Key steps in registering for Summer / Fall classes

1. Review the registration process.

2. Scheduling for Summer and Fall 2022 terms begins on Monday, March 28, 2022. Be aware of your registration time window:
   - Log in to myShip > click on Student > click on My Academics.
   - Under Registration Tools > click on Prepare for Registration.
   - Select the appropriate term, look for registration window information.

3. Review major and minor degree requirements using check sheets (in this packet) and check your progress using Degree Audit.

4. Schedule an appointment with your Academic Advisor (see contact information in this packet). Students must see their academic advisor to obtain their registration PIN — you cannot register without this PIN.

5. Consider any holds and financial aid issues.
   - Log in to myShip
   - Select My Academics from the Student tab.
   - Under Registration Tools, click on My Holds.
   - If you have a hold, contact the office listed on the Types of Holds page to clear the hold from your record.

6. Prepare a tentative course schedule and alternative options (see worksheet in this packet). Be sure to consider course availability in future semesters as well (some courses are not offered every semester — see some key examples below).

7. If you have any problems with scheduling, please contact Tammy Myers (Dept. Secretary, Shearer Hall 104) or Dr. Woltemade (Dept. Chair).
Adding the GIS certificate, a minor, or changing your major

- Review information on this site and submit the “Declare/Change Undergraduate Major/Minor/Other Credentials” web form.

- Note: Financial aid may not cover tuition if an added minor or certificate results in taking courses beyond the standard 120-credit degree program. Please check with the financial aid office for assistance.

Key scheduling issues for Geography-Earth Science undergraduate majors

**General pointers:**

- Work to complete general education requirements (15 courses) in first two years
- Follow checksheets for your major/minor (below) and Degree Audit.
- Meet with your academic advisor frequently to discuss future courses, internship, graduation requirements, etc.

All GEO-ESS majors:

1. **GEO 391 Geography Seminar** – Not offered in fall 2022 – all majors intending to graduate in 2023 should plan to enroll in spring 2023.

2. Two Principles of Biology courses are offered:
   BIO 161: Cell Structure and BIO 162: Organismal Diversity.
   **All Geography-Earth Science Majors should take BIO 162: Organismal Diversity.**

3. Grades earned for completing developmental courses [MAT 050, RDG 050, ENG 050] count toward your QPA, but credits earned in those courses do not count toward the 120-credit graduation requirement.
   *For example, if you were required to earn 3 credits in MAT 050 Developmental Math, then you will need to earn 123 total credits for graduation.*

4. All grades earned in performance courses (e.g., music, marching band) count toward your QPA, but only a maximum of 3 performance credits will count toward your 120-credit graduation requirement.
   *For example, if you earn 9 credits by performing in our marching band, then you will have earned 126 total credits by graduation (3 credits count, the other 6 do not).*
Pre-requisites to enroll in key GEO-ESS courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 202</td>
<td>Must have earned a minimum of 15 credits</td>
</tr>
<tr>
<td>GEO 363</td>
<td>Passed GEO 202 (GIS-1) with minimum grade of C</td>
</tr>
<tr>
<td>GEO 420</td>
<td>Passed GEO 363 (GIS-2) with minimum grade of C</td>
</tr>
<tr>
<td>GEO 226</td>
<td>Passed MAT 140A/B or math placement level 5</td>
</tr>
<tr>
<td>GEO 329</td>
<td>Sophomore standing (Tammy Myers must add you to this course)</td>
</tr>
<tr>
<td>GEO 391</td>
<td>Senior standing (Tammy Myers must add you to this course)</td>
</tr>
<tr>
<td>GEO 397</td>
<td>Minimum 60 credits and faculty advisor approval (Tammy Myers must add you to this course)</td>
</tr>
<tr>
<td>GEO 424</td>
<td>Passed ESS 110 or ESS 210</td>
</tr>
<tr>
<td>GEO 427</td>
<td>At least junior standing</td>
</tr>
</tbody>
</table>

Geoenvironmental majors

Geoenvironmental Studies major – students enrolled prior to Fall 2021
Geoenvironmental Science major – students enrolled Fall 2021 and later
Check Degree Audit if you are not sure

There were minor changes in the required courses when this major was updated to “Geoenvironmental Science” – be sure that you are following the correct check sheet and requirements indicated on Degree Audit. Check with your advisor if you are not sure.

Biology: You need to take 3 Biology courses with at least one at the 200+ level.
BIO 162 must be completed before scheduling a 200 level or higher BIO course.
A recommended 200-level course is BIO 242 Ecology.

Chemistry / Physics: For this requirement, you must take either two Chemistry courses (with lab) or one Chemistry course plus one Physics course (with lab).
Recommended courses:
CHM 105: Chemistry – An Observational Approach (required as Gen Ed)
CHM 121: Chem Bonding (plus CHM 125 Lab IB)
PHY 121: Intro to Physics I (plus PHY 123 Lab) (fall only)
Students interested in graduate programs in the geosciences/engineering should speak to their advisor about taking two physics classes as 6 credits of physics are often required for admission.

Required General Education courses (Geoenvironmental Science majors):

<table>
<thead>
<tr>
<th>Category</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math (Q)</td>
<td>MAT 117</td>
</tr>
<tr>
<td>Citizenship (S)</td>
<td>ESS 108</td>
</tr>
<tr>
<td>Critical Reasoning (R)</td>
<td>GEO 140</td>
</tr>
<tr>
<td>Natural World (N)</td>
<td>BIO 162 and CHM 105</td>
</tr>
<tr>
<td>Technology (T)</td>
<td>CSC 103 or CSC 104</td>
</tr>
</tbody>
</table>
**Geography - GIS majors**

Required General Education courses:

- Math (Q): MAT 117
- Citizenship (S): PLS 100
- Critical Reasoning (R): SOC 101
- Technology (T): CSC 104

**Sustainability majors**

Biology: Complete BIO 162 first, plus one 200-level or higher BIO course (recommended: BIO 242 Ecology).

Required General Education courses:

- Math (Q): MAT 117
- Diversity (D): PSY 101 *(or SOC 101 in Cat R)*
- Critical Reasoning (R): SOC 101 or ECO 113 *(or PSY 101 in Cat D)*
- Natural World (N): BIO 162
- Technology (T): ECO 102 *(unless you have taken ECO 113 – see advisor)*

**Earth-Space Science or Comprehensive Social Studies/Geography majors**

Advising: Please see Dr. Smith for scheduling.

Chem: Earth-Space Science Education Majors must take 8 credits:
- CHM 121: Chemical Bonding *(with CHM 125: Lab)*
- CHM 122: Chemical Dynamics *(with CHM 126: Lab)*

Physics: Earth-Space Science Education Majors must take 8 credits:
- PHY121: Introductory Physics I *(with PHY 123: Lab)*
- PHY 122: Introductory Physics II *(with PHY 125: Lab)*

**Honors Students**

Advising: Please be sure to meet with your advisor as early as possible before scheduling.
### Summer 2022 GEO-ESS Courses

<table>
<thead>
<tr>
<th>General Education Courses</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS 108</td>
<td>Intro to Enviro Sustainability (Online, Term A)</td>
<td></td>
</tr>
<tr>
<td>ESS 110</td>
<td>Intro to Geology (Online, Term A)</td>
<td></td>
</tr>
<tr>
<td>GEO 103</td>
<td>Geography of U.S. &amp; Canada (Online, Term A)</td>
<td></td>
</tr>
<tr>
<td>GEO 440</td>
<td>Field Techniques (In person @ SU, May 9-27)</td>
<td></td>
</tr>
<tr>
<td>ESS 190</td>
<td>Coastal Hazards and Sustainability (Hybrid, CBFS, Jun 5-24)</td>
<td></td>
</tr>
<tr>
<td>ESS 491</td>
<td>Coastal Watershed Assess. and Mgt. (CBFS, Jul 17 – Aug 5)</td>
<td></td>
</tr>
<tr>
<td>ESS 494</td>
<td>Geology Field Course (Off campus, May 23 – Jun 24)</td>
<td></td>
</tr>
</tbody>
</table>

