

**DEPARTMENT OF CIVIL AND ENVIRONMENTAL
ENGINEERING**

**UNDERGRADUATE PROGRAM
CLASS OF 2018**

**University of Delaware
August 2014**

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Introduction

Welcome to the University of Delaware. The Department of Civil and Environmental Engineering is part of the College of Engineering. In the 2014 fall semester, over 2,500 undergraduates will be registered in the College, of which approximately 550 are undergraduate civil and environmental engineering students. The graduate student enrollment in the department is around 115 students.

You will find that a strong working relationship exists within the departments of the College of Engineering, and interdepartmental programs broaden the opportunities for research and coursework. Vigorous, well-staffed departments of chemistry, physics, biology, geology, mathematics, and computer science are closely allied, and some of your first courses will be taught by those departments. Joint appointments of our faculty with the College of Earth, Ocean, and Environment exemplify the interdisciplinary relationships you'll find across campus. Engineering research centers create a background of scholarly and research activities from which our students benefit. The University's Undergraduate Research Program further enhances the opportunities by bringing students in active contact with faculty research.

You will also get to use Morris Library, which contains over 2.8 million volumes and subscribes to over 40,000 journals and newspapers, as well as the university's outstanding computing facilities.

Less tangible, but very important, is the friendly and intellectually stimulating atmosphere that exists on campus. It is enhanced by the many honor societies and student chapters of professional engineering societies as well as opportunities for sports and outdoor activities offered by the University and the surrounding area. Of particular interest are the student chapters of the American Society of Civil Engineers (ASCE), the Institute of Transportation Engineers (ITE), Chi Epsilon, the Environmental Engineering Student Association (EESA), the American Society of Highway Engineers (ASHE), and Engineers Without Borders (EWB).

Common First Semester in Engineering

The University of Delaware offers seven degrees in engineering: Civil, Environmental, Mechanical, Electrical, Chemical, Computer, and Biomedical Engineering. Freshman engineering majors have the opportunity to learn about and experience all seven of these disciplines through a common first semester and the course *EGGG101 - Introduction to Engineering*. Broken down into modules, this course is taught by a team of faculty representing all of the respective majors. There you will learn more about each of the disciplines. You will also learn skills to help you be successful in your college career. During your first semester, you will take the same courses as all other first-semester engineering majors. At the end of your first semester you will have the opportunity to request a change of major into a different engineering major, should you decide that civil or environmental engineering is not for you, provided you meet the academic requirements and there is space available in the major. Please consult with your academic advisor or the College of Engineering Assistant Dean for Undergraduate Services for an up-to-date list of the restricted engineering majors.

Undergraduate Degree Programs

The Department of Civil & Environmental Engineering offers two major undergraduate degree programs, one in Civil Engineering and one in Environmental Engineering, as well as four minors in these two subjects.

Civil Engineering Bachelor's Degree Program

The Bachelor of Civil Engineering (BCE) program at the University of Delaware offers training in all of the major disciplines of civil engineering: structural, geotechnical, transportation, environmental, infrastructure systems, railroad, and coastal engineering. The curriculum gives our students a unique opportunity to acquaint themselves with the various disciplines within the profession. Civil engineering students may select technical electives in one field or take a variety of courses to explore several areas of civil engineering. Students are encouraged to meet with their faculty advisors regularly to discuss their progress and discuss any curricular matters.

You will spend a good deal of your time during the early part of your studies learning about the mathematics and science that forms the foundation of practical engineering. A second important component in your education as an engineer is the development of your understanding of mechanics, a branch of physics, through special courses in the engineering science disciplines of statics, solid mechanics, dynamics, and fluid mechanics. Based on these tools of the trade, you'll spend much of the final year or two of your studies with courses that teach you the skills of analysis and design of engineering structures, as well as provide insights into the modern disciplines of civil engineering.

Finally, woven into the curriculum is a requirement to supplement your science and engineering skills with courses in communication, humanities, and social sciences. These courses will broaden your cultural background and improve your capabilities to function in a modern society.

The undergraduate program prepares our graduates for entry-level positions. After four years of work experience, you can qualify for a license to practice by passing a Principles and Practice of Engineering (PE) examination administered by a State Board. You can take the introductory Fundamentals of Engineering (FE) exam, which is a prerequisite for the PE, as a senior Civil or Environmental Engineering student. In Delaware, the PE license is administered by the Delaware Association of Professional Engineers (DAPE). Information about the exam can be found at www.dape.org or www.ncees.org.

A complete description of the undergraduate curriculum can be found in the current Undergraduate & Graduate Catalog. A brief overview is given on the check sheet shown on the next page, which shows the recommended courses for each semester and helps you keep track of your progress toward graduation. You can also check your progress on UDSIS using the "degree audit" tool, or by reviewing your unofficial transcript.

Name _____

CIVIL ENGINEERING PROGRAM

Advisor _____

Transfer Credits _____

(126 Hours)

Eval. by _____

Effective for EG14 and subsequent classes

Date _____

The required courses of the program are normally taught in fall or spring semesters as indicated below. Each student is responsible for tracking future changes in this schedule.

FRESHMAN YEAR

FALL TERM		16 credits	
Intro to Engineering	EGGG 101	(2)	
Analytic Geom. & Calc. A	MATH 241	(4)	*
General Chemistry	CHEM 103	(4)	*
Computer Science	CISC 106	(3)	
Breadth Requirement		(3)	

SPRING TERM		17 credits	
Freshman Design	CIEG 161	(3)	
Analytic Geom. & Calc. B	MATH 242	(4)	*
Critical Reading & Writing	ENGL 110	(3)	
Science Elective		(4)	
Breadth Requirement		(3)	

SOPHOMORE YEAR

FALL TERM		17 credits	
Analytic Geom. & Calc. C	MATH 243	(4)	
Oral Communication	COMM 212	(3)	
Statics	CIEG 211	(3)	
General Physics I	PHYS 207	(4)	*
Breadth Requirement		(3)	

SPRING TERM		16 credits	
Solid Mechanics	CIEG 212	(3)	
CE Materials Lab	CIEG 213	(1)	
Dynamics	MSEG 311	(3)	
Materials Science	MSEG 302	(3)	
Engineering Math I	MATH 351	(3)	
Breadth Requirement		(3)	

JUNIOR YEAR

FALL TERM		15 credits	
Structural Analysis	CIEG 301	(4)	
Soil Mechanics	CIEG 320	(3)	
Soil Mechanics Lab	CIEG 323	(1)	
Fluid Mechanics	CIEG 305	(3)	
Fluid Mechanics Lab	CIEG 306	(1)	
Engineering Math III	MATH 353	(3)	

SPRING TERM		17 credits	
Structural Design	CIEG 302	(4)	
Geotechnical Engineering	CIEG 321	(3)	
Environmental Engineering	CIEG 331	(3)	
Transportation Engineering	CIEG 351	(3)	
Transportation Eng. Lab	CIEG 451	(1)	
Prob. & Stats. for Engineers	CIEG 315	(3)	

SENIOR YEAR

FALL TERM		14 credits	
Senior Design Project	CIEG 461	(2)	
Eng. Project Management	CIEG 486	(3)	
Water Resources Eng.	CIEG 440	(3)	
Technical Elective		(3)	
Technical Writing	ENGL 410	(3)	

