GALLOGLY COLLEGE OF ENGINEERING
SCHOOL OF CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCE
The UNIVERSITY *of* OKLAHOMA

Undergraduate Student Handbook for Environmental Science Students

Fall 2024

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MISSION STATEMENT

Through a community of scholars committed to excellence in research and teaching, the mission of CEES is to provide our students with the technical education and critical thinking skills needed to lead the country in addressing the complex infrastructure and environmental problems facing today's society.

1.0 ENVIRONMENTAL SCIENCE

What is an environmental scientist? What kinds of jobs can I get with this degree? Where will I work? What will I be doing? These are the questions often asked by students entering the Bachelor of Science in Environmental Science (BSES) degree program.

Environmental scientists examine the connections and interactions of humankind and the living and nonliving natural environment. They integrate studies of the problems and issues related to contaminant fate and transport, pollution treatment and control, resource use and consumption, environmental conservation, preservation and enhancement, and environmental management. They often interact with regulatory programs and participate in the development of remediation strategies. Environmental scientists may be employed in various governmental agencies, consulting firms, laboratories, or in many different private industries.

The BSES at OU is a broad-based degree program, with a firm foundation in mathematics, physics, chemistry, and biology. This strong base enables graduates to continue their studies in graduate school or to go on to exciting careers in environmental protection, management, and remediation. Possible areas of focus include solid and hazardous waste management, air and water quality management, hazardous materials management, resource management, and occupational health and safety. For more than 35 years, the School of Civil Engineering and Environmental Science has been preparing recipients of the BSES degree for employment opportunities in local, state, and federal government, private industry, consulting firms, and education. Graduates of the program are often employed by the United States Environmental Protection Agency, the Oklahoma Department of Environmental Quality, the Oklahoma State Department of Health, engineering and consulting firms, and OU. Highly qualified undergraduate students may continue their environmental science education at OU in the accelerated BS/MES degree program in Environmental Science. With careful choice of track and professional elective courses, the BSES can meet the requirements for an approved pre-medical program, sometimes with limited extra coursework. Students who plan to apply to medical school should contact their CEES academic advisor and the Pre-Medical Professions Advising Office early in the degree program (see Section 5.0)

The day-to-day activities of the environmental scientist will vary with employer, specific job duties, educational background, and geographical location. Graduates may find themselves collecting and analyzing air, water, or soil samples, conducting compliance investigations, assisting companies in writing discharge permits, or addressing public meetings on local environmental problems.

Some of the environmental issues currently addressed by environmental scientists are:

- intrinsic remediation of contaminated soils and sediments
- release of antibiotics and pharmaceuticals into watersheds
- treatment wetlands for water quality improvement
- development of clean drinking water supplies
- National Pollution Discharge Elimination System (NPDES) and National Emissions Standards for Hazardous Air Pollutants (NESHAPS) permits
- solid and hazardous waste disposal requirements and hazardous waste site remediation
- risk assessment to determine cleanup levels
- recycling of industrial byproducts

The strong technical foundation of the BSES degree will enable graduates to effectively identify and find solutions for the environmental problems of the 21st century.

2.0 ACADEMIC PROGRAM PLANNING

Once students enroll in CEES courses, they will be assigned a faculty member to serve as a faculty advisor. They can help prepare an academic program plan, select courses, and offer advice on other matters. Students are encouraged to discuss questions regarding a specialty area within the school with a faculty member in that discipline. ***Students*** should assume the primary responsibility for planning a coherent academic program that achieves their educational objectives and satisfies the requirements for graduation. A list of faculty advisor assignments can be found here:
www.ou.edu/coe/cees/undergrad_programs/student_resources/advising

Students graduating from CEES must meet several criteria. The requirements for the Bachelor of Science in Environmental Science (120 hours) are located at https://ou-public.courseleaf.com/gallogly-engineering/civil-engineering-environmental-science/environmental-science-bachelor-science/ .
To graduate, students must successfully complete semester hours noted (plus language requirement if applicable), with a minimum retention grade point average of 2.00 in: all OU courses; all courses taken anywhere; all major (at OU & combined) courses; and all courses required for the Bachelor of Science degree. In addition, students must have a minimum "C" grade in every course taken for the degree.

