

Aquatic Toxicology (BIOL 646/EVSS 746), Fall 2016

Instructor: Dr. Marie DeLorenzo

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Class time: Tuesday and Thursday 6:30-8:00 pm, Grice Classroom 101

Office hours: By appointment

Course Prerequisites: Must be enrolled as a graduate student

Recommended Texts: *Fundamentals of Aquatic Toxicology*, 1995, Gary M. Rand (Ed.), 2nd ed, Taylor & Francis
An Introduction to Aquatic Toxicology, 1st Edition, 2014, M. Nikinmaa

*Supplemental reading will be provided

Grading Policy (3 credit course): Class participation, quizzes, assignments – 1/3, Midterm exam – 1/3, Final exam – 1/3

Attendance Policy: Attendance is considered part of the class participation grade. It is the student's responsibility to inform the instructor if he/she will be absent and to make-up the work missed.

Instructional Objectives and Student Learning Outcomes:

This course will explore acute and chronic adverse effects of chemicals and other anthropogenic materials on aquatic organisms. Students will become familiar with the history and legal mandates related to aquatic toxicology. Students will be able to demonstrate knowledge of legacy contaminants and chemicals of emerging concern, along with the transport, distribution, transformation, and ultimate fate of chemicals in the aquatic environment. Students will gain an understanding of the basic principles of toxicology, including factors affecting toxicity, appropriate testing methodology, experimental design and analysis, use of bioindicator organisms, biomarkers of exposure and effects, environmental modeling and ecological risk assessment.

Learning Center Support and Accommodations for Students with Disabilities

1. **Center for Student Learning:** I encourage you to utilize the Center for Student Learning's (CSL) academic support services for assistance in study strategies, speaking & writing strategies, and course content. They offer tutoring, Supplemental Instruction, study strategy appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at <http://csl.cofc.edu> or call (843)953-5635.
2. **Center for Disability Services** (<http://disabilityservices.cofc.edu/for-faculty/faqs.php>)
Sample Syllabus Statements
 - Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.
 - The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed.
 - This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the

Center of Disability Services/SNAP, 843.953.1431 or me so that such accommodation may be arranged.

Academic Integrity Statement

Lying, cheating, attempted cheating, and plagiarism are violations of College of Charleston Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor determines the student's actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file. Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board. Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. Students can find the complete Honor Code and all related processes in the Student Handbook at <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

Class Schedule

T Aug 23	Introduction to Aquatic Toxicology (Ch.1)
R Aug 25	Environmental Legislation (Ch.21-25)
T Aug 30	Contaminants in the Environment, Principles of Measurement
R Sept 1	Acute Toxicity Testing I (Ch.2-3, App. A)
T Sept 6	Acute Toxicity Testing II
R Sept 8	Chronic Toxicity Testing I (Ch.4)
T Sept 13	Chronic Toxicity Testing II
R Sept 15	Sediment Toxicity I (Ch.8)
T Sept 20	Sediment Toxicity II, class presentations I
R Sept 22	Early Life Stage Testing (App. B), class presentations I
T Sept 27	Experimental Design and Analysis
R Sept 29	Community Level Testing, Mesocosms
T Oct 4	Ecosystem Dynamics, Ecosystem Effects (Ch.19)
R Oct 6	Biomonitoring Approaches, Field Assessments
T Oct 11	Toxicogenomics; guest lecture: Metabolomics
R Oct 13	Midterm Exam
T Oct 18	Environmental Fate of Organic Contaminants (App.C; Ch. 15)
R Oct 20	Metals Fate and Transport
T Oct 25	Bioaccumulation, (Ch. 16, App. D)
R Oct 27	Biotransformation and Biomarkers (Ch. 17)
R Nov 1	Endocrine Disruption and Environmental Immunotoxicity (Ch.13) class presentations II
T Nov 3	HABs and Pathogens, class presentations II
T Nov 8	Fall Break, No Class
R Nov 10	Oil and oil spill remediation chemicals
T Nov 15	Emerging Contaminants, Nanotoxicology, Microplastics
R Nov 17	Emerging Contaminants, PPCPs, WWTP Technology, Mixture Toxicity (extended class 8:30 pm)
T Nov 22	No Class
R Nov 24	Thanksgiving Break, No Class
T Nov 29	Interactions between Chemicals, Climate and Other Natural Factors, Environmental Modeling (extended class 8:30 pm)
R Dec 1	Ecological Risk Assessment (Ch.28)
T Dec 6	Reading Day, No Class
R Dec 8	Final Exam, Evaluations