SPRING TERM		14 credits	
Senior Design Project	CIEG 461	(2)	
Technical Elective		(3)	
Technical Elective		(3)	
Breadth Requirement		(3)	
Breadth Requirement		(3)	

*Grade of "C-" or better required in these courses as degree requirements or as prerequisites for other courses

BREADTH REQUIREMENTS (18 Credit Hours); All Breadth Requirements C- or better

See http://www.engr.udel.edu/advise/breadth_req.html

Creative Arts & Humanities	History & Cultural Change	Social & Behavioral Sciences
Three additional courses (9 credit hours) from the College of Engineering Breadth Requirement List		

OTHER BREADTH REQUIREMENTS

_____ General Education plan approved () _____ Course (3 credits) for multicultural requirement
 _____ 2 courses (6 credits) above introductory level

SCIENCE ELECTIVE: One course from: BISC 207, BISC 208, CHEM 104, GEOL 107, PHYS 208, PHYS 245

_____ Science Elective

IMPORTANT NOTES:

Additional details and up-to-date information are available from the office of the Chairperson. Students may arrange (with faculty advisor's approval) the sequence of these and other courses when prerequisites (if any) have been met. Number of credits per term may also be adjusted to individual needs.

SYMBOLS: Pre-registered () Course in Progress () Completed and Passed ()
 Not Required (N) Transfer Credit (T)

08/2014

Minor in Civil Engineering

A minor in Civil Engineering may be earned by a student in any University bachelor's degree program through successful completion of a minimum of 21 credits in civil engineering and engineering mechanics. Before beginning the civil engineering courses, the student must meet the required mathematics and physics prerequisites. A grade of C- or better is required in all of the courses completed for the minor.

The required civil engineering and engineering mechanics courses are as follows:

- CIEG 211 Statics
- CIEG 212 Solid Mechanics (Lab optional)
- CIEG 305 Fluid Mechanics (Lab optional)
- CIEG 311 Dynamics

An additional 9 credits (3 courses) in civil engineering must be taken of which at least 6 credits must be at the 300-level or higher. Those courses should be selected in consultation with an advisor in the Department of Civil and Environmental Engineering to meet each student's objectives. For students oriented toward earth sciences these might include CIEG 320, CIEG 323 and CIEG 321; for those interested in the environment, CIEG 331 and CIEG 438; for those interested in urban topics, CIEG 331 and CIEG 351; for those interested in construction and structures, CIEG 301 and CIEG 302; for those interested in the oceans, CIEG 440 and CIEG 471.

Accomplishment of a minor in Civil Engineering has many advantages for students who are earning degrees in other sciences such as geology or in other professional areas such as business administration. However, it must be understood that meeting the requirements for a minor in Civil Engineering without fulfilling the remaining requirements for an accredited engineering degree does not provide the breadth and depth necessary to practice engineering or to become a licensed professional engineer.

Minor in Sustainable Infrastructure

The objective of this minor is to provide the basic knowledge and skills required in balancing civil infrastructure development with environmental and societal impacts, so that sustainability can be methodically defined and attained. Students will learn the principles of sustainability and the fundamental tools needed to assess sustainability; be able to evaluate the impact of proposed infrastructure development on limited natural resources; recognize and assess the political, economic, environmental, and social impacts of infrastructure development; and develop the insight needed to find solutions that minimize the effect of infrastructure development on the local community and across global boundaries.

A minor in Sustainable Infrastructure may be earned by a student in any University bachelor's degree program. To receive a minor in Sustainable Infrastructure, the student must successfully complete a minimum of 15 credits as described below with a minimum grade of C- in each course.

All students must complete the following core course:

CIEG 402 Introduction to Sustainability Principles in Civil Engineering

All students must complete one of the following core courses:

CIEG 403 Sustainability Applications in Infrastructure

CIEG 465 Engineers Without Borders

All students must complete three of the following sustainability-related breadth courses:

APEC 343 Environmental Economics

BUAD 429 Selected Topics in Management: Sustainability and Green Business

ECON 311 Economics of Developing Countries

ELEG 415 Electric Power and Renewable Energy Systems

ELEG 491 Ethics/Impacts of Engineering

ENEP 410 Environmental Sustainability: Economic and Policy Analysis

GEOG 422 Resources, Development and the Environment

GEOG 434 Plan Sustainable Communities and Regions

LEAD 451 Leadership for Sustainability

MAST 676 Environmental Economics

MEEG 435 Wind Power Engineering

PHIL 448 Environmental Ethics

POSC 311 Politics of Developing Nations

POSC 350 Politics and the Environment

SOCI 471 Disasters, Vulnerability, and Development

UAPP 452 International Development Policy and Administration

The minor is open to all majors, though several courses included as electives in the minor may require completion of prerequisite courses for students in some majors.

Civil Engineering Program Technical Electives

In addition to specific required technical courses, three technical elective courses must be completed. Technical electives include upper-level courses in engineering, mathematics, computer science, and the sciences, subject to advisor approval. Graduate-level courses may also be taken as technical electives. The following is a list of technical electives for civil engineering. Some of these courses may not be offered a particular year. A current list is available in the department office. Some courses offered in other departments may also be approved as technical electives. Students should check with their advisors before selecting courses.

General Civil Engineering

CIEG 401	Introduction to the Finite Element Method
CIEG 402	Introduction to Sustainability Principles in Civil Engineering
CIEG 403	Sustainability Applications in Infrastructure
CIEG 407	Building Design
CIEG 409	Forensic Engineering
CIEG 413	Advanced Structural Analysis
CIEG 417	Introduction to Railroad Safety and Derailment Engineering
CIEG 418	Introduction to Railroad Engineering
CIEG 429	Concrete Design
CIEG 465	Engineers Without Borders

Environmental and Water Resource Engineering

BISC 641	Microbial Ecology
CHEM 213	Elementary Organic Chemistry
CHEM 214	Elementary Biochemistry
CHEM 220	Quantitative Analysis
CHEM 443	Physical Chemistry I
CIEG 415	Meteorologic Processes in Air Pollution
CIEG 430	Water Quality Modeling
CIEG 433	Hazardous Waste Management
CIEG 434	Air Pollution Control
CIEG 436	Processing, Recycling, Management of Solid Wastes
CIEG 437	Water and Wastewater Quality
CIEG 438	Water and Wastewater Engineering
CIEG 439	Biosustainability and Public Health
CIEG 442	Stormwater Management
CIEG 444	Microbiology of Engineered Systems
CIEG 445	Industrial Ecology
CIEG 468	Principles of Water Quality Criteria
CIEG 498	Groundwater Flow & Contaminant Transport
ELEG 681	Remote Sensing of Environment
GEOL 421	Environmental and Applied Geology

Hydraulic and Ocean Engineering

CIEG 471	Introduction to Coastal Engineering
CIEG 661	Introduction to Ocean Modeling
CIEG 670	Physics of Cohesive Sediment
CIEG 672	Water Wave Mechanics
CIEG 675	MATLAB for Engineering Analysis
CIEG 678	Transport and Mixing Processes
CIEG 679	Sediment Transport Mechanics
CIEG 680	Littoral Processes
CIEG 681	Water Wave Spectra
CIEG 682	Nearshore Hydrodynamics

Structures and Geotechnical Engineering

CIEG 401	Introduction to the Finite Element Method
CIEG 407	Building Design
CIEG 408	Introduction to Bridge Design
CIEG 409	Forensic Engineering
CIEG 421	Foundation Engineering
CIEG 422	Earth Structures Engineering
CIEG 427	Deep Foundations
CIEG 428	Ground Improvement Methods

Transportation and Construction Engineering

CIEG 452	Transportation Facilities Design
CIEG 453	Roadway Geometric Design
CIEG 454	Urban Transportation Planning
CIEG 456	Regional Analysis Method
CIEG 458	Pavement Analysis and Design
GEOG 328	Transportation Geography
STAT 420	Data Analysis and Nonparametric Statistics

Environmental Engineering Bachelor's Degree Program

The Bachelor of Environmental Engineering (BENV) program educates students in the causes, control, and prevention of environmental contamination so that they may analyze those processes and improve the quality of our earth's atmospheric, water, and land resources.

