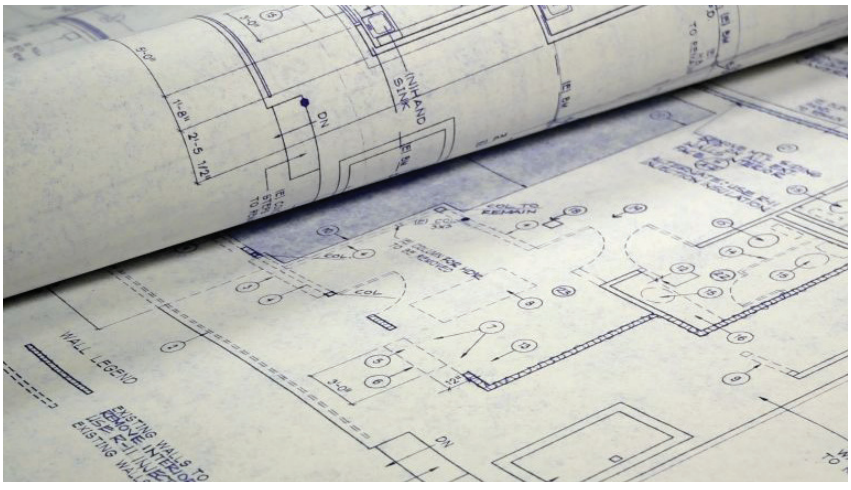
School of Civil Engineering and Environmental Science



WHAT IS ARCHITECTURAL ENGINEERING?

Architectural engineers design buildings and other structures, but the design of a building involves far more than just its external appearance. Buildings must be structurally sound, have adequate mechanical, plumbing and lighting systems, and must be economical to construct. Architectural engineers consider all these factors when they design buildings and other structures.

ACADEMICS

Students take a series of architectural planning and methods courses from the College of Architecture. During the last two years, students take structural engineering courses from CEES and building systems courses (e.g., Heating, Ventilation, and Air-Conditioning) from mechanical engineering. The culmination of each bachelor of science degree program in CEES is a two-semester capstone sequence. The capstone design experience requires students to draw upon various aspects of their undergraduate course work to develop a comprehensive solution to an open-ended problem.

CEES has developed an innovative two-semester capstone sequence. The first course in the sequence (Professional Practice) covers a lot of the non-technical issues associated with architectural engineering practice (e.g., professional registration, ethics, and environmental regulations); the second course (Architectural Engineering Capstone) focuses on a real-world architectural engineering problem. The students are assembled into multidisciplinary teams with civil engineering students. The teams are structured to simulate a typical architectural engineering consulting firm. The student teams address a real-world design problem and their work is evaluated by practicing engineers. One past capstone class undertook the design of a Radar Innovations Laboratory for the OU Research Campus.

CEES requires that all Architectural Engineering students take the Fundamentals of Engineering examination prior to graduation.

DEGREE OPTIONS

Undergraduate:

B.S. in Architectural Engineering

Accelerated:

B.S. in Architectural Engineering/ M.S. in Civil Engineering

Beyond Your Degree

ArchE graduates have many career options, including working with architectural, civil or structural engineering consulting firms that design building structure and mechanical systems. Other graduates find employment with construction firms, as field construction engineers, project managers or cost estimators.

CONTACT ARCHE

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REQUIREMENTS FOR THE BACHELOR OF SCIENCE
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year
For Students Entering the Oklahoma State System for Higher Education **Summer 2022 through Spring 2023**

General Requirements	
Minimum Total Credit Hours	**130**
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	**2.00**
Major - Combined and OU	**2.00**
Curriculum - Combined and OU	**2.00**

Program
Architectural Engineering **B035** Bachelor of Science

OU encourages students to complete at least 33 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

A grade of C or better is required in each course in the curriculum, including all prerequisite courses.