Students must be admitted to the Gallogly College of Engineering to enroll in all ENGR and CEES courses numbered 3000 or greater, as well as in English 3153 (Technical Writing). For Gallogly College of Engineering admission requirements, refer to "Policy on Admission of Undergraduate Students" in the current OU General Catalog.

It is the responsibility of the ***student*** to follow the course requirements for graduation, but advisors will help based on their knowledge at the time of each advising conference. Advisors can assist students in optimizing their learning experiences at OU. *Failure to follow the advisor's recommendations can prolong the time required to earn a degree and result in probation and suspension.* Advisors have the authority to withhold approval if selected courses are inappropriate or unwise. Remember that both course and grade prerequisites are necessary for every course.

2.1 Accelerated BS/MES Degree

The combined BS/MES program is offered to qualified-undergraduate students in CEES who wish to pursue their graduate education while completing their undergraduate degree requirements. Students accepted into the combined BS/MES program can apply up to nine credit hours to simultaneously satisfy the requirements of both the BS and MES degrees. With proper planning, students can initiate the thesis research option or the coursework only option and complete the MS in one additional year beyond their BS degree. Environmental Science majors will receive a BS in Environmental Science and Master of Environmental Science through this program. Students interested in pursuing the combined BS/MES program are encouraged to inquire about eligibility with their advisor. The CEES Graduate Liaison will accept Accelerated Degree Plan (ADP) applications within the first two weeks of the fall and spring semesters. The ADP application, submission deadlines, and additional program details can be found here: *www.ou.edu/coe/cees/undergrad_programs/accelerated_mastersprogram*

2.2 Minor in Environmental Science

CEES offers a Minor in Environmental Science because all students in the scientific disciplines can benefit from gaining basic knowledge of environmental science. Earning a Minor in Environmental Science will allow these students to round out their academic strengths and will create scientists and professionals who will be able to practice in their primary disciplines while participating in environmental science problem solving.

The Minor in Environmental Science is available to students in good academic standing in the following majors:

Bachelor of Science in Engineering (excluding Environmental Engineering)
Bachelor of Architecture
Bachelor of Science in Construction Science
Bachelor of Science in Astronomy, Astrophysics, Biochemistry, Botany, Chemistry, Health and Sport Sciences, Mathematics, Microbiology, Physics, Psychology, Zoology
Bachelor of Science in Education (Mathematics, Science)
Bachelor of Science in Geography, Geology, Geophysics, Geosciences, Meteorology
Other majors on a case-by-case basis

Students must have completed the following courses satisfactorily prior to application:

MATH 1823/1914 and MATH 2423/2924
CHEM 1315 and CHEM 1415
BIOL 1134 or PBIO 1114
PHYS 2514 or PHYS 2414

Sixteen credit hours are required to complete the minor, including the following CEES courses:

CEES 2313 Water Quality Fundamentals (F)
CEES 2323 Environmental Transport and Fate Processes (Sp)
CEES 4263G Hazardous and Solid Waste Management (F)
CEES 4114/5114 Aquatic Chemistry or CEES 4324/5324 Environmental Biology and Ecology (F)

Plus, <u>one</u> from the following list (may require additional pre-requisites):

CEES 4243 Water Technologies for Emerging Regions (Sp)
ENGR 4513 Introduction to Sustainable Engineering (Sp)
Or another CEES 4000 or 5000-level course with permission from advisor

2.3 Minor in Water and Sanitation for Health and Sustainable Development

Also called the WaTER Minor, this degree was developed by the OU Water Technologies for Emerging Regions (WaTER) Center in collaboration with colleagues from across the OU campus. 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. 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 challenges and opportunities facing developing countries, including Water, sanitation, and hygiene (WASH).

