Lecture Meetings: M, W 0800-0915 in FO 225

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Office Hours: M, T 1300-1600
Or by appointment – email me to set up appointments

Course Description: This course emphasizes various levels of prevention and the scientific application of regulatory principles related to environmental health, safety, and management. Evaluation methods and general aspects of control measures relative to human and environmental health will be explored. This Special Problems course is intended to substitute ENV310, Environmental Health & Safety, an undergraduate B.S. Environmental Science core course due to scheduling conflict and graduation requirement.

Program Learning Outcomes:
1. Demonstrate critical thinking and application of knowledge gained in the course that can be implemented in environmental health and safety assessment and management (PLO#1).
2. Students will be given real world scenarios that will require critical thinking in order to solve as related to environmental risk assessment (PLO#2).
3. Students will demonstrate knowledge of pertinent environmental regulations and how these regulations are to be applied in order to assure compliance and protect human and environmental health (PLO#3, PLO#1).
4. Demonstrate competency and critical thinking communicated through effective scientific written reports and oral presentations (PLO#4).
5. Know what formulas/statistics and how to apply them in environmental risk assessment (PLO#5, PLO#2).

B.S. Environmental Science Program Learning Outcomes Proficiency Levels

<table>
<thead>
<tr>
<th>Course</th>
<th>PLO #1 Environmental Health and Safety</th>
<th>PLO #2 Environmental Risk Assessment</th>
<th>PLO #3 Environmental Regulation and Compliance</th>
<th>PLO #4 Effective Scientific Written and Oral Reports</th>
<th>PLO #5 Statistical Methods and Data Management</th>
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</thead>
<tbody>
<tr>
<td>ENV 504</td>
<td>A</td>
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<tr>
<td>N/A = Not Applicable B = Basic I = Intermediate A=Advanced M=Mastery</td>
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Student Learning Outcomes: Upon completion of the course, students should:
ENV 504 – Advanced Environmental Health and Safety, Fall 2018

1. Understand the components of an Environment, Health, and Safety program and how to implement it within a professional organization (PLO#1);
2. Understand how to perform a risk-based environmental assessment (PLO#2);
3. Know the regulatory requirements that govern environmental health and safety and what methods are used to assure compliance to the regulations (PLO#3);
4. Prepare written reports and procedures, which will help them develop the skill set expected of them when they enter their profession (PLO#4); and
5. Statistical methods and data analysis will be introduced and utilized as pertaining to risk assessment (PLO#5, PLO#2).

Texts: Lectures will be based on the required text listed below and in part on supplementary texts and published articles that will be posted as the course progresses. The subject of the articles may vary based upon student career interests and will represent recent literature and current events, which may be discussed in lecture as related to the topics listed further below.

Required texts:

Other Resources/References:
Occupational Safety and Health Administration
http://www.osha.gov/

United States Environmental Protection Agency
http://www.epa.gov/

Texas Risk Reduction Program Protective Concentration Levels
https://www.tceq.texas.gov/remediation/trrp/trrppcls.html

Agency for Toxic Substances and Disease Registry (ATSDR)
https://www.atsdr.cdc.gov/index.html

Agency for Toxic Substances and Disease Registry – Publications
https://www.atsdr.cdc.gov/publications.html

The National Institute for Occupational Safety and Health (NIOSH)
https://www.cdc.gov/niosh/index.htm

American Conference of Governmental Industrial Hygienists (ACGIH) – TLV/BEI Guidelines
https://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations/overview

American College of Occupational and Environmental Medicine (ACOEM)
http://www.acoem.org/

