Advising for Spring 2014

Earth Sciences

Geology

http://www.buffalostate.edu/earthsciences/
Consult with your Advisor every semester

- If you don’t know who that is, see Cindy Wong in the Department office.
- The Department office and the Chair are always open to you. Come and see us for anything and everything. We’re here to help.
- (That goes for all of the faculty as well.)
Our Programs

1. **BS – Earth Sciences**
   a. Earth Science (intended for teaching cert.)
   b. Environmental Earth Sciences
   c. Geology
   d. *Planetary Science* — under construction

2. **BA – Geology**

3. **Departmental Honors Program**  (click here)
Our Programs

Notes:

differences between the schedule and the undergraduate catalog/Degree Navigator

GES 308 is GES 408
GES 404 is GES 450
(same courses, just different numbers)

GES 307 is 4 credits
BA Geology and BS Earth Sciences

A note about electives

At the discretion of the Dept. Chair and Earth Sciences faculty, upper-division GES electives may count toward your degree. These include:

GES 389 – special geoscience course offering this Fall: “Dinosaurs of the Mesozoic Era”
GES 488 – Geoscience Internship
GES 495 – Undergraduate Project
GES 497 – Geoscience Workshop
GES 499 – Undergraduate Research
Course Scheduling

Every Semester
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro. Geol. Lab
GES 131 – Introductory Astronomy
GES 241 – Meteorology
GES 223 – Environmental Earth Science
GES 410 – Undergraduate Research Seminar

Courses with variable scheduling
GES 224 – Geological Hazards
GES 310 – Great Lakes Environmental Issues
GES 33x – upper-division astronomy elective
GES 350 – Environmental Geochemistry
GES 360 – Forensic Geoscience
GES 389 – Earth Systems
GES 401 – Igneous & Metamorphic Petrology
GES 465 – Tectonics
ENS 300 – Environmental Science Seminar

Fall ONLY Courses
GES 111 – Oceanography
GES 300 – Sedimentology
GES 302 – Invertebrate Paleontology
GES 303 – Mineralogy & Petrology
GES 332 – Stars and Stellar Astronomy
GES 450W – Field Geology
GES 452 – Hydrogeology

Spring ONLY Courses
GES 301 – Stratigraphy
GES 307 – Geomorphology
GES 408W – Structural Geology
GES 405 – Geology of North America
GES 460 – Applied Environmental Methods
Geosciences, Spring 2014

GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Introductory Geology Laboratory
GES 131 – Introductory Astronomy
GES 223 – Environmental Earth Science
GES 224 – Geological Hazards
GES 241 – Meteorology
GES 301 – Stratigraphy
GES 331 – Solar System Astronomy
GES 350 – Environmental Geochemistry
GES 389 – Earth Systems
GES 405 – Geology of North America
GES 408W – Structural Geology
GES 410 – Undergraduate Research Seminar
GES 460 – Environmental Field Methods and Analysis
Special Note, January 2014

**GEG 325** – Maps and Mapmaking Using GIS  
(Geography Department)

Other Courses, Spring 2014

**GEG 325** – Maps and Mapmaking Using GIS  
**GEG 365** – Soil Science and Management  
**GEG 425** – Fundamentals of GIS
Preview for Fall 2014

- Usual lower-divisions: GES 101, 102, 103, 131

GES 111 – Oceanography
GES 241 – Meteorology
GES 300 – Sedimentology
GES 302 – Invertebrate Paleontology
GES 303 – Mineralogy & Petrology
GES 350 – Environmental Geochemistry
GES 450W – Field Geology
GES 452 – Hydrogeology

NOTE: GES 307 – Geomorphology will be taught Spring 2015
Other Information

Changes in Intellectual Foundations requirements, Fall 2014.

