

**VME057V Syllabus:**  
**Global Population, Health, and Environment**  
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**A. Course Overview**

This 4 unit lower division undergraduate course brings to life themes related to planetary and population health in an online format. Students will delve into issues related to current events, global population dynamics, and major causes of mortality. They will explore transformational solutions that promote the health of populations and the planet. Cross-cutting themes of climate change, livelihoods, and gender roles are woven throughout the course. For example, adverse effects of climate change impact many spheres such as agriculture and food security, water resources, human and animal health, biodiversity, human settlements, and migration patterns. Women, as important stewards of natural resources and household livelihoods, play a crucial role in planetary health solutions using both bottom-up and top-down approaches. The course is designed to help students learn, solve, create, develop, and apply adaptation strategies to real world contexts, and will foster critical and transdisciplinary thinking.

The course is divided into three main parts, where the first section will introduce an understanding of and develop an appreciation for the complexity of components of population: fertility, migration, and mortality. The second course section uses a One Health approach to explore the three major causes of mortality: infectious diseases, food insecurity, and environmental exposures. Bringing these ideas together, the third section of the course delves into mitigation strategies to reduce climate change and population pressures, and considers adaptation strategies to help populations shift towards long-term resilience in light of current events. Students will explore scientific literature, get experience with oral presentations, and work independently as well as in groups.

Faculty from across the UC system and representing diverse areas of expertise will share their ideas and interact with students throughout the course. The weekly course structure is based on four contact hours per week: two asynchronous and two synchronous hours. For the asynchronous hours each week, faculty will post two 1 hour lecture sessions that students view, with the first asynchronous lecture followed by a synchronous facilitated discussion hour, and then the second synchronous hour is later in the week and used for interactive class exercises. By structuring discussions and making participation a key part of the class, we build a peer community and provide a class chatroom for longitudinal discussion threads. Given the variety of learning activities, we aim to provide ample opportunities for students to engage with real-world scenarios as they work towards achieving the United Nations Sustainable Development Goals that embrace long-term solutions to coupled population and environment challenges.

**B. Learning Objectives**

By the end of this course, students should be able to:

- Convincingly describe how the three components of population and health change (fertility, migration, and mortality) interact with each other.

- Provide key examples of the significance of each population/health change to society.
- Define and interpret population projections, age and gender composition, and fertility, mortality, and migration rates.
- Critically evaluate and predict interactions among environmental processes and population/health dynamics across time and space.
- Argue examples in which population and health processes can affect and be affected by political, economic, and environmental processes.
- Propose methodological and policy solutions to academic and empirical problems.
- Discuss One Health and the dynamics of infectious and non-infectious disease emergence at key animal-human-environment interfaces that may vary by regions and cultures.
- Compile a problem list for a given global health concern and design a variety of approaches that may work towards a Sustainable Development Goal-oriented solution.
- Identify the roles of stakeholders and experts in defining problems and developing strategies for solutions to infectious disease-, nutrition/food-, and environmental exposure-related diseases.
- Discuss how women's health, gender roles, and empowerment can be transformational in creating change in societies.
- Explain how policies of national and local governments can help or hinder prediction of, response to, and prevention of population health-environment problems at local and global scales.

### **C. Learning Activities**

In each week of class, students will engage in asynchronous (2 hr) and synchronous real-time (2 hr) learning. Asynchronous learning will involve instructors providing the materials, lectures, pop-up quizzes, TED talks, videos, scientific articles, discussion boards, and assignments that are accessible at any time within the weekly timeframe. Students will need to come to the synchronous class hours prepared to discuss content from the asynchronous learning activities. Instructors will present key concepts on the selected class topics and will facilitate discussions in class and via discussion boards. Instructors and TAs will provide comments to student discussion posts to encourage them to become critical thinkers, and will provide feedback to students throughout the course.

For synchronous learning activities, students and instructors will interact in real-time and will be involved in i) lecturing or instructor-directed activities, ii) collaborative discussions, iii) presentations, iv) case-based strategies, or v) simulations and role-play in the online classroom. The synchronous interactive class exercises are designed for students to apply technical knowledge to solve problems related to global population, health, and

environment. These interactive exercises will be heavily student-centered and will help students to synthesize ideas across the weekly modules and cross-cutting themes.

#### **D. Course Grading**

Students will be assessed through i) participation, as indicated by attendance and completing at least two weekly online postings related to class topics, ii) assignments, including a weekly quiz and several essays spread throughout the quarter, iii) an individual final project written assignment relating to an approved group topic, and iv) a group video project (3-5 minutes) related to the approved group topic that tackles a global population, health, and environment issue.

Grades will be calculated as follows:

Class Participation (e.g. Attendance, Online Postings): 20%

Class Assignments (e.g. Quizzes, Essays): 40%

Final Individual Written Project: 20%

Final Group Video Project: 20%

#### **E. Course Schedule:**

- a. Synchronous classes: Tues. & Thurs., 11:00-11:50am, Zoom classroom
- b. Asynchronous classes: Recommended on Mondays and Wednesdays

#### ***Part I: Global Population overview: How do populations change?***

Week 1 (April 2-6): Course introduction (W. Smith lead instructor)

Week 2 (April 9-13): Fertility - Global population and health (D. Lopez-Carr lead)

Week 3 (April 16-20): Migration - Global population and migration (D. Lopez-Carr lead)

Week 4 (April 23-27): Mortality (D. Lopez-Carr lead)

#### ***Part II: Global population health – what are ‘the big 3’ for mortality?***

Week 5 (April 30-May 4): Infectious diseases (W. Smith lead)

Week 6 (May 7-11): Food security (W. Smith lead)

Week 7 (May 14-18): Environmental exposures (W. Smith lead)

#### ***Part III: Solutions for planetary health – what is transformational?***

Week 8 (May 21-25): Women’s health and empowerment (N. Prata lead)

Week 9 (May 29-June 1): Global climate change - Policy and regulations (F. Castillo lead)

Week 10 (June 4-7): Final presentations/Final examination (W. Smith lead)

Finals Week (June 11-14) – No class or final exam – enjoy your summer!