

# Advice for Fall 2017

This email has advice for how to make good progress through the ERE major. Read carefully all sections that pertain to your situation.

**Please send all requests for Permission Numbers by Friday April 7 midnight. Most Permission Numbers will be distributed after Friday April 7. Your email request for a permission number must include:**

- A PDF of your DARS
- An explanation of why you are requesting a permission number. Explain why you already do or do not have the prerequisites.
- An indication of the number of ERE required courses you have left to take after completing this Spring 2017 semester and the semester you plan to graduate

We have about 24 students graduating this Fall. We want to make sure all graduating seniors are able to take the courses they need to graduate. So, those students who are graduating and who completed the Fall 2017 Schedule Survey will have priority for registration. Please see specific comments for each design elective below.

**If you were planning on taking ENGR 115 Introduction to Environmental Engineering in Spring 2017, but it did not fit in your schedule...**

**You MUST take ENGR 115 in the fall.** You will have priority registration before all the new incoming students. If you need to take a course that has ENGR 115 as a prerequisite, then you should email the instructor for a permission number. Be sure to follow the instructions provided above. Be sure to explain that you had planned on taking ENGR 115 in the spring, but you were unable to do so.

## **ENGR 333**

You will need a permission number for this course. Use the instructions provided at the top of this email and contact Margaret Lang. Students who completed the Fall 2017 Schedule Survey and have not yet taken the course will have priority.

## **What if a class fills up?**

If you try to register for a course, and it seems to be full, then ask to be put on the wait list and request a permission number from the instructor. Use the instructions provided at the top of this email and contact the course instructor. Students who completed the Fall 2017 Schedule Survey and have not yet taken the course will have priority.

## **ENGR 492 Capstone**

Capstone will only be offered to students that are graduating in Fall 2017 and to a few students who are graduating in Spring 2018. You will need to contact Margaret Lang for a permission number for this course. Please include a pdf copy of your DARS report along with your request as described above.

## **ENGR Design Electives**

You will need a permission number for these courses. Use the instructions provided at the top of this email and contact the course instructor. Students who completed the Fall 2017 Schedule and who are graduating in Fall 2017 will have the highest priority.

## **FAQ – Can I take a 4<sup>th</sup> design elective?**

Some ERE seniors are interested in taking a 4<sup>th</sup> design elective. Please do NOT sign up for a 4<sup>th</sup> design elective until the week before the spring semester. We want to be sure that all ERE students get a chance to sign up for classes they need to graduate.

## **Challenging Four Year Graduation Plan**

The ERE faculty has put together a suggested schedule for completing the ERE program in 4 years. [This 4-year plan](#)\* assumes you are ready to enroll in MATH 109 - Calculus I. Please note that many students take longer than 4 years, as they are not able to successfully complete the suggested number of units each semester. Many students must work outside of school, have family responsibilities, or for some other reason must take a lower unit load.

\*All subject specific courses in the 4-year plan at the link above are described in the HSU Office of Registrar's Course Descriptions section for each respective subject [here](#).

## **Advice for Students with 0-30 Engineering Units**

- The ERE Curriculum meets the following General Education (GE) requirements:
  - Lower Division Area A Communications - So ERE students are not required to take COMM 100.
  - Lower Division Area A Critical Thinking - So ERE students are not required to take Logic, Critical Thinking, Critical Writing, etc.
  - One Lower Division Area D elective - So ERE students need only take the Institutions courses.

- Area E GE Human Integration - So ERE students are not required to an Area E GE (400) course.
- Additional GE Considerations:
  - Engineering majors need only one Area C Upper Division GE course and one Area D Upper Division GE course of the Upper Division GE Component.
  - You can plan your GE courses to simultaneously fulfill your Diversity and Common Ground (DCG) requirements by choosing lower division Area C or upper division Area C or D courses that are also Diversity and Common Ground courses. For example: Women, Culture, History (WS 107) fulfills 3 units of the Area C Lower Division requirements, while also counting for 3 units of the Diversity and Common Ground (Domestic) requirements. And Global Awareness (GEOG 300) fulfills 3 units of the Area D Upper Division requirements, while also counting for 3 units of the Diversity and Common Ground (Non-Domestic) requirements. For complete and current information on Area C and D courses that may double count for DCG requirements, see [listings in the HSU catalog](#) on page 73.
- **Take a math class every semester** ("Every semester you don't take math is a semester you'll be here longer." ---- Professor Elizabeth Eschenbach).
- **Start the engineering science series as soon as you can** if you want to avoid hold-ups in your progress through the curriculum. Start ENGR 210 Statics as soon as you have completed the math prerequisite, then plan on taking ENGR 211, then ENGR 331 and then ENGR 333 in subsequent semesters.
- Consider a minor in another area. Environmental Resources Engineering graduates have earned minors or certificates in areas including Mathematics, Chemistry, Geographic Information Systems, Language, and Environmental Ethics.
- Work with your faculty advisor to develop your individual graduation plan.
- Consider summer school. Most community colleges offer the equivalent of the following courses: MATH 109,110,210; CHEM 109,110; BIO 105; PHYX 110. Check [assist.org](#) to see if a certain California Community College course will automatically articulate to HSU ERE. If you cannot find your course on this list, be sure to check with the ERE department chair to see if a given summer school course will count toward your ERE degree.