* CBFS = [Chincoteague Bay Field Station](#)

### Fall 2022 GEO-ESS Courses

<table>
<thead>
<tr>
<th>General Education Courses</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS 108</td>
<td>Intro to Enviro Sustainability (Sec. 01 res. for Geo majors)</td>
<td></td>
</tr>
<tr>
<td>ESS 110</td>
<td>Intro to Geology (Sec. 05 reserved for Geo majors)</td>
<td></td>
</tr>
<tr>
<td>ESS 111</td>
<td>Intro to Weather and Climate</td>
<td></td>
</tr>
<tr>
<td>GEO 101</td>
<td>World Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 103</td>
<td>Geography US and Canada</td>
<td></td>
</tr>
<tr>
<td>GEO 140</td>
<td>Human Geography</td>
<td></td>
</tr>
<tr>
<td>HON 244</td>
<td>Honors Introduction to Geology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Techniques Courses</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 202</td>
<td>GIS-1</td>
<td></td>
</tr>
<tr>
<td>GEO 363</td>
<td>GIS-2</td>
<td></td>
</tr>
<tr>
<td>GEO 339</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEO 352</td>
<td>Cartography</td>
<td></td>
</tr>
<tr>
<td>GEO 463</td>
<td>Applied Geophysical Imaging</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Upper-level Courses</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS 410</td>
<td>Sedimentary Geology &amp; Paleoenvironments</td>
<td></td>
</tr>
<tr>
<td>GEO 203</td>
<td>Climate, Energy, Sustainability</td>
<td></td>
</tr>
<tr>
<td>GEO 244</td>
<td>Land Use</td>
<td></td>
</tr>
<tr>
<td>GEO 313</td>
<td>Geography of South &amp; SE Asia</td>
<td></td>
</tr>
<tr>
<td>GEO 329</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 402</td>
<td>Medical Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 404</td>
<td>Hydrogeology</td>
<td></td>
</tr>
<tr>
<td>GEO 406</td>
<td>Sustainable Food Systems</td>
<td></td>
</tr>
<tr>
<td>GEO 415</td>
<td>Regional Geography Studies: Africa</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Courses by advisement (min 60 credits, GPA 2.0)</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 360</td>
<td>Internship [See important instructions below]</td>
<td></td>
</tr>
<tr>
<td>GEO 397</td>
<td>Intro to Research [Advance planning with a faculty advisor and syllabus required before you can register.]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graduate Courses</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 503</td>
<td>Fundamentals of Geoenvironmental Research</td>
<td></td>
</tr>
<tr>
<td>GEO 505</td>
<td>Medical Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 506</td>
<td>Sustainable Food Systems</td>
<td></td>
</tr>
<tr>
<td>GEO 525</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 538</td>
<td>GIS-2</td>
<td></td>
</tr>
<tr>
<td>GEO 553</td>
<td>Cartography</td>
<td></td>
</tr>
</tbody>
</table>
Thinking about Graduate School?

**NEW:** Early / Dual Admission to the MS Program in Geoenvironmental Science & Sustainability allows you to earn credits in the graduate program while you are completing a BS degree. Qualified students may double count some credits toward both BS and MS degrees in their junior and senior years and can complete the MS degree on an accelerated pace. Interested undergraduate students maintaining a GPA of at least 3.0 overall and in their major may apply to the program in their junior or senior year. Please contact Dr. Tom Feeney for information.

Internship Information

A basic outline of the most critical internship information is below. It is essential that you review the department internship web page for more detailed information.

**Undergraduate students**

- Must have earned at least **60 credits** with at least a **2.0 overall GPA**.
- A minimum of **3 credits** of internship are required.

**Graduate students**

- Minimum GPA of **3.0** required to take an internship.
- Non-thesis graduate students must complete an internship; a maximum of six credits is allowed.

**All students**

- The internship must relate to the student's major and educational background.
- During the advising period, consult with your faculty advisor about your interest in an internship.
- The prospective internship experience must be approved by the faculty coordinator.
- **A fully completed and signed “Letter of Agreement”** (also called an internship application form) **is required prior to registering for internship credits**. Students are fully responsible for completing this form and securing the signature of an appropriate organizational representative, as well as signing it themselves before presenting it to Dr. Pomeroy for his review and approval. Ask Dr. Pomeroy for assistance if you have questions about how to complete the “Letter of Agreement.”
- All internships **must** also have an Affiliation Agreement in place between the University and the organization hosting the intern. You **must** consult with Dr. Pomeroy to see if there is an agreement already in place. If there is not an agreement in place, Dr.
Pomeroy will contact the organizational representative for your prospective internship and work with you on this process. It is possible that the Associate Dean will not approve your internship until this agreement in fully in place.

- Each credit hour of internship equates to 40 hours of work at your placement, so a 3-credit internship equals 120 hours of work.
- All internships are graded Pass/Fail.
- Your internship is an academic experience as well as a professional experience. As such, tuition will be charged for internship credits just like any other academic course. For information on tuition costs, see the Student Accounts website.

To register for your internship

- To apply for a **Summer or Fall** internship, submit your intent to apply by March 15.
- To apply for a **Spring** internship, submit your intent to apply by October 15.
- As noted above, submit the completed “Letter of Agreement” to Dr. Pomeroy for his review and approval. He will then send it for further review and approval by the Associate Dean of Arts and Sciences. After the Associate Dean approves the internship, Ms. Myers will register you for internship credits via Banner. This may require that you work closely with Dr. Pomeroy and Ms. Tammy Myers (477-1685). Please note that Ms. Myers will not register any student who does not have the required approvals.
- For questions about registration, contact Dr. Pomeroy (477-1776).

### Geography – Earth Science Faculty contacts

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Ext.</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Mike Applegarth</td>
<td>SRH 211</td>
<td>1712</td>
<td><a href="mailto:mtappl@ship.edu">mtappl@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Sean Cornell</td>
<td>SRH 005A</td>
<td>1310</td>
<td><a href="mailto:srcornell@ship.edu">srcornell@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Scott Drzyzga</td>
<td>SRH 208</td>
<td>1307</td>
<td><a href="mailto:sadrzy@ship.edu">sadrzy@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Allison Feeney</td>
<td>SRH 112</td>
<td>1319</td>
<td><a href="mailto:afeen@ship.edu">afeen@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Thomas Feeney</td>
<td>SRH 106</td>
<td>1297</td>
<td><a href="mailto:tpfen@ship.edu">tpfen@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Kurt Fuellhart</td>
<td>SRH 210</td>
<td>1309</td>
<td><a href="mailto:kgfuel@ship.edu">kgfuel@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Tim Hawkins</td>
<td>SRH 207</td>
<td>1662</td>
<td><a href="mailto:twhawk@ship.edu">twhawk@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Russ Hedberg</td>
<td>SRH 212</td>
<td>1515</td>
<td><a href="mailto:rchaberg@ship.edu">rchaberg@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Claire Jantz</td>
<td>RLH 203</td>
<td>1399</td>
<td><a href="mailto:cajant@ship.edu">cajant@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Paul Marr</td>
<td>SRH 110</td>
<td>1656</td>
<td><a href="mailto:pgmarr@ship.edu">pgmarr@ship.edu</a></td>
</tr>
<tr>
<td>Dr. George Pomeroy</td>
<td>SRH 113</td>
<td>1776</td>
<td><a href="mailto:gmpom@ship.edu">gmpom@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Janet Smith</td>
<td>SRH 103</td>
<td>1757</td>
<td><a href="mailto:jssmit@ship.edu">jssmit@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Christopher Woltemade</td>
<td>SRH 108</td>
<td>1143</td>
<td><a href="mailto:cjwolt@ship.edu">cjwolt@ship.edu</a></td>
</tr>
<tr>
<td>Dr. Joseph Zume</td>
<td>SRH 111</td>
<td>1548</td>
<td><a href="mailto:jtzume@ship.edu">jtzume@ship.edu</a></td>
</tr>
<tr>
<td>Ms. Tammy Myers, secretary</td>
<td>SRH 104</td>
<td>1685</td>
<td><a href="mailto:tlmyers@ship.edu">tlmyers@ship.edu</a></td>
</tr>
</tbody>
</table>
### Key documents included below