Students seeking to pursue the WaTER 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 minor".
Have a GPA of at least 2.75
Be an OU student of any major

2.4 Williams Student Services Center (FH 112)

The Williams Student Services Center (WSSC), located in Felgar Hall, Room 112, assists students with the following matters:

- retention
- transfer equivalencies (for lower division courses)
- repeat/forgiveness policy
- general education questions
- appropriate curriculum
- petitions to add/drop
- suspension petitions
- complete withdrawal
- Degree Navigator corrections/updates
- graduation verification
- general OU policy information
- general assistance if students don't know where to go

2.5 Transfer Students

Students transferring into CEES may notice that the degree audit in Degree Navigator has placed courses into a category at the end called "excess coursework." It is possible that some of this coursework can be applied towards the degree. Please contact an advisor in WSSC for the correct procedure to request a review.

2.6 Graduating Seniors

There is no formal degree check application to submit; however, graduating seniors are encouraged to review their academic standing at *https://degree.ou.edu* the semester **BEFORE** they plan to graduate and contact WSSC if anything is missing. Details about when students will receive their diploma can be found at *www.ou.edu/registrar/graduation/diplomas*

Students must apply for graduation the semester **BEFORE** their intended graduation semester by the deadline below. The graduation application can be found at *www.ou.edu/registrar/graduation*

Fall: December Graduation - May 1
Spring: May Graduation - December 1
Summer: August Graduation - February 1

All students must complete a CEES exit interview before graduation. The department will schedule appointments in the final month of each semester, in accordance with student class schedules.

Questions about OU Alumni email? Students are encouraged to check out the alumni resources at the OU Career Center, -*https://www.ou.edu/career/alumni*, and the OU Alumni Association, *tinyurl.com/ou-alumniassociation*

3.0 STUDENT ADVISING AND ADVANCE REGISTRATION

If a student has been admitted to the Gallogly College of Engineering, meets current retention standards, and has no unpaid fines, overdue books, or parking tickets they can participate in advance registration. Advance registration for fall and summer semesters is held during the preceding spring semester, and advance registration for the spring semester is held during the preceding fall semester. With a few exceptions, advance registration is conducted according to classification and in varying alphabetical order of students' last names. Students can view their registration window at *ONE.ou.edu*, under the "Academics" tab, and select the "Enrollment" heading. Students can also view any holds on their account.

Prior to the advance registration period, CEES holds group advising sessions for all CEES undergraduate students. Group advising periods are scheduled each semester. Students should check their email or inquire in CEC 334 for the schedule**. Students who do not attend one of the group advising sessions FOREFIT their opportunity to register during the advance registration period and will only be advised once freshmen begin enrolling.**

Follow the steps below to schedule an advising appointment.

1. Login to *https://iadvise.ou.edu*
2. Select 'Departmental Level Advising' and then 'Make Group Appointment'.
3. Choose the desired group advising session and select the corresponding 'Make Reservation' button to sign up
4. Add a phone number and finalize the appointment by selecting 'Make Reservation'
5. Verification of a successful reservation will appear; students will be sent an email confirmation of the appointment

Students must sign up for a specific date and time using iAdvise. Students who do not sign up through iAdvise cannot be guaranteed advisement on a walk-in basis. Failure to check-in during scheduled advisement time may result in loss of appointment time.

Next, follow these steps:

1. Attend **group advising** and visit with both a WSSC academic advisor and a CEES faculty member. Advising holds will be lifted after.
2. Special problems or circumstances may necessitate students scheduling an appointment with their faculty advisor after attending group advising. **All CEES students are assigned a faculty advisor who can answer questions in between group advising sessions.** Feel free to contact assigned faculty advisors for an appointment. A list of faculty advisors can be found here: *www.ou.edu/coe/cees/undergrad_programs/student_resources/advising*

Students who need an override for a CEES or ENGR class, must email the course instructor with cc: to *cees@ou.edu* with the following information:

1. Student name
2. Student OU ID number
3. Course number
4. Section number (3-digits)
5. Course name
6. Screen shot of the enrollment error message

Students must obtain special permission for ENGL 3153 from the English Department.