## Advice for Spring 2017

This email has advice for how to make good progress through the ERE major. Read carefully all sections that pertain to your situation.

**Please send all requests for Permission Numbers by Friday November 4 midnight. Most Permission Numbers will be distributed before Friday November 11. Your email request for a permission number must include:**

- A PDF of your DARS
- An explanation of why you are requesting a permission number. Explain why you already do or do not have the prerequisites.
- An indication of the number of ERE required courses you have left to take after completing this Fall 2016 semester and the semester you plan to graduate

We have about 15 students graduating this Spring. We want to make sure all graduating seniors are able to take the courses they need to graduate. So, those students who are graduating and who completed the Spring 2017 Schedule Survey will have priority for registration. Please see specific comments for each design elective below.

**If you were planning on taking ENGR 115 Introduction to Environmental Engineering in Fall 2016, but it did not fit in your schedule...**

**You MUST take ENGR 115 in the spring.** You will have priority registration before all the new incoming students. If you need to take a course that has ENGR 115 as a prerequisite, then you should email the instructor for a permission number. Be sure to follow the instructions provided above. Be sure to explain that you had planned on taking ENGR 115 in the fall, but you were unable to do so.

## **ENGR 416, ENGR 322, ENGR 211**

You will need a permission number for these courses. Use the instructions provided at the top of this email and contact Beth Eschenbach. Students who completed the Spring 2017 Schedule Survey and have not yet taken the course will have priority.

## **ENGR 225, ENGR 325, ENGR 333, ENGR 351**

You will need a permission number for these courses. Use the instructions provided at the top of this email and contact the course instructor. Students who completed the Spring 2017 Schedule Survey and have not yet taken the course will have priority.

## **ENGR 492 Capstone**

Capstone will only be offered to students that are graduating in Spring 2017 and to a few students who are graduating in Fall 2017. You will need to contact Kerri Hickenbottom for a

permission number for this course. Please include a pdf copy of your DARS report along with your request as described above.

## **ENGR Design Electives**

You will need a permission number for these courses. Use the instructions provided at the top of this email and contact the course instructor. Students who completed the Spring 2017 Schedule and who are graduating in Spring 2017 will have the highest priority.

## **FAQ – Can I take a 4<sup>th</sup> design elective?**

Some ERE seniors are interested in taking a 4<sup>th</sup> design elective. Please do NOT sign up for a 4<sup>th</sup> design elective until the week before the spring semester. We want to be sure that all ERE students get a chance to sign up for classes they need to graduate.

## **Challenging Four Year Graduation Plan**

The ERE faculty has put together a suggested schedule for completing the ERE program in 4 years. [This 4-year plan](#)\* assumes you are ready to enroll in MATH 109 - Calculus I. Please note that many students take longer than 4 years, as they are not able to successfully complete the suggested number of units each semester. Many students must work outside of school, have family responsibilities, or for some other reason must take a lower unit load.

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## **Advice for Students with 0-30 Engineering Units**

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  - One Lower Division Area D elective - So ERE students need only take the Institutions courses.
  - Area E GE Human Integration - So ERE students are not required to an Area E GE (400) course.
- Additional GE Considerations:
  - Engineering majors need only one Area C Upper Division GE course and one Area D Upper Division GE course of the Upper Division GE Component.

- You can plan your GE courses to simultaneously fulfill your Diversity and Common Ground (DCG) requirements by choosing lower division Area C or upper division Area C or D courses that are also Diversity and Common Ground courses. For example: Women, Culture, History (WS 107) fulfills 3 units of the Area C Lower Division requirements, while also counting for 3 units of the Diversity and Common Ground (Domestic) requirements. And Global Awareness (GEOG 300) fulfills 3 units of the Area D Upper Division requirements, while also counting for 3 units of the Diversity and Common Ground (Non-Domestic) requirements. For complete and current information on Area C and D courses that may double count for DCG requirements, see [listings in the HSU catalog](#) on page 73.
- **Take a math class every semester** ("Every semester you don't take math is a semester you'll be here longer." ---- Professor Elizabeth Eschenbach).
- **Start the engineering science series as soon as you can** if you want to avoid hold-ups in your progress through the curriculum. Start ENGR 210 Statics as soon as you have completed the math prerequisite, then plan on taking ENGR 211, then ENGR 331 and then ENGR 333 in subsequent semesters.
- Consider a minor in another area. Environmental Resources Engineering graduates have earned minors or certificates in areas including Mathematics, Chemistry, Geographic Information Systems, Language, and Environmental Ethics.
- Work with your faculty advisor to develop your individual graduation plan.
- Consider summer school. Most community colleges offer the equivalent of the following courses: MATH 109,110,210; CHEM 109,110; BIO 105; PHYX 110. Check [assist.org](#) to see if a certain California Community College course will automatically articulate to HSU ERE. If you cannot find your course on this list, be sure to check with the ERE department chair to see if a given summer school course will count toward your ERE degree.

