

## **Pest Issues in Developing Countries: Biology, Culture, and Infrastructure Summer 2012**

### **Course Description:**

In this course, students will travel outside the United States to engage with local researchers, university students and faculty, policy makers, NGOs, and citizens on topics associated with the genetic engineering of pests. The course aims to provide students with an experiential introduction to the topic's various complexities. At the same time, the course establishes intellectual and social foundations for students' participation in the Genetic Engineering and Society program throughout their doctoral studies. Students will engage in team-building activities that probe the nature of inter-disciplinary collaboration. Students will also engage in reading and discussion on ethical decision-making to begin to create their own ethical framework in respect to the genetic engineering of pests.

### **Course Outcomes:**

Students will

- 1) be able to describe the challenges of communicating the concepts of genetic engineering to people in areas that are being considered for GPM programs.
- 2) be familiar with socio-cultural distinctions in Latin America (such as rural/urban; capital/provincial differences).
- 3) recognize power relations among scholars, governments, social movements, and local communities.
- 4) be able to describe the international complexity of dengue problems and the operation of dengue suppression programs.
- 5) develop and critically examine ethical arguments for and/or against continuing these programs.
- 6) be able to describe the diverse perspectives of Peruvians on the recently established GM crop moratorium.
- 7) understand the biological and epidemiological factors associated with mosquito population dynamics and dengue prevalence.
- 8) be conversant with population genetics concepts and transgenic techniques for suppression of dengue.

### **Required Reading:**

1. Excerpt from *The Elements of Moral Philosophy* by James Rachels and Stuart Rachels (see PDF)
2. *The Ethics Toolkit: A Compendium of Ethical Concepts and Methods* by Baggin and Fosl (18. On Amazon)
3. 20<sup>th</sup> century history of Peru (see PDF)
4. Excerpt from *Writing Ethnographic Fieldnotes* by Robert Emerson, Rachel Fretz, and Linda Shaw.
5. Excerpt from *Imperial Eyes: Travel Writing and Transculturation* by Mary Louise Pratt (see PDF and Introductory notes in MSWord format)
6. Tversky, Amos and Daniel Kahneman. 1981. "The Framing of Decisions and the Psychology of Choice" *Science* 211(4481): 453-458.
7. Slovic, Paul. 1987. "Perception of Risk" *Science* 236(4799): 280-285.
- 8) "Cartoon Guide to Genetics" Larry Gonick and Mark Wheels

## **Grades:**

Grades will be based on the following assignments.

**Final essay exam (30%):** At the beginning of the course, students will be given a set of essay questions to consider throughout their time in Peru. These questions can be explored during class discussion, in students' field notes (see below), and during informal moments over the course of our travels. On the final day of class, students will write an essay exam that answers these questions.

**Field notes (20%):** Field notes are a form of data collection that comprise a first step in qualitative research. During our week in Raleigh, we will review how to take field notes and practice the craft. During our time in Peru, students will be expected to write up field notes that detail events, activities, personal interactions, a student's impressions, etc. Students should plan on writing approximately 30 pages or 8,000 words of field notes during homework hours. We will periodically ask you to submit your field notes for review (see dates on Course Schedule). Grades for field notes will take into account the detailed quality of a student's observations as well improvement over time.

**Participation (50%):** Class participation has two parts. The first entails participation in discussions and in the execution of experiments. As with any class, activities that can boost a student's Class Participation include: carrying out assignments and arriving prepared to partake in class discussion, offering thoughtful and considered comments in class discussion and debate, staying on topic, listening to fellow students and following-up on their comments with questions and added considerations. Activities that can hinder a student's Class Participation grade include: creating or participating in distractions from class discussion, going off topic, refusing to put any views on the table, failing to listen to fellow students, or speaking to such an extent that others students get little air time.

The second portion of the class participation grade entails some aspects particular to traveling abroad. We will need all students to arrive on time at designated meeting places. Keep an eye on the clock and do not wander off without alerting someone to where you are going and when you will return. At all times, students should demonstrate respect for our Peruvian hosts. Please see the "Travel Guide" handout for information on Peruvian customs and other points that will be factored into the participation grade. Finally, all travel entails the inevitable surprises. Although we have put an extensive amount of careful planning into our time in Peru, we will all have to show adaptability in the face of unexpected changes and good cheer when our plans fail us.