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

Code	Title	Credit Hours
Core Area I: Symbolic and Oral Communication		
English Composition		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours in the same language)		
This requirement can be met by two years of the same language in high school:		0-10
Beginning Course (0-5 hours)		
Beginning Course, continued (0-5 hours)		
Mathematics		
MATH 1914	Differential and Integral Calculus I (Core I) [1, 2]	4
Core Area II: Natural Science (including one laboratory)		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) [2]	4
CHEM 1315	General Chemistry (Core II-Lab) [2]	5
or CHEM 1335	General Chemistry I: Signature Course	
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course [3]		3
Core Area IV: Arts & Humanities		
Artistic Forms		
Choose one course [3]		3
Western Culture		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
Will be satisfied in major requirements		0
ARCH 2243	History of the Built Environment I (Core IV-Western Culture)	
World Culture		
ANTH 4623	Approaches to Cross-Cultural Human Problems (or approved substitute Core IV-World Culture) [3]	3
Core Area V: First-Year Experience		
Choose one course [3]		3
Total Credit Hours		37-47

[1]MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

[2]Major support requirements that also satisfy University General Education requirements.

[3]To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000).

FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

ACCREDITED BY THE ENGINEERING ACCREDITATION COMMISSION OF ABET, https://www.abet.org

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C** or better is required in each course in the curriculum, including all prerequisite courses.

MAJOR REQUIREMENTS

Code	Title	Credit Hours
Required Courses		
AME 2213	Thermodynamics	3
AME 3173	Heat Transfer	3
AME 4653	Air Conditioning Systems	3
ARCH 1263	Methods II - Pattern of Architecture	3
ARCH 2243	History of the Built Environment I	3
ARCH 2363	Materials and Form	3
CEES 1000	CEES Seminar (minimum of four semesters required)	0
CEES 1112	Introduction to Civil Engineering and Environmental Science	2
CEES 2113	Statics	3
CEES 2153	Mechanics of Materials	3
CEES 2213	CADD Fundamentals	3
CEES 2223	Fluid Mechanics	3
CEES 3263	Introduction to Dynamics for Architectural and Civil Engineers	3
CEES 3361	Soil Mechanics Laboratory	1
CEES 3363	Soil Mechanics	3
CEES 3403	Materials	3
CEES 3413	Structural Analysis I	3
CEES 3453	Introduction to Construction Management	3
CEES 3663	Structural Design - Steel I	3
CEES 3673	Structural Design - Concrete I	3
CEES 4113	Building Lighting and Electrical Systems	3
CEES 4333	Foundation Engineering	3
CEES 4753	Structural Design - Wood	3
CEES 4991	Introduction to AE Capstone	1
CEES 4993	Architecture Engineering Capstone	3
ENGR 2431	Electrical Circuits	1
ENGR 3401	Engineering Economics	1
Professional Elective		
Choose any 3000-level or higher course in CEES		3
Total Credit Hours		72

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
MATH 3113	Introduction to Ordinary Differential Equations	3
PHYS 2524	General Physics for Engineering and Science Majors	4
Choose one of the following:		4
GEOL 1114	Physical Geology for Science and Engineering Majors (Core II-Lab)	
Basic Science Elective		
Math (calculus or above)		
Additional College Requirements		
ENGR 1410	Freshman Engineering Orientation [1]	0
ENGR 2002	Professional Development	2
Total Credit Hours		21

[1]Engineering transfer students may take ENGR 3410 in place of ENGR 1410.

More information in the catalog: (http://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/architectural-engineering-bachelor-science/).

School of Civil Engineering and Environmental Science

WHAT IS CIVIL ENGINEERING?

Civil engineering is the oldest of the modern engineering disciplines, with historical roots dating back to the 1700s. Civil engineers are responsible for the design and construction of society's infrastructure, such as buildings, highways, bridges, mass transit systems, dams and locks, and municipal water and sewage treatment systems. They often are responsible for planning, managing, operating and maintaining these facilities.

ACADEMICS

Civil engineering is composed of four areas of emphasis: environmental, geotechnical, structural and transportation engineering. The undergraduate civil engineering student must complete a sequence of core engineering courses plus one or two courses in each of these areas. Students then choose three upper-division Professional Electives in their preferred area of emphasis.

The culmination of each bachelor of science degree program in CEES is a two-semester capstone sequence. The capstone design experience requires students to draw upon various aspects of their undergraduate course work to develop a comprehensive solution to an open-ended problem.