<table>
<thead>
<tr>
<th>Document</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Planner Worksheet</td>
<td>9</td>
</tr>
<tr>
<td>Geography-Earth Science Fall 2022 course schedule</td>
<td>10</td>
</tr>
</tbody>
</table>

**Major Checksheets**
- Geoenvironmental Studies                        | 11     |
- Geoenvironmental Science                        | 12     |
- Geography-GIS                                    | 13     |
- Sustainability                                  | 14     |

**Minor Checksheets**
- Geography-Earth Science                         | 15     |
- Sustainability                                  | 16     |
- GIS minor (18 cr)                                | 17     |
- GIS Certificate (12 cr)                          | 18     |
- Marine Science                                  | 19     |
Geography-Earth Science Course Election Record  
(Note: This form is to be used only as an aid when preparing your schedule)

NAME:________________________________ SUID#________________________________

MAJOR:________________________________

1) Students **must** meet with their academic advisor before scheduling to receive their PIN#. You will **not** be able to submit your schedule unless you have your PIN#.

2) Students can schedule using any computer that has access to Banner during their scheduling window.

3) Students **will not** be permitted to schedule if they have a hold (parking ticket, phone bill, physical examination for the Health Center, etc.). Holds must be cleared by the appropriate office (i.e. parking ticket – University Police) before your appointment time expires.

4) To add closed or restricted courses, students must go to the appropriate academic department office **during their appointment time** for an override code in Banner.

5) PRIMARY COURSE REQUEST

<table>
<thead>
<tr>
<th>Dept. No.</th>
<th>Course No.</th>
<th>Section No.</th>
<th>Course Title</th>
<th>Time</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total credits to be scheduled**

ALTERNATE COURSE REQUESTS

<table>
<thead>
<tr>
<th>Dept. No.</th>
<th>Course No.</th>
<th>Section No.</th>
<th>Course Title</th>
<th>Time</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Faculty</th>
<th>Course #</th>
<th>Course Name</th>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hedberg</td>
<td>ESS 108-01</td>
<td>Intro Env. Sustainability <em>(Restricted to GEO majors)</em></td>
<td>TR</td>
<td>12:30-1:45</td>
</tr>
<tr>
<td>Hedberg</td>
<td>ESS 108-02</td>
<td>Intro Env. Sustainability</td>
<td>TR</td>
<td>2:00-3:15</td>
</tr>
<tr>
<td>Jantz</td>
<td>ESS 108-03</td>
<td>Intro Env. Sustainability</td>
<td>MWF</td>
<td>10:00-10:50</td>
</tr>
<tr>
<td>Jantz</td>
<td>ESS 108-04</td>
<td>Intro Env. Sustainability</td>
<td>MWF</td>
<td>1:00-1:50</td>
</tr>
<tr>
<td>Cornell</td>
<td>ESS 110-01</td>
<td>Intro Geology</td>
<td>MWF</td>
<td>10:00-10:50</td>
</tr>
<tr>
<td>Cornell</td>
<td>ESS 110-02</td>
<td>Intro Geology</td>
<td>MWF</td>
<td>11:00-11:50</td>
</tr>
<tr>
<td>Feeney T</td>
<td>ESS 110-03</td>
<td>Intro Geology</td>
<td>MWF</td>
<td>1:00-1:50</td>
</tr>
<tr>
<td>Feeney T</td>
<td>ESS 110-04</td>
<td>Intro Geology</td>
<td>MWF</td>
<td>8:00-8:50</td>
</tr>
<tr>
<td>Feeney T</td>
<td>ESS 110-05</td>
<td>Intro Geology <em>(Restricted to GEO majors)</em></td>
<td>MWF</td>
<td>9:00-9:50</td>
</tr>
<tr>
<td>Zume</td>
<td>ESS 111-01</td>
<td>Intro Weather &amp; Climate</td>
<td>MWF</td>
<td>8:00-8:50</td>
</tr>
<tr>
<td>Zume</td>
<td>ESS 111-02</td>
<td>Intro Weather &amp; Climate</td>
<td>MWF</td>
<td>9:00-9:50</td>
</tr>
<tr>
<td>Zume</td>
<td>ESS 111-03</td>
<td>Intro Weather &amp; Climate</td>
<td>MWF</td>
<td>10:00-10:50</td>
</tr>
<tr>
<td>Cornell</td>
<td>ESS 410</td>
<td>Sedimentary Geology &amp; Paleoenvironments</td>
<td>MW</td>
<td>2:00-3:15</td>
</tr>
<tr>
<td>Marr</td>
<td>GEO 101-01</td>
<td>World Geog</td>
<td>MW</td>
<td>3:30-4:45</td>
</tr>
<tr>
<td>Marr</td>
<td>GEO 101-02</td>
<td>World Geog</td>
<td>MW</td>
<td>5:00-6:15</td>
</tr>
<tr>
<td>Marr</td>
<td>GEO 101-03</td>
<td>World Geog</td>
<td>TR</td>
<td>5:00-6:15</td>
</tr>
<tr>
<td>Pomeroy</td>
<td>GEO 101-04</td>
<td>World Geog</td>
<td>MWF</td>
<td>8:00-8:50</td>
</tr>
<tr>
<td>Pomeroy</td>
<td>GEO 101-05</td>
<td>World Geog</td>
<td>MWF</td>
<td>9:00-9:50</td>
</tr>
<tr>
<td>Applegarth</td>
<td>GEO 103-01</td>
<td>Geog of U S and Canada</td>
<td>M</td>
<td>6:30-9:15</td>
</tr>
<tr>
<td>Applegarth</td>
<td>GEO 103-02</td>
<td>Geog of U S and Canada</td>
<td>MW</td>
<td>2:00-3:15</td>
</tr>
<tr>
<td>Applegarth</td>
<td>GEO 103-03</td>
<td>Geog of U S and Canada</td>
<td>W</td>
<td>6:30-9:15</td>
</tr>
<tr>
<td>Drzyzga</td>
<td>GEO 103-04</td>
<td>Geog of U S and Canada</td>
<td>TR</td>
<td>11:00-11:50</td>
</tr>
<tr>
<td>Drzyzga</td>
<td>GEO 103-05</td>
<td>Geog of U S and Canada</td>
<td>TR</td>
<td>9:30-10:45</td>
</tr>
<tr>
<td>Feeney A</td>
<td>GEO 140-01</td>
<td>Human Geography</td>
<td>TR</td>
<td>12:30-1:45</td>
</tr>
<tr>
<td>Feeney A</td>
<td>GEO 140-02</td>
<td>Human Geography</td>
<td>TR</td>
<td>2:00-3:15</td>
</tr>
<tr>
<td>Feeney A</td>
<td>GEO 202-01</td>
<td>GIS-I: Intro to GIS</td>
<td>TR</td>
<td>11:00-11:50</td>
</tr>
<tr>
<td>Hedberg</td>
<td>GEO 202-02</td>
<td>GIS-I: Intro to GIS</td>
<td>TR</td>
<td>9:30-10:45</td>
</tr>
<tr>
<td>Hawkins</td>
<td>GEO 203</td>
<td>Climate, Energy, Sustainability</td>
<td>MWF</td>
<td>11:00-11:50</td>
</tr>
<tr>
<td>Pomeroy</td>
<td>GEO 244</td>
<td>Land Use</td>
<td>MW</td>
<td>2:00-3:15</td>
</tr>
<tr>
<td>Pomeroy</td>
<td>GEO 313</td>
<td>Geog of South &amp; SE Asia</td>
<td>MWF</td>
<td>1:00-1:50</td>
</tr>
<tr>
<td>Drzyzga</td>
<td>GEO 329/525</td>
<td>Economic Geography</td>
<td>MW</td>
<td>3:30-4:45</td>
</tr>
<tr>
<td>Applegarth</td>
<td>GEO 339</td>
<td>Remote Sensing</td>
<td>MW</td>
<td>3:30-4:45</td>
</tr>
<tr>
<td>Feeney A</td>
<td>GEO 352/553</td>
<td>Cartography</td>
<td>TR</td>
<td>5:00-6:15</td>
</tr>
<tr>
<td>Drzyzga</td>
<td>GEO 363/538</td>
<td>GIS II: Inter Gis</td>
<td>MW</td>
<td>5:00-6:15</td>
</tr>
<tr>
<td>Marr</td>
<td>GEO 402/505</td>
<td>Medical Geography</td>
<td>TR</td>
<td>2:00-3:15</td>
</tr>
<tr>
<td>Feeney T</td>
<td>GEO 404</td>
<td>Hydrogeology</td>
<td>TR</td>
<td>12:30-1:45</td>
</tr>
<tr>
<td>Hedberg</td>
<td>GEO 406/506</td>
<td>Sustainable Food Systems</td>
<td>F</td>
<td>1:00-3:45</td>
</tr>
<tr>
<td>Zume</td>
<td>GEO 415</td>
<td>Regional Geo Studies <em>(Africa)</em></td>
<td>MW</td>
<td>5:00-6:15</td>
</tr>
<tr>
<td>Cornell</td>
<td>HON 244</td>
<td>Honors Intro Geology</td>
<td>MW</td>
<td>3:30-4:45</td>
</tr>
</tbody>
</table>
### Geography-Earth Science (42+ Cr)

