

 FLORIDA ATLANTIC UNIVERSITY	NEW/CHANGE PROGRAM REQUEST Undergraduate Programs		UUPC Approval <u>12-2-24</u> UFS Approval _____ Banner _____ Catalog _____
	Department	College	
Program Name		New Program* Change Program*	Effective Date <i>(TERM & YEAR)</i>
Please explain the requested change(s) and offer rationale below or on an attachment.			
<p>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</p>			
Faculty Contact/Email/Phone	Consult and list departments that may be affected by the change(s) and attach documentation		
Approved by Department Chair _____ College Curriculum Chair <u>Galan Liu</u> College Dean <u>J</u> UUPC Chair <u>Korey Sorge</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____	Date <u>11/18/2024</u> <u>11/21/2024</u> <u>11/18/24</u> <u>12-2-24</u> <u>12-2-24</u> _____ _____		

Email this form and attachments to mjenning@fau.edu seven business days before the UUPC meeting.

Environmental Engineering
Bachelor's Program

Environmental engineers integrate principles of engineering, mathematics, earth science, soil science, life science and materials science with emphasis on the design and development of solutions to environmental challenges, such as improvement of water, air pollution control, safe disposal of wastes and the stewardship of our natural resources.

Environmental Engineering Educational Objectives and Student Outcomes

The Environmental Engineering program strongly supports the educational objectives and learning outcomes of the College of Engineering and Computer Science (see the [Educational Objectives](#) and [Expected Student Learning Outcomes](#) subsections previously listed in this section).

Program Educational Objectives are broad statements that describe the expected accomplishments and professional status of Environmental Engineering graduates a few years beyond the baccalaureate degree.

The Environmental Engineering program at Florida Atlantic University is dedicated to graduating environmental engineers who, within a few years after graduation will:

- A. **Practice environmental engineering** within the general areas of water and wastewater, air quality, solid and hazardous waste, and groundwater and soils in the organizations that employ them;
- B. **Advance their knowledge of environmental engineering**, both formally and informally, by engaging in lifelong learning experiences including attainment of professional licensure and/or graduate studies;
- C. **Serve as effective professionals** based on strong interpersonal and teamwork skills, an understanding of professional and ethical responsibility and a willingness to take the initiative and seek progressive responsibilities;
- D. **Participate as leaders** in activities that support service to, and/or economic development of, the community, the region, the state and the nation.

The educational objectives of the Bachelor of Science in Environmental Engineering program are achieved by ensuring that graduates have the following characteristics or student outcomes:

1. An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics;
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors;

3. An ability to communicate effectively with a range of audiences;
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts;
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives;
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions;
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

[Link to Combined Programs](#)

Environmental Engineering
Bachelor of Science in environmental engineering (B.S.e.v.)

(Minimum of 120 credits required)

Admission Requirements

All students must meet the minimum admission requirements of the University. Please refer to the [Admissions section](#) of this catalog.

All students must meet the preprofessional requirements listed [above](#) to be accepted in the Environmental Engineering program.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the General Education Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#) and below.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Degree Requirements

The Bachelor of Science in Environmental Engineering degree will be awarded to students who:

1. Meet all general degree requirements of the University;
2. Complete the curriculum for the B.S. in Environmental Engineering degree (see below);

- Take the Fundamentals of Engineering examination (the first of two exams necessary for professional licensure; contact the department for details).

Curriculum

The Bachelor of Science in Environmental Engineering degree requires 120 credits. For credit toward the degree, a grade of "C" or better must be received in each course listed. In addition, all prerequisites for each mathematics, science or engineering course must be completed with a grade of "C" or better before enrollment is permitted. The degree components are listed below.

