Undergraduate Guide for Environmental Science Students

*Fall 2018*

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# CEES Faculty

**Director**—Randall L. Kolar (CEC 334B)

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<thead>
<tr>
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<tbody>
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<td>Jeffery S. Volz</td>
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<td></td>
<td>CEC 450A</td>
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</tbody>
</table>

**AEI Student Chapter Advisor** – Jeffery S. Volz  
**ASCE Student Chapter Advisor** – Christopher C. Ramseyer  
**Chi Epsilon Advisor** – P. Scott Harvey  
**ESSA Advisor** – Robert W. Nairn  
**SWB** – David A. Sabatini
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 actually be doing? These are the questions often asked by students entering the Bachelor of Science in Environmental Science (B.S.E.S) 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 B.S.E.S. at the University of Oklahoma 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 30 years, the School of Civil Engineering and Environmental Science has been preparing recipients of the B.S.E.S. degree for employment opportunities in local, state, and federal government, private industry, consulting firms, and education. Graduates of the program are currently 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 the University of Oklahoma. Highly qualified undergraduate students may continue their environmental science education at the University of Oklahoma in the accelerated BS/MS degree program in Environmental Science. With careful choice of track and elective courses, the B.S.E.S. 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 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 B.S.E.S. degree will enable graduates to effectively identify and find solutions for the environmental problems of the 21st century.

2.0 ACADEMIC PROGRAM PLANNING
When you enroll in the School of CEES, we will appoint a faculty member to serve as your advisor. If you have a question regarding a specialty area within the School of CEES, you are encouraged to discuss the matter with a faculty member in that discipline. You should assume the primary responsibility for planning a coherent academic program that achieves your educational objectives and satisfies the requirements for graduation.

Students graduating from the School of CEES must meet a number of criteria. The requirements for the Bachelor of Science in Environmental Science (123 hours) are located at the back of this booklet. In order to graduate, you must successfully complete 123 semester hours (plus language requirement if applicable), with a minimum retention grade point average of 2.00 in: all University of Oklahoma courses; all courses taken anywhere; all major (at OU & combined) courses; and all courses required for the bachelor of science degree. In addition, you must have a minimum C grade in every required and elective course taken for your degree.

You must be admitted to the Gallogly College of Engineering in order to enroll in all Civil Engineering and Environmental Science courses numbered 3XXX 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 your responsibility as a student to follow the course requirements for graduation, but your advisor will help you based on his/her knowledge at the time of each advising conference. Advisors can assist you in optimizing your 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. Your advisor has the authority to withhold his/her approval if your selection of courses is inappropriate or unwise. Remember that both course and grade prerequisites are necessary for every course.

2.1 Accelerated BS/MS Environmental Science Degree
The combined BS/MS 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/MS program can apply two professional elective courses (six credit hours) to simultaneously satisfy the requirements of both the BS and MS degrees. With proper planning in the final year, students can initiate thesis or non-thesis research in their senior undergraduate year and complete the MS in one additional year beyond their BS degree. Architectural Engineering majors will receive a BS in Architectural Engineering and MS in Civil Engineering through this program. Students interested in pursuing the combined BS/MS program are encouraged to inquire about their eligibility with their faculty advisor. It is suggested that the application process be completed by September 1st of the Junior Year.

2.2 Minor in Environmental Science
The School of CEES offers a Minor in Environmental Science. We believe that students in the scientific disciplines can benefit from gaining basic knowledge of environmental science. Earning a minor in ES 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 (all majors except 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 and 2423
- Chemistry 1315 and 1415
- Zoology 1114 or Botany 1114
- Physics 2514 or Physics 2414
The following courses must be completed satisfactorily, for a total of 16 hours of CEES coursework:

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

One from the following list (may require additional pre-requisites)

CEES 4243 Water Technologies for Emerging Regions
CEES 4473 Soil Science
ENGR 4513 Introduction to Sustainable Engineering
or another CEES 4000 or 5000 course with permission from advisor

2.3 Williams Student Services Center
The Williams Student Services Center, 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 you don't know where to go

2.4 Transfer Students
Students transferring into the ES program 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 your degree. Please contact an advisor in WSSC for the correct procedure to request a review.

2.5 Graduating Seniors
Graduating seniors should visit the Williams Student Services Center for TWO (2) graduation checks: one in the semester BEFORE you plan to graduate; and one EARLY in the semester you plan to graduate. In addition, you must schedule and attend an exit interview with the CEES director towards the end of your last semester.
3.0 STUDENT ADVISING AND ADVANCE REGISTRATION

If you have been admitted to the Gallogly College of Engineering, meet current retention standards, and have no unpaid fines, overdue books or parking tickets you can participate in advance registration. Advance registration for fall and summer 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.