Before enrolling in any course, students should determine that they satisfy the course prerequisites. The CEES curriculum check sheets can be found at https://www.ou.edu/checksheets. Prerequisites are enforced for all classes. Students will be administratively removed from any course they enroll in without the required pre-requisites. Remember that a minimum "C" grade is needed in all courses and is a part of the prerequisite.

All students must take CEES 4913 (ES Capstone). This course is offered only in the spring semester and must be taken by students scheduled to graduate that spring semester or the subsequent summer or fall semesters. Students planning to graduate in the summer or fall semesters must have completed 90 credit hours of the Environmental Science curricula prior to enrolling in their capstone course.

All prerequisites must be met to enroll in capstone senior design courses. Following is a list of prerequisites for the Environmental Science Capstone course.

CEES 4114	Aquatic Chemistry
CEES 4253	Statistics and Probability
CEES 4324	Environmental Biology and Ecology
CEES 4911	Intro to ES Capstone

4.0 ELECTIVES

The Bachelor of Science in Environmental Science degree requires 9 hours of CEES professional electives and 9 hours of track electives.

4.1 CEES Professional Electives

CEES professional electives are any CEES 3000-level junior, 4000-level senior, and 5000-level graduate courses. These electives require science or CEES core course prerequisites. Make certain the appropriate course and grade prerequisites for each professional elective.

Suggested professional electives are listed in Table 1. Under special circumstances, one professional elective from outside CEES in the physical or life sciences (with one of the following course prefixes: BIOL, CHEM, GEOG, GEOL, METR, MBIO, PBIO, or PHYS) or mathematics (prefix: MATH) may be approved by the student's advisor. Any professional elective outside CEES must be an upper division course.

Table 1. CEES Professional Elective Suggestions

CEES 4243G	Water Technologies for Emerging Regions
CEES 4423	Professional Internship (requires instructor permission)
CEES 4453G	Geomatics Engineering
CEES 4980	Senior Research
CEES 5363	Ecological Engineering Science
CEES 5853	Groundwater and Seepage
CEES 5873	Water Quality Management
CEES 5883	Environmental Modeling
ENGR 4513G	Introduction to Sustainable Engineering

University regulations and CEES policy impose restrictions when selecting professional electives. No 6000-level courses can be taken by undergraduate students, nor can 5000-level courses be taken by students with junior standing. Also, correspondence courses and the generic course, CEES 5020—Special Topics in CEES, are unacceptable as professional electives.

4.2 CEES Professional Internship

The following syllabus is provided to help in planning but is subject to change. Students who intend to fulfill a professional elective with an internship MUST HAVE PRIOR APPROVAL from the internship course instructor.

The UNIVERSITY of OKLAHOMA
Gallogly College of Engineering
School of Civil Engineering and Environmental Science

CEES 4423 – CEES Professional Internship
School of Civil Engineering and Environmental Science
Fall Semester Only

Catalog Description: Prerequisite: Completion of at least 19 hours of Civil Engineering and Environmental Science (CEES) coursework (for Civil Engineering and Environmental Engineering majors); or completion of at least 19 hours of CEES and/or science coursework (for Environmental Science majors); or completion of at least 19 hours of CEES and/or Architecture (ARCH) coursework (for Architecture Engineering majors). Provides three hours of professional elective credit for 400 hours of internship. Prior to starting the internship, students should consult with the CEES internship program advisor, write a proposal of planned activities, and secure the approval of the advisor. On completion of the internship, the students should enroll in this course, attend weekly sessions, submit a report, and make an oral presentation to the CEES internship program advisor and selected audience. (F)

Textbooks: None required

Internship Program Advisor: Dr. Robert C. Knox

Prerequisites: Completion of at least 19 hours of Civil Engineering and Environmental Science (CEES) coursework (for Civil Engineering and Environmental Engineering majors); or completion of at least 19 hours of CEES and/or science coursework (for Environmental Science majors); or completion of at least 19 hours of CEES and/or Architecture (ARCH) coursework (for Architecture Engineering majors).

