Water and Disease

Thursday 5:55pm – 7:10pm; Innovation Hall, Room 209

Dr. Brett Froelich; 206 Discovery Hall (Sci Tech Campus)

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Office hours: Virtual or phone, upon request, or after class.

**Required Text**: Oceans and Health: Pathogens in the Marine Environment, Belkin and Colwell, Springer

This text is available for free as a PDF from the GMU library webpage! There is no need to buy the book unless you want access to the material after you leave GMU. Additional reading assignments and materials will be available on blackboard or via the GMU library webpage.

**Course Description:** This course covers the human pathogens that can be found in aquatic environments, ranging from freshwater to estuarine to marine systems. The role the environment in the transmission of infectious diseases, the specific microbes that cause environmentally transmitted disease of public health importance, their prevention and control by technological and other measures and how the health risks posed these microbes are assessed will be explored. We will consider the microbes and their diseases transmitted by wastes, water, air, food and vectors, the ways that these disease agents enter, survive and spread through the environment to result in human exposures, how their risks are assessed and measured and how these risks are prevented and controlled through engineered/technical, policy and regulatory approaches.

**Course Goals:** At the end of this course, you will have received exposure to a variety of aquatic pathogens. You should understand their transmission and how anthropogenic effects can increase infection risk. You will also have gained experience in presentation skills to both a broad and a narrow audience.

**Assignments and grading:** The course will be graded on a standard 10 point scale (90-100 A, 80-89 B, etc). Points are earned (or lost) in the following categories.

**Attendance**: 15 points possible, You will lose one point per missed class

**Participation**: 25 points possible. You earn points for joining in class discussions, asking relevant questions during student presentations, etc (it’s hard to earn participation points if you are absent)

**Presentation 1**: 10-minute presentation, 20 points available

**Presentation 2:** 20-minute presentation on same topic as presentation 1. 40 points possible

100 total points possible

**Course Policies:** Regarding electronic devices (such as laptops, cell phones, etc.), please be respectful of your peers and your instructor and do not engage in activities that are unrelated to class. Such disruptions show a lack of professionalism and may cause the policy to shift to the banning of electronic devices. Devices must always remain silent. Filming, photographs, or recording of any portion of the class must be approved in advance.

Mason is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously, and violations are treated gravely.

Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit http://ds.gmu.edu/ for detailed information about the Disability Services registration process. Disability Services is in Student Union Building I (SUB I), Suite 2500. Email:ods@gmu.edu | Phone: (703) 993-2474. Disability accommodations are happily provided in this class but must come directly from Disability Services.

George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.

An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices can be voiced, heard and respected.

As a faculty member and designated “Responsible Employee,” I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per university policy 1412. If you wish to speak with someone confidentially, please contact the Student Support and Advocacy Center (703-380-1434) or Counseling and Psychological Services (703-993-2380). You may also seek assistance from Mason’s Title IX Coordinator (703-993-8730; [titleix@gmu.edu](mailto:titleix@gmu.edu)).

**Students must use their MasonLive email account to receive important University information, including communications related to this class. I will not respond to messages sent from, or send messages to, a non-Mason email address.**

**Course Schedule**

**Jan 67** Introduction

**Feb 2** Pathogen types / Lifestyles

**Feb 9** Anthropogenic effects on water pathogens

**Feb 16** Lecture Chosen By Class (**Topic selection due for presentation**)

**Feb 23** Student Presentation 1

**Mar 2** Student Presentation 1

**Mar 9** Student Presentation 1

**Mar 16** Spring Break

**Mar 23** Student Presentation 1 (if needed) and Lecture

**Mar 30** Lecture

**Apr 6** Lecture

**Apr 13** Student Presentation 2

**Apr 20** Student Presentation 2

**Apr 27** Student Presentation 2

**May 4** Student Presentation 2

Every attempt has been made to ensure the accuracy of the above schedule and grading matrix. However, it is possible that in the case of unusual circumstances the grading matrix or schedule will have be changed. If this is the case, students will be notified as soon as possible after the decision to make a change.

As written, we will not meet on final exam day. However, if enough classes are missed (e.g. due to weather) then we will meet on final exam day to make up the time.