

Aquatic Systems and Environmental Health

PHC 6301; Section 05B1 - Spring Semester
Mondays 7th, 8th and 9th Periods (1:55 – 4:55)

Coursemaster:

Andrew S. Kane, Ph.D.

Department of Environmental and Global Health
College of Public Health and Health Professions
Aquatic Pathobiology Laboratories, Building 1379
(352) 273-9090; kane@ufl.edu
Office hours: Tuesdays 9-10am and by appointment

Course overview:

This team-taught course will provide an overview of aquatic resources including oceans, estuaries, rivers, lakes, streams and ponds, with focus on respective biotic communities and environmental health. We will address the physical and chemical nature of water, and the hydrologic cycle in order to understand water and land usage, and effects of various types of contamination in different ecosystems. The course will provide a taxonomic and ecological summary of aquatic biota, from algae and invertebrates to vertebrates and pathogens. A case study approach will be used to provide resources pertaining to contaminant input, other anthropogenic activities, harmful algae, and changes in the environment such as climate change. Biotic indices of environmental change, including application of bioindicators, will be discussed and evaluated relative to both environmental and human health.

Students are expected to be on time, and attend and participate in all classes. Each student is required to lead a critical discussion of a journal article at least once during the semester. Each student is also required to give an oral presentation on an assigned/approved topic. The approved topic will focus on some aspect of aquatic environmental health. A PowerPoint “notes” presentation on the same topic will also be developed and submitted by the student as the written component of this assignment.

Learning objectives:

Upon successful completion of this course students will be able to:

1. Describe the different types of aquatic environments and respective biota;
2. Discuss outcomes, in a broad sense, of natural and anthropogenically-accelerated environmental change on aquatic systems;
3. Exhibit competence using the terminology, jargon, and acronyms that are commonly used to describe water quality and aquatic systems;
4. Describe sources and understand mechanisms of infection for various waterborne diseases;
5. Describe biological and water quality factors that influence environmental exposure, uptake and toxicity to aquatic organisms
6. Describe a variety of contaminants that can enter aquatic systems and understand the mechanism by which a variety of biota may be affected;
7. Critically review scientific literature pertinent to aquatic and environmental health; and
8. Organize and present well-synthesized scientific discussions, using oral, written and visual formats, on topics relevant to aquatic biology, and environmental and public health.

Course materials:

Handouts for lectures and other reading materials will be distributed via the course website (<http://aquaticpath.php.ufl.edu/waterbiology>) or will be provided in class.

Course requirements and grading:

Grades will be based on class participation and discussions (10%), the critical discussion of a journal article (10%), a midterm (25%) and a final (25%) exam, and both an oral and written presentation of an assigned topic on aquatic environmental health (30%).

Critical review assignment. Journal article titles will be offered within the first three weeks of the course. Student presentations of the articles will take place during class, March 26th.

Midterm exam will take place during class, February 26th.

Oral presentation assignments will take place during class on April 16th. It is expected that each student will make an appointment with the instructor to discuss presentation content, use of visuals for PowerPoint, and overall formatting at least 2-4 weeks prior to the presentation date. Additional appointments for discussion relative to developing these presentations will be made available and are encouraged. The written portion of the assignment is expected to be reviewed with the instructor by April 4th (much earlier is encouraged), and electronically submitted to the instructor by April 16th.

Course evaluations will be completed prior to the administration of the final exam. Final exam will be administered on April 23rd.

Letter grades will be assigned according to the following scale:

Percentage or points earned in class	93%-100%	90%-92%	87%-89%	83%-86%	80%-82%	77%-79%	73%-76%	70%-72%	67%-69%	63%-66%	60%-62%	<60%
Letter Grade equivalent	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Letter grades for this course translate to the following grade points at the University of Florida:

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

Topical Outline

This outline will take into account weather conditions related to scheduled field trips, and may also shift to accommodate lectures provided by the different experts contributing to the course. The tentative outline is as follows:

Date	Topic(s)	Instructor(s)
Jan 9	Introduction, policies, assignments, journal reviews; Physical & chemical nature of water	Kane Kane
Jan 16	No class	MLK Day
Jan 23	Hydrogeology of watersheds, wetlands, groundwater contamination; Aquatic Biota: overview and plants	Jawitz Kane
Jan 30	Aquatic Entomology; Mosquito-and vectorborne diseases	Cuda Okech
Feb 6	Fish diversity, anatomy & adaptations; Aquatic stress and pathology	Kane Kane
Feb 13	Scientific communications; Review of oral & written presentation assignment; Introduction to aquatic toxicology	Kane Kane
Feb 20	Field trip – Natural Area Teaching Lab	Kane
Feb 27	Endocrine disruption; MIDTERM EXAM	Kane
Mar 5	No class	Spring Break
Mar 12	Toxicity of metals and pesticides	Barber
Mar 19	Biomarkers; Aquatic microbiology	Barber; Johnson
Mar 26	Aquatic zoonotic diseases; Student journal article presentations	Wright; Kane
April 2	Aquatic amphibians and reptiles; Birds; Mammals	Stacy; Spalding; Costidis
April 9	Epidemiology case studies	Morris; Behringer; Kane
April 16	Student final presentations; Case studies (con't)	Kane
April 23	FINAL EXAM	Kane

Statement of University's Honesty Policy (cheating and use of copyrighted materials):

All students are expected to abide by the University of Florida's honor code and code of conduct. Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior. Information pertaining to these codes can be viewed via the two website below, respectively:

<http://www.dso.ufl.edu/judicial/honorcode.php>

<http://www.dso.ufl.edu/studentguide/studentconductcode.php>

Policy related to class attendance, make-up exams and other work:

Students are expected to attend and be prepared to participate in all class sessions. Personal issues with respect to class attendance or fulfillment of course requirements will be handled on an individual basis.

Statement Related to Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (<http://oss.ufl.edu/>). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: <http://www.counsel.ufl.edu/> or <http://www.health.ufl.edu/shcc/smhs/index.htm#urgent>

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: www.health.ufl.edu/shcc

Crisis intervention is always available 24/7 from:
Alachua County Crisis Center: (352) 264-6789.

BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

Final Note

An updated course syllabus will be posted online by the end of the first week of class:

<http://aquaticpath.php.ufl.edu/waterbiology>