Topics List: The following is a list of topics this lecture will cover during the semester. The schedule and order of topics should be considered tentative based upon class progress and student interest at the instructor’s discretion. *Only required text-based chapter readings are
included in the table below. The student should be aware that additional handouts will be posted in Brightspace (D2L) and/or on the Y: for student reference. A field trip to the Eastman Chemical plant in Longview, Texas is tentative based upon class availability outside of normally scheduled lecture period and Site Personnel availability.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Dates</th>
<th>Readings*</th>
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<tbody>
<tr>
<td>Introduction to Environmental Health</td>
<td>Week 1</td>
<td>Ch 1</td>
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<tr>
<td>Ecology and Ecosystems’ Role Upon Human Health</td>
<td>Week 2</td>
<td>Ch 2</td>
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<tr>
<td>Environmental Sustainability and Health</td>
<td>Week 3</td>
<td>Ch 3</td>
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<td>Geospatial Applications for Environmental Health</td>
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<td>Ch 5</td>
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<td>Environmental and Occupational Epidemiology</td>
<td>Week 4</td>
<td>Ch 4</td>
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<tr>
<td>Worker Health and Safety Risk Communication</td>
<td>Week 5</td>
<td>Ch 21, Ch 23, Ch 28</td>
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<td>Introduction to Environmental Toxicology</td>
<td>Week 6</td>
<td>Ch 6</td>
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<tr>
<td>Environmental Health-Based Risk Assessment</td>
<td>Week 7</td>
<td>Ch 27</td>
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<tr>
<td><strong>MIDTERM</strong></td>
<td>10/8</td>
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<tr>
<td>Industrial Hygiene, Exposure Monitoring and Assessment</td>
<td>Week 8</td>
<td>Ch 8</td>
</tr>
<tr>
<td>Climate Change: Impacts on Human Health</td>
<td>Week 9</td>
<td>Ch 12, Ch 13</td>
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<td>Air Pollution</td>
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<td>Buildings and Construction Management Practices</td>
<td>Week 10</td>
<td>Ch 20</td>
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<td>Water Quality Impacts</td>
<td>Week 11</td>
<td>Ch. 13 and 16</td>
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<td><strong>Written Case Scenarios (Grad) Due</strong></td>
<td>10/29</td>
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<tr>
<td>Solid and Hazardous Waste</td>
<td>Week 12</td>
<td>Ch 17</td>
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<td>Nov. 19-23; Thanksgiving Holiday</td>
<td>Week 13</td>
<td>EAT TURKEY!</td>
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<tr>
<td>Pest Control and Pesticide Management Practices</td>
<td>Week 14</td>
<td>Ch 18</td>
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<td><strong>Case Scenario Presentations</strong></td>
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<td>Radiation Review</td>
<td>Week 15</td>
<td>Ch 22</td>
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<td><strong>FINAL EXAMINATION</strong></td>
<td>12/11 8-10 am</td>
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**Grading:** Grades in this class will be based on a combination of in-class exams and written and oral presentation assignments according to the following formula:

Assignments
- Safety Policy: 25
- Job Safety Analysis: 25
- Lab Audit: 25
- Presentation: 25

Exams
- Mid-Term: 100
- Final Exam (Comprehensive): 100

Course grades will be based on the percentage of total available points accrued during the semester, according to the following formula: 90-100% = A, 80-89% = B, 70-79% = C. Since this course is to substitute a core course, you must earn 70% or greater in order to receive credit for the course.
Written Assignments:
You will be assigned in a group of 2 people who must work cooperatively as would be expected in the professional world. Cooperative communication is essential. Students may play one or two roles as industrial hygienist, environmental scientist, EHS Specialist, etc. General requirements for the 3 report types are provided below:

1. Safety Policy Statement:
   a. This is a brief 1-2 page overview of how the company’s core values focus on safety. It establishes a “safety culture” and what responsibilities everyone has regarding safety. You can find examples of safety policies online. Be sure to not copy/plagiarize a safety policy. The key here is understanding how to in effect create a safety “mission-type” statement.
   b. You will prepare a Job Safety Analysis (JSA, a form will be provided). The JSA must include the task, hazard analysis, and hazard mitigation. JSAs are typically discussed with personnel during Daily Tailgate Safety meetings. For this assignment, you may pick from any of the followings jobs (note a job contains several tasks).
      i. Sampling ground water from a monitoring well containing unknown concentrations of RCRA-8 metals and BTEX (benzene, toluene, ethylbenzene and xylene)
      ii. Sampling soil from a location where ethylbenzene was spilled from an above-ground storage tank (AST).
      iii. Sampling surface water from the edge of a pond using a grab-sample device (i.e. a bucket tied to a rope, or you can get scientifically creative)
   c. You will conduct an audit of your instructor’s lab using a form that will be provided. You will then provide a brief summary of findings for your instructor outlining steps that should be taken to assure a safe laboratory environment.

