

Environmental Resources Engineering Major Courses Flow Chart

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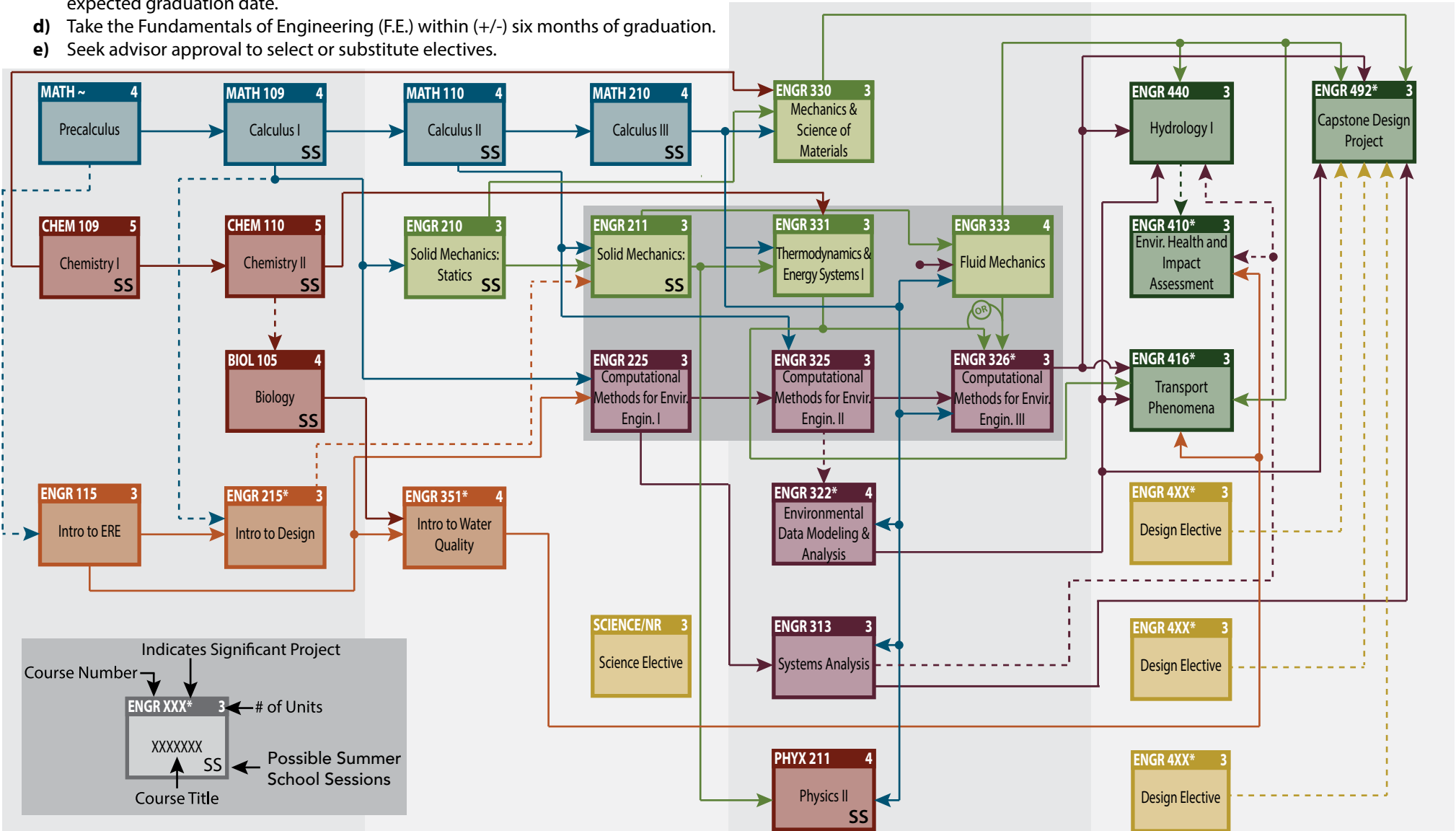
This flow chart does not represent a recommended four-year plan, but instead shows the earliest semester that an ERE major can take a course while meeting the course's prerequisites. Students should work with their advisor to determine the best combination of classes to take each semester.

- Pre-requisite
 - May be taken concurrently
- Mathematics
 - Introduction to ERE
 - Basic Science
 - Basic Engineering
 - Math Modeling
 - Electives
 - Upper Division ERE

ERE faculty recommend that ERE students:

- a) Submit a Major Contract during their first year at HSU.
- b) Apply for graduation before completing 90 units.
- c) Take the Graduate Writing Proficiency Exam (GWPE) at least one year before their expected graduation date.
- d) Take the Fundamentals of Engineering (F.E.) within (+/-) six months of graduation.
- e) Seek advisor approval to select or substitute electives.

Note: As indicated by the dark gray box below, the pairs of courses ENGR 211/225, 325/331, and 333/326* should be taken concurrently.