CEES has developed an innovative two- semester capstone sequence. The first course in the sequence (Professional Practice) covers a lot of the non-technical issues associated with civil engineering practice (e.g., professional registration, ethics and environmental regulations); the second course (Civil Engineering Capstone) focuses on a real- world civil engineering design problem. The students are assembled into multidisciplinary teams with architectural engineering students. The teams are structured to simulate a typical civil engineering consulting firm. The student teams address a real-world design problem and their work is evaluated by practicing engineers. One past capstone class undertook the design of a Radar Innovations Laboratory for the OU Research Campus.

CEES requires that all Civil Engineering students take the Fundamentals of Engineering examination prior to graduation.

DEGREE OPTIONS

Undergraduate:

B.S. in Civil Engineering

Accelerated:

B.S. in Civil Engineering/M.S. in Civil Engineering

Graduate:

Master of Science
Doctor of Philosophy

BEYOND YOUR DEGREE

Spurred by general population growth and an expanding economy, more civil engineers will be needed to design and construct higher-capacity transportation, water supply and pollution control systems, as well as large buildings and building complexes. They also will be needed to repair or replace existing roads, bridges and other public structures.

CONTACT CE

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REQUIREMENTS FOR THE BACHELOR OF SCIENCE
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year
For Students Entering the Oklahoma State System for Higher Education **Summer 2022 through Spring 2023**

General Requirements	
Minimum Total Credit Hours	**126**
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	**2.00**
Major - Combined and OU	**2.00**
Curriculum - Combined and OU	**2.00**

Program
Civil Engineering
B190
Bachelor of Science

OU encourages students to complete at least 32 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

A grade of C or better is required in each course in the curriculum, including all prerequisite courses.

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

Code	Title	Credit Hours
Core Area I: Symbolic and Oral Communication		
English Composition		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours in the same language)		
This requirement can be met by two years of the same language in high school:		0-10
Beginning Course (0-5 hours)		
Beginning Course, continued (0-5 hours)		
Mathematics		
MATH 1914	Differential and Integral Calculus I (Core I) [1, 2]	4
Core Area II: Natural Science (including one laboratory)		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) [2]	4
CHEM 1315	General Chemistry (Core II-Lab) [2]	5
or CHEM 1335	General Chemistry I: Signature Course	
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course [3]		3
Core Area IV: Arts & Humanities		
Artistic Forms		
Choose one course [3]		3
Western Culture		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
HSTM 3333	Technology and Society in World History (or approved substitute Core IV-Western Culture) [3]	3
World Culture		
ANTH 4623	Approaches to Cross-Cultural Human Problems (or approved substitute Core IV-World Culture) [3]	3
Core Area V: First-Year Experience		
Choose one course [3]		3
Total Credit Hours		40-50

[1]MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

[2]Major support requirements that also satisfy University General Education requirements.

[3]To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.

FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

Accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C** or better is required in each course in the curriculum, including all prerequisite courses.

MAJOR REQUIREMENTS

Code	Title	Credit Hours
Required Courses		
CEES 1000	CEES Seminar (a minimum of four semesters required)	0
CEES 1112	Introduction to Civil Engineering and Environmental Science	2
CEES 2113	Statics	3
CEES 2153	Mechanics of Materials	3
CEES 2213	CADD Fundamentals	3
CEES 2223	Fluid Mechanics	3
CEES 3213	Water Resources Engineering	3
CEES 3243	Water and Wastewater Treatment Design	3
CEES 3263	Introduction to Dynamics for Architectural and Civil Engineers	3
CEES 3361	Soil Mechanics Laboratory	1
CEES 3363	Soil Mechanics	3
CEES 3403	Materials	3
CEES 3413	Structural Analysis I	3
CEES 3663	Structural Design - Steel I (OR Professional Elective) [1, 2]	3
CEES 3673	Structural Design - Concrete I (OR Professional Elective) [1, 2]	3
CEES 3883	Transportation Engineering	3
CEES 4253	Statistics and Probability	3
CEES 4453	Geomatics Engineering	3
CEES 4901	Introduction to CE Capstone	1
CEES 4903	Civil Engineering Capstone	3
CEES 4951	Contemporary Topics in Professional Practice	1
Total Credit Hours		53

[1]Students must take either CEES 3663 or CEES 3673 or they may take both courses if desired.

