GRADUATE FELLOWSHIP OPPORTUNITIES IN MARINE/ENVIRONMENTAL SCIENCE

Ocean and Coastal Interdisciplinary Science (OACIS) GK-12 Program
BRINGING MARINE/ENVIRONMENTAL SCIENCE INTO LOCAL HIGH SCHOOLS

The OACIS GK-12 program is an NSF funded program providing fellows with one full year of support ($30,000). Teachers also receive a stipend, and travel funds are available for all participants.

Project Summary: Research on ocean and coastal environments is, by its nature, highly interdisciplinary. Teachers can use this interdisciplinary approach to teach basic science (biology, chemistry, physics) and mathematics, while taking advantage of our coastal environments, and increasing ocean literacy. Marine science is often a small part of K-12 curricula, yet this is an excellent stage at which to promote awareness of the oceans and our relation to them. UW graduate students and their advisors involved in cutting-edge ocean research are well suited to bring new research findings directly to schools; they can help communicate what science is about, how it is done, and how discoveries are made. Enthusiastic GK-12 Fellows will be directly involved in bringing their own marine science research into local classrooms.

As future educators, science graduate students need to develop strong teaching skills and need to learn how to communicate their research to the public. OACIS GK-12 Fellows work with teachers in local school systems, improving their own teaching and communications skills while contributing subject knowledge which will enrich instruction in those school systems. Fellows help students learn what science is about, how it is done, and how discoveries are made. Interdisciplinary aspects of marine science can be applied to instruction in biology, chemistry, physics, marine biology, and environmental science, for example. High school science classes offer exceptional opportunities to integrate ocean and coastal science into the curriculum and also to encourage students to consider science careers and college science programs. Graduate fellows can be excellent role models at this stage, especially because they have broad scientific backgrounds and apply basic sciences and mathematics throughout their research. They are also very familiar with scientific instrumentation and computer analysis of data and can assist teachers in those sometimes difficult areas.

The school systems selected are in Seattle (King County) and in the San Juan Islands (San Juan County), inner city to rural, with a substantial diversity of students. FHL already runs a local K-12 outreach program, and the Department of Biology and The College of the Environment conduct outreach activities in many Seattle schools. Some schools already have classes in marine biology, environmental science or marine science to which graduate students can contribute effectively. Furthermore, a new requirement for “culminating projects” has been added for the Seattle schools, and a marine science project (with mentoring by a program fellow) might be a popular choice. Other schools do not yet include marine science in their curriculum, and we plan to offer new ocean and coastal inquiry-based learning activities that can be integrated into existing science courses.
Fellows’ Preparation, Activities and Timeline.
Initial preparation of fellows will begin in June of the year they are to begin their duties. Only fellows able to commit to all of the following events will be considered for selection:

Optional Course: Spring quarter 2012, Seattle UW Campus
Graduate students enrolled in the “Communicating Ocean Sciences” course offered spring quarter through Oceanography will be given priority when applications for the OACIS program are evaluated. This 4 credit graduate level course focuses on research based best practices in communicating science to K-12 audiences and the general public. The course includes a practicum where students present science once a week in either a K-5 classroom or at the Seattle Aquarium. For further course information contact instructors Tansy Clay (tansy@uw.edu) and Raechel Waters (rlwaters@uw.edu).

This workshop will provide teachers and graduate student fellows a common learning experience to set the stage for collaboration during the following school year. Fellows and teachers from the previous year will give presentations and serve as mentors during the workshop. The workshop will also introduce ocean and coastal themes that can be used as interdisciplinary models in the classroom.

Workshop: August 13-17, 2012 (TENTATIVE DATES) at UW’s Friday Harbor Laboratories (FHL).
This workshop will focus on marine science content and on planning for the upcoming school year. Teachers and graduate students will begin their work together, with OACIS GK12 coordinators, and marine science professors will be available for consultation. Teachers and graduate students will also spend time examining marine habitats and organisms, taking part in research cruises, and attending seminars on current research in the field of marine science. All travel and meals paid by the program. (* Participants will be expected to arrive at FHL the evening of Monday August 13th)

Early Fall Course for GK-12 Fellows. Sept 12-14, and 20-21. Fellows will also be in their classrooms for 5 hours each of these two weeks.
Fellows will be required to sign up for a 2 credit intensive one week (all day) course offered by the School of Oceanography in September. The GK-12 course will emphasize high school level teaching. It will introduce fellows to inquiry-based teaching methods and to current science education theory, research and practice. As part of this course, fellows will develop and test a hands-on activity that they will later present in their high school classroom. This is a graded graduate level course.