## **Additional Course Policies:**

**Incompletes:** Incompletes will only be given if the student meets the university requirements outlined in the following document: <http://policies.ncsu.edu/regulation/reg-02-50-3>

**Academic Integrity:** Assignments in this class are intended to assess individual knowledge and understanding of the subject material addressed in this class. Cheating or plagiarism will not be tolerated. All individuals involved in an act of academic dishonesty will be reported to the Office of Student Conduct. If you have any questions about what constitutes academic integrity and the potential penalties incurred therein, please consult: <http://policies.ncsu.edu/policy/pol-11-35-1>

**Open Learning Environment:** The intention and structure of university level courses are to provide open, thoughtful forums for a wide variety of topics. While discussing these topics, students shall not discriminate on

the basis of “race, color, religion, creed, sex, national origin, age, disability or veteran status” as outlined in the University’s Equal Opportunity and Non-Discrimination policy, available at: <http://policies.ncsu.edu/policy/pol-04-25-5>. If you have a concern in this regard, please contact the Equal Opportunity Office at 515-3148, or contact the instructor.

**Physical or Learning Disabilities:** Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653, and present the instructor with a letter indicating what types of accommodations will be required. Please consult: [http://www.ncsu.edu/provost/offices/affirm\\_action/dss](http://www.ncsu.edu/provost/offices/affirm_action/dss) . For more information on NC State’s policy on working with students with disabilities, please consult: [http://www.ncsu.edu/policies/academic\\_affairs/courses\\_undergrad/REG02.20.1.php](http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php)

## **COURSE SCHEDULE**

### **Week One: Raleigh**

July 9: Crossing Disciplinary Boundaries/ Establishing Ethical Boundaries

Introductions

Reading: Excerpt from *The Ethics Toolkit: A Compendium of Ethical Concepts and Methods* by Baggini and Fosl

*The Elements of Moral Philosophy* by James Rachels and Stuart Rachels (entire text)

July 10: Crossing Historical Boundaries

Reading: History of Peru

July 11: Documenting Boundary Crossing, Part 1

Reading: Excerpt from *Writing Ethnographic Field Notes*

July 12: Documenting Boundary Crossing, Part 2

Reading: Excerpt from *Imperial Eyes: Travel Writing and Transculturation*

July 13: The Logistics of Boundary Crossing

Discussion: Setting Expectations of our Time, Overview of Itinerary, following up on lingering business from previous days.

July 14: Travel to Peru

### **Week Two: Lima**

July 16                      One-day conference at San Marcos

July 17                      One day student conference at Católica

- July 18 TBD Cultural day; evening pizza at hotel
- July 19-20 TBD
- July 21 FREE DAY IN LIMA
- N.B. reading assignment due Monday July 23 articles by Slovic (1987) and Tversky and Kahneman (1981)

### **Weeks Three and Four: Iquitos**

- July 22 Travel to Iquitos / Tour of city in Motocar /Map/ Dinner on la plaza
- July 23 AM introduce Peruvian students to U.S. group; review Crossing Disciplinary Boundary discussion; review field notes assignment; carry out risk observation as example of field notes assignment
- PM overview of mosquito biology and dengue; training in mosquito identification and development;
- July 24 AM (Group 1) start replicate #1 of mosquito experiment; (Group 2) house visit w/ Amy's people;
- PM lecture on mosquito ecology
- July 25 AM (Group 2) start replicate #2 of mosquito experiment (Group 1) house visit w/ Amy's people;
- PM lecture on dengue epidemiology; hand in field notes; Crossing Disciplinary Boundaries Debriefing
- July 26 AM (Group 1) Mosquito count (Group 2) Phlebotomy observation
- PM Peer review/discussion on writing and using field notes; visit to push/pull cabins
- July 27 AM (Group 2) Mosquito count (Group 1) Phlebotomy observation;
- PM lecture on phlebotomy-based research; Crossing Disciplinary Boundaries Debriefing
- July 28 AM Mosquito count (for volunteers)/Free Day-----Peruvian Holiday
- July 29 AM Mosquito count (for volunteers)/Move into homestay -----Peruvian Holiday
- July 30 AM (Group 1) Mosquito count/ (Group 2) Virology lab;
- PM Population Genetics activity (gummy bears); Crossing Disciplinary Boundaries Debriefing
- July 31 AM (Group 2) Mosquito count (Group 1) virology lab;
- PM Virology lecture
- Aug 1 AM (Group 1) Mosquito count (Group 2) pest control;

PM Population Genetics activity (excel models); hand in field notes;  
Crossing Disciplinary Boundaries Debriefing

Aug 2 AM (Group 1) Mosquito count (Group 1) pest control;  
PM Epidemiology activity

Aug 3 AM Examination  
PM Certificate ceremony/closing festivities

Aug 4 Return to Lima and U.S.