

Syllabus

Centers for Ocean Sciences Education Excellence-West Workshop: “Evolution in the Marine Environment”

November 1, 2010 – November 19, 2010

1 Professional Development Credit

Course Title: COSEE-West “Evolution in the Marine Environment” Online Workshop

Course Description:

Educator participants interact online with a university scientist and his graduate students as the professor presents evolutionary concepts from the perspective of the marine and aquatic environment. Participants will also be able to interact with fellow educators in online discussion rooms regarding classroom and educational outreach application of content and will be able to choose from discussion rooms geared toward three different grade bands (elementary, middle, and high school).

Overview:

The Centers for Ocean Sciences Education Excellence-West (COSEE-West) will host this virtual teacher workshop on “**Evolution in the Marine Environment.**” Dr. Pat Krug of California State University, Los Angeles, will present lectures and content material that include an introduction to evolution with focus on the marine perspective; ecological speciation in the sea as illustrated by an overview of evolution and fisheries management; and his research on California Abalone reproduction which will provide a specific example of evolutionary ecology. Graduate research students in Dr. Krug’s lab use a combination of molecular methods, experiments on adult and larval organisms, and fieldwork in local estuaries and the tropics to test hypotheses; in addition to Dr. Krug, they will also be available for questions and guidance online. Participants will have the unique opportunity to interact online with faculty and research graduate student scientists as well as educators from around the world.

Instructors:

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Contact information:

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Course Outline/Syllabus:

- 11/1/2010 *Keynote Topic*: “Evolutionary Biology: A story of thinkers, adventurers, and the history of life on Earth.” Dr. Pat Krug (California State University, Los Angeles) will provide an overview and introduction to basic evolutionary principles including a marine perspective
- 11/6/2010 *Keynote Topic*: “Evolution and fisheries management: Gone fishing or fishing gone?” Dr. Pat Krug’s talk will explore the influence on artificial selection from fisheries practices and the potential impacts on the world’s fisheries.
- 11/15/2010 *Keynote topic*: “Sperm behavior: a key to the past and future of Californian abalone.” Dr. Krug has done extensive research on abalone reproduction and will share his findings on another aspect of evolution in action in the marine environment.
- Dr. Krug and his graduate student researchers will be online during weekdays throughout the workshop to interact with participants in daily discussion and question /answer sessions.

COURSE REQUIREMENTS:

1. Read/View and participate in all online sessions. Join and read each of the three keynote presentations as well as participate in discussion sections. Attendance and time spent online will be verified using the monitoring feature of our Caucus software.

- **Participants must post a minimum of one discussion question for each keynote presentation during the 5 days immediately following the presentation.**
- View and listen to all Keynote presentations, ask questions, explore weblinks: 9 hours

2. Participate in breakout sessions in the discussion rooms with other educator participants regarding classroom application of content, ask questions, respond, explore additional weblinks: 6 hours

3. Answer the “question of the week” in the graduate credit room. The question will be related to the Keynote topic.

4. Develop 1 inquiry-based lesson plan for use in the classroom based on the topics presented in the lectures. This lesson plan will be posted online on the COSEE-West website (<http://www.usc.edu/org/cosee-west/>). The lesson plan will be due **Sunday November 28, 2010**.

5. Complete the pre- and post-workshop Evaluation. The surveys will be posted online and will include questions about the participants’ individual learning as well as the workshop format, structure, and content.

COURSE ASSESSMENT:

Instructors will ascertain that all requirements have been met as stated above.