

CATALOG YEAR 2010-2011

(Please use separate form for each add/change)

COLLEGE/SCHOOL : College of Arts and SciencesCurrent Catalog Page(s) Affected pps. 120, 316

Course: Add: _____ Delete: _____
 (check all that apply) Change: Number X Title _____ SCH _____
 Description X Prerequisite _____

If new, provide Course Prefix, Number, Title, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current catalog, copy and paste the text, and indicate changes in red.

ENSC ~~4310~~ (4410) Environmental Toxicology. **Four Semester hours.**

The course serves to provide an introduction to environmental poisons. Topics include general principles of toxicology, biotransformations, testing procedures, target organs, toxic substances and risk assessment including the toxicity of metals and pesticides. Prerequisite: Twelve hours of biology and/or environmental sciences or permission of instructor. **Lab fee \$30.**

Explanation: They are adding a lab to this course and increasing from 3 to 4 hours.

Program: Add: _____ Change: _____ Attach new/changed Program of Study description and 4-year plan. If in current catalog, copy and paste the text, and indicate changes in red.

Minor: Add: _____ Delete: _____ Change: _____ Attach new/changed minor. If in current catalog, copy and paste the text, and indicate changes in red.

Faculty: Add: _____ Delete: _____ Change: _____ Attach new/changed faculty entry. If in current catalog, copy and paste the text, and indicate changes in red.

College Introductory Pages: Add information: _____ Change information: _____ Attach new/changed information. If in current catalog, copy and paste the text, and indicate changes in red.

Approvals:	Signature	Date
Chair Department Curriculum Committee	_____	_____
Chair Department	_____	_____
Chair College Curriculum Committee	_____	_____
Dean	_____	_____

Texas A&M University International University
College of Arts and Sciences
Department of Biology and Chemistry

Course Syllabus

ENSC 4410: Environmental Toxicology

INSTRUCTOR: Dr. Brittan Wilson
Email: brittan.wilson@tamiu.edu,
Phone: 956-326-2584

CLASS MEETING: Spring 2010, Monday/Wednesday 4:30 – 5:45 Bob Bullock Hall 103

OFFICE HOURS: LBVSC 385c Wednesday 1:30-3:30 and Thursday 3:30-5:30

TEXTBOOKS:

A Textbook on Modern Toxicology: Third Edition by Ernest Hodgson 2004. Wiley Interscience.

There will be required readings for each week related to the toxicant type under discussion. The reading assignments are uploaded on Angel for each week. There is also a copy of the files on in Killiam Library on loan as well. You will be required to finish the readings quiz on Angel each week by noon on Monday the week the assignment is due. Attached is the readings list.

I. COURSE DESCRIPTION

The course serves to provide an introduction to environmental poisons. Topics include general principles of toxicology, biotransformations, testing procedures, target organs, toxic substances and risk assessment including the toxicity of metals and organic compounds. Prerequisite: Twelve hours of biology and/or environmental sciences or permission of instructor.

II. LEARNING OUTCOMES

At the conclusion of this course the *student will be able to*:

1. Identify and categorize various Toxic substances and/or categories of substances
2. Understand the principles behind toxicological analysis
3. Be able to use toxicological data to assess the potential risk associated with various contaminants.
4. Communicate potential hazards to all potential stakeholders involved with a substance.
5. Synthesize the current issues, e.g., economic, health, and social issues associated with our use of the environment from current literature.
6. Assess the impact of toxic compounds on a number of different types of organisms.

III. COURSE TOPICS

The course will be broken into three main sections; 1) general toxicology and methodology, 2) major chemicals of interest and 3) social concerns, regulation and risk assessment. If there is a particular compound or issue of interest to the students please let me know in advance and I will be happy to include it within the course discussion.

IV. INSTRUCTIONAL METHODS AND ACTIVITIES

Traditional lectures via white-board demonstrations and PowerPoint presentations, classroom discussions, and student homework, and readings. Lectures will be broken into two portions; each new topic will be given one day as an overview, with a second day of class discussions over case studies and social concerns.

Laboratory exercise will coincide with lecture topics. Over the course of the semester students will evaluate various compounds toxic effects, their bioavailability, and levels of response by various organisms. The final laboratory project will consist of each group presenting the multi-taxa analysis of their compound of choice.

There will be 3 mid-term exams and one final exam for the course. Exams will be given in-class and consist of primarily short answer and essay questions.