## Advice for Students with 30-60 Engineering Units

- **Start the computational methods series** (Computational Methods I, II, and III - ENGR 225, ENGR 325, ENGR 326) **after you have completed Statics** (ENGR 210). You should take Dynamics (ENGR 211) and Comp Methods I (ENGR 225) at the same time, Thermo (ENGR 331) and Comp Methods II (ENGR 331) at the same time and Fluids (ENGR 333) and Comp Methods III (ENGR 326) at the same time if you want to avoid being slowed down in your progress through the program. In ENGR 326 you will design your own project, and you need to have enough engineering background (e.g., ENGR 331-Thermodynamics completed, and enrolled in ENGR 333-Fluid Mechanics) to have an excellent project.
- **Complete Fluid Mechanics (ENGR 333) and the Computational Methods III (ENGR 326) as early as possible.** Most of the 400-level courses require the skills and knowledge learned in these classes or their prerequisites. People have put these

courses off and then have been stuck without any other ENGR courses that they can take.

- If you are interested in energy, plan to take General Physics II (PHYX 110) early and to take Electronics & Electronic Instrumentation (PHYX 315) as your Science Elective. PHYX 315 is a required prerequisite for Renewable Energy Power Systems (ENGR 475), and is strongly recommended for the other energy design courses (ENGR 471, ENGR 473, ENGR 477). However, if you do not plan on taking energy design courses and you need some flexibility in your schedule, you can take PHYX 110 later in your program - but, if you wait too long, you will have a hard time scheduling your ENGR 400 level courses around PHYX 110, so do not wait too long or take this course in the summer.
- It is important to always keep an up-to-date résumé. Services and workshops are available through the Academic and [Career Advising Center](#), and ask a professor to review your resume. A completed résumé is one less obstacle when looking for an internship or job.

## Advice for Students with 60 or more Engineering Units

### Planning for graduation

You should check that you have fulfilled all the requirements to graduate. To graduate you need to make sure that you have fulfilled three requirements:

- Graduation Contract. Your [Graduation Contract](#) should be turned in about a year before you plan to graduate. Your Graduation Contract is due no later than [two weeks after the beginning of the semester](#) that you plan to graduate. The Graduation Contract is a list of the courses you have completed, the grades received in those courses, and the courses you intend to take to complete your B.S. Degree in Environmental Resources Engineering. Transfer students should fill out their Graduation Contract as soon as they get to HSU, so they know which of their previous courses are articulated into their major requirements.
- Application for Graduation. Your [Graduation Contract](#) should be turned in at the same time as your [Application for Graduation](#), a simple form available in the [Registrar's Office](#).
- Graduation Writing and Proficiency Exam. In order to graduate you must pass the Graduation Writing and Proficiency Exam ([GWPE](#)). The exam is given [twice in the Fall semester and twice in the Spring semester](#). Students are eligible as soon as they have completed English 103 or English 104 and reached Junior status. The exam involves writing two forty-five minute essays.

## Fundamentals of Engineering (FE) Exam

Engineering registration (also known as engineer licensing) in the United States is an examination process by which a state's board of engineering licensing determines and certifies that you have achieved a minimum level of competence. The first exam in this process is the

Fundamentals of Engineering (FE) Exam (also known as the Engineer-in-Training (EIT) Exam). The FE exam covers basic subjects from mathematics, physics, chemistry and engineering. The exam has recently transitioned to a computer-based exam, and information is available from the National Council of Examiners for Engineering and Surveying ([NCEES](#)). Students passing the exam receive their EIT license, the first step in attaining a Professional Engineering license.

Keep the following in mind as you prepare for the exam:

- Having an EIT license can help you get your first job and completing the series of professional engineering licensing exams often results in a pay raise.
- You should take the test 6 months before or after graduating.
- FE Exam study manuals and study assistance are often available at the [National Council of Examiners for Engineering and Surveying](#) website.
- The ERE faculty are happy to assist students reviewing for the FE Exam. We are offering an FE Seminar. Our program has a very high pass rate compared to the rest of California.

## Advice for students considering graduate school

You should know why you want to attend graduate school. A masters degree increases your career opportunities, provides you with additional credentials and can allow you to specialize in a field of interest. A doctorate will allow you to further specialize. With a doctorate you can consider a career in research or in academia, where you will teach and do research.