The curriculum provides a broad background in mathematics and sciences common to all engineering disciplines. This includes a background in the fundamentals of physical, biological, and chemical processes. Students take courses in environmental engineering beginning in the first semester of their sophomore year, while simultaneously developing a strong foundation in mathematical, scientific, and engineering fundamentals. The core curriculum also includes important aspects of chemical thermodynamics and ecology, as well as courses on treating water and wastewater, controlling air pollution, and managing solid wastes. Laboratory coursework emphasizes the current methods for pollutant analysis and treatment.

These offerings are integrated into a plan of study that also provides many essential courses from the civil engineering curriculum, such as solid mechanics and fluid mechanics. Beyond the common core curriculum, students select one of three concentrations:

- *environmental biological and chemical processes*, providing a background in chemical engineering kinetics, thermodynamics, heat and mass transfer, and physical chemistry
- *environmental facilities design and construction*, including training in structural analysis, structural design, and soil mechanics
- *water resources and water quality*, providing background in stormwater management and the modeling of water and pollutant movement on the land surface (e.g., rivers) and below ground (i.e., groundwater)

Students in each concentration also take additional technical electives, allowing them to obtain greater depth within their concentration or to broaden their training through additional upper-level courses in engineering, the sciences, or mathematics.

Through these courses, students develop an understanding of the fate of environmental contaminants; an ability to apply methods of modeling and simulation to environmental processes and the ability to assess risk and estimate cost. The program emphasizes teaching students to apply knowledge to the conception, analysis, and design of solutions to real-world environmental problems. Students develop the ability to implement technology-based solutions to real-world environmental problems through design, construction, and operation. Graduates will be competent in basic environmental engineering laboratory skills and will have received training in oral and written communications.

The curriculum guides students from solid basics in math and science to a strong understanding of the fundamental design principles employed in engineering practice. While the minimum number of credit hours for the Environmental Engineering major is 125, we encourage students to consider additional courses to expand their training and to make the most of their time while at the university.

The undergraduate program prepares our graduates for entry-level positions. After four years of work experience, graduates can qualify for a license to practice by passing the Principles and Practice of Engineering (PE) examination administered by a State Board. In Delaware, the PE license is administered by the Delaware Association of Professional Engineers (DAPE). Students can take the introductory Fundamentals of Engineering (FE) exam, which is a prerequisite for the PE, as undergraduates.

A complete description of the undergraduate curriculum can be found in the current university Undergraduate & Graduate Catalog. A brief overview is given for each of the concentrations on the check sheets shown on the next pages. The sheets show how we recommend that courses be selected each semester, and may also be used to keep track of progress toward graduation. You can also check your progress on UDSIS by using the “degree audit” tool or by reviewing your unofficial transcript.

Following the check sheet is a list of technical electives that are frequently taken by students in their junior and senior years. Depending on the environmental engineering concentration selected, students are required to take two to four technical electives. These courses are typically upper-level (300-400 level) and can be taken from mathematics, science, and engineering departments. Students should select technical electives in consultation with their faculty advisor.

Because a number of our students seek either MS or PhD degrees following the undergraduate program, a separate list of courses that should be considered in preparation for advanced studies in environmental engineering is also provided.

Name _____

ENVIRONMENTAL ENGINEERING PROGRAM

Advisor _____

Transfer Credits _____

Environmental Biological and Chemical Processes (125 Hours)

Eval. by _____

Effective for EG14 and subsequent classes

Date _____

The required courses of the program are normally taught in fall or spring semesters as indicated below. Each student is responsible for tracking future changes in this schedule.

FRESHMAN YEAR

FALL TERM		16 credits	
Analytic Geom. & Calc. A	MATH 241	(4)	*
General Chemistry	CHEM 103	(4)	* †
Computer Science	CISC 106	(3)	
Intro to Engineering	EGGG 101	(2)	
Breadth Requirement		(3)	*

SPRING TERM		15 credits	
Analytic Geom & Calc B	MATH 242	(4)	*
General Chemistry	CHEM 104	(4)	* †
General Physics I	PHYS 207	(4)	*
Critical Reading & Writing	ENGL 110	(3)	

SOPHOMORE YEAR

FALL TERM		17 credits	
Analytic Geom. & Calc. C	MATH 243	(4)	*
Statics	CIEG 211	(3)	
Quantitative Analysis	CHEM 220	(3)	
Quantitative Analysis Lab	CHEM 221	(1)	
Env. Engineering Processes	CIEG 233	(3)	*
Breadth Requirement		(3)	

SPRING TERM		16 credits	
Engineering Math I	MATH 351	(3)	
Introductory Biology I	BISC 207	(4)	
Prob. & Stats. for Eng.	CIEG 315	(3)	
Physical Chemistry II	CHEM 444	(3)	
Breadth Requirement		(3)	

JUNIOR YEAR

FALL TERM		16 credits	
Chem. Eng. Thermo.	CHEG 231	(3)	*
Fluid Mechanics	CIEG 305	(3)	
Fluid Mechanics Lab	CIEG 306	(1)	
Water & WW Engineering	CIEG 438	(3)	a
Environmental Eng. Lab	CIEG 337	(3)	a
Breadth Requirement		(3)	

SPRING TERM		16 credits	
Introduction to Microbiology	BISC 300	(4)	
Chem. Eng. Thermo.	CHEG 325	(3)	
Technical Writing	ENGL 410	(3)	
Technical Elective		(3)	b
Breadth Requirement		(3)	

SENIOR YEAR

FALL TERM		15 credits	
Senior Design	CIEG 461	(2)	
Chemical Eng. Kinetics	CHEG 332	(3)	
Water Resource Eng.	CIEG 440	(3)	
Organic Chemistry	CHEM 321	(4)	
Water and WW Quality	CIEG 437	(3)	c

SPRING TERM		14 credits	
Senior Design	CIEG 461	(2)	
Air Pollution Control	CIEG 434	(3)	
Introductory Biochemistry	CHEM 527	(3)	
Technical Elective		(3)	d
Breadth Requirement		(3)	

* Grade of "C-" or better required in these courses as degree requirement or as prerequisite for other courses.