Course Outline:

1. Project – The student must first secure an internship, then consult with the CEES internship program advisor and determine if this internship meets the requirements for professional elective credits. To meet the requirements, the set of activities that the student expects to complete during their internship must contain higher-level engineering or science work such that the sum of the experiences for the internship is equivalent to what a student would learn in a three-credit, upper division CEES course. In addition, the internship supervisor must agree in writing to prepare a minimum of two intern evaluation/progress reports over the course of the internship. The reports can be in the form of an email or letter to the CEES internship program advisor.

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PHONE: (405) 325-5911 cees@ou.edu www.cees.ou.edu

2. Proposal – The student must complete a proposal prior to starting the internship, but after consultation with the CEES internship program advisor and the potential employer. The proposal should identify the potential employer, the direct supervisor, and the duration of internship. The proposal should be submitted to the CEES internship program advisor, with a copy to the CEES director.

   The proposal must include the following sections: Introduction, Objectives, Internship Plan, and Schedule. The Introduction section should state the relevance of and need for the proposed internship work from the perspective of the student's major field of study. The Objectives section should state the technical project objectives, as well as the student's individual learning objectives. The Internship Plan section should provide a discussion of the specific project(s) that the student will work on and identify the student's responsibilities for each project. The Schedule section should outline the timetable for completion of all internship projects. The proposal should be at least 1-3 pages long, typewritten using 12 point, Times New Roman font, and double-spaced with 1" margins.

   Important Note:
   The proposal must be submitted at least 30-days prior to the start of the internship, and it must be evaluated and approved by the CEES internship program advisor prior to the start of the internship. Following completion of the internship, if the actual work conducted differs significantly from the contents of the proposal, a revised proposal must be approved by the advisor before the student enrolls in the class.

3. Internship – Students must complete 400 hours of internship, with satisfactory progress reports. This could be completed by working full-time over one summer semester or by working part-time over several regular semesters.

4. Course – After completing their internship, the student should enroll in CEES 4423, which will meet weekly and include activities that will enhance the lessons learned during the internship program. It will also provide guidance on the reporting requirements and provide a forum for the oral presentations.

   As a part of the course requirements, the student must complete a written and oral report, as described below.

   Written Report: this report will typically be at least 25 pages long (not including the title page, executive summary, references, or appendices), and must be typewritten using 12-point, Times New Roman font, and double-spaced with 1" margins. The typewritten report should contain all the sections required for the proposal (i.e., Introduction, Objectives, Internship Plan, and Schedule), updated and expanded as appropriate. The report should provide detailed descriptions of all projects conducted and the student's

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role. The report should also include sections titled "Results" and "Self Assessment". The Results section should describe the student's responsibilities during the internship and the scope of work completed. The Self Assessment section should include the student's assessment of his/her internship accomplishments. The Self Assessment section should include answers to at least the following questions: Did you feel prepared for this internship? How did your "real-world" experience compare to your classroom experience? In what area did you feel most deficient? What did you (or could you) do to address this deficiency? In what area did you feel most confident and why? How did your "people skills" change because of your internship? Would you describe your employer's work environment as nurturing, rigid, creative, or other? Do you feel that you learn more in a 3-credit class or a 3-credit internship?

The final written report must be submitted and presented as part of the CEES 4423 class requirements. The student must submit a draft report to the CEES internship program advisor 4 weeks before it is due to allow for advisor review and student revisions.

Oral Presentation: The student should make a modern, computer-based, 20–25-minute oral presentation that highlights the same topics as the written report, as scheduled during the CEES 4423 class. The student should also be prepared for a 15–20-minute question and answer period following the presentation.

Assessment: This course is graded on a Satisfactory/Unsatisfactory (S/U) basis. To earn a grade of "S", all the criteria in the following table must be met satisfactorily.

Assessment items	Criteria
1. Proposal	Proposal is grammatically correct, includes all required sections, and clearly identifies internship work tasks and relevance to CEES curriculum.
2. Supervisor's Report	Lists dates worked, describes project(s) and student's responsibilities, and evaluates student's performance.
3. Technical Performance	Project(s) is/are completed as assigned using good science and engineering principles.
3. Written Report	Report is well organized, clearly written, contains no typographical or grammatical errors, and includes all required sections. Report describes relationship of work to CEES curriculum. Report is submitted on time.
4. Oral Presentation	Presentation is delivered in a professional manner (i.e., well-practiced and with a minimum of technical difficulties) and student can respond effectively to questions.
5. Class Activities	Satisfactory participation in designative activities.