Buffalo State Minor Programs.
- e.g., GIS Minor Program

Recruiting Geology and Earth Sciences “Ambassadors” to area schools.
Graduating?
Here's what else you need to know:

Deadline for Graduation Application:
Early February, 2014 (for May, 2014)

- Use the Career Development Center (GC 306)
  - For help with resume and cover letter writing
  - Information about jobs in your field
  - Help with graduate school applications

- Ask your advisor for more information.
Graduate School in Geology? Here’s what else you’ll need:

It is important to have a grounding in some other science, math and certain geology courses.

- One year chemistry (CHE 111-112)
- One year physics (PHY 111-112)
- One year calculus (MAT 126/7 or higher) and/or statistics (MAT 311)
- GES 450W – Field Geology and some research experience
  - or -
  Geology Field Camp (summer 5 or 6 weeks).
Earth Sciences / Geology
Annual Awards and Recognition Celebration 2013-2014

Don’t miss it!
End of the Spring semester
We’re honoring YOU.

TBA in April, 2014
SAMC Atrium

Look for posters

Free to all.
Co-sponsored by the Geology Club
Don’t miss it! Plan for it (4 days)
Labor Day Weekend - September 5-8, 2014
Ohio – Pennsylvania - Maryland

This is not a tease, but this is one of the locations from a recent Department trip.
Department Field Trip
2014

Don’t miss it! Plan for it (4 days).
Labor Day Weekend, September, 2014

Details to be announced in the Spring.

Skagway, Alaska
Questions?

Ask now, and see your advisor.

Who’s your advisor?
Ask Cindy Wong.
If you are in Education, you have two advisors.
Our Programs

1. **BS – Earth Sciences**
   a. Earth Science (for teaching cert.)
   b. Environmental Earth Sciences
   c. Geology
   d. **Planetary Science** — under construction

2. **BA – Geology**

3. **Departmental Honors Program** [click here]
BS Earth Sciences

The Core Courses:

Lower Division
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro Geology Laboratory
GES 111 – Oceanography
GES 131 – Introductory Astronomy

Upper Division
GES 303 – Mineralogy and Petrology
GES 307 – Geomorphology
GES 408 – Structural Geology (GES 408W)
BS Earth Sciences

The Core Courses:

Lower Division
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro Geology Laboratory
GES 111 – Oceanography
GES 131 – Introductory Astronomy

Upper Division
GES 303 – Mineralogy and Petrology
GES 307 – Geomorphology
GES 408 – Structural Geology (GES 408W)

Earth Sciences Concentration
GES 241 – Meteorology
GES 302 – Invertebrate Paleontology
GES 405 – Geology of North America
One upper-division Astronomy course
One upper-division GES course

For teaching certification, there are other required courses in the other sciences and Science Ed. Courses to complete.

see the Science Education faculty for more information.
BS Earth Sciences

The Core Courses:

**Lower Division**
- GES 101 – Introductory Geology
- GES 102 – Historical Geology
- GES 103 – Intro Geology Laboratory
- GES 111 – Oceanography
- GES 131 – Introductory Astronomy

**Upper Division**
- GES 303 – Mineralogy and Petrology
- GES 307 – Geomorphology
- GES 408 – Structural Geology (GES 408W)

Earth Sciences Concentration
- GES 241 – Meteorology
- GES 302 – Invertebrate Paleontology
- GES 405 – Geology of North America

One upper-division Astronomy course
One upper-division GES course

For teaching certification, there are other required courses in the other sciences and Science Ed. Courses to complete

- see the Science Education faculty for more information.