#### Geoenvironmental Core (15 Cr)
- ESS 355 Meteorology (if ESS111, see †)
- ESS 210 Phy. Geology (if ESS110, see ‡)
- GEO 224 Soils
- GEO 226 Hydrology
- GEO 391 Geography Seminar

#### Geography Electives (6 Cr)
- GEO 230 Economic Geography
- GEO 244 Land Use
- GEO 305 Geography of Europe
- GEO 308 Geography of Latin America
- GEO 310 Transportation Geography
- GEO 313 Geography of South-Southeast Asia
- GEO 314 Industrial Geography
- GEO 317 Geography of East Asia
- GEO 320 Historical Geography
- GEO 322 Urban Geography
- GEO 415 Regional Geographic Studies
- GEO 450 Geography-Geology Field Studies*

#### Geoenvironmental Complex Systems (9 Cr)
- ESS 404 Applied Meteorology/Climatology
- ESS 410 Sed Geology & Paleoenvironments
- ESS 413 Mineral and Rock Resources
- ESS 442 Environmental Geology
- ESS 452 Coastal Env Oceanography
- GEO 490 Selected Topics
- GEO 301 Introduction to Biogeography
- GEO 306 Geomorphology
- GEO 402 Medical Geography
- GEO 404 Hydrogeology
- GEO 421 Environmental Law
- GEO 444 Environmental Land Use Planning
- GEO 446 Water Resource Management
- GEO 450 Geography-Geology Field Studies*
- GEO 490 Selected Topics

#### Geoenvironmental Electives (3+ Cr)
- ESS 212 Historical Geology
- ESS 214 Geology of National Parks
- ESS 220 Oceanography
- GEO 203 Climatology
- GEO 306 Geomorphology
- GEO 397 Intro to Research
- GEO 450 Geography-Geology Field Studies*

### General Education Requirements (45 CR)

Courses filled-in below are DIRECTED general education classes that MUST be taken for the major. All other general education courses can be chosen from the list on the back of this page.

#### Foundations

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>15 cr total</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>3</td>
</tr>
<tr>
<td>W</td>
<td>3</td>
</tr>
<tr>
<td>O</td>
<td>3</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
</tr>
<tr>
<td>Q</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Interconnections

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>9 cr total</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>3+</td>
</tr>
<tr>
<td>G</td>
<td>3+</td>
</tr>
</tbody>
</table>

**At least 1 course each from D and G.**

#### Citizenship

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>6 cr total</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>e</td>
</tr>
<tr>
<td>E</td>
<td>e</td>
</tr>
<tr>
<td>R</td>
<td>e</td>
</tr>
</tbody>
</table>

* 1 course from two different categories.

#### Natural World

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>9cr total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>6+ BIO 162 and CHM 105</td>
</tr>
<tr>
<td>T</td>
<td>e CSC 103 or 180</td>
</tr>
</tbody>
</table>

† BIO 162 and CHM 105 required. Either CSC 103 or 180 also required.

#### Creativity

<table>
<thead>
<tr>
<th>Course</th>
<th>6 cr total</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>3</td>
</tr>
<tr>
<td>A</td>
<td>e</td>
</tr>
<tr>
<td>C</td>
<td>e</td>
</tr>
</tbody>
</table>