V. EVALUATION AND GRADE ASSIGNMENT

Assignment	Overall Grade Percentage
Mid-term Exam 1	15%
Mid-term Exam 2	15%
Mid-term Exam 3	15%
Laboratory	30%
Final Exam	25%
Total:	100%

Class Average (X)	Grade
$X \geq 90.0\%$	A - Excellent
$89.9\% \leq X < 80.0\%$	B – Good
$79.9\% \leq X < 70.0\%$	C - Satisfactory
$69.9\% \leq X < 60.0\%$	D - Passing
$X < 60.0\%$	F - Failing

VI. ATTENDANCE AND OTHER COURSE POLICIES

Students are required to attend all class meetings. Participation is essential to do well in the class. Discussions and student input are considered an important part of the class. Class exams cannot be retaken other than for an excused absence. Excused absences are limited to medical emergencies that can be certified in writing by a physician, participation in a TAMU sanctioned event or other similar circumstances justified in writing and specified in the COAS policies, attached below. Assignments are expected on time unless prior arrangements are made. Such prior arrangements will be granted only in exceptional circumstances as well. Submitting an assignment late without prior arrangement may lead to a substantial penalty.

VII. TENTATIVE COURSE PROGRESSION

Week	Exams	Lecture Topic	Laboratory Topics
1		Introduction to Toxicology and course overview	General Methodology and Compound Selection
2		History of Toxicology	Plant Toxicology #1 - germination
3		Types of exposure, routes of exposure	Bacterial Resistance #1 (LC ₅₀)
4	#1	Lethal doses vs. effective concentrations	Bacterial Resistance #2 (EC ₅₀)
5		Methodology and animal models	Daphnia #1 – Aquatic Tox.
6		Methodology and animal models	Daphnia #2 – Aquatic Tox.
7		Community assessment	Plant Toxicology #2 - development
8	#2	Factors affecting toxicology	Mysids #1 Soils
9		Metals and inorganic toxicity	Mysids #2 Sediments
10		Organic toxicity	Sea Urchin #1 – fertilization
11		Radioactivity	Sea Urchin #2 – larval development
12		Other types of environmental toxicology	Plant Toxicology #3 – Fecundancy
13	#3	Toxicity mitigation	System Function
14		Risk assessment	Final Presentations
15		Policy Decisions	Final Presentations
	Final Exam		

VIII. READING ASSIGNMENTS (Subject to change if necessary)

Week	Assignment
1	NO ASSIGNMENT
2	Wright D.A. and Welbourn, P. 2002. <u>Environmental Toxicology</u> . Chapter 1: The emergence of Environmental Toxicology as a science.
3	Kalsch, W., Nagel, R., and Urich, K. 1991. Uptake, elimination, and bioconcentration of ten anilines in zebrafish (<i>Brachydanio rerio</i>). <i>Chemosphere</i> , 22, 351-363. Clark, K.E., Gobas, F.A.P.C., and Mackay, D. 1990. Model of organic chemical uptake and clearance by fish from food and water. <i>Environmental Science and Technology</i> , 24, 1203-1213.
4	Kerr, D.R., and Meador, J.P. 1996. Modeling does response using generalized linear models. <i>Environmental Toxicology and Chemistry</i> , 15, 395-401.
5	Case Studies from: Wright D.A. and Welbourn, P. 2002. <u>Environmental Toxicology</u> .
6	Shaw, J.L., and Kennedy, J.H., 1996. The use of aquatic field mesocosm studies in risk assessment. <i>Environmental Toxicology and Chemistry</i> , 15, 605-607. Chapman, P.M. 1986. Sediment quality criteria from the sediments quality triad: An example. <i>Environmental Toxicology and Chemistry</i> , 5, 957-9-64.
7	Lytle, J.S., and Lytle, T.F., 2001. Use of plants for toxicity assessment of estuarine ecosystems. <i>Environmental Toxicology and Chemistry</i> . 20, 68-83.
8	Cairns, J. Jr., Heath, A.G., and Parker, B.G., 1975. Temperature influence on chemical toxicity to aquatic organisms. <i>Journal Water Pollution Control Federation</i> . 47, 267-280.
9	Spring Break Week – No classes!
10	Lawson, N.M., and Mason, R.P. 1998. Accumulation of mercury in estuarine food chains. <i>Biogeochemistry</i> , 40, 235-247. Warren, L.A., Tessier, A., and Hare, L. 1998. Modelling cadmium accumulation by benthic invertebrates <i>in situ</i> : The relative contributions of sediment and overlying water reservoirs to organism cadmium concentrations. <i>Limnology and Oceanography</i> , 43, 1442-1454.
11	Carlsen, E., Giwereman, A., Keiding, N., and Skakkaebaek, N.E. 1992. Evidence for decreasing quality of semen during the last 50 years. <i>British Medical Journal</i> , 305, 609-613. Silberner, J. 1986. Common herbicide linked to cancer. <i>Science News</i> , 130, 167.
12	Case Study: Chernobyl Accident from Wright D.A. and Welbourn, P. 2002. <u>Environmental Toxicology</u> .
13	Gorham., E. 1998. Acid deposition and its ecology effects: A brief history of research. <i>Environmental Science and Policy</i> , 1, 153-166.
14	Makarewicz, J.C. and Bertram, P. 1991. Evidence for the restoration of the Lake Erie ecosystem: Water quality, oxygen levels, and pelagic function appear to be improving. <i>Bioscience</i> , 41, 216-223.
15	Chapman, P.M., Fairbrother, A., and Brown, D., 1998. A critical review of safety (uncertainty) factors for ecological risk assessment. <i>Environmental Toxicology and Chemistry</i> , 17, 99-108.
16	NO ASSIGNMENT