General Education Program

College Writing 1 (1), (2)	ENC 1101	3
College Writing 2 (1), (2)	ENC 1102	3
<u>General Education Program: Society and Human Behavior Courses (1), (3)</u>	-	6
<u>General Education Program: Global Citizenship Courses (1), (3)</u>	-	6
<u>General Education Program: Humanities Courses (1), (3)</u>	-	6

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Foundations of Math and Quantitative Reasoning

Calculus with Analytic Geometry 1 (1), (4)	MAC 2311	4
Calculus with Analytic Geometry 2 (1), (4)	MAC 2312	4

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Foundations of Science and the Natural World

General Chemistry 1 or Engineering Chemistry (1)	CHM 2045 or EGN 2095	3 and
General Chemistry Lab 1 or Engineering Chemistry Lab (1)	CHM 2045L or EGN 2095L	1
General Physics for Engineers 1 (1), (9)	PHY 2048	3 and
General Physics 1 Lab	PHY 2048L	1
Total		40

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Basic Mathematics and Sciences

General Chemistry 2 (1)	CHM 2046	3 and
General Chemistry 2 Lab (1)	CHM 2046L	1
Engineering Mathematics 1	MAP 3305	3 or
Differential Equations	MAP 3302	3

Earth Science Elective (1)	-	3
Biological Science Elective (1)	-	4
Statistics Restricted Elective	-	3
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Statistics Restricted Elective: Probability and Statistics for Engineers (STA 4032), Stochastic Models for Computer Science (STA 4821), Probability and Statistics 1 (STA 4442) or equivalent.

1. **University General Education Program** (add link to gen ed) Students who have earned a bachelor's degree from a four-year accredited institution of higher education or an A.A. degree from a Florida state college or state university in Florida are deemed to have completed the General Education Requirements. (1)
2. **Pre-Engineering Requirements** – Students must complete the pre-engineering requirements to declare major.
3. **Math requirements**

Calculus with Analytic Geometry 1 (1)-(4)	MAC 2311
Calculus with Analytic Geometry 2 (1)-(4)	MAC 2312
Engineering Mathematics 1	MAP 3305
Differential Equations	MAP 2302
Probability and Statistics for Engineers	STA 4032
Stochastic Models for Computer Science	STA 4442
Probability and Statistics 1	STA 4442
Or equivalent statistic class	

4. Basic Science requirements

General Chemistry 1	CHM 2045
General Chemistry Lab 1	CHM 2045L
General Physics for Engineers 1	PHY 2048
General Physics 1 Lab	PHY 2048L
General Chemistry 2	CHM 2046
General Chemistry 2 Lab	CHM 2046L

Earth Science Elective	3	Formatted: Highlight
Biological Science Elective	4	Formatted: Highlight

Engineering Fundamentals

Engineering Graphics Elective

Computer Aided Design	CGN 2327	3 or
Engineering Graphics	EGN 1111C	3
Fundamentals of Engineering	EGN 1002	3
Computer Programming Elective		
Programming 1 (effective summer 2025)	COP 2220C	3 or
Computer Applications in Engineering 1	EGN 2213	3 or
C for Engineers	EEL 2161	3
Statics	EGN 3311	3
Strength of Materials	EGN 3331	3
Engineering Thermodynamics	EGN 3343	3
Total		18

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5. Engineering fundamentals requirements

Computer-Aided Design	CGN 2327	3
Fundamentals of Engineering (3)	EGN 1002	3
Statics	EGN 3311	3
Strength of Materials	EGN 3331	3
Engineering Thermodynamics	EGN 3343	3
Introduction to Mapping and GIS (4)	GIS 3015C	3 or
GIS for Civil Engineering Applications	CGN 4321	3
Computer Programming Elective		

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Programming 1 (effective summer 2025)	COP 2220C	3 or
Computer Applications in Engineering 1	EGN 2213	3 or
C for Engineers	EEL 2161	3 or
Introduction to Programming in Python (4)	COP 3035C	3
Total		18-21

Environmental Engineering Design Core

Hydrologic Engineering	CWR 4202	3
Air Pollution and Control Systems	ENV 4112	3
Air Pollution Lab	ENV 4112L	1
RI: Solid and Hazardous Waste and Site Remediation	ENV 4341	3
RI: Water and Wastewater Treatment Systems	ENV 4514	3 or
Water and Wastewater Treatment	ENV 5510	3
Subdivision Design	SUR 4463	2
Total		15

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Capstone Design Core

RI: Civil, Environmental and Geomatics Engineering Design 1 (2), (5), (10)	CGN 4803C	3
RI: Civil, Environmental and Geomatics Engineering Design 2 (2), (5), (11)	CGN 4804C	3

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Total

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Technical Electives (Select 9 credits from the list) (6)

