GLE Degree Requirements

Presented by
GLE Student Chapter

GLE Advising, Fall 2015
Overview

1. General College Requirements (GCR)
2. Breakdown of *Required Courses*
3. Certificates offered by COE
4. Research
5. Graduate School
6. Study Abroad Opportunities
7. Internships/Getting a Job
8. Officers/Advisors/Professors Q and A after
General College Requirements

If you have questions, please speak with your specific EGR advisor (Student Center), attend your designated EGR Advising Night, or stop by Engineering Centers Building (ECB) for drop in advising.
Double Major with Geoscience

- Minimum 2.5 GPA
- Apply after taking 1 of 3:
  - Geoscience 202
  - Geoscience 204
  - Geoscience 360
- Allows for taking P.G. after Graduation
- Geoscience receives funding
  - More spots available for you to sign up
  - More TA’s
  - SUPER IMPORTANT
- Get on both email list (jobs, talks, events, free food)
## Required Courses

- GLE handbook – GLE Main Page!  
  [http://gle.wisc.edu/undergraduate-2/](http://gle.wisc.edu/undergraduate-2/)

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<th>Category</th>
<th>Minimum Credits Needed</th>
</tr>
</thead>
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<td>Engineering Principles &amp; Professional Issues Requirement</td>
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<td>Technical Electives Requirement</td>
<td>15</td>
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<td>Communication Skills Requirement</td>
<td>5</td>
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<td>Liberal Studies Requirement</td>
<td>16</td>
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<tr>
<td>Fundamentals of Engineering Exam</td>
<td>--</td>
</tr>
</tbody>
</table>

**Total GLE Credits**: 104  
**GCR Credits**: 21  
**Total Number of Credits Needed**: 125
# Engineering Principles & Professional Issues Requirement

(10-11 Credits)

The following courses are required:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>One of the following Statistics Courses:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stat 324</td>
<td>Introductory Applied Statistics for Engineers</td>
<td>Math 222 or con reg</td>
<td>3</td>
</tr>
<tr>
<td>Stat 311</td>
<td>Introduction to Mathematical Statistics</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>The following Computer-Based Problem Solving course:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLE 291</td>
<td>Problem Solving Using Computer Tools</td>
<td>EMA 202 or 304</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>The following Engineering Economics course:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISYE 313</td>
<td>Engineering Economics Analysis</td>
<td>Sophomore Status</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>One of the following courses in Professionalism, Ethics, and Sustainability:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>InterEGR 102</td>
<td>Intro to Society’s Engineering Challenges</td>
<td>Fr. status only</td>
<td>2</td>
</tr>
<tr>
<td>GLE 401</td>
<td>Ethics &amp; Professionalism-Geological Engr</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>-(401 special topics seminar)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EnvrSt 250</td>
<td>Introduction to Sustainability Science</td>
<td>1 semester calculus</td>
<td>3</td>
</tr>
<tr>
<td>EnvrSt 339</td>
<td>Environmental Conservation</td>
<td>Sophomore Standing</td>
<td>4</td>
</tr>
<tr>
<td>EnvrSt 441</td>
<td>Environmental Ethics</td>
<td>3 cr. of Philos or Enviro Studies</td>
<td>4</td>
</tr>
</tbody>
</table>
# Geoscience

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One of the Following Intro Geoscience Courses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geoscience 100</td>
<td>General Geology</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>Geoscience 106</td>
<td>Environmental Geology</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>Geoscience 101</td>
<td>General Geology (transfer students)</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>The following Geoscience courses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geoscience 202</td>
<td>Introduction to Geologic Structures</td>
<td>Geosci 100/101/106 or cons inst</td>
<td>4</td>
</tr>
<tr>
<td>Geoscience 204</td>
<td>Geologic Evolution of Earth</td>
<td>Geosci 100/101/106 or cons inst</td>
<td>4</td>
</tr>
<tr>
<td>Geoscience 360</td>
<td>Mineralogy</td>
<td>1 year college chemistry or con reg</td>
<td>3</td>
</tr>
<tr>
<td>Geoscience 370</td>
<td>Petrology</td>
<td>Geosci 360</td>
<td>4</td>
</tr>
<tr>
<td>Geoscience 431</td>
<td>Sedimentary &amp; Stratigraphy Lab</td>
<td>Geosci 204, 360, &amp; 370</td>
<td>1</td>
</tr>
<tr>
<td>Geoscience 455</td>
<td>Structural Geoscience</td>
<td>Geosci 202/204, 1 semester Physics</td>
<td>3</td>
</tr>
</tbody>
</table>
# GLE core classes