Policies of the College of Arts and Sciences

(Required on all COAS Syllabi)

Classroom Behavior

The College of Arts and Sciences encourages classroom discussion and academic debate as an essential intellectual activity. It is essential that students learn to express and defend their beliefs, but it is also essential that they learn to listen and respond respectfully to others whose beliefs they may not share. The College will always tolerate diverse, unorthodox, and unpopular points of view, but it will not tolerate condescending or insulting remarks. When students verbally abuse or ridicule and intimidate others whose views they do not agree with, they subvert the free exchange of ideas that should characterize a university classroom. If their actions are deemed by the professor to be disruptive, they will be subject to appropriate disciplinary action, which may include being involuntarily withdrawn from the class.

Plagiarism and Cheating

Plagiarism is the presentation of someone else's work as your own. **1)** When you borrow someone else's facts, ideas, or opinions and put them entirely in your own words, you must acknowledge that these thoughts are not your own by immediately citing the source in your paper. Failure to do this is plagiarism. **2)** When you also borrow someone else's words (short phrases, clauses, or sentences), you must enclose the copied words in quotation marks as well as citing the source. Failure to do this is plagiarism. **3)** When you present someone else's paper or exam (stolen, borrowed, or bought) as your own, you have committed a clearly intentional form of intellectual theft and have put your academic future in jeopardy. This is the worst form of plagiarism.

Here is another explanation from the 2010, sixth edition of the *Manual of The American Psychological Association* (APA):

Plagiarism: Researchers do not claim the words and ideas of another as their own; they give credit where credit is due. Quotations marks should be used to indicate the exact words of another. *Each* time you paraphrase another author (i.e., summarize a passage or rearrange the order of a sentence and change some of the words), you need to credit the source in the text.

The key element of this principle is that authors do not present the work of another as if it were their own words. This can extend to ideas as well as written words. If authors model a study after one done by someone else, the originating author should be given credit. If the rationale for a study was suggested in the Discussion section of someone else's article, the person should be given credit. Given the free exchange of ideas, which is very important for the health of intellectual discourse, authors may not know where an idea for a study originated. If authors do know, however, they should acknowledge the source; this includes personal communications. (pp. 15-16)

Consult the Writing Center or a recommended guide to documentation and research such as the *Manual of the APA* or the *MLA Handbook for Writers of Research Papers* for guidance on proper documentation. If you still have doubts concerning proper documentation, seek advice from your instructor prior to submitting a final draft.

Penalties for Plagiarism: Should a faculty member discover that a student has committed plagiarism, the student will receive a grade of 'F' in that course and the matter will be referred to the Honor Council for possible disciplinary action. The faculty member, however, has the right to give freshmen and sophomore students a "zero" for the assignment and to allow them to revise the assignment up to a grade of "F" (50%) if they believe that the student plagiarized out of ignorance or carelessness and not out of an attempt to deceive in order to earn an unmerited grade. This option is not available to juniors, seniors, or graduate students, who cannot reasonably claim ignorance of documentation rules as an excuse.