Culminating workshop. June 24th-25th, 2013 in Seattle (exact dates may change)
This will be a follow-up session to share experiences and outcomes.
Academic School Year 2012-2013

Classroom Activities.
Fellows will work directly with teachers, in classrooms, at least ten hours per week through the school year. Their duties can include teaching particular components of the curriculum, helping set up demonstrations and student laboratory activities, and acting as a content resource for the teacher and for the students. Their presence may allow the teacher to break up the class into smaller groups, each interacting with one of the instructors. Opportunities will be created for fellows to observe other teacher-fellow classes, especially ones including more experienced fellows, as examples of how to carry out their roles. Fellows are also required to put in at least five hours per week in preparation for their class activities, including adapting research or university class or lab projects for use in the schools. Fellows will be encouraged to consult UW faculty as well as staff from the Centers of Ocean Science and Education Excellence Ocean Learning Communities (COSEE-OLC) to find and/or develop appropriate activities and teaching materials incorporating examples from ongoing research projects. These activities will be overseen by the program coordinators when they involve groups of fellows and teachers taking part in special events or activities. Coordinators will also communicate regularly with teachers to make sure fellows are engaged appropriately and are performing their duties as expected. Coordinators will also visit the schools, and observe fellows in the classes.

Weekly Meetings between Fellows and Teachers.
Teachers will meet with fellows for at least an hour each week to plan activities and to review progress during the previous week. This meeting will be in addition to the classroom hours regularly scheduled for the fellows. These meetings will insure that fellows are involved in planning for upcoming activities, and that they do not become just helpers to the teachers or substitutes for them. Meetings will normally occur at the host school.

Twice Monthly Seminars.
All fellows will meet with the Coordinators and invited teachers and university faculty twice per month to discuss progress and challenges in carrying out their duties. Special seminars will be presented by teachers, professors and experts in education at some of these meetings. Separate meetings will be held at the two sites for ease of travel, but video-conferencing and coordination of topics will encourage sharing between sites.

Quarterly Meetings with Teachers and OACIS GK12 Coordinators.
Fellows, teachers, coordinators, PIs and the program manager will meet 4 times per academic year. These meetings provide opportunities for brainstorming and troubleshooting as a large group, and provide a means for tracking progress.

Support and Selection of Fellows:
Fellows will be selected based on: enthusiasm for interacting with high school teachers and students; ability to understand and teach concepts using inquiry-based techniques that align with the school district’s curriculum; maturity in dealing with classroom teachers;
flexibility in working in a different culture; and appropriateness and timeliness of the year-long commitment to the graduate student’s own career. Only graduate students in STEM disciplines are eligible (science, technology, engineering, mathematics). Applicants may be asked to attend and participate in a high school science class as part of the application process. Preference will be given to applicants interested in working in the San Juan Islands.

Application (DUE Friday Feb 15th 2012)
Interested graduate students should submit the following materials via e-mail to Dr. Kenneth P. Sebens (Grant PI, Director of Friday Harbor Laboratories), sebens@u.washington.edu. Please copy Tansy Clay (OACIS Program Manager) tansy@u.washington.edu on this e-mail.
*Please send all materials as pdf files and include your last name in all filenames*

1) A two-page letter of interest, including an explanation of how this experience will enhance your career. Please specify if you are able to work in Seattle and/or the San Juan Islands.
2) A letter of recommendation from your graduate advisor, including a statement that a) he/she understands and agrees to the note below, and that b) he/she agrees to come and observe you in the classroom for at least 2 class periods before April 2013.
3) A complete CV or resume
4) Transcripts (unofficial via e-mail followed by mailed official transcripts okay).

*Note: Due to University and K-12 calendars there is not a direct correspondence between fellow pay schedules and fellow responsibilities. Fellows are paid Summer through Spring quarter (2012-2013). Fellows are expected to work in the classroom through the end of the K-12 academic year in late June 2012 and participate in the late June final workshop.*