4.3 Track Electives

Environmental science students must select a degree track from among the following options:

Track 1. Biological/Ecological Sciences
Track 2: Chemical Sciences
Track 3: Earth and Atmospheric Sciences
Track 4: Geography/Geographic Information Systems
Track 5: Environmental Planning and Management
Track 6: Mathematics and Computer Science
Track 7: Premedical

The choice of an environmental science degree track should be made after careful consideration of a student's interests and career plans and in consultation with the student's advisor. In planning, students should be aware that many track electives have prerequisite courses, and that many are offered only in certain semesters. Thus, advance planning, typically no later than the end of the sophomore year, is needed to ensure that students will be able to complete their degree in a timely manner. It is not necessary to complete the professional and track elective courses during the semesters listed on the checksheet – students may want to change this sequence of elective courses depending on the semesters in which chosen classes are offered.

For all tracks, track electives must total at least nine credit hours. The most common way to meet this requirement is with three courses that are each three or more credit hours, although, in some cases, other combinations of courses may be possible.

As part of their track electives, students may enroll in no more than one three-credit hour nontraditional course (e.g., "independent study" or "senior research") that is focused on a research project and that has a prefix and instructor consistent with their chosen track (e.g., for students pursuing the chemical sciences track, the prefix must be CHEM and the instructor must be in the Department of Chemistry and Biochemistry), when all the following conditions are met. The course must be upper division, and there must be a written plan of study that includes a grading rubric and that requires at least one final written submission. Students interested in this option must submit a written request, containing the information listed in the previous sentence, and with the prospective instructor's input, approval, and signature prior to enrolling in the course. This information should be no more than one page and must be submitted to and approved by the student's CEES advisor and noted in Degree Navigator, in advance of starting the course. No independent study courses will be approved as track electives after the course has been started or completed.

Detailed course requirements for each track are given below.

Track 1. Biological/Ecological Sciences: Track electives must be courses offered in the following departments: Biology (prefix BIO) or Microbiology and Plant Biology (prefixes

MBIO and PBIO). At least six credit hours must be upper division (3000-level or higher). One biological-sciences related course may be chosen from another department, if approved by the student's advisor and recorded in Degree Navigator.

Track 2: Chemical Sciences: Track electives must be courses offered in the Department of Chemistry and Biochemistry (prefix CHEM). At least six credit hours must be upper division. One chemistry-related course may be chosen from another department, if approved by the student's advisor and recorded in Degree Navigator.

Track 3: Earth and Atmospheric Sciences: Track electives must be courses offered in the School of Geology and Geophysics (prefix: GEOL) or the School of Meteorology (prefix: METR). One earth or atmospheric science-related course may be chosen from another department, if approved by the student's advisor and recorded in Degree Navigator. At least three credit hours must be upper division.

Track 4: Geography/Geographic Information Systems: Track electives must be courses in the Department of Geography and Environmental Sustainability (prefix GEOG or GIS). One related course may be chosen from another department, if approved by the student's advisor and recorded in Degree Navigator. At least six credit hours must be upper division.

Track 5: Environmental Planning and Management: Track electives must be courses from the following list: ECON 1123, ECON 3213, P SC 3233, ENST 3213, GEOG 3233, PHIL 3293, RCPL 4003, COMM 1113, COMM 3483, COMM 3513, COMM 4513, and ENGR 4513. (Course titles, prerequisites, and semesters offered are shown in Table 2, on the following page.) Other courses may be chosen from these or related departments, if approved by the student's advisor and recorded in Degree Navigator. At least six credit hours must be upper division. Track 5 electives must be chosen from at least two different departments.

Table 2. Courses for the Environmental Planning and Management Track.