Environmental Earth Sciences Concentration
- GES 300 – Sedimentology
- GES 301 – Stratigraphy
- GES 452 – Hydrogeology
- GES 460 – Applied Environmental Methods

Electives (two of the following)
- GES 350 – Environmental Geochemistry
- GEG 365 – Soil Science and Management
- GES 409 – Fluvial Geomorphology (phased out)
- GES 444 – Global Systems Geomorphology
- GES 450 – Field Geology (as GES 450W)
- CHE 111 & CHE 112 strongly recommended.
BS Earth Sciences

The Core Courses:

Lower Division
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro Geology Laboratory
GES 111 – Oceanography
GES 131 – Introductory Astronomy

Upper Division
GES 303 – Mineralogy and Petrology
GES 307 – Geomorphology
GES 408 – Structural Geology (GES 408W)

Earth Sciences Concentration
GES 241 – Meteorology
GES 302 – Invertebrate Paleontology
GES 405 – Geology of North America
One upper-division Astronomy course
One upper-division GES course

For teaching certification, there are other required courses in the other sciences and Science Ed. Courses to complete –

see the Science Education faculty for more information.

Environmental Earth Sciences Concentration
GES 300 – Sedimentology
GES 301 – Stratigraphy
GES 452 – Hydrogeology
GES 460 – Applied Environmental Methods

Electives (two of the following)
GES 350 – Environmental Geochemistry
GEG 365 – Soil Science and Management
GES 409 – Fluvial Geomorphology (phased out)
GES 444 – Global Systems Geomorphology
GES 450 – Field Geology (as GES 450W)

CHE 111 & CHE 112 strongly recommended.

Geology Concentration
GES 300 – Sedimentology
GES 301 – Stratigraphy
GES 302 – Invertebrate Paleontology
GES 405 – Geology of North America

Electives (one of the following)
GES 401 – Igneous & Metamorphic Petrology
GES 405 – Geology of North America
GES 444 – Global Systems Geomorphology
GES 465 – Tectonics
Lower Division
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro Geol Laboratory
(Plus a year of Chemistry – CHE 111-112)

Upper Division
GES 300 – Sedimentology
GES 301 – Stratigraphy
GES 302 – Invertebrate Paleontology
GES 303 – Mineralogy and Petrology
GES 408 – Structural Geology (GES 408W)

Electives by Advisement (9 credits)
GES 307 – Geomorphology
GES 350 – Environmental Geochemistry
GES 401 – Igneous & Metamorphic Petrology
GES 403 – Glacial Geology
GES 409 – Fluvial Geomorphology (phased out)
GES 444 – Global Systems Geomorphology
GES 450 – Field Geology (as GES 450W)
GES 452 – Hydrogeology
GES 460 – Applied Environmental Methods
GES 465 – Tectonics
BA Geology vs. BS ES, Geology Concentration

BA Geology

Lower Division
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro Geol Laboratory
(Plus a year of Chemistry – CHE 111-112)

Upper Division
GES 300 – Sedimentology
GES 301 – Stratigraphy
GES 302 – Invertebrate Paleontology
GES 303 – Mineralogy and Petrology
GES 408 – Structural Geology (GES 408W)

Electives by Advisement (9 credits)
GES 307 – Geomorphology
GES 350 – Environmental Geochemistry
GES 401 – Igneous & Metamorphic Petrology
GES 403 – Glacial Geology
GES 444 – Global Systems Geomorphology
GES 450 – Field Geology (as GES 450W)
GES 452 – Hydrogeology
GES 460 – Applied Environmental Methods
GES 465 – Tectonics

BS ES Geology Concentration

The Core Courses:

Lower Division
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro Geol Laboratory
GES 111 – Oceanography
GES 131 – Introductory Astronomy

Upper Division
GES 303 – Mineralogy and Petrology
GES 307 – Geomorphology
GES 408 – Structural Geology (GES 408W)

Geology Concentration
GES 300 – Sedimentology
GES 301 – Stratigraphy
GES 302 – Invertebrate Paleontology
GES 450 – Field Geology (as GES 450W)

Electives (one of the following)
GES 401 – Igneous & Metamorphic Petrology
GES 403 – Glacial Geology
GES 405 – Geology of North America
GES 444 – Global Systems Geomorphology
GES 465 – Tectonics
General Education

Minimum requirements for your degree:

