**BIOLOGY AND GEOMORPHOLOGY OF TROPICAL ISLANDS**  
Environmental Science, Policy and Management C107 • Integrative Biology 158LF

**Professors:** Jonathon Stillman & Brent Mishler IB (lead organizer, 2012); Vince Resh & George Roderick, ESPM  
**GSIs:** Matthew Luskin (ESPM), Rosemary Romero (IB), Darcy Kato Ernst (IB)

Class website: [http://ib.berkeley.edu/moorea](http://ib.berkeley.edu/moorea) (semester course materials on bSpace)

**Schedule for course**

Class meetings in 3059 VLSB except where noted; each meeting is important, so we expect full attendance.

**Aug 23 (Th):**  
9:00 **Introduction to the class** (all professors & GSIs). Questions and answers from students and for students. General features of Tahiti/Moorea, the Society Islands, the Pacific Ocean, Tahiti, and Moorea. Introduction to Gump Station. Course and travel details. What to bring to Moorea. Document check: passports, letters of invitation, tutorials, tickets, (visa, if needed), etc. Cooking groups.

13:00 **Projects: an introduction.** Discussion of possible projects; good science doesn’t have to be expensive. Questions, approaches, habitats, animal use issues, etc.

**Aug 24 (F):**  
9:00 **Geology meets biology on tropical oceanic islands** (Guest: Carole Hickman, IB)  
(1) Geology and biology of islands (2) plate tectonics and place of Moorea in a spatial and temporal matrix (3) geobiology of tropical coral reefs

13:00 **Study period.** Time to catch up on reading list and trip preparations.

**Aug 27 (M):**  
9:00 **Island Biology, with emphasis on plants** (Brent Mishler)

10:30 **Phylogenetics** (Brent Mishler)

13:00 **Note taking workshop** (Matthew Luskin, Rosemary Romero, Darcy Ernst)

**Aug 28 (Tu):**  
9:00 **Adaptive radiation and terrestrial arthropod diversity** (Guest: Rosemary Gillespie, ESPM)

13:15 **Natural history research collections I. Meet at T-rex in VLSB. Tours of Museum of Vertebrate Zoology and Essig Museum of Entomology**

**Aug 29 (W):**  
9:00 **Invasive species** (Roderick)

13:15 **Natural history research collections II. Meet at t-rex in VLSB. Tour of UC Herbaria and UC Museum of Paleontology**

**Aug 30 (Th):**  
9:00 **Freshwater ecology on Moorea** (Resh)

10:30 **Human impacts on island ecosystems** (Resh);

13:00 **Field exercise on stream ecology** (Resh)

**Aug 31 (F):**  
9:00 **Peopling of the Pacific** (Guest: Jillian Swift, IB)  
Oceanic Archeology Laboratory resources and tour (Swift)

14:00 **French Polynesia today** (Resh)

**Sept 3 (M):** **Labor Day—no class**
Sept 4 (Tu)  9:00  Oceanography (Jonathon Stillman)
10:30 Biology and ecology of marine invertebrates (Jonathon Stillman)
13:00-17:00 GIS/GPS Workshop, 124 Mulford Hall (Guest: Kevin Koy, ESPM)

Sept 5 (W)  9:00-11:00  Polynesian ethnobotany (Guest: Tom Carlson MD, IB)
14:00-16:00 Introduction to library and information resources (Guest: Norma Kobzina, UCB BioSciences Library). BioSci Lib. Computer room, left side as you enter the library, 2nd floor VLSB
17:30-21:00 REQUIRED SNORKELING AND WATER SAFETY CLASS, PLUS SWIMMING TEST (Guest: Jim Hayward, UCB Scientific Diving Officer)  Hearst Gym then Haas pool. Must bring swimming suit and snorkeling gear.

Sept 6 (Th)  9:00 Dangerous marine animals; Methods for characterizing and studying behavior; Opportunities for behavioral study on Moorea (Guest Roy Caldwell, IB)
13:00 Critique of papers from past classes (GSIs)
Each student should choose 2 papers from past class books, one marine and one terrestrial/fresh water, and come prepared to critique them for five minutes.

Sept 7 (F)  9:00 Introduction to scientific thinking and communication in science (Mishler)
* Read Ambrose, Chaps 1, 2, and 11.
10:30 Introduction to statistical thinking (Mishler)
* Read Ambrose, Chaps 3 - 7.
13:00 Field exercise on plant sampling; stats in lab (Mishler and GSIs)

Sept 10 (M)  9:00 Review and final project thoughts by former class GSIs (guest organizer Bier Kraichak)
13:00  Free afternoon to pack, shop, organize, study

Sept 11 (Tu)  9:00-11:00 Mid-term exam (open book)
13:00-15:00 Class gear organization & packing (Matthew Luskin, Rosemary Romero, Darcy Ernst)

Sept 12-13 (W-Th):  Free days to pack and get ready

Sept. 14-16:  Transit days.  Arrive at Gump Station on Moorea Sun, 16 Sept. and no earlier (morning if possible; no later than 5pm).