† Substitute CHEM111/CHEM112 if chemistry background is sufficiently strong. Consult advisor.

a) Courses alternate - these classes taught in even years; b) Engineering Topic - must consult advisor; c) Course alternates - this class taught in odd years; d) Earth Science - must consult advisor

BREADTH REQUIREMENTS (18 Credit Hours); All Breadth Requirements C- or better

See http://www.engr.udel.edu/advise/breadth_req.html

Creative Arts & Humanities (3)	History & Cultural Change (3)	Social & Behavioral Sciences (3)
Three additional courses (9 credit hours) from the College of Engineering Breadth Requirement List		

OTHER BREADTH REQUIREMENTS

- _____ General Education plan approved () _____ Course (3 credits) for multicultural requirements
- _____ 2 courses (6 credits) above introductory level
- _____ (course numbers)

TECHNICAL ELECTIVES: Must include 3 credits of Engineering Topics and 3 credits of Earth Science

08/2014

Name _____

**ENVIRONMENTAL ENGINEERING
PROGRAM**

Advisor _____

Transfer Credits
Eval. by _____

Environmental Facilities Design & Construction (125 Hours)

Effective for EG14 and subsequent classes

Date _____

The required courses of the program are normally taught in fall or spring semesters as indicated below. Each student is responsible for tracking future changes in this schedule.

FRESHMAN

FALL TERM		16 credits	
Analytic Geom. & Calc. A	MATH 241	(4)	
General Chemistry	CHEM 103	(4)	*†
Computer Science	CISC106	(3)	
Critical Reading & Writing	ENGL110	(3)	
Intro to Engineering	EGGG101	(2)	

SPRING TERM		15 credits	
Analytic Geom. & Calc. B	MATH 242	(4)	*
General Chemistry	CHEM 104	(4)	*†
General Physics I	PHYS 207	(4)	*
Breadth Requirement		(3)	

SOPHOMORE YEAR

FALL TERM		16 credits	
Analytic Geom. & Calc. C	MATH 243	(4)	*
Statics	CIEG 211	(3)	
Env. Engineering Processes	CIEG233	(3)	*
Breadth Requirement		(3)	
Breadth Requirement		(3)	

SPRING TERM		17 credits	
Engineering Math I	MATH 351	(3)	
Introductory Biology I	BISC 207	(4)	
Solid Mechanics	CIEG 212	(3)	
CE Materials Lab	CIEG 213	(1)	
Prob. & Stats. for Engineers	CIEG 315	(3)	
Computer Elective		(3)	a

JUNIOR YEAR

FALL TERM		17 credits	
Thermodynamics I	CHEG 231	(3)	*
Fluid Mechanics	CIEG 305	(3)	
Fluid Mechanics Lab	CIEG 306	(1)	
Structural Analysis	CIEG 301	(4)	
Env. Engineering Lab	CIEG337	(3)	b
Water & WW Engineering	CIEG438	(3)	b

SPRING TERM		15 credits	
Structural Design	CIEG 302	(4)	
Technical Writing	ENGL 410	(3)	
Technical Elective		(2)	
Breadth Requirement		(3)	
Breadth Requirement		(3)	

SENIOR YEAR

FALL TERM		15 credits	
Senior Design	CIEG 461	(2)	
Water Resources Eng	CIEG 440	(3)	
Soil Mechanics	CIEG 320	(3)	
Soil Mechanics Lab	CIEG 323	(1)	
Water/Wastewater Quality	CIEG437	(3)	c
Recycling & Waste Mgt.	CIEG436	(3)	c

SPRING TERM		14 credits	
Senior Design	CIEG 461	(2)	
Air Pollution Control	CIEG 434	(3)	c
Technical Elective		(3)	d
Technical Elective		(3)	d
Breadth Requirement		(3)	

*Grade of "C-" or better required in these courses as degree requirements or as prerequisites for other courses

† Substitute CHEM111/CHEM112 if chemistry background is sufficiently strong. Consult advisor.

a) APECC480, GEOG250 or GEOG372; b) Courses alternate - these classes taught in even years; c) Courses alternate - these classes taught in odd years; d) Earth Science – must consult advisor

BREADTH REQUIREMENTS (18 Credit Hours); All Breadth Requirements C- or better

See http://www.engr.udel.edu/advise/breadth_req.html

Creative Arts & Humanities (3)	History & Cultural Change (3)	Social & Behavioral Sciences (3)
Three additional courses (9 credit hours) from the College of Engineering Breadth Requirement List		

OTHER BREADTH REQUIREMENTS

_____ General Education plan approved (T) _____ 2 courses (6 credits) above introductory
 _____ Course (3 credits) for multicultural requirement _____ level (course numbers)

TECHNICAL ELECTIVES (must include 3 credits Earth Science)

Course	Course

Minor in Environmental Engineering

A minor may be earned by a student in any University bachelor's degree program through the successful completion of a minimum of 18 credits as described below. Before beginning the Environmental Engineering courses, the student must meet the required mathematics, physics, and other prerequisites for each course. A grade of C- or better is required in all of the courses completed for the minor.

One chemistry course is required:

CHEM 104* General Chemistry

*Can be replaced with CHEM 112 (3 credits)

Two environmental engineering courses (6 credits) are required:

CIEG 233* Environmental Engineering Processes

CIEG 305** Fluid Mechanics (Lab optional)

*Can be replaced with CIEG 331 or CHEG 112

**Can be replaced with MEEG 331 or CHEG 341

Further, an additional three courses in environmental engineering must be taken from the following:

CIEG 430 Water Quality Modeling

CIEG 433 Hazardous Waste Management

CIEG 434 Air Pollution Control

CIEG 436 Processing, Recycling, Management of Solid Wastes

CIEG 438* Water and Wastewater Engineering

CIEG 440 Water Resources Engineering

CIEG 498 Groundwater Flow and Containment Transport

*Will not count if CIEG 331 is taken in place of CIEG 233

Courses should be selected from the above list with the specific advice of an advisor in the Department of Civil and Environmental Engineering to meet each student's objectives. Other courses in civil and environmental engineering may be included in the above list with prior approval of a representative from the Department of Civil and Environmental Engineering.

Civil and Chemical Engineering majors would be able to pursue the minor by selecting their required technical and science electives appropriately. No additional credits beyond what is required by their major would be necessary to obtain an Environmental Engineering minor for these students. Mechanical Engineering students would need to select their required technical electives appropriately and take one additional course: CHEM 104.

Minor in Environmental Sustainability

The objective of this minor is to provide basic knowledge and skills required in balancing technological development and environmental impacts, so that sustainability can be methodically defined and attained. Students will have the opportunity to assess sustainability using tools such as life cycle analysis, risk assessment, and the triple bottom line of economic, environmental, and societal effects; recognize and specify engineering solutions to resource, pollution, and sanitation problems that are in harmony with local cultures; relate environmental issues to local political, societal, and economic factors to provide a proper context for sustainable solutions; and evaluate and compare “appropriate technologies” and other sustainable solutions across global boundaries.

To receive a minor in Environmental Sustainability the student must complete a total of 15 credits in accordance with the requirements specified below. Before beginning these courses, the student must meet the required course prerequisites. A minimum grade of C- must be achieved in each course qualifying for the minor.

Recommended prerequisite:

To be accepted into the minor, the student is recommended to have completed an introductory course in mass and energy balances such as CHEG112, CIEG233, or MEEG331.