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
MATH 3113	Introduction to Ordinary Differential Equations	3
CHEM 1415	General Chemistry (Continued)	5
or CHEM 1435	General Chemistry II: Signature Course	
GEOL 1114	Physical Geology for Science and Engineering Majors (or Basic Science, Core II-Lab)	4
PHYS 2524	General Physics for Engineering and Science Majors	4
Professional Electives		
Choose any two 3000-level or higher course in CEES (one three-hour professional elective can be taken outside CEES with advisor approval)		6
Additional College Requirements		
ENGR 1410	Freshman Engineering Orientation [1]	0
ENGR 2002	Professional Development	2
ENGR 3401	Engineering Economics	1
Total Credit Hours		33

[1]Engineering transfer students may take ENGR 3410 in place of ENGR 1410.

More information in the catalog: (http://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/civil-engineering-bachelor-science/).

School of Civil Engineering and Environmental Science

WHAT IS ENVIRONMENTAL ENGINEERING?

Using the principles of physics, biology and chemistry, environmental engineers develop methods to meet such environmental challenges as water and wastewater treatment, air pollution control, solid and hazardous waste management, waste recycling, and water resources management.

ACADEMICS

The core curriculum for environmental engineering is similar to civil engineering; however, the last two years of the program focus strictly on environmental courses. Students are required to take courses in air pollution control engineering; water and wastewater engineering; and solid and hazardous waste management. Students also choose two upper-division Professional Electives in their preferred area of emphasis.

CEES has developed an innovative two- semester capstone sequence. The first course in the sequence (Professional Practice) covers a lot of the non-technical issues associated with environmental engineering practice (e.g., professional registration, ethics and environmental regulations); the second course (Environmental Capstone) focuses on a real- world environmental engineering problem. The students are assembled into multi-disciplinary teams with environmental science students. The teams are structured to simulate a typical environmental consulting firm.

The student teams address a real-world environmental problem and their work is evaluated by practicing engineers and scientists. One past capstone class undertook a study of mine water discharge to develop a passive treatment system located in the Tar Creek Superfund site in northeast Oklahoma.

CEES requires that all Environmental Engineering students take the Fundamentals of Engineering examination prior to graduation.

DEGREE OPTIONS

Undergraduate:

B.S. in Environmental Engineering

Accelerated:

B.S. in Environmental Engineering/M.S. in Environmental Engineering

Graduate:

Master of Science
Doctor of Philosophy

BEYOND YOUR DEGREE

Past graduates have been employed by state and federal environmental agencies, including the Oklahoma Department of Environmental Quality, the U.S. Environmental Protection Agency and the U.S. Geological Survey, as well as various private industries and consulting firms.

CONTACT ENVE

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REQUIREMENTS FOR THE BACHELOR OF SCIENCE
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year
For Students Entering the Oklahoma State System for Higher Education **Summer 2022 through Spring 2023**

General Requirements	
Minimum Total Credit Hours	**125**
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	**2.00**
Major - Combined and OU	**2.00**
Curriculum - Combined and OU	**2.00**

Program
Environmental Engineering
B390
Bachelor of Science

OU encourages students to complete at least 32 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

A grade of C or better is required in each course in the curriculum, including all prerequisite courses.

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

Code	Title	Credit Hours
Core Area I: Symbolic and Oral Communication		
English Composition		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours in the same language)		
This requirement can be met by two years of the same language in high school:		0-10
Beginning Course (0-5 hours)		
Beginning Course, continued (0-5 hours)		
Mathematics		
MATH 1914	Differential and Integral Calculus I (Core I) [1, 2]	4
Core Area II: Natural Science (including one laboratory)		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) [2]	4
CHEM 1315	General Chemistry (Core II-Lab) [2]	5
or CHEM 1335	General Chemistry I: Signature Course	
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course [3]		3
Core Area IV: Arts & Humanities		
Artistic Forms		
Choose one course [3]		3
Western Culture		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
HSTM 3333	Technology and Society in World History (or approved substitute Core IV-Western Culture) [3]	3
World Culture		
ANTH 4623	Approaches to Cross-Cultural Human Problems (or approved substitute Core IV-World Culture) [3]	3
Core Area V: First-Year Experience		
Choose one course [3]		3
Total Credit Hours		40-50

[1]MATH 1823,MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, andMATH 2934.