* At least 1 l course.
# GEOGRAPHY-EARTH SCIENCE PROGRAM

## GEOENVIRONMENTAL SCIENCE MAJOR – B.S.

### Geography-Earth Science (45+ Cr)

<table>
<thead>
<tr>
<th>Geoenvironmental Core (15 Cr)</th>
<th>Geoenvironmental Complex Systems (12+ Cr)</th>
<th>General Education Requirements (45 CR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS 111 Intro to Weather and Climate</td>
<td>ESS 404 Applied Human-Climate Interaction</td>
<td>Courses filled-in below are <strong>DIRECTED general education classes that MUST be taken for the major.</strong> All other general education courses can be chosen from the list on the back of this page.</td>
</tr>
<tr>
<td>ESS 110 Intro to Geology</td>
<td>ESS 410 Sed Geology &amp; Paleoenvironments</td>
<td><strong>Foundations (15 total)</strong> Cr</td>
</tr>
<tr>
<td>Geo 202 GIS I: Intro to GIS</td>
<td>ESS 413 Mineral and Rock Resources</td>
<td>U</td>
</tr>
<tr>
<td>GEO 226 Hydrology</td>
<td>ESS 442 Environmental Geology</td>
<td>W</td>
</tr>
<tr>
<td>GEO 391 Geography Seminar</td>
<td>ESS 452 Coastal Env Oceanography</td>
<td>O</td>
</tr>
<tr>
<td>GEO/ESS Electives and Complex Systems (total 27+ cr)</td>
<td>ESS 490 Selected Topics</td>
<td>H</td>
</tr>
<tr>
<td>Geography Electives (3+ Cr)</td>
<td>GEO 301 Introduction to Biogeography</td>
<td>Q</td>
</tr>
<tr>
<td>GEO 244 Land Use</td>
<td>GEO 306 Geomorphology</td>
<td></td>
</tr>
<tr>
<td>GEO 305 Geography of Europe</td>
<td>GEO 402 Medical Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 308 Geography of Latin America</td>
<td>GEO 404 Hydrogeology</td>
<td></td>
</tr>
<tr>
<td>GEO 310 Transportation Geography</td>
<td>GEO 421 Environmental Law</td>
<td></td>
</tr>
<tr>
<td>GEO 313 Geography of South-Southeast Asia</td>
<td>GEO 424 Soils</td>
<td></td>
</tr>
<tr>
<td>GEO 314 Industrial Geography</td>
<td>GEO 427 Sustainability</td>
<td></td>
</tr>
<tr>
<td>GEO 317 Geography of East Asia</td>
<td>GEO 444 Environmental Land Use Planning</td>
<td></td>
</tr>
<tr>
<td>GEO 320 Historical Geography</td>
<td>GEO 446 Water Resource Management</td>
<td></td>
</tr>
<tr>
<td>GEO 322 Urban Geography</td>
<td>GEO 450 Geography-Geology Field Studies*</td>
<td></td>
</tr>
<tr>
<td>GEO 329 Economic Geography</td>
<td>GEO 490 Selected Topics</td>
<td></td>
</tr>
<tr>
<td>GEO 415 Geography of Africa</td>
<td>Electives from any category above (6+ Cr)</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Studies*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geoenvironmental Electives (3+ Cr)</td>
<td>Internship (3+ cr)</td>
<td></td>
</tr>
<tr>
<td>ESS 212 Historical Geology</td>
<td>GEO 360 Internship (2.0 GPA, Junior status)</td>
<td></td>
</tr>
<tr>
<td>ESS 214 Geology of National Parks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESS 220 Oceanography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 203 Climate, Energy, and Sustainability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 306 Geomorphology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 397 Intro to Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Studies*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 490 Selected Topics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Science Consortium Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technique Electives (3+ Cr)</td>
<td>Allied Sciences (10+Cr)</td>
<td><strong>Citizenship (6 cr total)</strong></td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td>(R) Recommended courses</td>
<td>Cr</td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td>Biology (6-7 Cr)</td>
<td>S</td>
</tr>
<tr>
<td>GEO 363 GIS II: Intermediate GIS</td>
<td>BIO 142 Intro to Ecology</td>
<td>E</td>
</tr>
<tr>
<td>GEO 420 GIS III: Advanced GIS</td>
<td>(R) BIO 208 Field Biology</td>
<td>R</td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td>BIO 210 Field Zoology (162 req)</td>
<td></td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td>(R) BIO 242 Ecology (162 req)</td>
<td></td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods</td>
<td>BIO 442 Aquatic Ecology (162 req)</td>
<td></td>
</tr>
<tr>
<td>GEO 463 Applied Geophysical Imaging</td>
<td>(R) BIO 448 Field Botany and Plant Tax (162 req)</td>
<td></td>
</tr>
<tr>
<td><strong>Chemistry/Physics (4 Cr)</strong></td>
<td><strong>Natural World (9cr total)</strong></td>
<td>Cr</td>
</tr>
<tr>
<td>CHM 121 Chemical Bonding</td>
<td><strong>Creativity (6 cr total)</strong></td>
<td></td>
</tr>
<tr>
<td>CHM 125 Lab I: Stoichiometry and Reactions (1)</td>
<td>BIO 162 and CHM 105*</td>
<td>Cr</td>
</tr>
<tr>
<td>CHM 122 Chemical Dynamics</td>
<td>T</td>
<td>e</td>
</tr>
<tr>
<td>CHM 126 Lab II: Equilibrium and Instruments (1)</td>
<td><strong>At least 1 course from different categories.</strong></td>
<td></td>
</tr>
<tr>
<td>(R) PHY 121 Intro Physics (3) + 123 Lab (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Maximum 3cr for category, 6cr total for major.</td>
<td></td>
</tr>
</tbody>
</table>

---

* At least 1 course each from D and G.

† At least 1 course from each of D and G.

‡ At least 1 L course.

§ BIO 162 and CHM 105 required. Either CSC 103 or 104 also required.

---

General Education Requirements (45 CR)

- **Foundations**
  - U: 3
  - W: 3
  - O: 3
  - H: 3
  - Q: 3
  - MAT 117

- **Interconnections**
  - D: 3+
  - G: 3+
  - F: e

- **Citizenship**
  - S: e | ESS 108
  - E: e | GEO 140

- **Natural World**
  - N: 6+ | BIO 162 and CHM 105
  - T: e | CSC 103 or 104

- **Creativity**
  - L: 3
  - A: e
  - C: e

- At least 1 L course.

---

May 27, 2021
# Geography-Earth Science Program

## Geography, Geographic Information Systems Major – B.S.

**Geography-Earth Science (39+ Cr)**

**Required Geography Core (15 Cr)**
- GEO 105 Physical Geography
- GEO 202 GIS I: Intro to GIS
- GEO 244 Land Use or 322 Urban Geography
- GEO 329 Economic Geography
- GEO 391 Geography Seminar

**GIS Core Courses (12 Cr)** (all are required)
- GEO 339 Remote Sensing
- GEO 352 Cartography
- GEO 363 GIS II: Intermediate GIS
- GEO 420 GIS III: Advanced GIS

**GIS Technical Electives (6 Cr)** (select 2)
- GEO 425 Image Processing
- GEO 440 Field Techniques I
- GEO 441 Quantitative Methods
- GEO 463 Applied Geophysical Imaging
- GEO 4___ Geography 400 Level Elective

**Geography Content Electives (3cr)**
- GEO 244 Land Use
- GEO 301 Biogeography
- GEO 322 Urban Geography
- GEO 427 Environmental Sustainability
- GEO 444 Env Land Use Planning

**Internship (3+ Cr)**
- GEO 360 Internship
  - Must have 2.0 overall and major GPA, and Junior status.

**Allied Sciences (18 Cr)**

**Social Sciences (6 Cr)** (select 2)
- PHL 332 Ethical Issues and Comp Tech
- PLS 231 State and Local Government
- PLS 271 Introduction to Public Administration
- PLS 331 City Politics and Administration
- PLS 431 Pennsylvania Local Government
- SOC 220 Social Stratification
- SOC 346 City and Community
- SOC 363 Population Problems

**Art/Computer Science/IMS (9+ Cr)**
- ART 217 Computer Design I
- CSC 110 Computer Science I (3) + CSC 106 Lab (1)
- CSC 111 Computer Science II (4)
- CSC ____ by advisement
- MIS 142 Business Computer Systems
- MIS 240 Intro to Programming Concepts
- MIS 300 Info Tech and Business Operations
- MIS 355 Database Applications

**Math (3+ Cr)** (select 1)
- MAT 140A College Algebra (4)*
- MAT 140B College Algebra (3)*
- MAT 175 Precalculus
- MAT 211 Calculus
- MAT 225 Discrete Mathematics

**Technical Writing (3 Cr)**
- ENG 238 Technical/Professional Writing

**General Education Requirements (45 Cr)**

Courses filled-in below are **DIRECTED general education classes that MUST be taken for the major**. All other general education courses can be chosen from the list on the back of this page.

**Foundations** *(15 cr total)*

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>3</td>
</tr>
<tr>
<td>W</td>
<td>3</td>
</tr>
<tr>
<td>O</td>
<td>3</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
</tr>
<tr>
<td>Q</td>
<td>3</td>
</tr>
</tbody>
</table>

* One course in each area are required.

**Interconnections** *(9 cr total)*

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>3+</td>
</tr>
<tr>
<td>G</td>
<td>3+</td>
</tr>
<tr>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

* At least 1 course each from D and G.

**Citizenship** *(6 cr total)*

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>e</td>
</tr>
<tr>
<td>E</td>
<td>e</td>
</tr>
<tr>
<td>R</td>
<td>e</td>
</tr>
</tbody>
</table>

* PLS 100 and Soc 101 required.

**Natural World** *(9cr total)*

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>6+</td>
</tr>
<tr>
<td>T</td>
<td>e</td>
</tr>
</tbody>
</table>

* At least 2 courses from N. CSC 104 required.

**Creativity** *(6 cr total)*

<table>
<thead>
<tr>
<th>Course</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>3</td>
</tr>
<tr>
<td>A</td>
<td>e</td>
</tr>
<tr>
<td>C</td>
<td>e</td>
</tr>
</tbody>
</table>

* At least 1 L course.