Environmental Geochemistry	GLY 4241	3
Hydrogeology	GLY 4822	3

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Oceanography	OCE 3008	3
Sustainable Cities	URP 4403	3
Environmental Planning Methods	URP 4420	3
Environment and Disease	ANT 4463	3
Environmental Ethics	PHI 3640	3
Global Environmental Politics and Policies	INR 4350	3
Environmental Economics	ECP 4302	3
Entrepreneurship	ENT 4024	3
Engineering Professional Internship	EGN 3941	0-4
Professional Internship	IDS 3949	0-4
Directed Independent Research in Engineering and Computer Science (8)	EGN 4911	0-3
Directed Independent Research in Engineering and Computer Science	EGN 4915	1-3
Total		9

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6. Environmental Engineering Technical Core

Soil Mechanics (54)	CEG 3011C	3
Applied Hydraulics (54)	CWR 3201C	3
Environmental Science and Engineering (54)	ENV 3001C	3
RI: Environmental Fate and Transport	ENV 4053	3
Introduction to Pollution Prevention and Sustainability	ENV 4072	3
Total		15

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7. Environmental Engineering Design Core (5)

Hydrologic Engineering	CWR 4202	3
Air Pollution and Control Systems	ENV 4112	3
Air Pollution Lab	ENV 4112L	1

RI: Solid and Hazardous Waste and Site Remediation	ENV 4341	3
RI: Water and Wastewater Treatment Systems	ENV 4514	3 or
Water and Wastewater Treatment	ENV 5510	3
RI: Subdivision Design	SUR 4463	2.23
Total		15-16

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8. Capstone Design Core

RI: Civil, Environmental and Geomatics Engineering Design 1 (5), (6), (8)	CGN 4803C	3
RI: Civil, Environmental and Geomatics Engineering Design 2 (5), (6), (9)	CGN 4804C	3
Total		6

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9. Technical Electives (Select 12 credits from the list below)

Any approved College of Engineering and Computer Science course 3000-level and above		3
Environmental Geochemistry	GLY 4241	3
Construction Project Management	CCE 4031	3
Hydrogeology	GLY 4822	3
Oceanography	OCE 3008	3
Sustainable Cities	URP 4403	3
Environmental Planning Methods	URP 4420	3
Environment and Disease	ANT 4463	3
Environmental Ethics	PHI 3640	3
Global Environmental Politics and Policies	INR 4350	3
Environmental Economics	ECP 4302	3
Entrepreneurship	ENT 4024	3
Engineering Professional Internship	EGN 3941	0-4

Professional Internship	IDS 3949	0-4
Directed Independent Research in Engineering and Computer Science (87)	EGN 4911	0-3
Directed Independent Research in Engineering and Computer Science	EGN 4915	1-3
Total	912	← Formatted Table

Notes:

1. Contributes to University Core Curriculum requirements.

2.1. Contributes to Writing Across Curriculum (Gordon Rule) writing requirement.

3.1. General Education Program courses, totaling 6 credits, must be selected to satisfy Writing Across Curriculum (College Level Composition formerly known as Gordon Rule) writing requirements.

4.2. Contributes to Gordon RuleCollege Level Computation (formerly known as Gordon Rule)mathematics requirement.

5.3. For those students entering with a B.S. degree or over 60 Cr. who have not taken EGN 1002, they may substitute an upper level technical elective to meet this requirement.

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6.4. Includes a 1-credit laboratory.

7.5. All design core courses contain a communications component (writing or speaking).

6. Contributes to Writing Across Curriculum (Gordon Rule) writing requirement.

8.7. Grading: S/U.

9. PHY 2048, General Physics 1 (4 credits) is an acceptable substitute, but only 3 credits will apply toward the degree.

10.8. Prerequisites are ENV 4514 and SUR 4463.

9. Prerequisite is CGN 4803C.

Sample Four-Year Program of Study

For the sample four-year program of study for the Bachelor of Science in Environmental Engineering, refer to the Curriculum Sheets and Flight Plans by major.

Internships

Environmental Engineering students are strongly encouraged to gain practical experience through participation in internship opportunities. However, internships may only substitute for one environmental engineering technical elective with prior approval from the department chair and only if taken for a grade (IDS 3949, Professional Internship) for a total of three semesters. For more information, contact the FAU Career Center at 561-297-3533 or visit its [website](#).