Two of the following core courses:

CIEG 439 Biosustainability and Public Health
CIEG 445 Industrial Ecology
CIEG 465 Engineers Without Borders

One of the following pollution control technology courses:

CIEG 433 Hazardous Waste Management
CIEG 436 Processing, Recycling, and Management of Solid Wastes
CIEG 438 Water and Wastewater Engineering

Two of the following sustainability-related breadth courses:

BUAD 429 Selected Topics in Management: Sustainability and Green Business
ECON 311 Economics of Developing Countries
ENEP 410 Environmental Sustainability: Economic and Policy Analysis
FREC 343 Environmental Economics
GEOG 320 Water and Society
GEOG 422 Resources, Development, and the Environment
MAST 676 Environmental Economics
PHIL 448 Environmental Ethics
POSC 311 Politics of Developing Nations
POSC 350 Politics and the Environment
SOCI 471 Disasters, Vulnerability, and the Environment

Environmental Engineering Technical Electives

The Environmental Engineering program has a common core curriculum and three concentrations: environmental biological and chemical processes, environmental facilities design and construction, and water resources and water quality. Each concentration requires four or five courses beyond the core curriculum that provide additional training specific to the selected concentration. In addition to these courses, students select two to four technical electives. These courses must be upper-level courses in engineering, science, computer science, or mathematics and must combine for sufficient credit hours to satisfy the requirements of each concentration. In addition, one of the technical electives must satisfy an earth science requirement or be an upper level engineering course. Students should select their desired technical electives with the assistance of their academic advisor. It is advisable to select these courses in the spring of the sophomore year to avoid scheduling conflicts and ensure that any prerequisite courses are taken.

Courses that satisfy the technical electives requirements are listed below. You must select courses not otherwise required for your degree concentration. This list is not comprehensive. Many other courses may qualify as technical electives, provided they are approved by your faculty advisor. Your advisor can also help you select technical electives that are most suitable for the concentration that you've chosen.

Technical electives satisfying the earth science requirement:

CIEG 430	Water Quality Modeling
CIEG 498	Groundwater Flow and Contaminant Transport
GEOL 107	General Geology
PLSC 419	Soil Microbiology

Other recommended technical electives:

BISC 300	Introduction to Microbiology
BISC 641	Microbial Ecology
CHEG 332	Chemical Engineering Kinetics
CHEG 342	Heat and Mass Transfer
CHEG 622	Chemicals, Risk and the Environment
CHEM 443	Physical Chemistry I
CHEM 444	Physical Chemistry II
CHEM 331	Organic Chemistry
CHEM 333	Organic Chemistry Lab
CHEM 527	Introductory Biochemistry
CIEG 311	Dynamics
CIEG 321	Geotechnical Engineering
CIEG 430	Water Quality Modeling
CIEG 433	Hazardous Waste Management
CIEG 439	Biosustainability and Public Health
CIEG 465	Engineers Without Borders
CIEG 445	Industrial Ecology

CIEG 468	Principles of Water Quality Criteria
CIEG 498	Groundwater Flow and Contaminant Transport
CIEG 636	Biological Aspects of Environmental Engineering
GEOG 372	Introduction to GIS
GEOG 431	Watershed Hydro-Ecology
GEOG 432	Environmental Hydrology
GEOG 471	Advanced GIS
GEOL 421	Environmental and Applied Geology
GEOL 446	General Geochemistry
MSEG 302	Materials Science for Engineers
PLSC 608	Environmental Soil Chemistry

Recommended for advanced study:

After completing an undergraduate degree in Environmental Engineering, students may pursue advanced studies in environmental engineering or related fields. For such students, courses in engineering, the sciences, and mathematics are recommended to provide the foundation for more advanced study. The specific courses that will be most beneficial to each student depend upon their area(s) of interest. Below is a list of courses that students should consider. Students interested in advanced study should consult with their advisor about which courses would be most beneficial. Most courses may be counted as technical electives.

BISC 300	Introduction to Microbiology
BISC 641	Microbial Ecology
CHEG 332	Chemical Engineering Kinetics
CHEG 342	Heat and Mass Transfer
CHEM 443	Physical Chemistry I
CHEM 444	Physical Chemistry II
CHEM 331	Organic Chemistry
CHEM 333	Organic Chemistry Lab
CHEM 527	Introductory Biochemistry
MATH 352	Engineering Mathematics II
MATH 353	Engineering Mathematics III
MATH 426	Intro to Numerical Analysis and Algorithmic Computation

4+1 Degree Programs

Well-qualified Civil and Environmental Engineering majors may apply to the 4+1 program which culminates in the student earning a Bachelor degree in Civil Engineering (BCE) or Environmental Engineering (BENV) and a Master of Civil Engineering (MCE) degree within five years. The program is limited to University of Delaware undergraduates pursuing the BCE or BENV degree, with a minimum grade point average of 3.25 at the time of application. Students must complete at least 90 credits toward the undergraduate degree before they can be enrolled in the program. Only full-time students at the time of application are eligible.

Additionally, the College of Engineering and the College of Business and Economics offer a joint five-year program that leads to a baccalaureate degree in an engineering major and a Master of Business Administration degree from the College of Business and Economics. Talk to your advisor if you are interested in this option, and visit the web for more information (<http://graduate.lerner.udel.edu/mba-programs/mba-41-options>).

Civil and Environmental Engineering Faculty

Name	Office	Title	Ph.D.	Areas of Expertise
Nii Attoh-Okine	354 DuPont Hall	Professor	University of Kansas	Pavement management, design, and performance modeling
Daniel Cha	346A DuPont Hall	Professor	University of California, Berkeley	Control of population dynamics and performance of biological wastewater treatment processes; biotransformation of organic and inorganic toxic pollutants
Michael Chajes	358A DuPont Hall	Professor	University of California, Davis	Structural engineering, bridge evaluation and rehabilitation, application of composites
Pei Chiu	468 ISE Building	Professor	Stanford University	Environmental transformation, fate of organic pollutants, remediation and water treatment processes
Rachel Davidson	360B DuPont Hall	Professor	Stanford University	Natural disaster risk assessment and management, civil infrastructure systems
Steven Dentel	348 DuPont Hall	Professor	Cornell University	Application of colloid and interface science to water and wastewater treatment processes
Dominic DiToro	356A DuPont Hall	Edward C. Davis Professor	Princeton University	Water quality modeling, development and application of mathematical and statistical analyses to stream, lake, estuarine, and coastal water quality and sediment problems
Ardeshir Faghri	355B DuPont Hall	Professor	University of Virginia	Transportation systems, urban congestion, work zone safety, traffic signal control systems
John Gillespie, Jr.	201C Composite Center	Donald C. Phillips Professor	University of Delaware	Composite materials, experimental mechanics, fracture mechanics, infrastructure rehabilitation
Domenico Grasso	344B DuPont Hall	Provost and Professor	University of Michigan	Fate of contaminants in the environment
Patrick Harker	104 Hullihen Hal	President and Professor	University of Pennsylvania	Service operations management and economics; financial services operations and technology; nonprofit management; operations research methodology; mathematical programming

