special topics: advanced environmental health  
(bims 5590/esci 6320)  
dept. of life sciences  
spring 2020

A. course information  
course number/section: BIMS 5590.001/ESCI 6320.001  
class meeting time: Lecture: T 4:20-6:50  
class location: CS 114  
course websites: https://bb9.tamucc.edu/

B. instructor information  
instructor: Frauke Seemann, Ph.D.  
office location: TH 332  
office hours: Monday/Wednesday 9:30 – 11.30 pm, Tuesday 9.30 -10.30 am  
telephone: 361-825-2683  
e-mail: Frauke.Seemann@tamucc.edu  
email me at any time but my responses will be limited after 5pm weekdays and all weekend.  
appointments: email me to set up appointments

C. course description  
catalog course description  
advanced study of the toxicology and epidemiology of pollutants in the air, water and soil. Associations of environmental exposure with adverse health effects such as cancer, cardiovascular disease and reproductive outcomes, also chemical markers and symptoms of disease will be taught. Pollutants studied include lead, asbestos, radiation, radon, noise, metals, halogenated hydrocarbons, aromatic hydrocarbons, silica, indoor air quality, formaldehyde, and outdoor air pollutants. Offered on sufficient demand.

extended course description  
students in this course will gain an in-depth understanding of current topics of environmental health using a comparative (eco)toxicology approach studying non-human vertebrates as models. This course will focus on the chemical basis of pollution distribution in the environment (both biotic and abiotic components), as well as addressing novel contaminants of actual concern for environmental health. Case studies and discussion of actual primary, peer-reviewed literature will allow the students to actively discover and deepen their understanding of different aspects of environmental health, toxicology, pollution and risk assessment. A major focus will be on student-centered learning through perusal of current literature on non-human models and the environment and encouraging student discussion in class. Emphasis will be given to emerging contaminants and pollutants of high concern. This course cannot be taken for credit if BIMS 4327/5327 Introduction to Toxicology/Toxicology has been taken previously.
D. **PREREQUISITES AND COREQUISITES**

**Prerequisites**
Graduate status or permission of instructor

E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

**Required Readings**
Current primary literature will be provided on Blackboard

**Reference Textbook(s)**
Essentials of Environmental Health by R. Fries (Third edition), 2019

**STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

1. Demonstrate in-depth knowledge in the field of environmental health as determined by class discussions, a term paper and short answer exams.
2. Define and describe key concepts of environmental health, including exposure assessment, toxicology, epidemiology, and risk assessment.
3. Understand, critically evaluate, summarize, analyze and interpret research studies from literature as determined through class discussion of primary journal articles and term papers.
4. Communicate scientific information through written and oral presentations on various aspects of environmental health as determined by term papers and oral presentations.
5. Develop conclusions on pollutant exposures, associated health effects and risk assessment for different life-stages and occupations, as determined by short answer exam, short answer final exam, presentation and class discussions.

F. **INSTRUCTIONAL METHODS AND ACTIVITIES**

Learner-Centered Teaching: Collaborative work, control of content selection, personal reflection, learning skill demonstration.

G. **MAJOR COURSE REQUIREMENTS AND GRADING**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tr>
<td>Exams I</td>
<td>25</td>
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Grading scale: A>90%  B=80-89.9%  C=70-79.9%  D=60-69%  F<60%

Nature of Assignments:

Exams will be comprised of 10 short answer questions of which you will select to answer ONLY 4-5 to obtain a total of 100 pts. The questions will cover the concepts learned throughout the course, including the information from student presentations. Questions require analysis and interpretation of data or experimental design to assess critical thinking skills.

One Paper and One Presentation on a selected relevant environmental health topic will be required. Note that the presentations will be part of the “lecture series” for the course and therefore subject to being covered on the exams. The paper/presentations topics will be student interest driven, with approval of the instructor. The paper should be no more than FIVE pages (double spaced) and the presentation no more than 20 minutes (15 minutes +5 minutes Q&A). For the presentation, audio visual aids, e.g. PowerPoints, handouts, drawings, or designed props can be used. There is not a specific mean of presenting your information as long as you are able to deliver key concepts to your peers. Published references must be cited. Deadlines for choosing the topics are provided; failure to meet these deadlines will result initially in a loss of a letter grade, e.g. A to B; however, after a week, an F will be given for the assignment. The papers must be turned in through Turnitin (Blackboard) by the time and date indicated in this syllabus. Plagiarism is looked down upon. Be sure to make proper citations and put things in your own words. If detected, plagiarism will be punished in accordance with the program director and respective university regulations.

COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Dates</th>
<th>Exams</th>
<th>Lecture Topics</th>
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<tbody>
<tr>
<td>03/05</td>
<td>Exam I (In-class exam)</td>
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<tr>
<td>05/12</td>
<td>Final Exam</td>
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<td>01/23</td>
<td>Course Introduction:</td>
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<tr>
<td></td>
<td>I. The Environment at Risk</td>
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<td>II. Healthy People 2020</td>
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<tr>
<td>01/30</td>
<td>Environmental Epidemiology:</td>
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<td>Bias, Limitations and Deficiencies</td>
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<tr>
<td>02/06</td>
<td>I. Risk assessment of environmental hazards</td>
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<td></td>
<td>II. Advanced dose-response relationships</td>
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<td>III. Exposure threshold calculations</td>
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<td>Date</td>
<td>Topic</td>
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| 02/13   | Environmental Diseases I:  
            Zoonotic and vector borne diseases (Zika virus)  
            Toxic Metals (Lead contamination in Flint)       |
| 02/20   | Environmental Diseases II:  
            Organic Chemicals:  
            Honeybees as an indicator for human health?  
            Discussion: Are Europeans more protected than Americans? |
| 02/27   | Water quality  
            I. Drinking water contamination  
            II. Beach and Coastal Pollution  
            (Let’s talk Oil and Plastics) |
| 03/05   | Exam I                                                                 |
| 03/12   | Spring Break                                                          |
| 03/19   | Air Quality  
            I. Components of air pollution  
            II. Air quality standards  
            (so much better in the US than in Asia?) |
| 03/26   | Environmental Health and Climate Change  
            (Are Cap-and -Trade Policies effective for environmental health?) |
| 04/02   | Who is winning the recycling race?  
            Environmental health and waste disposal |
| 04/09   | Radiation is natural – why being concerned for environmental health |
| 04/16   | Taking the risk:  
            I. Human perception and the actual severity of unintentional injuries  
            II. Occupational Health:  
            How does stress fit in the picture? |
| 04/23   | Healthy Communities and Environmental Justice                         |
| 04/30   | Revision                                                              |
| Dates   | Assignments Due                                                       |
| TBA     | Presentation (will be scheduled topic-specific)                       |
Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

H. COURSE POLICIES

Attendance/Tardiness
Attendance: Students are expected to attend every scheduled class meeting. It is the responsibility of the student to obtain any material missed during an absence from his/her classmates. Power Points are not placed in the library, but Power Points will be placed on Blackboard.
Tardiness: Students may enter when late but be respectful of your peers and do not disrupt the class as you enter.

Late Work and Make-up Exams
No late work will be accepted. You must refer to Blackboard to identify when items will be due. It is your responsibility to get it turned in through the appropriate outlet on the designated day. I will not remind you.

No make-up exams will be given

Extra Credit
Missed extra credit opportunities—Instructor is not obligated to give make-up assignments for extra credit opportunities, whether excused or unexcused.

Cell Phone Use
Lecture: Students may NOT utilize their cell phone; therefore keep them on silent and put away.

Laptop Use
Lecture: Students may utilize their laptops as long as it does not disrupt others in class.

Food in Class
Lecture: Students may eat food as long as it does not disrupt others in class. It is the student’s responsibility to clean up after themselves. If you fail to do so, you will no longer be allowed to have food in class.

Missed Exam
No make-up exams will be given.

Participation
Lecture: Students are required to participate in all group activities. **Peer evaluations will be given with each activity to determine your final assessment.**
Communicating with Instructors
All students should communicate with the instructors using their TAMUCC Black
Board account or your islander.tamucc.edu email address. Your instructors will not
discuss grades and related info via email unless the message originates from your
islander account. Information for using and accessing this account can be found on
BlackBoard. If you run into difficulties that are not being resolved by the student
computer help desk, please contact Dr. Seemann ASAP.

I. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest
  standards of academic honesty. Academic misconduct for which a student is subject
to penalty includes all forms of cheating, such as illicit possession of examinations or
examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is
the presentation of the work of another as one’s own work.) In this class, academic
misconduct or complicity in an act of academic misconduct on an assignment or test
will result in a failing grade.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each
  individual respect the needs of others to study and learn in a peaceful atmosphere. Under
  Article III of the Student Code of Conduct, classroom behavior that interferes with either
  (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit
  from the instructional program may be considered a breach of the peace and is subject to
disciplinary sanction outlined in article VII of the Student Code of Conduct. Students
  engaging in unacceptable behavior may be instructed to leave the classroom. This
  prohibition applies to all instructional forums, including classrooms, electronic classrooms,
labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the
  population of the state. Our goal is to provide you with a high quality educational
  experience that is free from repression. You are responsible for following the rules of the
University, city, state and federal government. We expect that you will behave in a manner
that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial
origin, religious background, sexual orientation or disability. Behaviors that infringe on the
rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events
can sometimes occur that make dropping a course necessary or wise. Please consult
with your academic advisor, the Financial Aid Office, and me, before you decide to
drop this course. Should dropping the course be the best course of action, you must
initiate the process to drop the course by going to the Student Services Center and
filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course.

**Grade Appeals (College of Science and Engineering)**
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

**Disability Services**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

[http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

**Statement of Academic Continuity**
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students
need to make certain that the course instructor has a primary and a secondary means of contacting each student.

J. OTHER INFORMATION

- Academic Advising
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.