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## SYLLABUS PLANETARY HEALTH

EVPP 490 / BIOL 417

Spring Semester 2023

3 Credit Hours

Lecture: Online

Mondays 7:20–10:00 p.m. (EST)

**Instructor:** Brett R. Bayles, Ph.D., M.P.H.

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**Course Website:** <https://sites.google.com/dominican.edu/planetary-health-spring2023/home>

**Course Zoom:**

<https://dominican-edu.zoom.us/j/91341030986?pwd=SDZFRmNNRkV0TG51Ny9TRTJrOmJSUT09>

### **Prerequisite/Co-Requisites**

At least one ecology, conservation biology, epidemiology, disease ecology or one health course. Or permission of instructor.

### **Course Description**

Very rapid human population growth combined with even more rapid growth in per capita consumption are driving an extraordinary transformation of most of Earth's natural systems including its climate system, its oceans, land cover, biogeochemical cycles, biodiversity, and coastal and fresh water systems. These are the biophysical systems that underpin global food production, our exposure to infectious disease and natural hazards, even the habitability of the places where we live, and global environmental change is a major driver of disease burden over the coming decades. The course covers interdisciplinary scientific issues and seeks solutions to many of the planetary problems we face today including biodiversity changes, ecosystem modifications, climate change, agriculture development, intensive farming, transcontinental air transport, international trade, emerging and resurgent diseases. Planetary Health (PH) will provide students with a big picture perspective, research, policy and practice issues and the implications and opportunities related to planetary health for public and population health globally. A key theme throughout will be consideration of health and social equity issues and the differential impacts of climate and other environmental changes on species and ecosystems in light of these issues.

### **Course Objectives and Student Learning Outcomes**

Students will be able to use a Planetary Health (PH) lens to understand the connectedness between environmental change and human health outcomes. Also, they will be able to examine ecological determinants of human health and to predict the likely health consequences of environmental change. By the end of the course, students will understand how humanity manages Earth's natural systems and is a primary determinant of future global health.

**Upon completion of the course, students will be able to:**

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- 1) Broadly understand the concept of PH, its distinguishing characteristics relative to the ecological determinants of health, Conservation Medicine, EcoHealth, and One Health.
- 2) Articulate the nature of the Anthropocene and discuss current trends in knowledge and thinking about the impacts on humans, biodiversity and ecosystem services.
- 3) Identify key human health effects and indicators across the lifespan related to PH and global environmental change.
- 4) Identify key sources of data on surveillance systems and understand key methodological challenges and limitations in studying PH.
- 5) Expand thinking about implications for research, policy and practice, conservation of biodiversity, ecological health, global health and agricultural policy; and
- 6) Formulate research and policy perspectives with the PH lens.

### **Basic Course Technology Requirements**

Depending on the COVID-19 epidemiological situation; activities and assignments in this course may use the Blackboard learning system, available at <https://mymason.gmu.edu>. Students are required to have regular, reliable access to a computer with an updated operating system (recommended: Windows 10 or Mac OSX 10.13 or higher) and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc., with a consistent 1.5 Mbps [megabits per second] download speed or higher. Some activities and assignments in this course may use web-conferencing software (Blackboard Collaborate / Zoom).

**Learning Modules** - This course is organized into Course Content Modules. Included in these modules are: 1) lecture topics, 2) required readings, 3) descriptions of any activity or assignment that you need to complete, 4) themes throughout the module, and 5) learning objectives students are expected to master within each module. All course materials are available on a dedicated course website and Blackboard.

### **Course Expectations**

Each session will combine lectures, class exercises, occasional guest speakers and student discussion. As with any cross-listed course (undergrad/grad) offering, this will not be an easy course. The successful student must read assignments, study supporting materials, and prepare assignments outside of class. Self-directed study skills are important. Students need to organize material logically and communicate well orally and in writing. Sharing of materials may be limited by what those materials contain and where they are shared. Sharing of instructor-created materials, particularly materials relevant to assignments or exams, to public online “study” sites is considered a violation of Mason’s Honor Code. Some kinds of participation in online study sites violate the Mason Honor code: these include accessing exam or quiz questions for this class; accessing exam, quiz, or assignment answers for this class; uploading of any of the instructor’s materials or exams; and uploading any of your own answers or finished work. Always consult your syllabus and your professor before using these sites.