Course (Semester)*	Title	Prereqs beyond courses already required for the ES curriculum*
COMM 1113 (F, Sp, Su)	Principles of Communication	None
COMM 3483 (F, Sp)	Communication and Argumentation	COMM 1113
COMM 3513 (F, Sp)	Intercultural Communication	COMM 1113
COMM 4513 (F, Sp)	International Communication	COMM 1113
ECON 1123 (F, Sp, Su)	Principles of Economics-Micro	None
ECON 3213 (Irreg.)	Environmental Economics	ECON 1123
ENGR 4513G (Sp)	Introduction to Sustainable Engineering	None
ENST 3213 (Irreg.)	Law and the Environment	None
GEOG 3233 (F)	Principles of Sustainability	None
PHIL 3293 (Irreg.)	Environmental Ethics	None
P SC 3233 (F)	Environmental Policy and Administration	None
RCPL 4003 (Sp)	The Global City and Planning Issues	None

*Check *ONE.ou.edu* for the most up-to-date information.

Track 6: Mathematics and Computer Science: Track electives must be courses from the following list: AME 3723, C S 1313, MATH 2934, MATH 3113, MATH 3333, MATH 3401, and MATH 3413. (Course titles, prerequisites, and semesters offered are shown in Table 3, below.) Other courses may be chosen from these or related departments, if approved by the student's advisor and recorded in Degree Navigator. At least one course must be upper division.

Table 3. Courses for the Mathematics and Computer Science Track

Course (Semester)*	Title	Prereqs beyond courses already required for the ES curriculum*
AME 3723 (F)	Numerical Methods for Engineering Computation	AME 2403 or C S 1313 and MATH 3113 or MATH 3413
C S 1313 (F, Sp)	Programming for Non-Majors	None
MATH 2934 (F, Sp, Su)	Differential & Integral Calculus III	None
MATH 3113 (F, Sp, Su)	Intro. to Ordinary Differential Equations	None
MATH 3333 (F, Sp, Su)	Linear Algebra I	MATH 2934
MATH 3401 (F, Sp)	Numerical Methods with Matlab	MATH 3413 or concurrent
MATH 3413 (F, Sp)	Physical Mathematics I	MATH 2934

*Check *ONE.ou.edu* for the most up-to-date information.

Track 7: Premedical: Track electives must include at least three chemical, physical, or life science courses that are required or recommended for medical school admission, and that are not already required for the environmental science degree. Written documentation that these three courses are part of a plan for medical school application must be obtained from the Premedical Professions Advising Office and must be recorded in Degree Navigator.

5.0 PREMEDICAL OPTION

Students who wish to fulfill medical school admission requirements must consult with the Premedical Professions Advising Office (www.ou.edu/advising/about_advising/pre-professionaladvising) at the beginning of their degree programs. This office can provide students with current information about medical school admission requirements and assist in identifying the appropriate program of study.

Careful consultation with the Premedical Professions Advising Office early in the curriculum is required so that the student can choose appropriate general education, elective, and introductory life science courses that will allow the students to complete both the premedical and environmental science degree requirements as efficiently as possible. Students who wish to complete a BS degree in Environmental Science and fulfill medical school admission requirements should choose the premedical track (see section 4.2).

Then, with their CEES advisor's approval, they should choose track electives from among the chemical, physical, or life science that will fulfill their medical college admission

requirements. Students seeking to complete medical school admissions will require coursework beyond the credit hours normally required for the BS degree in Environmental Science.

6.0 REQUIRED SOCIAL SCIENCE AND HUMANITIES COURSES

University General Education Requirements mandate that students take two courses (6 credits) in social science (Core Area III) and four courses (12 credits) in humanities (Core Area IV). The humanities requirement consists of one course (3 credits) in understanding artistic forms, two courses (6 credits) in western culture, and one course (3 credits) in world culture. Furthermore, according to the State Regents' ruling, one of the social science courses must be P SC 1113 (American Federal Government), and the western culture courses must include either History 1483 (United States to 1865) or History 1493 (United States, 1865 to the Present).