Sept. 16 (Su):  Evening, first function at Gump Research Station on Moorea.  Timing of the following events on Moorea is tentative.

Sept. 17 (M):  Bright and early, begin class activities.  Moorea Island Tour.

Sept. 18 (Tu):  3 Pines Hike. Marae sites and local flora (Guest, Jean-Yves Meyer, Ministry of Research)

Sept. 19 (W):  Reef transect exercise at Temae

Sept. 20 (Th):  Freshwater stream exercise at Afareaitu
Sept. 21 (F): Motu Tour and watching for marine mammals (Guest, Frank Murphy, Gump)
Statistics homework due, 5 pm; either hardcopy, email, or bSpace dropbox

Sept. 22 (Sa): Belvedere and 3 Coconuts Hike

Sept. 24-28 (M-F): Week to investigate project ideas; literature work; preliminary surveys.

Sept. 29 (Sa): Project proposal draft due by 5:00pm in bSpace dropbox. These proposals will be read by all the instructors, plus some faculty in Berkeley. Approx. 2 pages, including these sections:
- Title
- Statement of questions and hypotheses
- Outline of proposed project (include methods and feasibility)
- Related class studies from previous years
- Other relevant literature
- Materials and equipment needed (and approximate budget)
- Transport needs
- Safety concerns

Sept. 30 (Su) Tahitian feast

Oct. 1: *** Remainder of class fees due, $4,300, due through CARS ***

Oct. 1 (M): Project reviews with professors and GSIs; 20-minute individual meetings with each student to finalize project plans.

Oct. 2 on: Work on projects! [Field trips to Tetiaroa (atoll structure, bird islands, snorkeling, and the ghost of Marlon Brando) and Tahiti (Point Venus, Musee des Iles, Gauguin Museum, Botanical Garden, at least two waterfalls, and Lake Vahira outflow) will be scheduled at some point.]

Oct. 6 (Sa): Revised, final project prospectus due
Research description for FP government permit due

Oct. 13 (Sa): Temae Exercise write-up due 12 midnight—details provided in class meeting

Oct. 20 (Sa): Project Introduction section draft due, 5 pm.

Oct. 27 (Sa): Project Methods section draft due, 5 pm.

Nov. 3 (Sa): Project Results section draft, due 5 pm.

Nov. 10 (Sa): Outline (only) of Discussion (with at least main point or topic sentence for each paragraph), due 5 pm.

Nov. 16 (F): Clean-up party for lab and dorms. Class dinner.

Nov. 17 (Sa): Class finishes in Moorea; get ready to depart Gump Station (you can leave today if you wish). Preliminary draft of complete paper due (draft sections will have been submitted and commented on earlier).

Nov 18-25: Week for independent travel and study -- you must leave Gump Station by Nov. 18, but many students like to stay in French Polynesia and tour other islands. A good time to have parents or significant others visit (which we strongly discourage during the class time). Otherwise, come back to California for Thanksgiving and get a head start on your project completion!
Nov. 26:  **Monday**, get organized in Berkeley and on campus -- make appointments to meet with faculty about your project.

Nov. 27:  **Tuesday**, required class meeting in Berkeley 3059 VLSB at 9 AM.

Nov. 28 on:  Intensive work finishing up project: consult with faculty on campus, statistics, use labs and/or libraries, etc. as needed. Prepare presentation and improve your paper draft; format paper. Workshops will be given in these and other areas.

Dec. 5:  **Wednesday**. Class mini-symposium--project presentations in 15-minute slots all day. 2063 VLSB; friend and parents welcome.

Dec. 11:  **Tuesday 5:00 pm**. Final papers due, must be properly formatted for inclusion in the "class reports" book to be deposited in the UCB Library, Gump Station, sponsoring departments, offices of officials in French Polynesia, and posted on the web. We are under a tight schedule to read these, so there will be a penalty for late papers.

Dec. 14:  Semester ends; grades available.

**Course Texts**

3. *Elements of Style* (Strunk and White)

**Previous class books:**

You need to read these over before going to Moorea. All are on permanent reserve at the front desk of the bio library, under "Moorea", call number: QH198.M6B56. Many papers (but not all) since 2006 are online at: [http://escholarship.org/uc/bnhm_ubc_moorea](http://escholarship.org/uc/bnhm_ubc_moorea)

**Grading**

Exam on lecture material (20%),
Field exercises/field notes (10%)
Project (60%): proposals/drafts on time & high quality (5%), symposium presentation (10%), final paper (45%)
Participation (active buddy, good class citizen, station rules, positive force) (10%)

**Professors’ tentative times on Moorea:**

Brent Mishler: Sept 15 - 20; Sept 30 - Oct 13
George Roderick: Sept 19 - Oct 10
Vince Resh: Oct. 28 - Nov. 18

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Atitia Center