[2]Major support requirements that also satisfy University General Education requirements.

[3]To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.

FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

ACCREDITED BY THE ENGINEERING ACCREDITATION COMMISSION OF ABET, https://www.abet.org

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C** or better is required in each course in the curriculum, including all prerequisite courses.

MAJOR REQUIREMENTS

Code	Title	Credit Hours
Required Courses		
CEES 1000	CEES Seminar (minimum of four semesters required)	0
CEES 1112	Introduction to Civil Engineering and Environmental Science	2
CEES 2113	Statics	3
CEES 2153	Mechanics of Materials	3
CEES 2213	CADD Fundamentals	3
CEES 2223	Fluid Mechanics	3
CEES 2313	Water Quality Fundamentals	3
CEES 2323	Environmental Transport and Fate Process	3
CEES 3213	Water Resources Engineering	3
CEES 3361	Soil Mechanics Laboratory	1
CEES 3363	Soil Mechanics	3
CEES 3243	Water and Wastewater Treatment Design	3
CEES 4114	Aquatic Chemistry	4
CEES 4253	Statistics and Probability	3
CEES 4263	Hazardous and Solid Waste Management	3
CEES 4324	Environmental Biology and Ecology	4
CEES 4921	Introduction to EE Capstone	1
CEES 4951	Contemporary Topics in Professional Practice	1
CEES 4923	Environmental Engineering Capstone	3
CEES 4943	Air Quality Management	3
Total Credit Hours		52

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
CHEM 1415	General Chemistry (Continued)	5
or CHEM 1435	General Chemistry II: Signature Course	
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
MATH 3113	Introduction to Ordinary Differential Equations	3
PHYS 2524	General Physics for Engineering and Science Majors	4
Professional Electives		
Choose any two 3000-level or higher course in CEES (one three-hour professional elective can be taken outside CEES with advisor approval)		6
Additional College Requirements		
ENGR 1410	Freshman Engineering Orientation [1]	0
ENGR 2002	Professional Development	2
ENGR 2461	Thermodynamics	1
ENGR 3401	Engineering Economics	1
Total Credit Hours		33

[1]Engineering transfer students may take ENGR 3410 in place of ENGR 1410.

More information in the catalog: (http://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/environmental-engineering-bachelor-science/).

School of Civil Engineering and Environmental Science

WHAT IS ENVIRONMENTAL SCIENCE?

Environmental scientists have a variety of job responsibilities, including collecting and analyzing air, water and soil samples; monitoring compliance with environmental laws and regulation; and addressing public meetings on local environmental challenges.

ACADEMICS

Students pursuing a bachelor of science degree in environmental science complete fundamental courses in chemistry, math, physics, biology, microbiology and environmental science. Students then choose three upper-division track electives in one of four areas: chemistry, biology, math or physical sciences. Students also choose two upper-division Professional Electives in the preferred area of emphasis within environmental science. This flexible program prepares students for careers in government, consulting and industry.

CEES has developed an innovative two- semester capstone sequence. The first course in the sequence (Professional Practice) covers a lot of the non-technical issues associated with environmental science practice (e.g., professional registration, ethics and environmental regulations); the second course (Environmental Capstone) focuses on a real- world environmental problem. The students are assembled into multidisciplinary teams with environmental engineering students.

The teams are structured to simulate a typical environmental consulting firm. The student teams address a real-world environmental problem and their work is evaluated by practicing engineers and scientists. One past capstone class undertook a study of mine water discharge to develop a passive treatment system located in the Tar Creek Superfund site in northeast Oklahoma.

DEGREE OPTIONS

Undergraduate:

B.S. in Environmental Science

Accelerated:

B.S. in Environmental Science/
M.S. in Environmental Science

Graduate:

Master of Science
Doctor of Philosophy

BEYOND YOUR DEGREE

Our graduates work for the U.S. Environmental Protection Agency, Oklahoma Department of Environmental Quality, and numerous private industrial and consulting firms.

