WCU: Major Declared Date:	FOR STUDENTS ADMITTED in AY 2022-2023			
	CREDITS	COURSE	SEMESTER	GRADE	REP/W*
GENERAL EDUCATION AND ADDITIONAL BACCALAUREATE REQUIREMENTS (34 CREDITS)					
FIRST-YEAR EXPERIENCE (FYE 100)	4				
WRT120 or WRT 123	3				
WRT 200, or 204, or 205, or 206, or 208, or 220	3				
WRITING "W" EMPHASIS: 9 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS 201, ESS 204, AND ESS 331				
ETHICS "E" COURSE: 3 CREDITS	FULFILLED BY ESS 439 HYDROGEOLOGY				
DIVERSE COMMUNITIES "J" COURSE: 3 CREDITS	3				
INTERDISCIPLINARY "I" COURSE: 3 CREDITS (FULFILLED IN MAJOR)	FULFILLED BY ESS/SCB/ENV 102 OR SCB 210				
MATH (3 CREDITS) AND SCIENCE (6 CREDITS)	FULFILLED BY MAJOR REQUIREMENTS				
BEHAVIOR & SOCIAL SCI. (6 CREDITS FROM TWO OF THE FOLLOWING AREAS: ANT SOC PSY ECO GEO PSC)	3				
	3				
HUMANITIES (6 CREDITS FROM TWO OF THE FOLLOWING AREAS: LIT CLS HIS PHI)	3				
	3				
ARTS (ART, CINEMATOGRAPHY, MUSIC, PHOTOGRAPHY, THEATRE)	3				
SPEAKING "S" EMPHASIS: 9 CREDITS AT ANY LEVEL; 3 ARE FULFILLED BY ESS 499	FULFILLED IN ESS 499				
	3				
	3				
CAPSTONE EXPERIENCE	FULFILLED IN ESS 499				
MATH (6 OR 7 CREDITS) AND COMPUTER SKILLS (3 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
MAT 115 or MAT 131 or MAT 143 or MAT 145 or MAT 161	3 or 4				
MAT 121 — Statistics I	3				
ESS 321 — Geometrics, or GEO 324 or GEO 325 — GIS, or CSC 115 or higher — Computer Science	3				
SCIENCE COGNATES (8 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
Recommend BIO 110 — General Biology					
CHE 103 — General Chemistry I	3				
CRL 103 — Experimental General Chemistry I	1				
Recommend CHE 104 — General Chemistry II					
Recommend CRL 104 — Experimental General Chemistry II					
PHY 130 — General Physics I or PHY 170 — Physics I	4				
Recommend PHY 140 — General Physics II or PHY 180 — Physics II					
CORE REQUIREMENTS (36 CREDITS) — AND WHEN OFFERED: A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS 101 — Introduction to Geology — both semesters	3	ESS 101			
ESS 201 — Field Geology (W) — both semesters	3	ESS 201			
ESS 204 — Historical Geology (W) — both semesters	3	ESS 204			
ESS 301 — Environmental Geochemistry — both semesters	3	ESS 301			
ESS 302 — Mineralogy — fall	3	ESS 302			
ESS 331 — Paleontology (W) — both semesters	3	ESS 331			
ESS 343 — Geomorphology — both semesters	3	ESS 343			
ESS 405 — Igneous and Metamorphic Petrology — spring	3	ESS 405			
ESS 420 — Structural Geology — spring	3	ESS 420			
ESS 439 — Hydrogeology — spring	3	ESS 439			
ESS 450 — Sedimentology and Stratigraphy — fall	3	ESS 450			
ESS 499 — Geoscience Capstone — spring	3	ESS 499			
ADDITIONAL REQUIREMENTS (5 CREDITS): A GRADE OF C- OR HIGHER IS REQUIRED IN THESE COURSES.					
ESS/SCB/ENV 102 — Humans & the Environment, or SCB 210 (I)	3				
ESS 347 — Seminar — fall	1	ESS 347			
ESS 447 — Seminar — fall	1	ESS 447			
GRADUATE ELECTIVE COURSES — CONSULT NEXT PAGE FOR AVAILABLE COURSES (MAXIMUM 9 CREDITS); PLUS OTHER ELECTIVES TO COMPLETE A TOTAL OF 120 CREDITS					
ESS Graduate Substitution Course:	3				
ESS Graduate Substitution Course:	3				
ESS Graduate Substitution Course:	3				
Other electives to achieve 120 credits — 18 or 19 credits (120 credits required for all baccalaureate degrees)	3				
	3				
	3				
	3				
	3				