---

* MAT 140B is for students with a math placement level of 4 or higher and is the standard algebra course. MAT 140A is for students with a math placement level 3.
# Geography-Earth Science Program

## Sustainability Major – B.S. (with concentration in Environmental Conservation)

**Name:** __________________________

<table>
<thead>
<tr>
<th>Geography-Earth Science (42+ Cr)</th>
<th>Allied Sciences (18+Cr)</th>
<th>General Education Requirements (45 CR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability Core (6 Cr)</strong></td>
<td><strong>Recommended</strong></td>
<td><strong>Courses filled-in below are DIRECTED general education classes that MUST be taken for the major.</strong> All other general education courses can be chosen from the list on the back of this page.</td>
</tr>
<tr>
<td>ESS 108 Intro Env Sustain or BIO 145 Env Bio</td>
<td>Biology (3 Cr)</td>
<td><strong>Foundations</strong>&lt;sup&gt;+&lt;/sup&gt; (15 cr total)</td>
</tr>
<tr>
<td>GEO 427 Environmental Sustainability</td>
<td>BIO 205 Marine Biology (BIO 162)</td>
<td>U</td>
</tr>
<tr>
<td><strong>Concentration Core (9 Cr)</strong></td>
<td>BIO 210 Field Zoology (BIO 162)</td>
<td>W</td>
</tr>
<tr>
<td>GEO 202 GIS I: Intro to GIS</td>
<td>BIO 208 Field Biology (BIO 162)</td>
<td>O</td>
</tr>
<tr>
<td>GEO 329 Economic Geography</td>
<td>BIO 230 Botany (BIO 161, 162)</td>
<td>H</td>
</tr>
<tr>
<td>GEO 391 Geography Seminar</td>
<td>BIO 242 Ecology** (BIO 162)</td>
<td>Q</td>
</tr>
<tr>
<td><strong>Sustainability Systems (9 Cr)</strong></td>
<td>BIO 245 Marine Ecology (BIO 162)</td>
<td><strong>Note:</strong> Prerequisites are in parentheses.</td>
</tr>
<tr>
<td>GEO 203 Climate, Energy, &amp; Sustainability</td>
<td>BIO 442 Aquatic Ecology (BIO162)</td>
<td></td>
</tr>
<tr>
<td>ESS 214 Geology of Nat Parks (ESS 110 or 210)</td>
<td>BIO 444 Conservation Biology (BIO 242)</td>
<td></td>
</tr>
<tr>
<td>GEO 301 Intro to Biogeography</td>
<td><strong>Psychology and Sociology (6 Cr)</strong></td>
<td></td>
</tr>
<tr>
<td>ESS 404 Applied Human-Climate Interactions</td>
<td>ESS 108 Intro Env Sustain or BIO 145 Env Bio</td>
<td></td>
</tr>
<tr>
<td>ESS 413 Rock and Min Res (ESS 110 or 210)</td>
<td>BIO 162</td>
<td></td>
</tr>
<tr>
<td>GEO 442 Env Geography (ESS 110 or 210)</td>
<td><strong>Human Sustainability Electives (6 Cr)</strong></td>
<td></td>
</tr>
<tr>
<td>ESS 451 Coastal Env Oceanography</td>
<td>GEO 140 Cultural Geography</td>
<td></td>
</tr>
<tr>
<td>GEO 406 Sustainable Food Systems</td>
<td>GEO 244 Land Use</td>
<td></td>
</tr>
<tr>
<td>GEO 444 Environmental Land Use Planning</td>
<td>GEO 446 Water Resources Management</td>
<td></td>
</tr>
<tr>
<td>GEO 445 Water Resources Management</td>
<td>GEO 450 Geography-Geology Field Study*, **</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Study*, **</td>
<td>Human Sustainability Electives (6 Cr)</td>
<td></td>
</tr>
<tr>
<td><strong>Techniques Course Electives (9 Cr)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td>ECO 345 The Eco of Growth &amp; Develop (ECO 102)</td>
<td></td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td>ECO 355 Environmental Economics** (ECO 102)</td>
<td></td>
</tr>
<tr>
<td>GEO 363 GIS II: Intermediate GIS</td>
<td><strong>Economics and Business (3 Cr)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 420 GIS III: Advanced GIS</td>
<td>ECO 442 Environmental Land Use Planning</td>
<td></td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td><strong>Natural World (9cr total)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td>GEO 406 Field Techniques</td>
<td></td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods**</td>
<td>GEO 450 Geography-Geology Field Study *, **</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Study *, **</td>
<td>Internship (3+ Cr)</td>
<td></td>
</tr>
<tr>
<td>GEO 463 Applied Geophysical Imaging</td>
<td><strong>Creativity (6 total)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Internship (3+ Cr)</strong></td>
<td><strong>Options Matrix</strong></td>
<td><strong>Cr</strong></td>
</tr>
<tr>
<td>GEO 360 Internship (2.0 GPA, Junior status)</td>
<td>Option 1: (Cat D) PSY101 (Cat T) ECO102 (Cat R) Other</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option 2: (Cat D) Other (Cat T) ECO102 (Cat R) SOC101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option 3: (Cat D) PSY101 (Cat T) ECO102 (Cat R) SOC101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option 4: (Cat D) PSY101 (Cat T) Other (Cat R) ECO113</td>
<td></td>
</tr>
<tr>
<td><strong>Techniques Course Electives (9 Cr)</strong></td>
<td><strong>Creativity (6 total)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td><strong>Option 1:</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td>PSY 350 The Psychology of Sustainability** (PSY 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 363 GIS II: Intermediate GIS</td>
<td>SOC 265 Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 420 GIS III: Advanced GIS</td>
<td>SOC 346 City and Community (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td>SOC 354 Social Move and Social Change (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td>SOC 363 Population Problems (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods**</td>
<td>SOC 440 Leader in Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Study*, **</td>
<td><strong>Interconnections (9 total)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 463 Applied Geophysical Imaging</td>
<td><strong>Calculus</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Internship (3+ Cr)</strong></td>
<td><strong>Cr</strong></td>
<td><strong>Course(s)</strong></td>
</tr>
<tr>
<td>GEO 360 Internship (2.0 GPA, Junior status)</td>
<td>GEO 406 Field Techniques</td>
<td></td>
</tr>
<tr>
<td><strong>Techniques Course Electives (9 Cr)</strong></td>
<td>GEO 450 Geography-Geology Field Study *, **</td>
<td></td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td>Internship (3+ Cr)</td>
<td></td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td>GEO 406 Field Techniques</td>
<td></td>
</tr>
<tr>
<td>GEO 363 GIS II: Intermediate GIS</td>
<td>GEO 450 Geography-Geology Field Study *, **</td>
<td></td>
</tr>
<tr>
<td>GEO 420 GIS III: Advanced GIS</td>
<td><strong>Creativity (6 total)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td><strong>Option 1:</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td><strong>Option 1:</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods**</td>
<td>PSY 350 The Psychology of Sustainability** (PSY 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Study*, **</td>
<td>SOC 265 Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 463 Applied Geophysical Imaging</td>
<td>SOC 346 City and Community (SOC 101)</td>
<td></td>
</tr>
<tr>
<td><strong>Internship (3+ Cr)</strong></td>
<td>SOC 354 Social Move and Social Change (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 360 Internship (2.0 GPA, Junior status)</td>
<td>SOC 363 Population Problems (SOC 101)</td>
<td></td>
</tr>
<tr>
<td><strong>Techniques Course Electives (9 Cr)</strong></td>
<td>SOC 440 Leader in Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td><strong>Creativity (6 total)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td><strong>Option 1:</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 363 GIS II: Intermediate GIS</td>
<td>ECO 345 The Eco of Growth &amp; Develop (ECO 102)</td>
<td></td>
</tr>
<tr>
<td>GEO 420 GIS III: Advanced GIS</td>
<td>ECO 355 Environmental Economics** (ECO 102)</td>
<td></td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td><strong>Economics and Business (3 Cr)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td>ECO 442 Environmental Land Use Planning</td>
<td></td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods**</td>
<td>GEO 406 Field Techniques</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Study*, **</td>
<td>GEO 450 Geography-Geology Field Study *, **</td>
<td></td>
</tr>
<tr>
<td>GEO 463 Applied Geophysical Imaging</td>
<td><strong>Creativity (6 total)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Internship (3+ Cr)</strong></td>
<td><strong>Option 1:</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 360 Internship (2.0 GPA, Junior status)</td>
<td>PSY 350 The Psychology of Sustainability** (PSY 101)</td>
<td></td>
</tr>
<tr>
<td><strong>Techniques Course Electives (9 Cr)</strong></td>
<td>SOC 265 Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td>SOC 346 City and Community (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td>SOC 354 Social Move and Social Change (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 363 GIS II: Intermediate GIS</td>
<td>SOC 363 Population Problems (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 420 GIS III: Advanced GIS</td>
<td>SOC 440 Leader in Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td><strong>Creativity (6 total)</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td><strong>Option 1:</strong></td>
<td></td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods**</td>
<td>PSY 350 The Psychology of Sustainability** (PSY 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 450 Geography-Geology Field Study*, **</td>
<td>SOC 265 Global Society (SOC 101)</td>
<td></td>
</tr>
<tr>
<td>GEO 463 Applied Geophysical Imaging</td>
<td>SOC 346 City and Community (SOC 101)</td>
<td></td>
</tr>
</tbody>
</table>