Name	Office	Title	Ph.D.	Areas of Expertise
Tom Hsu	205 Ocean Eng. Lab	Associate Professor	Cornell University	Coastal engineering, sediment transport and environmental fluid mechanics, multi-phase flow
Chin-Pao Huang	352A DuPont Hall	Donald C. Phillips Professor	Harvard University	Industrial wastewater management, aquatic chemistry, water and wastewater engineering, environmental remediation engineering
Paul Imhoff	344A DuPont Hall	Professor	Princeton University	Transport of fluids and contaminants in multiphase systems; mass transfer processes in soil, groundwater, surface water, and landfills; mathematical modeling
Allen Jayne	307 DuPont Hall	Assistant Professor	University of Delaware	Structural engineering
Victor Kaliakin	360F DuPont Hall	Professor	University of California, Davis	Computational geomechanics, constitutive modeling of geomaterials, numerical simulation of composite materials
James Kirby	201 Ocean Eng. Lab	Edward C. Davis Professor	University of Delaware	Water wave mechanics
Nobuhisa Kobayashi	207 Ocean Eng. Lab	Professor	Massachusetts Institute of Technology	Hydrodynamics, coastal engineering, and arctic engineering
Kalehiwot Manahiloh	360C DuPont Hall	Assistant Professor	Washington State University	Geotechnical engineering, unsaturated soils, constitutive modeling, digital image processing
Earl "Rusty" Lee	308 DuPont Hall	Assistant Professor	Rensselaer Polytechnic Institute	Applied operations research, homeland security, hazards mitigation and vulnerability, technologies for collaborative decision making
Julia Maresca	344B DuPont Hall	Assistant Professor	Penn State University	Environmental microbiology, biogeochemistry, microbial physiology
Jennifer Righman-McConnell	360H DuPont Hall	Associate Professor	West Virginia University	Structural and bridge engineering
Sue McNeil	360D DuPont Hall	Professor	Carnegie Mellon University	Transportation infrastructure management, planning and land use
Chris Meehan	360A DuPont Hall	Bentley Systems Inc. Chaired Professor	Virginia Tech	Geotechnical engineering, shear behavior of soils under static and dynamic loadings
Dennis Mertz	358B DuPont Hall	Professor	Lehigh University	Structural engineering, concrete and steel structures, bridges
Jack Puleo	203 Ocean Eng. Lab	Associate Professor	University of Florida	Nearshore hydrodynamics and sediment transport
Thomas Schumacher	360G DuPont Hall	Assistant Professor	Oregon State University	Structural engineering, non-destructive evaluation, wood-concrete composite structures, system reliability

Name	Office	Title	Ph.D.	Areas of Expertise
Harry "Tripp" Shenton	301 DuPont Hall	Chair and Professor	Johns Hopkins University	Structural dynamics, structural health monitoring, bridge engineering
Fengyan Shi	204 Ocean Eng. Lab	Associate Professor	Ocean University of Qingdao	Numerical modeling; nearshore processes; coastal ocean hydrodynamics & sediment transport; tsunamis
Allan Zarembski	343B DuPont Hall	Research Professor	Princeton University	Railroad engineering and rail safety

Administrative and Support Staff

Name	Position	Office	Phone	Email
Marikka Beach	Staff Assistant	301 DuPont Hall	302-831-2442	marikka@udel.edu
Michael Davidson	Senior Electronics Specialist	147 DuPont Hall	302-831-6814	michaeld@udel.edu
Karen Greco	Assistant to the Chair	301 DuPont Hall	302-831-3017	kgreco@udel.edu
Rovshan Mahmudov	Environmental Lab Manager	143A Dupont Hall	302-831-4457	mrovshan@udel.edu
Sarah Palmer	Undergraduate Academic Advisor	301 DuPont Hall	302-831-0438	sbpalmer@udel.edu
Nakul Ramanna	Limited Term Researcher	281 DuPont Hall	302-831-4939	nakul@udel.edu
Chris Reoli	Graduate Academic Advisor	301 DuPont Hall	302-831-6570	creoli@udel.edu
Gary Wenczel	Structures Lab Manager	281 Dupont Hall	302-831-6936	wenczel@udel.edu

Advisement

Students are assigned faculty advisors as soon as they arrive on campus and will normally have the same advisor for the entire time they are enrolled in the undergraduate program in Civil or Environmental Engineering. However, any student can freely select his/her advisor, with the permission of that advisor, as soon as he/she feels ready to do so.

Advisors for the Class of 2018

Student Group	Name	Office	Email
Environmental Eng. Students A-J	Professor J. Maresca	344 DuPont Hall	jmaresca@udel.edu
Environmental Eng. Students K-R	Professor P. Chiu	468 ISE Building	pei@udel.edu
Environmental Eng. Students S-Z	Professor D. Cha	346A DuPont Hall	cha@udel.edu
Civil Eng. Students A – C	Prof. A. Jayne	307 DuPont Hall	ajayne@udel.edu
Civil Eng. Students D – H	Prof. H. Shenton	301 DuPont Hall	shenton@udel.edu
Civil Eng. Students I-M	Prof. T. Schumacher	360G DuPont Hall	schumact@udel.edu
Civil Eng. Students N – Z	Prof. N. Kobayashi	207 Ocean Eng. Lab	nk@udel.edu
Civil Eng. Honors Students	Prof. J. Puleo	203 Ocean Eng. Lab	jpuleo@udel.edu
Env. Eng. Honors Students	Prof. D. Cha	346A DuPont Hall	cha@udel.edu

It is suggested that you set up an appointment to meet with your advisor during your first semester and that you seek help from your advisor if you have any questions regarding your schedule or any other problems that may arise.

Every semester there is a two-week advising period, just prior to the time when you will be registering for courses for the following semester. At that time you are required to sign up for an appointment with your advisor (schedules will be posted on each faculty member's door, some faculty set up appointments by email or via the web) to plan your next semester schedule. The University will assign you a registration appointment, after which you are free to go online, through UDSIS, and request the courses you and your advisor have decided upon.

Computing Facilities

Computers have become an essential tool in engineering, and thus play a central role in engineering education. The University maintains general access computing sites throughout the campus. The list is available at <http://www.it.udel.edu/computingsites>.

Engineering Microcomputer Laboratories

The College maintains a microcomputing site specifically for engineering students in 010 Spencer Lab. Students can also use eCALC I (046 Colburn Lab), eCalc III (010 Spencer Lab) and eCalc IV (101-D Pearson Hall) when they are not in use for teaching.

College of Engineering Network

The College of Engineering maintains its own computing network. The network is primarily used for research computing by faculty and graduate students, but is also available to undergraduates working with faculty on their research projects.

Personal Computers

The College of Engineering does not require undergraduates to purchase personal computers. Important information about computing needs and purchasing a computer for student use at the University of Delaware can be found at www.udel.edu/help.

Some software products used in civil and environmental engineering courses will only operate under the Windows environment. For their convenience and where appropriate per the license agreement, students who use an Apple computer are encouraged to install “Boot Camp” on their computers if they wish to use these products on their personal computer.