CONTACT ES

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REQUIREMENTS FOR THE BACHELOR OF SCIENCE
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year
For Students Entering the Oklahoma State System for Higher Education **Summer 2022 through Spring 2023**

General Requirements	
Minimum Total Credit Hours	**121**
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	**2.00**
Major - Combined and OU	**2.00**
Curriculum - Combined and OU	**2.00**

Program
Environmental Science
B405
Bachelor of Science

OU encourages students to complete at least 31 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

A grade of C or better is required in each course in the curriculum, including all prerequisite courses.

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

Code	Title	Credit Hours
Core Area I: Symbolic and Oral Communication		
English Composition		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours in the same language)		
This requirement can be met by two years of the same language in high school:		0-10
Beginning Course (0-5 hours)		
Beginning Course, continued (0-5 hours)		
Mathematics		
MATH 1823	Calculus and Analytic Geometry I (Core I) [1, 2]	3
Core Area II: Natural Science (including one laboratory)		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) [2]	4
or PHYS 2414	General Physics for Life Science Oriented Majors	
CHEM 1315	General Chemistry (Core II-Lab) [2]	5
or CHEM 1335	General Chemistry I: Signature Course	
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course [3]		3
Core Area IV: Arts & Humanities		
Artistic Forms		
Choose one course [3]		3
Western Culture		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
HSTM 3333	Technology and Society in World History (or approved substitute Core IV-Western Culture) [3]	3
World Culture		
ANTH 4623	Approaches to Cross-Cultural Human Problems (or approved substitute Core IV-World Culture) [3]	3
Core Area V: First-Year Experience		
Choose one course [3]		3
Total Credit Hours		39-49

[1]MATH 1914, MATH 2924, and MATH 2934 sequence can be substituted with MATH 1823, MATH 2423, MATH 2433, and MATH 2443.

[2]Major support requirements that also satisfy University General Education requirements.

[3]To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.

FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

ACCREDITED BY THE ENGINEERING ACCREDITATION COMMISSION OF ABET, https://www.abet.org

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C** or better is required in each course in the curriculum, including all prerequisite courses.

MAJOR REQUIREMENTS

Code	Title	Credit Hours
Required Courses		
CEES 1000	CEES Seminar (minimum of four semesters required)	0
CEES 1112	Introduction to Civil Engineering and Environmental Science	2
CEES 2213	CADD Fundamentals	3
CEES 2313	Water Quality Fundamentals	3
CEES 2323	Environmental Transport and Fate Process	3
CEES 4114	Aquatic Chemistry	4
CEES 4253	Statistics and Probability	3
CEES 4263	Hazardous and Solid Waste Management	3
CEES 4324	Environmental Biology and Ecology	4
CEES 4843	Hydrology	3
or CEES 5843	Hydrology	
CEES 4911	Introduction to ES Capstone	1
CEES 4913	Environmental Science Capstone	3
CEES 4943	Air Quality Management	3
Professional Electives		
Choose any two 3000-level or higher course in CEES (one three-hour professional elective can be taken outside CEES with advisor approval)		6
Total Credit Hours		41

MAJOR SUPPORT REQUIREMENTS

Code	Title	Credit Hours
Math and Science		
Choose one of the following:		4
BIOL 1134	Introductory Biology: Evolution, Ecology and Diversity	
or PBIO 1114	General Botany	
Choose one of the following:		3
BIOL 3403	Principles of Ecology	
or PBIO 3453	Principles of Plant Ecology	
CHEM 1415	General Chemistry (Continued)	5
or CHEM 1435	General Chemistry II: Signature Course	
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
CHEM 3153	Organic Chemistry II: Biological Emphasis	3
MATH 2423	Calculus and Analytic Geometry II	3
MBIO 2815	Introduction to Microbiology	5
PHYS 2524	General Physics for Engineering and Science Majors	4
or PHYS 2424	General Physics for Life Science Oriented Majors	
Track Electives		
Choose three courses (See Student Handbook for the list of Track electives)		9
Additional College Requirements		
ENGR 1410	Freshman Engineering Orientation [1]	0
ENGR 2002	Professional Development	2
Total Credit Hours		41

[1]Engineering transfer students may take ENGR 3410 in place of ENGR 1410.