- **Note:** Prerequisites are in parentheses.
- **Strongly recommended course.**
- **Recommended course.**
- **Only 3cr for category, 6cr total for major.**
- **At least 1 L course.**
- At least 1 course each from D and G.
- **Students taking ECO113 cannot take ECO101, 102. See Options Matrix.**
- **PSY101 (or SOC101 in Cat R). At least 1 course each from D and G.**
- **SOC101 (or PSY101 in Cat D) required. At least 1 course each from 2 different categories.**
- **Students taking ECO101, 102 cannot take ECO113. See Options Matrix.**
- **BIO 162 required, plus 1 additional courses from N.**
- **At least 1 L course.**

April 30, 2021
### Geography-Earth Science Minor (21 Cr)

<table>
<thead>
<tr>
<th>Required (9 cr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO or ESS 100-level course</td>
</tr>
<tr>
<td>GEO or ESS 200- or 300-level course</td>
</tr>
<tr>
<td>GEO or ESS 400-level course</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives (12 cr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO or ESS course by advisement</td>
</tr>
<tr>
<td>GEO or ESS course by advisement</td>
</tr>
<tr>
<td>GEO or ESS course by advisement</td>
</tr>
<tr>
<td>GEO or ESS course by advisement</td>
</tr>
</tbody>
</table>

09.08.2021
## SUSTAINABILITY MINOR

**Sustainability Minor (21 Cr)**

### Sustainability Core (6 credits)

**Required:**
- GEO 427 Environmental Sustainability

**Select 1:**
- ESS 108 Conservation of Natural Resources
- BIO 145 Environmental Biology

### Sustainable Systems (Select 1)

- ESS 214 Geology of National Parks
- ESS 404 Applied Human-Climate Interactions
- ESS 413 Rock and Mineral Resources
- ESS 442 Environmental Geology
- ESS 451 Coastal Environmental Geography
- GEO 405 Environ. Conserv. and Mgmt. in PA
- GEO 444 Environmental Land Use Planning
- GEO 446 Water Resources Management
- GEO 450 Geography-Geology Field Study

### Biology (Select 1)

- BIO 205 Marine Biology (BIO 162)
- BIO 210 Field Zoology (BIO 162)
- BIO 208 Field Biology (BIO 162)
- BIO 230 Botany (BIO 161, 162)
- BIO 242 Ecology* (BIO 162)
- BIO 245 Marine Ecology (BIO 162)
- BIO 442 Aquatic Ecology (BIO162)
- BIO 444 Conservation Biology (BIO 242)

### Psychology and Sociology (Select 1)

- PSY 350 The Psychology of Sustainability* (PSY 101)
- SOC 265 Global Society (SOC 101)
- SOC 346 City and Community (SOC 101)
- SOC 354 Social Movements and Social Change (SOC 101)
- SOC 363 Population Problems (SOC 101)
- SOC 440 Leader in Global Society (SOC 101)

### Economics and Business (Select 1)

- ECO 345 The Economics of Growth & Development (ECO 102)
- ECO 355 Environmental Economics* (ECO 102)
- GEO 230 Economic Geography
- MGT 447 Business and Society
- MIS 142 Business Computer Systems
- MIS 242 Design and Dev of User Info Systems (MIS 142)
- SCM 420 Global Logistics Systems (SCM 330 rec.)

### English, History, and Communication (Select 1)

- ENG 238 Technical Writing
- ENG 359 Native American Literature
- HCS 345 Environmental Communication*
- HIS 358 American Environmental History*

---

**Note:** Prerequisites are in parentheses.

* Strongly recommended classes.
<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Geo-ESS Courses (select 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 202 GIS I</td>
<td>ESS 210 Physical Geology</td>
</tr>
<tr>
<td>GEO 363 GIS II*</td>
<td>ESS 220 Oceanography</td>
</tr>
<tr>
<td>GEO 420 GIS III*</td>
<td>GEO 226 Hydrology</td>
</tr>
<tr>
<td><strong>Allied Techniques (select 2)</strong></td>
<td>GEO 244 Land Use</td>
</tr>
<tr>
<td>GEO 339 Remote Sensing</td>
<td>GEO 301 Introduction to Biogeography</td>
</tr>
<tr>
<td>GEO 352 Cartography</td>
<td>GEO 310 Transportation Geography</td>
</tr>
<tr>
<td>GEO 425 Image Processing</td>
<td>GEO 322 Urban Geography</td>
</tr>
<tr>
<td>GEO 440 Field Techniques</td>
<td>GEO 329 Economic Geography</td>
</tr>
<tr>
<td>GEO 441 Quantitative Methods</td>
<td>GEO 444 Environmental Land Use Planning</td>
</tr>
<tr>
<td>Geo 463 Applied Geophysical Imaging</td>
<td></td>
</tr>
</tbody>
</table>

* Course has a prerequisite.

Note: At least 2 courses within the minor must be from the 300-400 level.
**GEOGRAPHY-EARTH SCIENCE PROGRAM**

**Geographic Information Systems Certificate (12cr)**

Student Name:

**Required Courses:**

- GEO 202: GIS I - Introduction to Geographic Information Systems
- GEO 363: GIS II - Intermediate Geographic Information Systems

**Select 2 of the following courses:**

- GEO 339: Remote Sensing
- GEO 352: Cartography
- GEO 420: GIS III: Advanced Geographic Information Systems
- GEO 425: Image Processing
- GEO 440: Field Techniques
- GEO 441: Quantitative Methods
- GEO 463: Applied Geophysical Imaging

---

**Adding a GIS Certificate to Your Degree Program**

To add the 12 credit hour GIS certificate to your current degree program please visit the link below:

http://www.ship.edu/Registrar/Declaration_of_Study/

Scroll down to "Student Information":

1. Fill in your student information.

Under "Current Majors, Minors, or Certificates":

2. Check the box corresponding to your CURRENT major.

3. Check the box corresponding to your CURRENT minor, if applicable.

   (Select "None" if you do not have a minor)

4. Check the box corresponding to any of your CURRENT certificate programs.

   (Select "None" if you are not currently enrolled in a certificate program)

Under "Section II: Program of Study":

5. Scroll down to "Certificates to add:

6. Check the box labeled: Geographic Information Systems (AS-UCRT-GECT)

7. Scroll down to the bottom of the page and click the SUBMIT button.

---

**Adding a GIS Certificate and you are a Non-Degree student:**

Please see the Admissions Office (Old Main office 105).
Shippensburg University
Marine Science Minor Advising Worksheet

Why a Marine Science Minor? Some facts...

• The world ocean is the single most important feature of our planet! It exists at the nexus of the Earth’s complex systems and it is critical that we understand its role on our planet.

• Oceans regulate climate, circulate massive quantities of water, gases, and heat around the globe, and produce upwards of 85% of the oxygen we breathe. Oceans also absorb many of the pollutants we emit including greenhouse gases and moderate our climate. Their vast biodiversity offers a frontier for novel medicines, and oceans provide the primary food supply for more than 1.5 billion people globally.