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Degree Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The following Geophysics courses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLE 594</td>
<td>Introduction to Applied Geophysics</td>
<td>1 yr. of both college Calculus &amp; Physics</td>
<td>3</td>
</tr>
<tr>
<td>GLE 595</td>
<td>Field Methods: Applied Geophysics</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td><strong>The following Soil, Rock, &amp; Groundwater courses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLE 330</td>
<td>Soil Mechanics</td>
<td>EMA 303 or 304 or con reg</td>
<td>4</td>
</tr>
<tr>
<td>GLE 474</td>
<td>Rock Mechanics</td>
<td>EMA 201 or cons inst</td>
<td>3</td>
</tr>
<tr>
<td>GLE 627</td>
<td>Hydrogeology</td>
<td>Intro course in Geoscience, Jr. status &amp; Math 221</td>
<td>4</td>
</tr>
<tr>
<td><strong>The following Analysis &amp; Design course:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLE 479</td>
<td>Geological Engineering Design</td>
<td>Senior standing in GLE and cons inst</td>
<td>3</td>
</tr>
</tbody>
</table>

*Take 594 and 595 together and after 291!
EPD Requirements

- Meets your Communication B requirements
- Recommendation: Take EPD 275 before EPD 397

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Degree Credits</th>
<th>Design Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPD 275</td>
<td>Technical Presentations</td>
<td>Sophomore status</td>
<td>2</td>
<td>0.0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Degree Credits</th>
<th>Design Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPD 397</td>
<td>Technical Writing</td>
<td>Jr. status</td>
<td>3</td>
<td>0.0</td>
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# Math and Physics

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Degree Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 234</td>
<td>Calculus and Analytical Geometry</td>
<td>Math 222</td>
<td>4</td>
</tr>
</tbody>
</table>

*One of the following Physics courses:*

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Degree Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 202</td>
<td>General Physics</td>
<td>Physics 201 or equivalent</td>
<td>5</td>
</tr>
<tr>
<td>Physics 208</td>
<td>General Physics</td>
<td>Physics 207</td>
<td>5</td>
</tr>
</tbody>
</table>

*The following Mechanics courses:*

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Degree Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMA 202</td>
<td>Dynamics</td>
<td>EMA 201 or 214; and Math 222</td>
<td>3</td>
</tr>
<tr>
<td>EMA 303</td>
<td>Mechanics of Materials</td>
<td>EMA 201 &amp; Math 222</td>
<td>3</td>
</tr>
<tr>
<td>CEE 310</td>
<td>Fluid Mechanics</td>
<td>Math 234 &amp; EMA 202 or equiv</td>
<td>3</td>
</tr>
</tbody>
</table>
Liberal Electives

(Confused still? Look at DARS if unsure)

• 16 TOTAL CREDITS NEED TO BE TAKEN
• Min 1 class Ethnic Studies Class (e)
  • To count towards 16cr, must be in Humanities or Social Science
• Min 6 Credits Humanities (H, L or Z)
• Min 3 Credits from Social Science (S or Z)
• Min 2 Courses need to be from the same department
• Foreign Language does count for COE
• These classes are a “break” from your Engineering coursework so take classes that sound interesting to you!

PAY ATTENTION TO DESIGNATION
Technical Electives

- NEED A TOTAL OF 15 Credits
  - 2 classes need to have the Design (D) designation
    - Geohazards (GH)
    - Energy, Minerals, Mining (E)
    - Sustainability and Environment (SE)
    - Ground Water and Surface Water (GWSW)
    - Infrastructure (I)

- Note: While taking these courses is a good way to focus your studies in a specific area, these will not show up on diploma.