There are two types of Masters Programs: Research Based and Project Based

- A research based masters develops your research skills and prepares you for pursuing a doctorate. It is a good way to test if you like doing research. A disadvantage of a research based masters is that the research may have an indefinite time line. Therefore, it might take you longer than you expect to finish.
- A project based masters will have a well defined project and a more definite time line, but will not provide you with research experience.

Most firms do not prefer a research based masters versus a project based masters, but some doctorate programs may prefer a research based masters degree.

The degrees associated with the research and project based programs vary. The names mean different things at different universities. Some of the potential degrees are:

- Master of Engineering
- Master of Science
- Doctor of Philosophy
- Doctor of Engineering
- Doctor of Science

If you are considering graduate school keep the following in mind.

- Keep your GPA high, especially in your 400-level courses.
- Consider reading a book on preparing for graduate school. Many people find the graduate school experience quite different than the undergraduate experience. However, ERE graduates say they are well prepared for graduate school.



- If you think you may be interested in participating in research, try to get involved with an ERE faculty research project or a summer undergraduate research program, such as an REU via the National Science Foundation.
- If you intend to get a Ph.D. in Engineering, take more mathematics and chemistry as an undergraduate. These courses will only help you.

### Graduate School Planning and Scheduling

Once you decide you want to go to graduate school do a literature search, pick an area of study, and then ask faculty to help you find programs and people in that area. Identify people with whom you would like to work. Are they doing research that interests you? Visit the Academic and [Career Advising Center](#), for further information on searching for graduate schools.

Applications for graduate schools are generally due from December 15 through March 1. Applications require a series of steps.

- Take the [GRE exam](#). Many schools require both the General and the Engineering Subject Exam. The General Exam is very similar to the SAT. Be sure to study for the GRE; you can improve your score significantly.
- You will need Letters of Recommendation. Be sure to give your references plenty of time to complete these for you. Remind them a few days before they are due.
- Your application process will likely require a "Statement of Interest". Get help from faculty to create a concise and well formed statement.

Once accepted to a graduate school, visit prospective schools, if possible, to meet with faculty AND graduate students. Acceptance letters and coordinated visits usually occur in March and April.



## Advice for Fall 2015

This email has advice for how to make good progress through the ERE major. Read carefully all sections that pertain to your situation.

**Please send all requests for Permission Numbers by Friday April 10 midnight. Most Permission Numbers will be distributed on Friday April 17. Your email request for a permission number must include:**

- A PDF of your DARS
- An explanation of why you are requesting a permission number. Explain why you already do or do not have the prerequisites.

- An indication of the number of ERE required courses you have left to take after completing this Spring 2015 semester and the semester you plan to graduate
- If you are signing up for a class that has ENGR 333 as a prerequisite, be sure to indicate when you were first eligible to take ENGR 333.

We have about 25 students graduating this fall. We want to make sure all graduating seniors are able to take the courses they need to graduate. So, those students who are graduating and who completed the Fall 2015 Schedule Survey will have priority for registration. Please see specific comments for each design elective below.

## **If you were planning on taking ENGR 115 Introduction to Environmental Engineering in Spring 2015, but it was not offered.....**

**You MUST take ENGR 115 in the fall.** You will have priority registration before all the new incoming students. If you need to take a course that has ENGR 115 as a prerequisite, then you should email the instructor for a permission number. Be sure to follow the instructions provided above. Be sure to explain that you had planned on taking ENGR 115 in the spring, but you were unable to do so.

## **If you were planning on taking ENGR 333 Fluid Mechanics Spring 2015, but it was not offered.....**

**You should take ENGR 333 in the fall.** If for some reason you need a permission number to sign up for ENGR 333, use the instructions provided at the top of this email and send a request to Margaret Lang. If you are interested in taking a class in the fall semester that has ENGR 333 as a prerequisite, follow the instructions provided at the top of this email.

## **ENGR 416 or ENGR 351 or ENGR 331**

If you need a permission number for these courses, use the instructions provided at the top of this email and contact Beth Eschenbach.

## **ENGR 492 Capstone**

Capstone will only be offered to students that are graduating in Fall 2015. You will need to contact Andrea Achilli for a permission number for this course. Please include a pdf copy of your DARS report along with your request.

## **ENGR 441 Hydrology II**

Fifteen spaces will be available for students that have the course prerequisites. The last 9 spaces will be allocated based on priority. If you are not able to sign up for the class, use the instructions at the top of this email to request a permission number form Margaret Lang.

## **ENGR 451 Water and Wastewater Treatment**

Only graduating students that have signed up for ENGR 451 on the Fall 2015 Schedule Survey are able to take this course. This course is very popular, but we can only offer one section of 18 students each semester. Use the instructions at the top of this email to request a permission number from Brad Finney.