Interdisciplinary "I" course cannot be applied as a distributive requirement (Science, Humanities, or Behavioral & Social Science)

B.S. Geoscience, Geology Concentration – SUGGESTED sequence

	Fall	Spring
YEAR 1 32 credits	ESS 101 (3) ESS/SCB/ENV 102 "I" course (3) WRT 120 or WRT 123 (3) FYE 100 (4) Gen Ed Hum (3)	MAT 121 (3) WRT 200 204 205 206 208 or 220 (3) ESS 201 or 204 "W" course (3) CHE/CRL 103 (4) Gen Ed Soc/Behav (3)
YEAR 2 30 or 31 credits	ESS 201 or 204 "W" course (3) ESS 302 (3) Gen Ed Hum (3) Gen Ed "J" course (3) Elective (3)	ESS 301 (3) PHY 130 (4) Gen Ed Soc/Behav (3) Elective (3) MAT 143 (3) or MAT 161 (4)
YEAR 3 31 credits	ESS 343 (3) ESS 347 (1) Elective (3) Gen Ed "S" course (3) Gen Ed Art (3) Elective (3)	ESS 331 "W" course (3) ESS 405 (3) ESS 420 (3) Elective (3) Elective (3)
YEAR 4 28 credits	ESS 447 (1) ESS 450 (3) ESS Graduate Substitution (3) Gen Ed "S" course (3) Elective (3)	ESS 439 "E" course (3) ESS 499 "S" course (3) ESS Graduate Substitution (3) ESS Graduate Substitution (3) Elective (3)

See the Undergraduate Catalog for a complete listing and descriptions of approved General Education courses.
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Approved Graduate Substitution Courses

ESS 507 (Geology of the Solar System)	ESS 523 (Field Geology)
ESS 527 (Electron Microscopy)	ESS 532 (Advanced Oceanography)
ESS 535 (Remote Sensing)	ESS 542 (Geophysics)
ESS 544 (Geomorphology II)	ESS 548 (International Field Studies)
ESS 549 (Advanced Hydrogeology)	ESS 555 (Intermediate Astronomy)
ESS 562 (History of Astronomy)	ESS 571 (Advanced Meteorology)
ESS 580 (Special Problems)	ESS 590 (Soils)
ESS 591 (Independent Studies)	ESS 594 (Geology of NW Nat'l Parks)
ESS 595 (Geology of SW Nat'l Parks)	ESS 596 (Earth Systems Science)

FREQUENTLY ASKED QUESTIONS (FAQs)

1. Can I take an undergraduate course for graduate credit?

Yes! Complete the following form, and submit to the Registrar.

https://www.wcupa.edu/admissions/sch_dgr/documents/UndergraduateCreditGraduateCourse.pdf

2. What if I'm getting a grade below a C- in a course?

Withdraw if you are in danger of failing. The deadline is the end of Week 9 of the semester. **If you fail a course at WCU, you MUST repeat it at WCU.**

3. What if I can't pass a required course?

Talk with your advisor and petition the Department if needed. Petition the University if necessary.

4. What if you have a serious family/medical emergency?

Consider a term withdrawal. Contact Student Affairs for guidance. Don't let those grades go to F's!

5. What happens if I am on probation?

Meet with your advisor and complete the Academic Recovery Plan (online form).

6. What will make my resume stand out? How can I get into Graduate School? Get a job?

Here is a non-exhaustive list of opportunities that may separate yourself from your peers:

- Apply the free elective credits toward a minor. Consult the list of suggested minors on page 12.
- Participate in research, including Independent Study (ESS 491)
 - Design your course with your research advisor; 1-3 credits; can be repeated for different projects/advisors. See Page 11 for details on how to enroll.
- Enroll in National or Int'l Field Courses, including National Student Exchange and Study Abroad
- Ask about Field Camp!
- Participate in internships, which can be applied as course credit (ESS 460). See Page 11 for details.
- Select your core courses toward passing the FG Exam. See Page 12 for details.
- Take ENV 230 (HAZWOPR course). It's a 40-hr course providing training required by OSHA and EPA to work sites where hazardous materials may be stored or used.

7. I'm ready to graduate. What do I do?

Make sure you have completed all requirements and have earned 120 credits! Read the comments about Graduation Clearances in RamPortal for your General Education requirements (this is performed by the Registrar).

Apply for graduation one full year in advance online through RamPortal. Click on the "Apply for Graduation link," found on the Graduation Application & Status card. **August graduates may participate in the May ceremony.** You can also change your graduation term using RamPortal (you only pay once for graduation application). Caps and gowns can be retrieved at the WCU Bookstore.



WCU
WEST CHESTER
UNIVERSITY