- Do not need to focus on one area!
## Tech Electives Being Offered in Fall 2015

<table>
<thead>
<tr>
<th>Department</th>
<th>Class Number</th>
<th>Name</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE</td>
<td>367</td>
<td>Renewable Energy Sources</td>
<td>E SE</td>
</tr>
<tr>
<td>CEE</td>
<td>311</td>
<td>Hydrosience</td>
<td>GWSW</td>
</tr>
<tr>
<td>CEE</td>
<td>315</td>
<td>Hydrology</td>
<td>GWSW</td>
</tr>
<tr>
<td>CEE</td>
<td>320</td>
<td>Environmental Engineering</td>
<td>SE</td>
</tr>
<tr>
<td>CEE</td>
<td>357</td>
<td>Intro to GIS</td>
<td>E GWSW</td>
</tr>
<tr>
<td>CEE</td>
<td>427</td>
<td>Solid and Hazardous Wastes Engineering</td>
<td>(DESIGN CREDIT) E</td>
</tr>
<tr>
<td>CEE</td>
<td>500</td>
<td>Water Chemistry</td>
<td>GWSW</td>
</tr>
<tr>
<td>CEE</td>
<td>514</td>
<td>Coastal Engineering</td>
<td>(DESIGN CREDIT) GH</td>
</tr>
<tr>
<td>EMA</td>
<td>405</td>
<td>Practium to Finite Elements</td>
<td>E GH I</td>
</tr>
<tr>
<td>Geosci</td>
<td>411</td>
<td>Energy Resources</td>
<td>SE E</td>
</tr>
<tr>
<td>GLE</td>
<td>401</td>
<td>Special Topics in Geological Engineering</td>
<td>(NOT TECH ELECTIVE) Ethics</td>
</tr>
<tr>
<td>GLE</td>
<td>530</td>
<td>Seepages and Slopes</td>
<td>(DESIGN CREDIT) E GH GWSW I</td>
</tr>
<tr>
<td>GLE</td>
<td>532</td>
<td>Foundations</td>
<td>(DESIGN CREDIT) I</td>
</tr>
<tr>
<td>SOIL SCI</td>
<td>321</td>
<td>Soils and Environmental Chemistry</td>
<td>SE</td>
</tr>
<tr>
<td>SOIL SCI</td>
<td>324</td>
<td>Soils and Environmental Quality</td>
<td>SE</td>
</tr>
</tbody>
</table>
BS in Geological Engineering

Effective for Students Accepted to BS GLE Fall 2010 and Later  
(last updated 03/12/14)

Courses in **BOLD** are semester specific

**Fall 1**
- **Math 221** Calculus I 5 cr
- **Chem 109** 5 cr OR
- **Chem 103 & 104** 9 cr
- **Comm A** 2 cr
- **Geosci 100, 101, 106** 3 cr
- **GLE 171** 1 cr
- **Liberal Studies Elective** 3-4 cr

**Spring 1**
- **Math 222** Calc II 4 cr
- **EMA 201** Statics 3 cr
- **Geo 204** Geo. Evolution of the Earth 4 cr
- **GLE 171** 1 cr

**Fall 2**
- **Math 234** Calc III 4 cr
- **EMA 202** Dynamics 3 cr
- **Geo 202** Intro to Geo Structures 4 cr
- **GLE 171** 1 cr

**Spring 2**
- **CEE 310** Fluid Mech 3 cr
- **EMA 303** Mech of Materials 3 cr
- **Geo 370** Petrology 3 cr
- **GLE 171** 1 cr

**Fall 3**
- **Stat 324** Statistics 3 cr
- **Tech Elective** 3 cr
- **Liberal Studies Elective** 3 cr
- **Tech Elective** 3 cr

**Spring 3**
- **Prof. Issues** 1-4 cr
- **GLE 474** Geophysics Lec 3 cr
- **GLE 474** Geophysics Lab 1 cr
- **Tech Elective (design)** 3 cr

**Fall 4**
- **GLE 594** Geophysics Lec 3 cr
- **GLE 595** Geophysics Lab 1 cr
- **Tech Elective (design)** 3 cr
- **Tech Elective (design)** 3 cr

**Spring 4**
- **GLE 479** Senior Capstone Design 3 cr
- **Liberal Studies Elective** 3 cr
- **Liberal Studies Elective** 3 cr
- **ISyE 313** Engr Econ 3 cr

**Courses in BOLD are semester specific**

- **Math 222** Calc II 4 cr
- **Chem 109** 5 cr OR
- **Comm A** 2 cr
- **Geosci 100, 101, 106** 3 cr