Computer-Aided Design (CAD) Software

Computer-Aided Design, otherwise known as CAD, is commonly used today in engineering practice. Years ago engineers would hand off their preliminary designs and sketches to CAD operators or technicians for them to produce a professional drawing. Today, however, having proficiency in CAD as an engineer is as critical as using a word processor, email, or spreadsheet: CAD is simply another tool in the modern engineer's toolbox. Engineering students need to develop a certain level of competency in using CAD programs while they are in school. You will

also find that you are more in demand and marketable for internships, summer jobs, co-ops, and full-time employment if you have CAD experience.

There are two major CAD programs in use today in the civil and environmental engineering professions – Bentley Systems Inc. “MicroStation” and AutoDesk’s “AutoCAD.” Neither is an industry standard, but Microstation tends to be used more in the transportation and civil/site development fields (the “horizontal” fields) and AutoCAD tends to be used more in the structural/building fields (the “vertical” fields). The platform choice, however, often times is dictated by the client, and therefore, consulting firms very often will run both programs.

As an engineering major at the University of Delaware students may download and install an academic version of both of these programs on their personal computers (students should understand the license agreement and limitations that come with these free editions, which limit their use to work related to your courses and educational activities). Civil engineering majors will be introduced to MicroStation in CIEG161 Freshmen Design.

At the end of this document are instructions and information to get you started on how to download and install these programs. The information on MicroStation includes an access code that you will need to activate the software. Students are asked to not copy or distribute this code – it is provided as a benefit to you as a UD student and CEE major and should not be shared with others. Students are encouraged to become familiar with the programs and integrate their use in all of the work that they do.

Frequently Asked Questions

How do the CEE degree programs at UD differ from those offered at other universities?

One important distinction from programs at many other universities is that your coursework is specific to your chosen engineering major. By sophomore year, you will be taking engineering courses taught by faculty in your own department, with a curriculum directed toward your chosen major rather than generalized engineering. This allows you to make the most of a four year program, being better prepared for in-depth study during your junior and senior years.

Another distinct feature of our Department is the availability of a Bachelor’s Degree in Environmental Engineering. This degree allows even greater specialization for students desiring training and credentials in this professional direction.

Is it difficult to change to a different major once you have started in one area of engineering?

The process to request a change of major is fairly simple and done entirely online. In UDSIS you will complete a “Change of Major request” form. This form will ask you to select your current major, the new major, your GPA and to provide comments on why you want to change your major. Once submitted, the form is routed to the new major department for a decision. This same process is used even if you wish to switch to a different engineering major.

Note that some majors at UD are restricted because of limitations on capacity. This includes

most engineering majors. For a complete list of restricted majors, and the requirements for transfer into the major, see <http://www.udel.edu/registrar/students/restmajorsinfo.html>.

Of course, the further along you are with one degree program, the more difficult it becomes to utilize the credit hours you have already taken toward your preferred major. Transferring students find the availability of our winter and summer sessions to be particularly helpful, because it allows missed courses to be taken without interfering with the course schedule during the regular semesters.

If you decide to transfer to a major outside of Engineering, your credentials will be evaluated by the department you wish to join. Our students are commonly accepted into a variety of non-engineering majors.

What if I don't know what type of engineering I would like to go into?

All freshman engineering majors take *EGGG101 - Introduction to Engineering* in the College of Engineering's common first semester. This course exposes students to the seven engineering majors/disciplines that the college offers. This is a modular course that is taught by a team of faculty representing the seven degrees. Students have the chance to ask questions and learn about the disciplines through this course. They are also free to speak with faculty who are able to provide more details about the options available. In addition, those who may be undecided about a specific engineering field may find our Civil Engineering major to be a good choice because it opens doors to a variety of specializations later in the curriculum: structural engineering, geotechnical engineering, transportation engineering, coastal engineering, water resources engineering, and environmental engineering.

I'm starting the degree program in Environmental Engineering, but I understand there is also a degree available in Environmental Science. What's the difference?

Environmental Engineering utilizes quantitative and technological tools to address problems of public health and environmental impact brought about by pollution. The profession overlaps with *some* areas of Environmental Science. For example, the environmental engineer might characterize the chemical impacts of an industrial waste flow on a wetland area and attempt to minimize the impact, while the environmental scientist will address the consequent effects on species diversity. The environmental engineer is often action-oriented, while an environmental scientist may study intrinsic properties of pristine ecosystems. There are also differences in job opportunities and starting salaries; faculty from these two programs can provide more information about these issues. Refer to the Undergraduate Catalog for details on the degree requirements for Environmental Science. (Note: *Environmental Studies* is a general term, encompassing both of these areas as well as others such as Environmental Policy.)

Will I need to buy a computer before I start courses?

As an engineering student you will be learning to use computer software such as word processors, spreadsheets, computer-aided drafting, and other application-specific software. If you have your own computer with the necessary software, you will be able to do this type of work wherever you are. While very convenient, however, this is not required as there are

computers on campus available for your use.

Is it good to minor in a subject in addition to having a major?

If you have the time and interest, you can take enough courses to have a minor in a subject area. Requirements for a minor can often be met while using many of the same courses to meet the breadth requirements or technical elective requirements for your major degree. Upon graduation, the minor will appear on your transcript and may enhance your job qualifications. Environmental Engineering majors often minor in Civil Engineering, and vice-versa, but non-engineering minors, such as Music and Economics, are also popular.

What is the Fundamentals of Engineering exam, and do I have to take it?

Many engineers, and especially civil and environmental engineers, want to enhance their credentials by earning the license to be a Professional Engineer (P.E.). The requirements vary by state, but the usual path to the P.E. certification is to obtain an accredited engineering degree, pass the Fundamentals of Engineering (F.E.) exam, obtain four years of work experience as an engineer, and then pass the P.E. exam. None of these steps are required as part of any degree program at UD. However, our courses prepare you to do well on the F.E. exam, and most of our students take the exam and pass it during their senior year.

How large are the classes?

You will encounter your largest classes the first several semesters. The enrollment in our senior-level courses averages 40 students. This does not include independent study courses, which are one-on-one. All courses are taught by faculty or, for upper-level courses, qualified professionals. Our Senior Design Project course is taught by five licensed Professional Engineers.

If I have other questions, who can I contact?

When you enroll, you will be assigned a faculty advisor. Generally, this same professor will be available for guidance through your four years on campus. Your faculty advisor will help you select courses and locate other types of assistance for you if needed.

Student Organizations

There are dozens of clubs and organizations on campus. Organizations of specific relevance to Civil and Environmental Engineers are:

Organization	Faculty Advisor	Email
American Society of Civil Engineers (ASCE)	Allen Jayne	ajayne@udel.edu
Institute of Transportation Engineers (ITE)	Rusty Lee	elee@udel.edu
Chi Epsilon Civil Engineering Honor Society	Jack Puleo	jpuleo@udel.edu
Environmental Engineering Student Association (EESA)	Daniel Cha	cha@udel.edu
Engineers Without Borders (EWB)	Steve Dentel	dentel@udel.edu
American Society of Highway Engineers (ASHE)	Matheu Carter	matheu@udel.edu
National Society of Black Engineers (NSBE)	Marianne Johnson	mtj@udel.edu
National Society of Professional Engineers (NSPE)	Carmine Balascio	carmine@udel.edu
Society of Women Engineers (SWE)	Pam Cook	cook@math.udel.edu

Useful Web Sites

University of Delaware homepage: www.udel.edu

Department of Civil and Environmental Engineering: www.ce.udel.edu

American Society of Civil Engineers: www.asce.org

Environmental Engineering Student Association (EESA): www.ce.udel.edu/eesa

For up to date news and information that are important to students, and to also see what is happening in the department, you can also follow the department on Facebook (University of Delaware, Department of Civil and Environmental Engineering) and Twitter (@UDelawareCEE).