• The world’s oceans are Earth’s most valuable asset, contributing $70 trillion dollars in production annually and an additional $30 trillion in ecosystem services that benefit humanity.

• In the U.S. $1.5 trillion in cargo moves through U.S. seaports and only 14% of coastal counties produce more that 45% of U.S. GDP.

• More than 3 million U.S. jobs are dependent on oceans and Great Lakes resources and 3.2 billion people live and work within 60 miles of the sea.

• NOAA reported employment growth in the ocean economy by 2.7% relative to the 1.7% rate found nationally in six job sectors dependent on natural ocean resources. These include: 1) living resources, 2) marine transportation, 3) marine engineering and construction, 4) mineral extraction, 5) ship and boat building, and 6) recreation and tourism.

• The oceans and Great Lakes are critical to Pennsylvania’s economy. PA has 3 major ports that provide $50 billion dollars to the Commonwealth’s economy.

• Our students should have every opportunity to not only take part in this workforce, but to graduate prepared to lead the way in delivering and managing more sustainable, multi-disciplinary solutions to the challenges we face from climate change, biologic and natural resources, natural hazards, and other contemporary issues.

Who should minor in Marine Science?

• The Marine Science Minor is designed to complement the liberal arts training of Shippensburg University students, especially those majoring in STEAM fields.

• The minor provides an opportunity for any Shippensburg student to obtain an interdisciplinary education in Marine Science that will complement their major.

What can you do with the minor?

• When combined with another major, the minor will provide students an excellent foundation for the workforce or graduate school.

• Graduates are uniquely positioned to work in geoenvironmental and biological sciences, coastal development, land use and resource management, environmental engineering, marine research, education, international relations, aquariums, aquaculture and fisheries, and more.

• Workforce projection data indicate that jobs will be available in a growing number of industries, governmental agencies, educational organizations, non-profits, and within both commercial industries and consulting arenas.

What about the curriculum?

• The interdisciplinary program focuses on ocean and coastal environments, their natural resources, biology, hazards, and contemporary geoenvironmental and conservation issues.

• The curriculum provides a foundation in ocean sciences focusing on content, technologies, and skills that enable students to investigate problems in marine science including natural systems evolution, ecology, resources, hazards, sustainability, resource management, and resiliency.

What will you learn?

• Upon completion of the Marine Science minor, students will be able to demonstrate:

  • content knowledge of foundational concepts and contemporary issues in marine sciences and how these impact humans and are impacted by human activities;
  • knowledge of the geography and physiography of marine, coastal, and marginal seas, and associated natural resources;
  • knowledge of the biological diversity of marine, coastal, and marginal seas, their ecology and ecosystem services, and how biodiversity responds to environmental change and human exploitation through time;
  • proficiency in the use of the scientific method and common laboratory, field techniques and equipment used to solve marine science related problems pertinent to resource and sustainable management of ocean assets.
**Program Advising Checksheet**

**19 Credit Marine Science Minor**

To declare the minor: students need to have 30 credits earned and a GPA of 2.0 or higher.

**Minor students must:**
- successfully complete at least 19 credits
- complete at least 6 credits in 300 or higher level coursework
- complete at least 6 credits at the Chincoteague Bay Field Station (or in other marine-coastal field-based courses by advisement)
- complete a capstone from the three options below

**Note:**
* indicates courses taught at Chincoteague Bay Field Station in summer programs!

---

**Required Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>When?</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 162 Principles of Biology</td>
<td>4 cr</td>
<td>Fall or Spring</td>
<td>NO</td>
</tr>
<tr>
<td>ESS 220 Oceanography</td>
<td>3 cr</td>
<td>Fall Only</td>
<td>ESS 110/210 or any Chemistry</td>
</tr>
</tbody>
</table>

**Foundations of Marine Science Courses (select 2)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>When?</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS 212 – Historical Geology</td>
<td>3 cr</td>
<td>Spring Only</td>
<td>ESS 110/210</td>
</tr>
<tr>
<td>ESS 190 – Selected Topics</td>
<td>3 cr</td>
<td>Summer (primarily)</td>
<td>NO</td>
</tr>
<tr>
<td>ESS 340 – Marine Geology*</td>
<td>3 cr</td>
<td>Summer</td>
<td>ESS 110/210</td>
</tr>
<tr>
<td>BIO 190 – Selected Topics</td>
<td>3 cr</td>
<td>On occasion</td>
<td>By advisement</td>
</tr>
<tr>
<td>BIO 205 – Marine Biology*</td>
<td>3 cr</td>
<td>Summer</td>
<td>BIO 162</td>
</tr>
<tr>
<td>BIO 245 – Marine Ecology*</td>
<td>3 cr</td>
<td>Summer</td>
<td>BIO 162</td>
</tr>
</tbody>
</table>

**Advanced Marine Geoscience / Marine Biology Courses (select 1)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>When?</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEO 332 – Field Methods in Oceanography*</td>
<td>3 cr</td>
<td>BIO 401 – Coral Reef Ecology*</td>
<td>3 cr</td>
</tr>
<tr>
<td>GEO 336 – Coastal Geomorphology*</td>
<td>3 cr</td>
<td>BIO 402 – Marine Evolution &amp; Ecology*</td>
<td>3 cr</td>
</tr>
<tr>
<td>GEO 360 – Internship (by advisement)</td>
<td>3 cr</td>
<td>BIO 413 – Marine Ichthyology*</td>
<td>3 cr</td>
</tr>
<tr>
<td>GEO 450 – Regional Geography / Geology Field Study</td>
<td>3 cr</td>
<td>BIO 417 – Coastal Herpetology*</td>
<td>3 cr</td>
</tr>
<tr>
<td>ESS 397- Intro to Research (by advis)</td>
<td>3 cr</td>
<td>BIO XXX – Marine Mammals*</td>
<td>3 cr</td>
</tr>
<tr>
<td>ESS 404 – Applied Meteorology &amp; Climatology – or GEO 203 Climatology</td>
<td>3 cr</td>
<td>BIO XXX – Marine Botany*</td>
<td>3 cr</td>
</tr>
<tr>
<td>ESS 410 – Sedimentary Geology &amp; Paleoenv.</td>
<td>3 cr</td>
<td>BIO XXX – Marine Ichthyology*</td>
<td>3 cr</td>
</tr>
<tr>
<td>ESS 490 – Special Topics (by advis.)</td>
<td>3 cr</td>
<td>BIO 442 – Aquatic Ecology</td>
<td>3 cr</td>
</tr>
<tr>
<td>BIO 315 – Marine Invertebrates*</td>
<td>3 cr</td>
<td>BIO 444 – Conservation Biol*</td>
<td>3 cr</td>
</tr>
<tr>
<td>BIO 393 – Special Topics (by advis)</td>
<td>3 cr</td>
<td>BIO 462 – Invertebrate Zoo.</td>
<td>3 cr</td>
</tr>
<tr>
<td>BIO 391 or 392 – Internship (by advis)</td>
<td>3 cr</td>
<td>BIO 463 – Vertebrate Zoo.</td>
<td>3 cr</td>
</tr>
<tr>
<td>BIO 397/8 – Intro. to Research (by advis)</td>
<td>3 cr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Marine Science Capstone (select 1)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option A: Course-based capstone – ESS 451 or GEO 450 or BIO 401 or BIO 547 or by advis.</td>
<td>3 cr</td>
<td></td>
</tr>
<tr>
<td>Option B: Research-based capstone – ESS 397 OR ESS 475 OR BIO 397 OR BIO 398</td>
<td>3 cr</td>
<td></td>
</tr>
<tr>
<td>Option A: Internship-based capstone – GEO 360 OR BIO 391 OR BIO 392</td>
<td>3 cr</td>
<td></td>
</tr>
</tbody>
</table>

**Special thanks to our partner:**