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

Students must sign up for a specific date and time slot using iAdvise. Students who do not sign up for a specific date and time slot through iAdvise cannot be guaranteed advisement on a walk-in basis. Follow the steps below to schedule your advising appointment.

1. Log into https://iadvise.ou.edu/.
2. Under Departmental-level Advisement, select your program of study.
3. Select Make Group Appointment.
4. Choose the desired Advising Group Session, and click the corresponding “Make Reservation” button.
5. Add your phone number, and finalize your advisement appointment by clicking the “Make Reservation” button.
6. The next window will verify that your reservation has been saved.
7. You will be sent an email confirmation of your scheduled advising appointment.

Note: Failure to check-in during scheduled advisement time may result in loss of appointment time.

Please follow these steps:

1. Attend an advising session. After attending an advising session, special problems or circumstances may necessitate you scheduling an appointment with your faculty advisor. All CEES students are assigned an individual faculty advisor who can answer questions between group advising sessions. Please feel free to contact your faculty advisor for an appointment.

Please prepare the following prior to advisement:
1. Copy of your major flow chart  
   a. mark through completed and current courses  
   b. circle courses in which you want to enroll in the upcoming semester

If you need special permission for a CEES class, you must e-mail the instructor with cc: to Susan Williams at srwilliams@ou.edu with the following information:

1. your name  
2. your OU ID number  
3. course number  
4. section number  
5. course name  
6. copy and paste the error message you receive when you enroll into the e-mail message

You must obtain special permission for English 3153 from the English Department.

Before enrolling in any course, you should determine that you satisfy the course prerequisites. The CEES curriculum flow chart is located at the back of this guide and the General Catalog is available on-line at oZONE.ou.edu. Prerequisites are enforced for all classes. You will be administratively removed from any course taken without prior approval. Remember that a minimum “C” grade is needed in all courses and is a part of the prerequisite.

All students must take CEES 4913 (Environmental Science 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 4324 Environmental Biology & Ecology  
- CEES 4813 Professional Practice  
- CEES 2323 Environmental Transport and Fate Processes

4.0 ELECTIVES
The Bachelor of Science in Environmental Science degree requires three CEES professional electives and three track electives.

4.1 CEES Professional Electives  
CEES professional electives include any course in CEES numbered 3000 or higher. 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.

Because of university regulations and CEES policy, certain restrictions apply in selecting CEES professional electives. Courses at the 6000-level may only be taken by undergraduates under special conditions (appropriate grade point average and special permission). Undergraduate students at the senior level may take 5000-level courses with permission.

4.2 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

Table 1. Suggested CEES Professional Electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CEES 4243</td>
<td>Water Technologies for Emerging Regions</td>
</tr>
<tr>
<td>CEES 4423</td>
<td>Professional Internship (requires instructor permission)</td>
</tr>
<tr>
<td>CEES 4473</td>
<td>Soil Science</td>
</tr>
<tr>
<td>CEES 4453</td>
<td>Geomatics Engineering</td>
</tr>
<tr>
<td>CEES 4980</td>
<td>Senior Research</td>
</tr>
<tr>
<td>CEES 5020</td>
<td>Special Topics (requires instructor permission)</td>
</tr>
<tr>
<td>CEES 5600</td>
<td>ES Special Topics (requires special permission and 3.0 g.p.a.)</td>
</tr>
<tr>
<td>CEES 5853</td>
<td>Ground Water and Seepage</td>
</tr>
<tr>
<td>CEES 5873</td>
<td>Ground Water Quality Protection</td>
</tr>
<tr>
<td>CEES 5883</td>
<td>Environmental Modeling</td>
</tr>
<tr>
<td>CEES 5273</td>
<td>Wetland Science and Management</td>
</tr>
<tr>
<td>CEES 5363</td>
<td>Ecological Engineering Science</td>
</tr>
<tr>
<td>CEES 5283</td>
<td>Environmental Organic Chemistry</td>
</tr>
<tr>
<td>ENGR 4513</td>
<td>Introduction to Sustainable Engineering</td>
</tr>
</tbody>
</table>