## **ENGR 481 – Design of Water Treatment for Water Reuse Systems Prereqs: ENGR 416 (may be taken concurrently)**

Water scarcity and the environmental impacts of energy production are some of the most urgent and difficult problems the world is facing. Water sustainability is essential for meeting human needs for drinking water in both developing and developed countries. Locally, in California, more than half of the population lives in water stressed areas. High-quality reuse, strategic decentralization, and low energy consumption are key objectives to achieving sustainability in water supply. This course will present and cover conventional physico-chemical water treatment technologies and introduce state-of-the-art technologies for potable water reuse and desalination. Emphasis will be given to California-specific issues and tailored technologies will be explored. During the course, a group-based semester-long design project on a real-case problem will also be developed.

Students interested in taking this course must use the instructions at the top of this email to send a permission number request to Andrea Achilli.

## **ENGR 477 Solar Thermal Engineering**

Thirty spaces will be available for students that have the course prerequisites. The last 18 spaces will be allocated based on priority. Use the instructions at the top of this page if you require a permission number from Arne Jacobson.

## **FAQ – Can I take a 4<sup>th</sup> design elective?**

Some ERE seniors are interested in taking a 4<sup>th</sup> design elective. Please do NOT sign up for a 4<sup>th</sup> design elective until the week before the fall semester. We want to be sure that all ERE students get a chance to sign up for classes they need to graduate.

# **Challenging Four Year Graduation Plan**

The ERE faculty has put together a suggested schedule for completing the ERE program in 4 years. [This 4-year plan](#)\* assumes you are ready to enroll in MATH 109 - Calculus I. Please note that many students take longer than 4 years, as they are not able to successfully complete the suggested number of units each semester. Many students must work outside of school, have family responsibilities, or for some other reason must take a lower unit load.

\*All subject specific courses in the 4-year plan at the link above are described in the HSU Office of Registrar's Course Descriptions section for each respective subject [here](#).

## Advice for Students with 0-30 Engineering Units

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  - Lower Division Area A Communications - So ERE students are not required to take COMM 100.
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- Additional GE Considerations:
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- Consider a minor in another area. Environmental Resources Engineering graduates have earned minors or certificates in areas including Mathematics, Chemistry, Geographic Information Systems, Language, and Environmental Ethics.
- Work with your faculty advisor to develop your individual graduation plan.

## Advice for Students with 30-60 Engineering Units

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- **Complete Fluid Mechanics (ENGR 333) and the Computational Methods III (ENGR 326) as early as possible.** Most of the 400-level courses require the skills and knowledge learned in these classes or their prerequisites. People have put these courses off and then have been stuck without any other ENGR courses that they can take.
- If you are interested in energy, plan to take General Physics II (PHYX 110) early and to take Electronics & Electronic Instrumentation (PHYX 315) as your Science Elective. PHYX 315 is a required prerequisite for Renewable Energy Power Systems (ENGR 475), and is strongly recommended for the other energy design courses (ENGR 471, ENGR 473, ENGR 477). However, if you do not plan on taking energy design courses and you need some flexibility in your schedule, you can take PHYX 110 later in your program - but, if you wait too long, you will have a hard time scheduling your ENGR 400 level courses around PHYX 110, so do not wait too long.
- It is important to always keep an up-to-date résumé. Services and workshops are available through the [Career Center](#), or ask a professor to look it over for you. A completed résumé is one less obstacle when looking for an internship or job.

## Advice for Students with 60 or more Engineering Units

### Planning for graduation

You should check that you have fulfilled all the requirements to graduate. To graduate you need to make sure that you have fulfilled three requirements:

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Keep the following in mind as you prepare for the exam:

- Having an EIT license can help you get your first job and completing the series of professional engineering licensing exams often results in a pay raise.
- You should take the test within 6 months before or after graduating.
- FE Exam study manuals and study assistance are often available through the [Environmental Resources Engineering Student Association](#) or the [Society of Women Engineers](#). For more information, visit the [National Council of Examiners for Engineering and Surveying](#) website.
- The ERE faculty are happy to assist students reviewing for the FE Exam. We are offering an FE Seminar. Our program has a very high pass rate compared to the rest of California.

## Advice for students considering graduate school

You should know why you want to attend graduate school. A masters degree increases your career opportunities, provides you with additional credentials and can allow you to specialize in a field of interest. A doctorate will allow you to further specialize. With a doctorate you can consider a career in research or in academia, where you will teach and do research.

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- Master of Engineering
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- Doctor of Engineering
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If you are considering graduate school keep the following in mind.

- Keep your GPA high, especially in your 400-level courses.
- Consider reading a book on preparing for graduate school. Many people find the graduate school experience quite different than undergraduate.
- If you think you may be interested in participating in research, try to get involved with an ERE faculty research project or a summer undergraduate research program, such as the one through the National Science Foundation.
- If you intend to get a Ph.D. in Engineering, take more mathematics and chemistry as an undergraduate. These courses will only help you.