More information in the catalog: (http://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/environmental-science-bachelor-science/).

The UNIVERSITY of OKLAHOMA
School of Civil Engineering and Environmental Science

Environmental Science Minor

Who can apply? Students earning a B.S. in:	
Architecture	Geology
Astronomy	Geophysics
Astrophysics	Geosciences
Biochemistry	Health and Exercise Sciences
Botany	Mathematics
Chemistry	Meteorology
Construction Science	Microbiology
Education (Mathematics and Science)	Physics
Engineering (except Environmental Engineering)	Psychology
Geography	Zoology
Other majors on a case-by-case basis	
To apply visit the Williams Student Services Center in Felgar Hall 112	

The following pre-requisites must be completed prior to application:

- Math 1823 and 2423
- Chemistry 1315 and 1415
- Biology 1134 or Botany 1114
- Physics 2514 or Physics 2414

15 – 16 hours required to complete the minor, including:

- CEES 2313 Water Quality Fundamentals (Fall only)
- CEES 2323 Environmental Transport and Fate Processes (Spring only)
- CEES 4263G Hazardous and Solid Waste Management (Fall only)
- CEES 4114 Aquatic Chemistry or CEES 4324/5324 Environmental Biology and Ecology (both Fall only)

Plus one course from the following list:

- CEES 4243 Water Technologies for Emerging Regions (Spring only)
- ENGR 4513 Sustainable Engineering (Spring only)
- Another CEES 4000 or 5000 course with permission from advisor

REQUIREMENTS FOR THE MINOR
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year	General Requirements	Program
For Students Entering the Oklahoma State System for Higher Education **Summer 2022 through Spring 2023**	Minimum Total Credit Hours ..... **16** Minimum Upper-Division Hours **10**	**Environmental Science** **N405** Minor

The requirements for a minor must be completed concurrently with the major degree requirements.

No minor may be added by completing courses after receiving the bachelor's degree.

Students must complete at least nine (9) minor hours in residence at the University of Oklahoma.

At least 9 credit hours will be in upper division courses (3000 or 4000 level).

Students must complete the following courses prior to application to the minor:
MATH 1823/MATH 1914, MATH 2423/MATH 2924, CHEM 1315, CHEM 1415, BIOL 1134 or PBIO 1114, and PHYS 2514 or PHYS 2414.

A minimum grade of C is required in all courses which are applied to the minor and in all prerequisite courses for the minor.

Students must complete prerequisites for all courses.

REQUIRED COURSES

Code	Title	Credit Hours
CEES 2313	Water Quality Fundamentals (Fall only)	3
CEES 2323	Environmental Transport and Fate Process (Spring only)	3
CEES 4263	Hazardous and Solid Waste Management (G) (Fall only)	3
CEES 4114	Aquatic Chemistry (Fall only)	4
or CEES 4324	Environmental Biology and Ecology	
Choose one of the following:		3
CEES 4243	Water Technologies for Emerging Regions (Spring only)	
ENGR 4513	Introduction to Sustainable Engineering (odd Springs only)	
CEES 4000 or 5000-level course with permission of advisor		
Total Credit Hours		16

- Minors are available to all undergraduate students at OU. If the minor is officially declared, successfully completed, and noted on the graduation application, the student's transcript will so indicate at the time the bachelor's degree is posted.

More information in the catalog: (http://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/environmental-science-engineering-minor/).

School of Civil Engineering and Environmental Science

WHAT IS THE WATER AND SANITATION FOR HEALTH AND SUSTAINABLE DEVELOPMENT MINOR?