University Resources

The University of Delaware offers a variety of resources to help all students succeed. Please see below for a list of departments and offices that can help you maximize your college experience. Successful students take advantage of University resources.

Career Services Center, 401 Academy Street: fosters partnerships with employers to increase their participation in providing opportunities for the career development of students

<http://www.udel.edu/CSC/>

Center for Counseling & Student Development, 261 Perkins Student Center: programs are all designed to contribute to the personal, educational, and career development of our students

<http://www.udel.edu/Counseling/>

Disability Support Services, Alison Hall 130: works with students who have a physical, medical, or psychological disability, as well as a learning disability or ADHD

<http://www.udel.edu/DSS/>

ISE labs: drop-in tutoring for a variety of subjects including BISC, CHEM, PHYS, MATH and CISC courses

<http://www.cas.udel.edu/isll/learning-community-center/Pages/default.aspx>

Math Tutorial Lab, 106 Ewing Hall: provides tutorial support for many introductory math courses, including MATH 010, 117, and 241

http://www.math.udel.edu/resources/ugrad/tutorial_site.html

Office of Academic Enrichment, 148-150 S. College Ave: promotes student success with a variety of programs such as tutoring, skills workshops and courses, and supplemental instruction

<http://ae.udel.edu/>

Office of the Dean of Students, 101 Hullahen Hall: offers counseling and referrals for students contemplating withdrawal from or re-enrollment to the university

<http://www.udel.edu/studentlife/deanofstudents.html>

Physics Help Center, 101A Sharp Lab: staffed by graduate students

<http://web.physics.udel.edu/undergrad/resources>

Student Health Services, Laurel Hall: programs and services are aimed at maintaining the physical and emotional well-being of University of Delaware students

<http://www.udel.edu/studenthealth/>

Student Support Services Program, 148-150 S. College Ave: federally funded comprehensive support service designed to provide academic assistance and advising, personal counseling, and cultural enrichment opportunities for eligible undergraduate students at the University of Delaware

<http://sssp.ae.udel.edu/>

Student Wellness & Health Promotion, 231 S. College Ave: engages all members of the University community in health promotion and prevention strategies that empower students to develop skills and competencies which support healthy choices and academic success as a foundation for life-long development

<http://www.udel.edu/studentwellness/>

University Student Centers, Trabant University Center and Perkins Student Center: enhance student life and complement the academic experience through an extensive variety of cultural, educational, social, and recreational programs

<http://www.udel.edu/usc/>

Writing Center, 016 Memorial Hall: individualized consultations for any level writer at no cost

<http://www.english.udel.edu/wc/>

As part of **University of Delaware**'s Bentley Academic subscription, educators and students are entitled to receive software, training, and support from Bentley Systems.

To access the resources, educators and students must first create accounts at <http://apps.bentley.com/studentserver/> and use the "School Code" below when setting up their account.

School Code for STUDENTserver

MH+bPBe6rf8waE7+yKDA6uRE4dnjxFALY9YMPCB3B/3v8bali8Fh0g==

Unlimited Home Software Use



Free, unlimited home use of all of the software included in your school's Bentley Academic SELECT subscription is available with

STUDENTserver. Over 50 software titles can be downloaded and activated for use on your home computer or laptop.

[See What software products are available](#)

[Learn how to download & activate Bentley software](#)

Training Transcript



Transcripts are great ways to track training progress, along with providing documentation of completed training for educators and potential

employers. Each Training course completed is added to your transcript.

[Learn more about Transcripts](#)

On Demand Software Training



The path to expert knowledge of Bentley's software products includes training created by Bentley for Bentley users. Access

to the complete library of Bentley On Demand learning awaits. Each On Demand training course contains multiple lessons, which easily lead the viewer to real examples of how to use the software of interest.

[Learn how to access On Demand Training](#)

Bentley Support Community



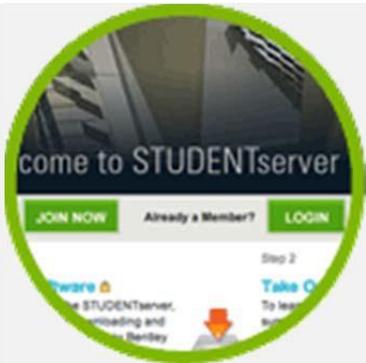
Access to the largest Bentley support and professional networking community, to help with learning and using

Bentley software, awaits.

[Learn about the support communities available to help Bentley software users](#)

How to set up your STUDENTserver Account

To access the benefits and materials available to you, as part of the Academic SELECT program subscription your school has with Bentley, you need to have your school's unique School Code.



Visit STUDENTserver

Visit STUDENTserver at <http://apps.bentley.com/StudentServer> and click JOIN NOW to create your account.

Create Your Account

Add your school code to that field, as requested in the registration form.

Add your personal information in the other form fields. Submit the form. An email will be sent from becareers@bentley.com for further verification.



Verify Your Account

Click the link in the account verification email to activate your STUDENTserver account.

Once you are logged in you have access to all that STUDENTserver has to offer.

More Resources

<http://STUDENTserver.becareers.net> - Program details and complete instructions about the resources included in STUDENTserver. Simply click on the word **Student** at the top of the page.

[Be Careers program pages](#) - About Bentley's Academic programs

<https://www.facebook.com/BentleySystemsStudentCenter> - Latest information

<http://www.youtube.com/BentleyStudentCenter> - YouTube videos and software tutorials

How to register for the Autodesk Education Community

The Autodesk Education Community is a password-protected website that provides direct access to student versions of Autodesk software.

Before you register, make sure you're eligible to join the Education Community.

To register for the Education Community, follow the below steps:

1. Go to the Autodesk Education Community (www.autodesk.com/education/free-software/all) and click on **Sign In** on the top right corner of the homepage. Select **Need an education account?**



2. Select your **Country**, enter your **Birthdate** and indicate that you are a **Student** at **University of Delaware**. You do not need to list the school's website.

The image shows the "Create account" form on the Autodesk website. The form is titled "Create account" and has the Autodesk logo at the top left. It contains several fields and sections: "Country" with a dropdown menu set to "Select"; "Birthdate" with three dropdown menus for "Month", "Day", and "Year"; "Education status" with a link to "Get help" and a dropdown menu set to "I am a: Select"; "Account information" with fields for "First name", "Last name", "Autodesk ID (Username)" (with an information icon), "Email", "Confirm email", "Password", and "Confirm password"; and "Terms & conditions" with two checkboxes: "I would like to receive e-mail communications from Autodesk, including information about new products and special promotions." and "I agree to the Autodesk 360 Terms of Service and to the use of my personal information in accordance with the Autodesk Privacy Statement (including cross-border transfers as described in the statement).".

3. You'll receive an email from the Education Community containing a link. Click this to activate your account.

Note: If you don't see this email, check your Junk folder.



4. Once your account is activated, you can edit your profile.