**Environmental Resources Engineering
Major Course Prerequisites & General Education Requirements**

(C) = Indicates prerequisite which may be taken concurrently

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MAJOR REQUIREMENTS						
MATH 109	Calculus I	MATH 115 or MATH 102 or MATH 101T				
MATH 110	Calculus II	MATH 109				
MATH 210	Calculus III	MATH 110				
CHEM 109	Chemistry I	Math remediation completed or not required				
CHEM 110	Chemistry II	CHEM 109				
BIOL 105	Principles of Biology	CHEM 110 (C)				
PHYX 110 or 211	Physics II/General Physics C	MATH 210 (C)	ENGR 211			
ENGR 115	Intro to ERE	MATH 115 (C) or MATH 102 (C) or MATH 114 (C) or MATH 101T (C) or MATH 109				
ENGR 210	Statics	MATH 109				
ENGR 211	Dynamics	MATH 110	ENGR 210	ENGR 215 (C)		
ENGR 215	Intro to Design	MATH 109 (C)	ENGR 115			
ENGR 225	Comp Methods I	MATH 109	ENGR 115			
ENGR 313	Systems Analysis	MATH 210	ENGR 115	ENGR 225		
ENGR 322	Env. Data Modeling & Analysis	MATH 210	ENGR 325 (C)			
ENGR 325	Comp Methods II	MATH 110	ENGR 225			
ENGR 326	Comp Methods III	ENGR 325	ENGR 331 or ENGR 333			
ENGR 330	Mech & Sci of Materials	CHEM 109	MATH 210	ENGR 210		
ENGR 331	Thermodynamics I	CHEM 110	MATH 210	ENGR 211		
ENGR 333	Fluid Mechanics	MATH 210	ENGR 211	ENGR 325		
ENGR 351	Water Quality & Env. Health	CHEM 110	BIOL 105	ENGR 115		
ENGR 410	Environmental Impact	ENGR 313 (C)	ENGR 351	ENGR 440 (C)		
ENGR 416	Transport Phenomena	ENGR 322	ENGR 326	ENGR 331	ENGR 333	ENGR 351
ENGR 440	Hydrology I	ENGR 313 (C)	ENGR 322	ENGR 326	ENGR 333	
ENGR 492	Capstone Design	All 300-level courses must be complete; must be within 16 units of graduation.				
DESIGN ELECTIVES						
ENGR 418	Applied Hydraulics	ENGR 326	ENGR 333			
ENGR 421	Adv Numerical Methods I	ENGR 313	ENGR 326			
ENGR 434	Air Quality Mgt	CHEM 110	ENGR 416 (C)			
ENGR 436	Solid Waste Mgt	CHEM 110	ENGR 313 (C)	ENGR 333		
ENGR 441	Hydrology II	ENGR 440				
ENGR 443	Groundwater Systems	ENGR 416 (C)	ENGR 440 (C)			
ENGR 445	Water Resources	ENGR 440				
ENGR 448	River Hydraulics	ENGR 416 (C)	ENGR 440 (C)			
ENGR 452	Drinking Water Treatment Engr	ENGR 416				
ENGR 453	Wastewater Treatment Engr	ENGR 416 (C)				
ENGR 455	Engin Natrl Treatment Systems	ENGR 416 (C)	ENGR 440 (C)			
ENGR 471	Thermo II	CHEM 110	PHYX 110 or 211	ENGR 322	ENGR 331	ENGR 333
ENGR 473	Building Energy Analysis	ENGR 326	ENGR 331	ENGR 333	PHYX 110 or 211	
ENGR 475	Renewable Energy Power Systems	PHYX 315	ENGR 322	ENGR 331	ENGR 333	
ENGR 478	Elec. Grids & Renewable Energy	ENGR 322	ENGR 331	ENGR 326 (C)	PHYX 315	
ENGR 481	Selected Design	ENGR 322 (there may be additional prerequisites, depending on topic)				
ENGR 498	Directed Design	May only be taken once for credit.				
The following graduate level courses have the same course title and prereqs as the corresponding 400-level course (e.g. ENGR 471/571, ENGR 448/548...): ENGR 518, 521, 534, 541, 543, 545, 548, 551, 555, 571, 573, 575, 577.						
GRADUATE COURSES						
ENGR 532	Energy, Env. & Society	graduate standing; working knowledge of intro physics, chemistry, and statistics				
ENGR 533	Energy & Climate Change	ENGR 532				
ENGR 535	Development Technology	graduate standing				

GENERAL EDUCATION REQUIREMENTS FOR ERE MAJORS

Following are requirements that must be met via the completion of courses outside the ERE major. For a description of the requirements, please see "The Bachelor's Degree" section of the HSU catalog <<http://pine.humboldt.edu/registrar/catalog/>>.

- Lower Division Area A1: Written Communication (3 units)
- Lower Division Area C (9 units)
- Lower Division Area D and American Institutions (6 units): Completion of both courses in American Institutions will satisfy LD Area D.
- Upper Division Area C (3 units)
- Upper Division Area D (3 units)
- Diversity and Common Ground (0-6 units): To avoid taking additional units unnecessarily, see info on DCG/GE Double-Counting at: <https://www2.humboldt.edu/acac/staffaculty/diversity-common-ground>

The ERE program has approval for the following GE requirements to be fulfilled by completion of the ERE major coursework. *Students who change out of the ERE major may be required to complete these GE categories before graduation, and are encouraged to contact the Office of the Registrar or the Academic & Career Advising Center to discuss.*

- Lower Division GE Area A2: Oral Communication (3 units) and A3: Critical Thinking (3 units)
- Lower Division GE Area D: Social Science (6 units)
- Upper Division GE Area B: Math & Science (3 units)
- GE Area E (3 units)
- These ERE major classes double-count for the Lower Division GE Area B requirement (9 units): MATH 109, CHEM 109, BIOL 105.