The four courses (12 credits) that are taken to meet the remaining requirements must have been approved by OU and are listed in the class schedule book each semester. In addition, it is a Gallogly College of Engineering requirement that at least 3 of these 12 hours be upper division courses (3000- or 4000-level). It is imperative that students are aware of the requirements and meet them as early as possible in their curriculum. Please consult with the WSSC for more information.

6.1 Foreign Language Requirements

To satisfy the OU General Education Requirements, non-international students must successfully complete two years of the same foreign language in high school or a two-semester sequence of a single language such as: Chinese, French, German, Greek, Hebrew, Italian, Japanese, Latin, Russian, Spanish, Arabic, or American Indian languages in college.

An international student who graduates from a secondary school in which the language of instruction was not English has to satisfy the language requirement through passing the TOEFL exam for admission to OU. An international student who graduates from a secondary school in which the language of instruction was English must meet the foreign language requirement of non-international students. Transcripts documenting foreign language study, or an advanced standing exam must be presented for completion of the general education foreign language requirement.

In addition, students who complete an Associate of Arts or Associate of Sciences degree in the Oklahoma state system are considered to have completed all lower division general education requirements, including foreign language (even though they may never have taken any foreign language.)

7.0 SCHOLARSHIPS AND FINANCIAL AID

Several scholarship opportunities are available to CEES undergraduate students including entering freshmen. Scholarships typically are awarded both for potential academic ability and financial need. Scholarships are awarded by the school, alumni, consulting firms and private industry. Awards range from $500-$1500. Scholarship recipients should be aware

of the CEES Policy on Scholarship Recipient Obligations. This policy requires written acknowledgement to the scholarship sponsor, and participation in the annual scholarship luncheon as well as professional activities. Scholarship students must obtain and familiarize themselves with the policy.

The deadline to apply to be considered for *general freshman scholarships* is December 15 and the deadline to apply for *transfer scholarships* is March 1 for fall/summer or November 1 for spring. Scholarship applications for incoming freshmen and transfer students can be found at *www.ou.edu/admissions/affordability/scholarships*

Current student applications are due February 1 and can be found at *www.ou.edu/sfc/cash*

In addition to the scholarships offered by CEES and the Gallogly College of Engineering, students may qualify for other scholarships or forms of financial assistance, including tuition waivers, direct student loans, work-study, and coop programs with Oklahoma firms and government agencies. The Student Financial Center, *sfc@ou.edu*, can provide information on the national Direct Student Loan Program, the Guaranteed Loan Program, the University Work-Study Program, and additional programs and opportunities. Whether or not students are eligible for the Work-Study Program, students can obtain assistance in finding part-time jobs on the campus by applying at *jobs.ou.edu*

8.0 STUDENT ACTIVITIES

Student groups provide an excellent opportunity to supplement classroom education through contact with faculty, practicing environmental scientists, and fellow students. CEES students may participate in OU-registered student organizations including the Environmental Science Student Association, Engineers' Club, the National Society of Black Engineers, the Society of Women Engineers, and Sooners Without Borders. Information about all registered student organizations at the University of Oklahoma can be found at OU Engage (https://ou.campuslabs.com/engage/organizations).

9.0 CURRICULUM

Check sheets are provided at https://www.ou.edu/checksheets to help in planning coursework and is not intended to be exhaustive. This information presupposes that students are enrolled in the current curriculum. If necessary, please see the CEES office to receive updates to this curriculum.

The University of Oklahoma, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, sex, sexual orientation, genetic information, gender identity, gender expression, age, religion, disability, political beliefs, or status as a veteran in any of its policies, practices, or procedures. This includes, but is not limited to; admissions, employment, financial aid, housing, services in educational programs or activities, or health care services that the University operates or provides.

For questions regarding discrimination, sexual assault, sexual misconduct, or sexual harassment, please contact the Institutional Equity Office as may be applicable – Norman Main Campus at (405) 325-3546, Norman South Research Campus at (405) 325-2215, Health Sciences Center Campus at (405) 271-2110, or Tulsa Campus at (918) 660-3107. Please see *www.ou.edu/eoo*.

Accommodation is available by contacting (405) 325-5913.