The Minor is designed for engineering and non-engineering majors who have an interest in development work in emerging regions, particularly in the sections of water, sanitation and health. Developed by faculty and staff of the OU WaTER Center in collaboration with colleagues from across the OU campus the Minor will:

- prepare students for work in international development as participants and leaders in Peace Corps, USAID, the U.S. Dept. of State and service organizations such as Engineers Without Borders and WaterAID.
- increase the awareness of tomorrow's societal leaders on the specific challengers and opportunities facing developing countries, including WASH

APPLICATION INFORMATION

Students seeking to pursue the Water and Sanitation for Health and Sustainable Development Minor must:

- complete a short application and, if accepted, arrange an advisory meeting to determine appropriate coursework
- submit a one-page essay in response to the question: "Why I wish to pursue the "Water and Sanitation for Health and Sutainable Development' minor"
- have a GPA of at least 2.75
- be an OU student of any major

MINOR OPTIONS

Undergraduate:

Water and Sanitation for Health and Sustainable Development

CONTACT INFORMATION

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  (405) 325-4273

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REQUIREMENTS FOR THE MINOR
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year	General Requirements	Program
For Students Entering the Oklahoma State System for Higher Education **Summer 2022 through Spring 2023**	Minimum Total Credit Hours ..... **18** Minimum Upper-Division Hours **9**	**Water and Sanitation for Health and Sustainable Development** **N861** Minor

The requirements for a minor must be completed concurrently with the major degree requirements.

No minor may be added by completing courses after receiving the bachelor's degree.

Students must declare their intention to seek this minor by completing a short (one-page) application and meet with an Engineering advisor. As part of the application, the student must submit a one-page essay in response to the question: "Why I wish to pursue a minor in Water and Sanitation for Health and Sustainable Development."

At least 9 credit hours will be in upper division courses (3000 or 4000 level).

A minimum of six (6) hours of elective coursework must be taken from outside the student's major area of study.

Elective courses may require additional prerequisites for admission. Students are responsible for identifying and completing those prerequisites.

A minimum grade of C is required in all courses which are applied to the minor.

Students must achieve a minimum 2.75 GPA (OU and overall) in the minor coursework.

Students must complete prerequisites for all courses.

REQUIRED COURSES

Code	Title	Credit Hours
Core Courses [1]		
CEES 4243	Water Technologies for Emerging Regions (G) (Spring)	3
CEES 4273	WaTER Technical Field Methods (G) (May/Early Summer)	3
CEES 3422	Intercultural Immersion Experience in an Emerging Region	2
CEES 3251	WaTER Center Integrated Seminar	1
Tracks		
Choose 9 hours from at least 2 of the following tracks pre-approved by advisor:		9
Track 1: Engineering & Technology, Natural and Physical Sciences		
Track 2: Policy, Economics, and Business		
Track 3: Social/Cultural/Behavioral Sciences		
Total Credit Hours		18

[1]It is preferred that the core courses are completed in the following order.

TRACK 1: ENGINEERING & TECHNOLOGY, NATURAL AND PHYSICAL SCIENCES

Code	Title	Credit Hours
CEES 5020	Special Topics in Civil Engineering [1]	1-6
BSE 5113 Principles of Epidemiology (OUHSC)		3
CEES 5363	Ecological Engineering Science (G)	3
ENGR 4513	Introduction to Sustainable Engineering	3
GEOG 3233	Principles of Sustainability	3
GEOG 4293	Hydrologic Science	3
Or similar course(s) with advisor approval		

[1]Course recommended to fulfill the elective requirements.

TRACK 2: POLICY, ECONOMICS, AND BUSINESS

Code	Title	Credit Hours
ENT 3193	Social Entrepreneurship [1]	3
IAS 3323	The Political Economy of Development	3
HSTM 3483	Technology, Politics, and International Development	3
Upper-level language course (beyond that required by OU)		
Or similar course(s) with advisor approval		

[1]Course recommended to fulfill the elective requirements.

TRACK 3: SOCIAL/CULTURAL/BEHAVIORAL SCIENCES

Code	Title	Credit Hours
ANTH 4303	Women and Development in Africa [1]	3
ANTH 3423	Anthropology of Religion	3
IAS 2003	Understanding the Global Community	3
GEOG 3443	Environment and Society	3
Upper-level language course (beyond that required by OU)		
Or similar course(s) with advisor approval		

[1]Course recommended to fulfill the elective requirements.

- Minors are available to all undergraduate students at OU. If the minor is officially declared, successfully completed, and noted on the graduation application, the student's transcript will so indicate at the time the bachelor's degree is posted.

More information in the catalog: (http://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/water-sanitation-health-sustainable-development-minor/).