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 their degree program, 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 flow charts and program requirement course list shown at the back of this handbook—students may want to change this sequence of elective courses depending on the semesters in which their 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. Detailed 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, 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 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.
Students interested in taking any course for which the entry under “Semesters offered” is “Irreg.” should contact the department offering the course to find out if/when the course will next be offered.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites beyond courses already required for the ES curriculum</th>
<th>Semesters offered*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 1123</td>
<td>Principles of Economics - Micro</td>
<td>None</td>
<td>F, Sp, Su</td>
</tr>
<tr>
<td>ECON 3213</td>
<td>Environmental Economics</td>
<td>ECON 1123</td>
<td>Irreg.</td>
</tr>
<tr>
<td>PSC 3233</td>
<td>Environmental Policy and Administration</td>
<td>None</td>
<td>F</td>
</tr>
<tr>
<td>ENST 3213</td>
<td>Law and the Environment</td>
<td>None</td>
<td>Irreg.</td>
</tr>
<tr>
<td>GEOG 3233</td>
<td>Principles of Sustainability</td>
<td>None</td>
<td>Sp</td>
</tr>
<tr>
<td>PHIL 3293</td>
<td>Environmental Ethics</td>
<td>None</td>
<td>Irreg.</td>
</tr>
<tr>
<td>RCPL 4003</td>
<td>Global City and Planning Issues</td>
<td>None</td>
<td>Sp</td>
</tr>
<tr>
<td>COMM 1113</td>
<td>Principles of Communication</td>
<td>COMM 1113</td>
<td>F, Sp, Su</td>
</tr>
<tr>
<td>COMM 3483</td>
<td>Communication and Argumentation</td>
<td></td>
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<tr>
<td>COMM 3513</td>
<td>Intercultural Communication</td>
<td>COMM 1113</td>
<td>F, Sp</td>
</tr>
<tr>
<td>COMM 4513</td>
<td>International Communication</td>
<td>None</td>
<td>F</td>
</tr>
<tr>
<td>ENGR 4513</td>
<td>Introduction to Sustainable Engineering</td>
<td>None</td>
<td>Sp</td>
</tr>
</tbody>
</table>

*Check Ozone for the most up-to-date information.

Track 6: Mathematics and Computer Science: Track electives must be courses from the following list: MATH 2934, MATH 3113, MATH 3333, MATH 3413, MATH 3401, CS 1313, ENGR 3411, and ENGR 3723. (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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites beyond courses already required for the ES curriculum</th>
<th>Semesters offered*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 2934</td>
<td>Differential &amp; Integral Calculus III</td>
<td>None</td>
<td>F, Sp, Su</td>
</tr>
<tr>
<td>MATH 3113</td>
<td>Intro. to Ordinary Differential Equations</td>
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<td>F, Sp, Su</td>
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<td>Linear Algebra I</td>
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<td>MATH 3413</td>
<td>Physical Mathematics I</td>
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<td>F</td>
</tr>
<tr>
<td>Course Code</td>
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</tr>
<tr>
<td>MATH 3401</td>
<td>Numerical Methods with Matlab</td>
<td>MATH 2934, MATH 3413 (or concurrent enrollment in MATH 3413)</td>
<td>F, Sp</td>
</tr>
<tr>
<td>CS 1313</td>
<td>Programming for Non-Majors</td>
<td>None</td>
<td>F, Sp</td>
</tr>
<tr>
<td>ENGR 3411</td>
<td>Numerical Methods</td>
<td>CS 1313 or CS 1323 and MATH 3113</td>
<td>Sp</td>
</tr>
<tr>
<td>ENGR 3723</td>
<td>Numerical Methods for Engineering Computation</td>
<td>CS 1313 or 1323 and MATH 3113</td>
<td>F, Sp, Su</td>
</tr>
</tbody>
</table>

*Check Ozone 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 ES major. 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 OU Premedical Professions Advising Office (http://www.ou.edu/cas/zooLOGY/premed/) 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 ES degree requirements as efficiently as possible. Students who wish to complete a B.S. degree in Environmental Science and also fulfill medical school admission requirements should choose the premedical track (see section 4.2). Then, with the 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. Completing these requirements will most likely require a limited amount of coursework beyond the 123 credit hours normally required for the B.S. degree in environmental science.

6.0 REQUIRED SOCIAL SCIENCE AND HUMANITIES COURSES
The University of Oklahoma 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 civilization and culture, and one course (3 credits) in non-western culture. Furthermore, according to the State Regents’ ruling, one of the social science courses must be Political Science 1113 (Government of the United States), and the western civilization and culture courses must include either History 1483 (United States, 1492-1865) or History 1493 (United States, 1865 - present). The four courses (12 credits) that are taken to meet the remaining requirements must have been approved by the University of Oklahoma, 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 important that students are aware of the requirements and meet them as early as possible in their curriculum. Please consult with Williams Student Services Center 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 Native American Languages) in college.

An international student who graduates from a secondary school in which the language of instruction was not English has satisfied 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 School of Civil Engineering and Environmental Science Policy on Scholarship Recipient Obligations (dated 2012). This policy requires written acknowledgement to the 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. Scholarship applications for incoming freshmen and transfer students can be found at http://www.ou.edu/content/admissions/affordability/scholarships.html

Applications for current students are due February 1 and can be found at http://www.scholarships.ou.edu

In addition to the scholarships offered by the School of CEES and the Gallogly 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 Office of Financial Aid, 731 Elm Avenue, Norman, OK 73019-0230, 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 they are eligible for the Work-Study Program, students can obtain assistance in finding part-time jobs on the campus by applying to the Personnel Service Office, 905 Asp Avenue, Norman, OK 73019-0420.