Presentation:
- One member of your team will present the JSA in a manner that a Site Safety Officer would during a Daily Tailgate Safety Meeting
- The second person in your group will present the lab audit findings and play the role of an EHS Specialist

Exams: There will be 2 lecture exams during the course of the semester comprising a midterm and a final. Mid-terms are scheduled for October 8. Please arrange a time to take the midterm beforehand if you have scheduling conflicts with another course. The final will be not be comprehensive, and will only cover the last half of the course. The exams will consist of short answer and multiple choice. The final will be given on Wednesday, December 12, from 8:00-10:00 AM.

Make-up Policy: Make up exams will be given only in the case of a documented, university-approved excuse. In this case, the make-up exam will be given as soon as possible after the scheduled exam date. I do not give make-up exams for unexcused absences; if you miss one it will count as a 0 and be averaged into your final grade. There are no make-ups for reports since these are assigned at the beginning of the semester and can be turned in anytime prior to the due date.
Late Submission of Assignments:
It is your responsibility to submit assignments at the time they are due. **Work submitted after the due date will incur a 10% per calendar day penalty**, (i.e., after 10 days you will receive a zero on the assignment). For excused absences of exams, you have 1 week to complete the make-up assignment before late penalties begin accruing. Writing assignments are still expected to be submitted on time since those are assigned in advance of the due date(s). For other information regarding make-up work, refer to the Make-up Policy section above.

Course Grades Policy (5.5): Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. Please read the complete policy at [http://www.sfasu.edu/policies/5.5_course-grades.pdf](http://www.sfasu.edu/policies/5.5_course-grades.pdf)

Other policies:
**Attendance:** I expect students to attend all lectures and arrive before the start of class time. Individuals late to class may find themselves locked out. However, I believe you should be treated as adults and the decision to come to class is ultimately yours. I do not take attendance in lecture periods, but lack of attendance on your part will affect your grade.

Excused absences include participation in University-sponsored events, health problems, or family emergencies. **Documentation for excused absences must be provided.** Notification of planned excused absences should be provided. Make-up work will be accepted for a maximum of 2 weeks following an excused absence. [http://www.sfasu.edu/policies/class-attendance-and-excused-absence-6.7.pdf](http://www.sfasu.edu/policies/class-attendance-and-excused-absence-6.7.pdf)

**Responsible Use of Technology:** It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop computer for matters unrelated to the course may be grounds for dismissal from class or other penalties. Put them away during any exam period; if I see a cell phone during an exam, I will consider that student to be cheating on the exam with appropriate consequences.

**Acceptable Student Behavior:** Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. Please read the complete policy at [http://www.sfasu.edu/policies/student-code-of-conduct-10.4.pdf](http://www.sfasu.edu/policies/student-code-of-conduct-10.4.pdf).
Ethics and Professionalism: All of the students in this class and in the Arthur Temple College of Forestry and Agriculture are expected to conduct themselves in an ethical and professional manner.

Student Academic Dishonesty Policy (4.1): Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty:
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf

Consequences of Academic Dishonesty (Cheating):
The severest penalty (an F for the course) will be assigned to any student caught cheating or plagiarizing on an assignment.

Academic Accommodation for Students with Disabilities Policy (6.1): To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/
Students with documented disabilities who require course adaptations or accommodations should make an appointment to speak with the Professor.

Smoking, Vaping, and Use of Tobacco Products Policy (13.21): States that campus is tobacco and vape free. This includes all tobacco and vape-related products, and includes all activities during field labs! See: http://www.sfasu.edu/policies/13.21_smoking-vaping-and-use-of-tobacco-products.pdf

Firearms, Explosives and Ammunition Policy 13.9: Concerns firearms and the concealed carry policy. Students with concealed carry licenses who choose to carry on campus are required to follow all Texas laws and University policies, and it is their responsibility to understand and comply accordingly. See: http://www.sfasu.edu/policies/13.9-Firearms-Explosives-and-Ammunition.pdf