### **Graduate School Planning and Scheduling**

Once you decide you want to go to graduate school do a literature search, pick an area of study, and then ask faculty to help you find programs and people in that area. Identify people with whom you would like to work. Are they doing research that interests you? Visit the [Career Center](#) for further information on searching for graduate schools.

Applications for graduate schools are generally due from December 15 through March 1.

Applications require a series of steps.

- Take the [GRE exam](#). Many schools require both the General and the Engineering Subject Exam. The General Exam is very similar to the SAT. Be sure to study for the GRE; you can improve your score significantly.
- You will need Letters of Recommendation. Be sure to give your references plenty of time to complete these for you. Remind them a few days before they are due.
- Your application process will likely require a "Statement of Interest". Get help from a professor to create a concise and well formed statement.

Once accepted to a graduate school visit prospective schools, if possible, to meet with faculty AND graduate students. Acceptance letters and coordinated visits usually occur in March and April.

## **Advice for Spring 2015**

This email has advice for how to make good progress through the ERE major. I encourage you to read carefully all sections that pertain to your situation.

## Special Schedule Changes for Spring 2015

Due to an unforeseen reduction in faculty, the ERE department will NOT be offering two classes this spring.

- ENGR 115 Introduction to Design
- ENGR 333 Fluid Mechanics

If you were planning on taking one of these courses, please see the recommendations below. The ERE faculty are committed to your continued progress through the ERE curriculum. So we will do all we can to support your success during this difficult semester.

The good news is that we hope to hire two new faculty members this year, so that we can avoid these types of cancellations in the future.

### **If you were planning on taking ENGR 115 Introduction to Environmental Engineering in Spring 2015**

Meet with your advisor to make the best decision on which of the following will work best for you. Be sure to sign up for whichever math class you are eligible for, as well as whichever science class (CHEM 109, 110 and/or BIO 105).

We will offer ENGR 115 in the fall and you will have priority registration before all the new incoming students. You should be sure to take ENGR 115 in the Fall of 2015, otherwise, you will have problems with prerequisites in future semesters.

If you have completed Math 109 Calculus I (or its equivalent) you can sign up for ENGR 215 Introduction to Design for Spring 2015. You will have to request a permission number from Lonny Grafman ([lonny@humboldt.edu](mailto:lonny@humboldt.edu)).

If you will be taking Math 109 Calculus I in Spring 2015 and you have room in your schedule, you might consider taking ENGR 215 Introduction to Design. (But you should first sign up for science classes such as CHEM 109, 110 and/or BIO 105). Please contact Beth Eschenbach ([beth.eschenbach@humboldt.edu](mailto:beth.eschenbach@humboldt.edu)) to be put on a waiting list for ENGR 215 if you are in this situation. We will let you in the class as space permits.

### **If you were planning on taking ENGR 333 Fluid Mechanics Spring 2015**

First be sure you have completed all other ERE course requirements for 300 level courses, as well as PHYX 110 and your science elective.

If you have signed up for all required courses at the 300 or below level (including your science elective), and you still have room in your schedule, then you need to send an email to Beth Eschenbach. Be sure to attach a pdf of your DARS to the email as proof that you have verified you have no other options. We will do our best to put you in a class that will help you make forward progress such as ENGR 410, 440 or 416.



## **Instructor Approval Required for all design electives and ENGR 492.**

We have about 40 students graduating this spring. We want to make sure all graduating seniors are able to take the courses they need to graduate. So, those students who are graduating and who completed the Spring 2015 Schedule Survey will have priority for registration. Please see specific comments for each design elective below.

### **ENGR 492 Capstone**

Capstone will only be offered to students that are graduating in Spring 2015. We are offering two sections of capstone. We will aim to have these two courses evenly balanced at about 20 students each. You will need to contact either Eileen or Andrea for permission numbers for these courses. Please include a pdf copy of your DARS report along with your request. We do not know the projects for these courses yet. Nor will we support students switching classes. Thus, you need to choose which class fits best in your schedule and get on the waiting list for your preferred class.

### **ENGR 451 Water and Wastewater Treatment**

The only students that be able to take this course are students that are in ENGR 492 this semester (i.e. graduating) and that have signed up for ENGR 451 on the Spring 2015 Schedule Survey. This course is very popular. Unfortunately, because of the way we deem is the best way to teach the course, we are not able to offer more than one section each semester. Our plan is to offer ENGR 451 every semester. Beth Eschenbach is managing the waitlist for this course. Please send email to Beth and CC Mary Jo if you are concerned about your eligibility for this course.

### **ENGR 473 Building Energy Analysis**

Please send an email to David Vernon if you would like to take this design elective. Please include a pdf copy of your DARS report along with your request. There will two lab sections for this course.

