

## Center for Engaged Learning Abroad

### Global Health: Biology, Medicine, and Public Health in the Tropics

Course Number: BIO2933  
Course offered at Sacred Heart College by CELA  
Instructor: Marvin Manzanero, MD  
Credit: 3 hours

#### **COURSE DESCRIPTION:**

This course explores the intersections of health, medicine, economics and social development in the Tropics, with Belize as the focus. Emphasis is placed on the scientific, intercultural, and social aspects of global health, tropical medicine, public health, and ethno-biology. Students will also examine policy issues, conditions and determinants of public health and health policy in international health, and acquire an introduction to tropical diseases and review the strategies used to respond to these diseases in resource-limited settings. Finally, students will learn to approach health in its wider social, economic and political context and acquire a basic understanding of the intimate, interdependent relationship between health and development processes. Lectures, readings from primary literature, field-based learning and group discussions are also integral components of the program and provide the conceptual framework for discussion, analysis, and interpreting field observations and findings.

#### **COURSE OBJECTIVES:**

By the end of this course, the student will be able to demonstrate a basic understanding of the concepts and principles of global health in general and Belize in particular. Upon successful completion of the course, the student will be able to:

- Describe the major issues and challenges in health and disease in Belize and globally.
- Be familiar with the concepts and terminology of international health and disease.
- Be able to approach health within a broad social, economic and political context.
- Attain a basic understanding of the interdependent relationship between health and development processes
- Identify mortality and morbidity in the Tropics
- Demonstrate knowledge of health concerns in Belize by ethnic and economic status
- Demonstrate basic suture skills and have a basic understanding of tissue handling, suture patterns, and suture

#### **COURSE READINGS**

The course readings will be made available to students in electronic format. Students with a strong interest in global health are encouraged to purchase one of the books listed below.

##### **Texts:**

- All readings will be made available to students in electronic format on the CELA E-Campus.

**REQUIRED EQUIPMENT:** Each student must have scrubs, a stethoscope, a thermometer, a flexible measuring tape, a supply of disposable latex gloves and closed shoes.

### STUDENT ASSESSMENT

Students can take this course for credit (contact CELA for credit options) or they can take it for personal development. For those wishing to receive academic credit for the course or for those wishing to receive a grade and credit for the course, the following assignments will make up the elements of the final grade. For those wishing to take the course for personal development, you will be expected to participate actively in all discussions, labs and field work and will be asked to complete all field work sheets and to prepare a presentation for the class, but will not be asked to write the final exam and no grade will be recorded for you.

The evaluation for the course is based on the following:

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|---|-----|
| Participation in discussions, labs and field work | 25% |
| Presentation                                      | 25% |
| Field trip work sheets & course journal           | 25% |
| Final Examination                                 | 25% |

#### Participation

Students are expected to attend all classes and all field trips, labs or other course related events. Any assigned readings should be done in advance of the class to which they apply. Students are expected to actively participate in discussions, making reference to assigned readings and materials. In the field students will be assessed on their attentiveness, ability to demonstrate skills, attention to safety and awareness of cultural practices. This course emphasizes teamwork and students' willingness to engage in group work will be reflected in their participation grade.

#### Presentation

Each student will do a short (20 minutes, including time for questions) presentation (preferably using power point) on a topics related to the course. Depending on numbers of students, teams may be used instead of individual reports. Topics and recommended references will be provided. Where appropriate, students will discuss how the topic relates to Belize. All topics are to be approved in advance by the course instructor(s).

#### Journal

Students will keep a daily journal for the duration of the course. Details regarding how to keep the journal, topics to be covered, etc. will be given to students at the beginning of the course.

#### Final Exam

The final exam will cover all the material in the course. It will be multiple choice, short answer and/or essay questions.

### SUMMARY

The course consists of 75 hours of contact time over a two week period. Generally, the course meets Monday to Friday from 9 am to 5 pm, with an hour break for lunch. Those times are adjusted to ensure maximum field experiences. See the daily schedule for details.

The course time is divided as follows:

- Lecture/discussion= 15 hrs
- Laboratory time= 8 hrs
- Field work = 52 hrs
- Total= 75 hrs

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### Global Health: Biology, Medicine and Public Health in the Tropics - COURSE SCHEDULE (subject to change)