**No required textbook** - all readings will be posted the the course website.

### **Honor Code**

The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and

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rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using the appropriate format for this class. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me. Projects in this class are designed to be completed within your study group. With collaborative work, names of all the participants should appear on the work. Collaborative projects may be divided up so that individual group members complete portions of the whole, provided that group members take sufficient steps to ensure that the pieces conceptually fit together in the end product. Other projects are designed to be undertaken independently. In the latter case, you may discuss your ideas with others and conference with peers on drafts of the work; however, it is not appropriate to give your paper to someone else to revise. You are responsible for making certain that there is no question that the work you hand in is your own. If only your name appears on an assignment, your professor has the right to expect that you have done the work yourself, fully and independently. Mason is an Honor Code university; please see the Office for Academic Integrity <https://oai.gmu.edu/> 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. What does academic integrity mean in this course? Essentially, when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

### **Disability Accommodations**

If you are a student with a disability and you need academic accommodations, please notify the instructor and contact the Office of Disability Services (ODS) <https://ds.gmu.edu/>. All academic accommodations must be arranged through the ODS. 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 located in Student Union Building I (SUB I), Suite 2500. Email: [ods@gmu.edu](mailto:ods@gmu.edu) | Phone: (703) 993-2474

### **Diversity and Inclusion**

We seek to create a learning environment that fosters respect for people across identities. We welcome and value individuals and their differences, including gender expression and identity, race, economic status, sex, sexuality, ethnicity, national origin, first language, religion, age and ability. We encourage all

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members of the learning environment to engage with the material personally, but to also be open to exploring and learning from experiences different than their own.

#### Sexual Harassment, Sexual Misconduct, and Interpersonal Violence

George Mason University is committed to providing a learning, living and working environment that is free from discrimination and a campus that is free of sexual misconduct and other acts of interpersonal violence in order to promote community well-being and student success. We encourage students who believe that they have been sexually harassed, assaulted or subjected to sexual misconduct to seek assistance and support. University Policy 1202: Sexual Harassment and Misconduct speaks to the specifics of Mason's process, the resources, and the options available to students. 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).

#### Assignments and Grading

**Hot Topics:** A series of case studies, assignments, and in-class activities will be assigned throughout the semester to complement the content of the modules. Additional details about each lab will be discussed in class and posted.

**Participation:** Students are expected to actively participate in course discussions, maintain consistent attendance, complete lecture reflections, and attend lab sessions.

**Exam:** The final exam will be cumulative and will focus on material covered in class.

**Final Project:** For graduate students ONLY. This assignment is optional for undergraduate students to improve their grades.

#### Grading Criteria

The total grade received for this course will be based on the following assignments and assessments:

<b>Activity</b>	<b>Undergraduates %Contribution to Total Grade</b>
Participation/Discussion	20
Hot Topics (4; 15% each)	60
Final Exam	20
Final project	-
<b>TOTAL</b>	<b>100%</b>

The final grade for undergraduate students will be based on this scale: A = 100–93%, A- = 92-90%, B+ = 89-86%, B=85-83, B- = 82-80%, C = 79–70%, D = 69–60%, F < 59%.

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## COURSE SCHEDULE\*

Academic Calendar - Spring 2023

Date	Content	Due Dates
Jan. 30	Module 1. Introduction to Planetary Health	
Feb. 6	Module 2. Global Environmental Change I <b>Hot Topic 1</b>	
Feb. 13	Module 2. Global Environmental Change II	
Feb. 20	Module 3. Ecology of Infectious Diseases and Pandemics	<b>Hot Topic 1</b>
Feb. 27	Module 3. Ecology of Infectious Diseases and Pandemics	
March 6	Module 4. Ecology of Non-Communicable Diseases <b>Hot Topic 2</b>	
March 13	<i>No Class - Spring Break</i>	
March 20	Module 4. Ecology of Non-Communicable Diseases	
March 27	Module 5. Environmental Disasters	<b>Hot Topic 2</b>
April 3	Module 6. Pollution <b>Hot Topic 3</b>	
April 10	Module 7. Food Systems and Nutrition	
April 17	Module 8. Urbanization, Buildings, and the Microbiome	<b>Hot Topic 3</b>
April 24	Module 8. Urbanization, Buildings, and the Microbiome	
May 1	Course recap <b>Hot Topic 4</b>	
May 8	<i>No course meeting - optional one-on-ones available.</i> Final Exam / Final Project	<b>Hot Topic 4</b>
May 15		Final Exam Final Project (grad)

\*Note: Syllabus is subject to change.