Penalties for Cheating: Should a faculty member discover a student cheating on an exam or quiz or other class project, the student will receive a "zero" for the assignment and not be allowed to make the assignment up. The incident must be reported to the chair of the department and to the Honor Council. If the cheating is extensive, however, or if the assignment constitutes a major grade for the course (e.g., a final exam), or if the student has cheated in the past, the student should receive an "F" in the course, and the matter should be referred to the Honor Council. Under no circumstances should a student who deserves an "F" in the course be allowed to withdraw from the course with a "W."

A new grade to denote academic dishonesty is now available, a "M" for "Academic Misconduct." It has the same effect as an "F" but will indicate on the transcript that the failure was due to academic misconduct.

Student Right of Appeal: Faculty will notify students immediately via the student's TAMIU e-mail account that they have submitted plagiarized work. Students have the right to appeal a faculty member's charge of academic dishonesty by notifying the TAMIU Honor Council of their intent to appeal as long as the notification of appeal comes within 3 business days of the faculty member's e-mail message to the student. The *Student Handbook* provides details.

UConnect, TAMIU E-Mail, and Dusty Alert

Personal Announcements sent to students through TAMIU's UConnect Portal and TAMIU E-mail are the official means of communicating course and university business with students and faculty – not the U.S. Mail and not other e-mail addresses. Students and faculty must check UConnect and their TAMIU e-mail accounts regularly, if not daily. Not having seen an important TAMIU e-mail or UConnect message from a faculty member, chair, or dean is not accepted as an excuse for failure to take important action. Students, faculty, and staff are encouraged to sign-up for *Dusty Alert* (see

www.tamtu.edu). *Dusty Alert* is an instant cell phone text-messaging system allowing the university to communicate immediately with you if there is an on-campus emergency, something of immediate danger to you, or a campus closing.

Copyright Restrictions

The Copyright Act of 1976 grants to copyright owners the exclusive right to reproduce their works and distribute copies of their work. Works that receive copyright protection include published works such as a textbook. Copying a textbook without permission from the owner of the copyright may constitute copyright infringement. Civil and criminal penalties may be assessed for copyright infringement. Civil penalties include damages up to \$100,000; criminal penalties include a fine up to \$250,000 and imprisonment.

Students with Disabilities

Texas A&M International University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal education opportunity. It is the student's responsibility to register with the Director of Student Counseling and to contact the faculty member in a timely fashion to arrange for suitable accommodations.

Incompletes

Incomplete: Students who are unable to complete a course should withdraw from the course before the final date for withdrawal and receive a "W." To qualify for an "incomplete" and thus have the opportunity to complete the course at a later date, a student must meet the following criteria:

1. The student must have completed 90% of the course work assigned before the final date for withdrawing from a course with a "W", and the student must be passing the course;
2. The student cannot complete the course because an accident, an illness, or a traumatic personal or family event occurred after the final date for withdrawal from a course;
3. The student must sign an "Incomplete Grade Contract" and secure signatures of approval from the professor and the college dean.
4. The student must agree to complete the missing course work before the end of the next long semester; failure to meet this deadline will cause the "I" to automatically be converted to a "F"; extensions to this deadline may be granted by the dean of the college.

This is the general policy regarding the circumstances under which an "incomplete" may be granted, but each college may have variations of this policy to address special circumstances in specific programs.

Student Responsibility for Dropping a Course

It is the responsibility of the STUDENT to drop the course before the final date for withdrawal from a course. Faculty members, in fact, may not drop a student from a course.

Independent Study Course

Independent Study (IS) courses are offered only under exceptional circumstances. Required courses intended to build academic skills may not be taken as IS (e.g., clinical supervision and internships). No student will take more than one IS course per semester. Moreover, IS courses are limited to seniors and graduate students. Summer IS course must continue through both summer sessions.

Grade Changes & Appeals

Faculty are authorized to change final grades only when they have committed a computational error, and they must receive the approval of their department chairs and the dean to change the grade. As part of that approval, they must attach a detailed explanation of the reason for the mistake. Only in rare cases would another reason be entertained as legitimate for a grade change. A student who is unhappy with his or her grade on an assignment must discuss the situation with the faculty member teaching the course. If students believe that they have been graded unfairly, they have the right to appeal the grade using a grade appeal process in the *Student Handbook* and the *Faculty Handbook*.

Final Examination

Final Examination must be comprehensive and must contain a written component. The written component should comprise 20% of the final exam grade. Exceptions to this policy must receive the approval of the department chair and the dean at the beginning of the semester.