**Prereqs:**
- **Intro Geosci & Math**
Certificates – UW’s equivalent to minors

- Each has their own advisor: Go to website to find contact
- Must sign-up to get the certificate through that department
- Certificate in Business
- Certificate in Energy and Sustainability
  [http://energy.wisc.edu/education/energy-certificate](http://energy.wisc.edu/education/energy-certificate)
  [http://sts.wisc.edu/education/ISSuES.html](http://sts.wisc.edu/education/ISSuES.html)
- Certificate in International Engineering
  [http://www.engr.wisc.edu/certificate-in-international-engineering.html](http://www.engr.wisc.edu/certificate-in-international-engineering.html)
- Cert. or Major in Environmental Studies
FE Exam

- Fundamentals of Engineering Exam
  - Most students take: General, Civil, or Environmental
- Needs to be taken before you graduate
- Most take it their last semester – all courses needed to study for it have already been taken
- Look at emails for sign up
- Link: http://ncees.org/exams/fe-exam/
- First step of becoming a Professional Engineer!
FE Exam

• Notes:
  • You need to register and pay the registration fee before you can sign-up for an exam date
  • Make sure to sign-up early in the semester to ensure you get a date that works well for your schedule
  • This exam is now completely online and will be about 6 hours long
Welcome to NCEES

NCEES is a national nonprofit organization dedicated to advancing professional licensure for engineers and surveyors. It develops, administers, and scores the examinations used for engineering and surveying licensure in the United States.

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NCEES launches Squared: a year in numbers
and 2014 Interactive Annual Report more >

NCEES wants young engineers and surveyors to help shape the future of Licensure
Learn about the Emerging Engineers and Surveyors Group. more >

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Find out more about engineering licensure, including the path to the P.E. more >

Surveyors
Find out how to become a licensed surveyor. more >

International
For professionals who are interested in practicing in the United States. more >

Educators
Learn about resources for those who teach engineering or surveying more >

Volunteers
Become an important part of NCEES while giving back to your profession. more >

Prepare for your exam by working through actual exam questions. more >

Let an NCEES Record track what you’ve accomplished so you’re free to work on what’s ahead. more >
Check out the GLE handbook and other student resources on GLE website (just search geological engineering on wisc.edu search bar if you get stuck)
Research for Undergraduates

- Sabrina Bradshaw is the contact (sbradshaw@wisc.edu)
- Talk to your professors and let them know you are interested
- REU (Research Experience for Undergraduates)
Interested In Graduate School?

• It is never to early to ask Professors about it

• What classes should you take?
  • Math 320 Diff. Equ., Tech electives like GLE 401 Wind Energy Site and Foundation Design.

• Try and do some research to see if you would like it.

• Admission questions? Speak with Cheryl Loschko or Prof. Likos.
Study Abroad!

- Traditional Study Abroad
- Non Traditional Study Abroad
Study Abroad!

- PASS/Fail Engineer courses 😊

- NO Pass/Fail L&S (including Geology) Courses

- Many classes that transfer over (Geophysics, Petrology, Physics 202)

- Ask around to see who has gone to get their input!
Non-Traditional Study Abroad

- IVHQ (http://www.volunteerhq.org/), blueEnergy, Habitat For Humanity
- Engineers Without Borders
- GreenProgram
Internships/Jobs

- Create a MyECS and attend a career fair every time
- Be aggressive as a freshman and sophomores
- **Call** & email rather than just submit through a website
- Talk to professors! They know professionals who used to be students....
- Attend GLE Student Chapter meetings, join professional organizations, get involved in research
Questions and Answers
• **Spencer Sellner** (4th year, Internship with ASARCO LLC. (mining), works in housing)

• **Eleanor Bloom** (4th Year, internship with Integrys, worked for CEE department, research with Professor Tinjum on Geotehermal)

• **Joel Krech** (5th Year, Stantec Co-op & Internship, Internship ENVIRON, CEES &IES Cert., research with GLE Department)

• Miranda Kahrilas (4th Year, Geowall Captain, studied abroad in NZ)

• **Brianna Griffin** (4th year, internship with Freeport McMoRan)

• **Mike Zimmerman** (3rd year, research with GLE Department)

• **Greg Horstmeier** (2nd year, works for CEE Department)

• **Cheryl Loschko** (GLE advisor)

Contact: ssellner@wisc.edu, efbloom@wisc.edu, jkrech@wisc.edu, loschko@wisc.edu