| DAY | TOPIC  | READINGS  |
|-----|--|---|
| 1   | Introduction to the Course<br>What is the “tropics”? What is Global? What is Health?<br>An overview of geography, history, culture and economics and the relationship with health  | <ol style="list-style-type: none"> <li>1. PAHO, Health Systems Profile, Belize (2009)</li> <li>2. C. Etienne, “Social Determinants of Health, a commentary”</li> </ol>  |
| 2   | Health care in developing countries<br>General Overview of health in Belize<br>Maternal/child health<br>The economics of health care in a developing country<br>Activity: Tour of local hospital<br>LAB: Clinical Skills I   | <ol style="list-style-type: none"> <li>1. Anne Mills, “Health Care Systems in Low &amp; Middle income countries” (2014)</li> <li>2. Bhutta &amp; Black, “Global Maternal, Newborn &amp; Child Health-So Near &amp; Yet so Far” (2014)</li> </ol>  |
| 3   | Social Determinants of Health<br>The Epidemiology of Health in Belize<br>Overview of health in Belize’s indigenous communities<br>Traditional/cultural attitudes and approaches to health and disease (how do custom and culture affect disease and health?)<br>Activity: Visit to medical garden with traditional healing plants and talk with a local healer | <ol style="list-style-type: none"> <li>1. J.K.Cheng, “Confronting the Social Determinants of Health – Obesity, Neglect &amp; Inequity”, (2014)</li> <li>2. Arvigo &amp; Balik, “Traditional Healing in Central America”, (1998)</li> </ol>  |
| 4   | Vectorborne and Zoonotic Disease (Malaria, Chagas, Dengue, Chikungunya, Ebola etc.)<br>Discussion of some of the major traditional “tropical” diseases<br>Emerging Infectious Diseases<br>Surveillance of infectious diseases in Belize.<br>Lab: Slides of tropical diseases<br>Activity: Visit to Vector Control Unit of San Ignacio Hospital                 | <ol style="list-style-type: none"> <li>1. Schwartz et al, “A review of malaria vaccine clinical projects based on the WHO rainbow table” (2011)</li> <li>2. Briand et al, “The International Ebola Emergency”, (2014)</li> <li>3. Charrel et al, “Chikungunya Outbreaks – Globalization of Vectorborne diseases”, (2007)</li> </ol> |
| 5   | Waterborne and Foodborne Illness<br>Burden of FBD in Belize<br>Including food safety, mosquito control, water sampling, clean water projects, etc.   | <ol style="list-style-type: none"> <li>1. <a href="http://www.azdhs.gov/phs/oids/epi/disease/waterborne/list.htm">www.azdhs.gov/phs/oids/epi/disease/waterborne/list.htm</a>, “Waterborne Diseases”</li> <li>2. Burden of Illness Belize Study results</li> </ol>   |

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|    | <p>Guest speaker: Belize Agricultural Health Authority (BAHA)<br/>                 Activity: visit to BAHA lab<br/>                 End day with a debrief/review of week 1</p>   | <p>3. Barry et al, “The Politics of Clean Water and Sanitation”, (2008)<br/>                 4. SDH &amp; UHC – (extra reading)</p>  |
| 6  | <p>Communicable Diseases (HIV, TB, cholera, influenza, Ebola, etc.)<br/>                 Presentation of select communicable diseases particularly relevant to Belize<br/>                 Discussion of global health interventions by examining case studies: Are they successful? Why or why not?<br/>                 Speaker on HIV/AIDS<br/>                 Activity: Visit to community health centre<br/>                 LAB: Clinical Skills II</p>  | <p>1. “Revolutionize HIV Prevention”<br/>                 2. Briand et al, “The International Ebola Emergency” (2014)</p>  |
| 7  | <p>Control of Disease<br/>                 Topics covered include: outbreak investigation, disease prevention, vaccines and their implementation, health and sex education in schools</p>   | <p>Case study exercise</p>   |
| 8  | <p>Public Health Policy<br/>                 What is public health? What is a “one-health” approach?<br/> <i>To Belize City for this day</i><br/>                 Examine issues such as nutrition, mental health, etc. by meeting with National organizations which handle policy for some of these areas (National AIDS Foundation, National Drug Council, etc.)<br/>                 International Health – Visit to international health care organizations (PAHO and UNICEF) to learn about their work in health</p> | <p>1. Ezzati &amp; Riboli, “Behavioral &amp; Dietary Risk Factors for Noncommunicable Diseases” (2014)<br/>                 2. Atlas et al, “One Health – Attaining Optimal Health for People, Animal &amp; the Environment”, (2010)</p> |
| 9  | <p>Health and disease in the “south”: Why does it matter globally?<br/>                 Is there still such a thing as “tropical medicine”?<br/>                 Global Burden of Disease- Leading causes of death in the world (Heart disease, stroke, respiratory infections, diarrhea, HIV/AIDS, Diabetes, Road traffic incidents)<br/>                 Climate Change and implications for health: Speaker from Caribbean Community Climate Change Centre</p>   | <p>1. J. McMichael, “Globalization, Climate Change and Human Health”, (2014)<br/>                 2. Emily Shukman, “Global Climate Change and Infectious Diseases” (2010)</p>   |
| 10 | <p>Presentations<br/>                 Final Exam<br/>                 Debrief/review of overall course.<br/>                 Course evaluation</p>  |  |

**CELA POLICIES and RECOMMENDATIONS:**

1. CELA is committed to the sustainable development of Belize. You can play a part in that by ensuring that you leave only your footprints behind in Belize. Please do not leave any garbage behind at any classroom or field site. Where you have a choice, CELA encourages students to drink soft drinks from glass bottles (they can be recycled) and not from plastic (they are burned). Belikin and Stout beer bottles are recycled but Lighthouse bottles are not. Please use cloth bags instead of taking plastic bags from stores. Where possible, avoid buying food in Styrofoam containers.
2. CELA values the diversity of its student body, staff and faculty. As such, we are committed to gender-neutral and bias-free language. Everyone is expected to support this policy in written materials and spoken contributions to class sessions.
3. CELA is committed to intellectual and academic honesty. In any assignment, please ensure that you give credit to the original author(s) to avoid any issues of plagiarism.
4. Everyone is expected to participate in the course. Classroom discussions and field experiences benefit from your questions and thoughts.

Note: Any aspect of the syllabus is subject to change up to the start of classes.