1. Complete the requirements of the major.

2. Complete 2 “writing” intensive courses.

3. Complete at least 120 credit hours as follows:
   - At least 33 upper-division credits
   - At least 32 upper-division credits at BSC (“residency”)
   - At least the last 16 upper-division credits at BSC

4. Final minimum cumulative GPA of 2.0 or higher.

5. Final minimum major GPA of 2.0 or higher.

6. Clear all I, N, or X grades.
General Education

In effect, your degree is in thirds:

1. The major (~ 42 credits)

2. General Education (Intellectual Foundations) requirements

3. “Free” electives - fill these with math, chemistry, physics, CIS, and more GES courses
General Education

GES Course Sequencing

GES 101 and GES 103
The “gateway” courses into ES and Geology major programs.
GES Course Sequencing

GES 101 and GES 103
The “gateway” courses into ES and Geology major programs.

GES 303 – Mineralogy and Petrology (fall)
GES Course Sequencing

GES 101 and GES 103
The “gateway” courses into ES and Geology major programs.

GES 303 – Mineralogy and Petrology (fall)
than
GES 408W – Structural Geology (spring)
GES Course Sequencing

GES 101 and GES 103
The “gateway” courses into ES and Geology major programs.

GES 303 – Mineralogy and Petrology (fall)
then
GES 408W – Structural Geology (spring)
then
GES 450W – Field Geology (fall)
Course Scheduling

Every Semester
GES 101 – Introductory Geology
GES 102 – Historical Geology
GES 103 – Intro. Geol. Lab
GES 131 – Introductory Astronomy
GES 241 – Meteorology
GES 223 – Environmental Earth Science
GES 410 – Undergraduate Research Seminar

Courses with variable scheduling
GES 224 – Geological Hazards
GES 310 – Great Lakes Environmental Issues
GES 33x – upper-division astronomy elective
GES 350 – Environmental Geochemistry
GES 360 – Forensic Geoscience
GES 389 – Earth Systems
GES 401 – Igneous & Metamorphic Petrology
GES 465 – Tectonics
ENS 300 – Environmental Science Seminar

Fall ONLY Courses
GES 111 – Oceanography
GES 300 – Sedimentology
GES 302 – Invertebrate Paleontology
GES 303 – Mineralogy & Petrology
GES 307 – Geomorphology
GES 450W – Field Geology
GES 452 – Hydrogeology

Spring ONLY Courses
GES 301 – Stratigraphy
GES 408W – Structural Geology
GES 444 – Advanced Geomorphology
GES 405 – Geology of North America
GES 460 – Applied Environmental Methods
Important Background courses for upper-division GES Courses

For success in upper-division GES courses:
It is important to have a grounding in some of the other cognate sciences...

<table>
<thead>
<tr>
<th>Course</th>
<th>Recommended prerequisite courses</th>
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</thead>
<tbody>
<tr>
<td>GES 300</td>
<td>Chemistry (CHE 107 or 111); Math</td>
</tr>
<tr>
<td>GES 303</td>
<td>Chemistry (CHE 107 or 111); Math</td>
</tr>
<tr>
<td>GES 408</td>
<td>Physics (PHY 107 or 111); Math</td>
</tr>
</tbody>
</table>
Important GES courses for 300- and 400-level GES Courses

It is important to have a grounding in upper-level GES courses for success in some 300- and 400-level GES courses.

**Course Prerequisite(s)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>GES 301</td>
<td>GES 300</td>
</tr>
<tr>
<td>GES 401</td>
<td>GES 303</td>
</tr>
<tr>
<td>GES 408</td>
<td>GES 303 (+ physics &amp; math rec’d)</td>
</tr>
<tr>
<td>GES 450</td>
<td>GES 303, GES 408</td>
</tr>
<tr>
<td>GES 452</td>
<td>one upper-division GES course (math rec’d)</td>
</tr>
<tr>
<td>GES 465</td>
<td>GES 408</td>
</tr>
</tbody>
</table>
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Here’s what else you’ll need:

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