### **ENGR 448 River Hydraulics**

We strongly advise that students that have taken Applied Hydraulics DO NOT take River Hydraulics, as there is significant overlap in the material on open channel flow. Please send an email to Eileen if you would like to take this design elective. Please include a pdf copy of your DARS report along with your request. ENGR 440 Hydrology is a prerequisite for this course. However, if you are interested in taking this course and will be taking ENGR 440 next semester, then you should contact Eileen to be put on a waiting list for this course. If there is space in the course, students will be allowed to take ENGR 440 concurrently.

### **ENGR 445 Water Resources Planning and Management.**

Please send an email to Beth if you would like to take this design elective. Please include a pdf copy of your DARS report along with your request. ENGR 440 Hydrology is a prerequisite for

this course. However, if you are interested in taking this course and will be taking ENGR 440 next semester, then you should contact Beth to be put on a waiting list for this course. If there is space in the course, students will be allowed to take ENGR 440 concurrently. This course has a \$100 field trip fee. There is a textbook for the class, but the book is available online at no cost.

## Challenging Four Year Graduation Plan

The ERE faculty has put together a suggested schedule for completing the ERE program in 4 years. [This 4-year plan](#)\* assumes you are ready to enroll in MATH 109 - Calculus I. Please note that many students take longer than 4 years, as they are not able to successfully complete the suggested number of units each semester. Many students must work outside of school, have family responsibilities, or for some other reason must take a lower unit load.

\*All subject specific courses in the 4-year plan at the link above are described in the HSU Office of Registrar's Course Descriptions section for each respective subject [here](#).

## Advice for Students with 0-30 Engineering Units

- The ERE Curriculum meets the following General Education (GE) requirements:
  - Lower Division Area A Critical Thinking - So ERE students are not required to take Logic, Critical Thinking, Critical Writing, etc.
  - Lower Division Area A Communications - So ERE students are not required to take COMM 100.
  - One Lower Division Area D elective - So ERE students need only take the Institutions courses.
  - Area E GE Human Integration - So ERE students are not required to an Area E GE (400) course.
- Additional GE Considerations:
  - Engineering majors need only one Area C Upper Division GE course and one Area D Upper Division GE course of the Upper Division GE Component.
  - You can plan your GE courses to simultaneously fulfill your Diversity and Common Ground (DCG) requirements by choosing lower division Area C or upper division Area C or D courses that are also Diversity and Common Ground courses. For example: Women, Culture, History (WS 107) fulfills 3 units of the Area C Lower Division requirements, while also counting for 3 units of the Diversity and Common Ground (Domestic) requirements. And Global Awareness (GEOG 300) fulfills 3 units of the Area D Upper Division requirements, while also counting for 3 units of the Diversity and Common Ground (Non-Domestic) requirements. For complete and current information on Area C and D courses that may double count for DCG requirements, see [listings in the HSU catalog](#).
- **Take a math class every semester** ("Every semester you don't take math is a semester you'll be here longer." ---- Professor Elizabeth Eschenbach).
- **Start the engineering science series as soon as you can** if you want to avoid hold-ups in your progress through the curriculum. Start ENGR 210 Statics as soon as you have completed the math prerequisite.

- Consider a minor in another area. Environmental Resources Engineering graduates have earned minors in areas including Mathematics, Chemistry, Geographic Information Systems, Language, and Environmental Ethics.
- Work with your faculty advisor to develop your individual graduation plan.

### Advice for Students with 30-60 Engineering Units

- **Start the computational methods series** (Computational Methods I, II, and III - ENGR 225, ENGR 325, ENGR 326) **after you have completed Statics** (ENGR 210). You should take Dynamics (ENGR 211) and Comp Methods I (ENGR 225) at the same time, Thermo (ENGR 331) and Comp Methods II (ENGR 331) at the same time and Fluids (ENGR 333) and Comp Methods III (ENGR 326) at the same time if you want to avoid being slowed down in your progress through the program. In ENGR 326 you will design your own project, and you need to have enough engineering background (e.g., ENGR 331-Thermodynamics completed, and enrolled in ENGR 333-Fluid Mechanics) to have an excellent project.
- **Complete Fluid Mechanics (ENGR 333) and the Computational Methods III (ENGR 326) as early as possible.** Most of the 400-level courses require the skills and knowledge learned in these classes or their prerequisites. People have put these courses off and then have been stuck without any other ENGR courses that they can take.
- If you are interested in energy, plan to take General Physics II (PHYX 110) early and to take Electronics & Electronic Instrumentation (PHYX 315) as your Science Elective. PHYX 315 is a required prerequisite for Renewable Energy Power Systems (ENGR 475), and is strongly recommended for the other energy design courses (ENGR 471, ENGR 473, ENGR 477). However, if you do not plan on taking energy design courses and you need some flexibility in your schedule, you can take PHYX 110 later in your program - but, if you wait too long, you will have a hard time scheduling your ENGR 400 level courses around PHYX 110, so do not wait too long.
- It is important to always keep an up-to-date résumé. Services and workshops are available through the [Career Center](#), or ask a professor to look it over for you. A completed résumé is one less obstacle when looking for an internship or job.