8.0 STUDENT ACTIVITIES
Student groups provide an excellent opportunity to supplement classroom education through contact with faculty, practicing environmental scientists, and your fellow students.

8.1 Environmental Science Student Association (ESSA)
The University of Oklahoma Environmental Science Student Association was established in 1992 and is an independent organization of undergraduate and graduate environmental science students, although students from all academic majors are welcome at ESSA functions. Its purpose is to provide fellowship among environmental science students and professors, introduce students to environmental professionals and provide information on career opportunities. ESSA sponsors presentations by OU faculty and graduate students, government agency and nonprofit organization personnel, and consulting scientists and engineers. Employees of several state agencies including the Oklahoma Office of the Secretary of the Environment, Conservation Commission, Department of Environmental Quality and Water Resources Board have spoken about current environmental issues and career opportunities. ESSA organizes field trips to nearby locations (including the USEPA Robert S. Kerr Environmental Laboratory and Wichita Mountains National Wildlife Refuge) and group attendance at professional meetings (i.e., Oklahoma Academy of Sciences, Oklahoma Clean Lakes Association, Air and Waste Management Association, etc.). ESSA is active in several volunteer activities including the Oklahoma City Blue Thumb Water Quality Improvement and Education Program. ESSA sponsors an internship program that matches students with both public and private sector employers for both paid and unpaid internships. For more information, contact the ESSA Faculty Advisor.

8.2 Engineers' Club
The Engineers' Club fosters the high ideals of the engineering profession, stimulates interest in School and College Activities, and develops professional awareness and leadership qualities. Activities of the Engineers' Club include organization of the OU Engineers' Week activities and Engineering Open House.

8.3 Society of Black Engineers (SBE)
SBE shares many of the same goals and objectives as the Engineers' Club, while directing attention to the problems and needs of black students.
8.4 Society of Women Engineers (SWE)
The Society of Women Engineers is a technical society with the objective of encouraging women who have chosen to study engineering. Through speakers, discussions, and field trips, members are able to examine professional issues and challenges particular to women. Membership is open to both men and women.

8.5 Sooners Without Borders (SWB)
The mission of Sooners Without Borders (SWB) is to promote sustainable solutions for health, education, development and peace by engaging OU students, faculty and staff in multi-disciplinary service projects in both local and global communities. The purpose of SWB is to aid in the organization, publicity, and coordination of both domestic and international service projects undertaken by students, faculty and staff at the University of Oklahoma.

9.0 ENVIRONMENTAL SCIENCE CURRICULUM
The following flow chart is provided to help you in planning your coursework, and is not intended to be exhaustive. This information presupposes that you 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, sexual orientation, genetic information, sex, 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 and educational services. For questions regarding discrimination, sexual assault, sexual misconduct, or sexual harassment, please contact the Office(s) of Institutional Equity as may be applicable -- Norman campus at (405) 325-3546/3549, the Health Sciences Center at (405) 271-2110 or the OU-Tulsa Title IX Office at (918) 660-3107. Please see www.ou.edu/eoo

Accommodations on the basis of disability are available by contacting (405) 325-5913.
Bachelor of Science in Environmental Science (Standard Option B405)
Summer 2018 through Spring 2019 – Total Credit Hours: 121

This flowchart is not an official check sheet of degree requirements. It is meant to be used as a supplemental visual guide to be used along with the official University of Oklahoma degree check sheet.

Name: _____________________________ Sooner ID: __________

FRESHMAN
Fall 17 Hours
MATH 1823 Calculus I

Spring 16 Hours
MATH 2423 Calculus II

SOPHOMORE
Fall 17 Hours
CEES 2213 CADD Fund.
Prereq: Soph. & CEES major

Spring 18 Hours
MBIO 2815 Intro to Microbiology
Prereq: CHEM 1415

JUNIOR
Fall 14 Hours
CEES 4263G Haz. & Solid Waste Management
Prereq: Junior in curriculum

Spring 15 Hours
CEES 4943 Air Quality Mgmt.
Prereq: MATH 2924/2423 & CHEM 1315

SENIOR
Fall 14 Hours
CEES 4911 Intro Env Science Capstone
Prereq: Senior standing

Spring 15 Hours
CEES 4913 Env Science Capstone

Co-requisite.

Prerequisite

Shaded courses offered once per year.

At least one of these Gen. Ed. courses must be 3000-4000 level.
Foreign Language: 2 semesters college level or 2 years of high school.

Professional & Track Electives and Flowcharts can be found here: www.ou.edu/content/coe/academics_flowcharts.html

Note: Utilize flowcharts as a supplemental guide to OU Official check sheet http://checksheets.ou.edu