### Advice for Students with 60 or more Engineering Units

#### Planning for graduation

You should check that you have fulfilled all the requirements to graduate. To graduate you need to make sure that you have fulfilled three requirements:

- Graduation Contract. Your [Graduation Contract](#) should be turned in about a year before you plan to graduate. Your Graduation Contract is due no later than [two weeks after the beginning of the semester](#) that you plan to graduate. The Graduation Contract is a list of the courses you have completed, the grades received in those courses, and the courses you intend to take to complete your B.S. Degree in Environmental Resources Engineering. Transfer students should fill out their Graduation Contract as soon as they

get to HSU, so they know which of their previous courses are articulated into their major requirements.

- Application for Graduation. Your [Graduation Contract](#) should be turned in at the same time as your [Application for Graduation](#), a simple form available in the [Registrar's Office](#).
- Graduation Writing and Proficiency Exam. In order to graduate you must pass the Graduation Writing and Proficiency Exam ([GWPE](#)). The exam is given [once in the Fall semester and twice in the Spring semester](#). Students are eligible as soon as they have completed English 100 and reached Junior status. The exam involves writing two forty-five minute essays.

## Engineer-in-Training (EIT) Exam

Engineering registration (also known as engineer licensing) in the United States is an examination process by which a state's board of engineering licensing determines and certifies that you have achieved a minimum level of competence. The first exam in this process is the Fundamentals of Engineering (FE) Exam (also known as the Engineer-in-Training (EIT) Exam). The FE exam covers basic subjects from mathematics, physics, chemistry and engineering. The exam has recently transitioned to a computer-based exam, and information is available from the National Council of Examiners for Engineering and Surveying ([NCEES](#)). Students passing the exam receive their EIT license, the first step in attaining a Professional Engineering license.

Keep the following in mind as you prepare for the exam:

- Having an EIT license can help you get your first job and completing the series of professional engineering licensing exams often results in a pay raise.
- You should take the test within 6 months before or after graduating.
- FE Exam study manuals and study assistance are often available through the [Environmental Resources Engineering Student Association](#) or the [Society of Women Engineers](#). For more information, visit the [National Council of Examiners for Engineering and Surveying](#) website.
- The ERE faculty are happy to assist students reviewing for the FE Exam. We are offering an FE Seminar. Our program has a very high pass rate compared to the rest of California.

## Advice for students considering graduate school

You should know why you want to attend graduate school. A masters degree increases your career opportunities, provides you with additional credentials and can allow you to specialize in a field of interest. A doctorate will allow you to further specialize. With a doctorate you can consider a career in research or in academia, where you will teach and do research.

There are two types of Masters Programs: Research Based and Project Based

- A research based masters develops your research skills and prepares you for pursuing a doctorate. It is a good way to test if you like doing research. A disadvantage of a research based masters is that the research may have an indefinite time line. Therefore, it might take you longer than you expect to finish.

- A project based masters will have a well defined project and a more definite time line, but will not provide you with research experience.

Most firms do not prefer a research based masters versus a project based masters, but some doctorate programs may prefer a research based masters degree.

The degrees associated with the research and project based programs vary. The names mean different things at different universities. Some of the potential degrees are:

- Master of Engineering
- Master of Science
- Doctor of Engineering
- Doctor of Science

If you are considering graduate school keep the following in mind.

- Keep your GPA high, especially in your 400-level courses.
- Consider reading a book on preparing for graduate school. Many people find the graduate school experience quite different than undergraduate.
- If you think you may be interested in participating in research, try to get involved with an ERE faculty research project or a summer undergraduate research program, such as the one through the National Science Foundation.
- If you intend to get a Ph.D. in Engineering, take more mathematics and chemistry as an undergraduate. These courses will only help you.

## **Graduate School Planning and Scheduling**

Once you decide you want to go to graduate school do a literature search, pick an area of study, and then ask faculty to help you find programs and people in that area. Identify people with whom you would like to work. Are they doing research that interests you? Visit the [Career Center](#) for further information on searching for graduate schools.

Applications for graduate schools are generally due from December 15 through March 1.

Applications require a series of steps.

- Take the [GRE exam](#). Many schools require both the General and the Engineering Subject Exam. The General Exam is very similar to the SAT. Be sure to study for the GRE; you can improve you score significantly.
- You will need Letters of Recommendation. Be sure to give your references plenty of time to complete these for you. Remind them a few days before they are due.
- Your application process will likely require a "Statement of Interest". Get help from a professor to create a concise and well formed statement.

Once accepted to a graduate school visit prospective schools, if possible, to meet with faculty AND graduate students. Acceptance letters and coordinated visits usually occur in March and April.