Instructionally Related Activities Funds Request Spring 2018

▾ Submitter

Submitter Name

Mary Woo

Submitter Email

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▾ 1. Basic Details

Activity Title

Pollutant Characterization - Field and Analytic Methods

Activity/Event Date

Spring 2018

Date Funding Needed By

Spring 2018 – by Feb 1, 2018

Previously Funded?

- ⦿ No
- ◯ Yes

Additional Proposers

Academic Program(s)/Center Name(s)

ESRM

Estimated total Course Fee revenue

There are no course fees associated with ESRM410, the class
to which this proposal is attached. The ESRM410 class in

Amount Requested from IRA

$2,300

Estimated Number of Students Participating

20 directly

2. Brief Activity Description

Describe the activity and its relationships to the educational objectives of the students' program or major

Brief Activity Description

This activity will:
1) facilitate students through the process of environmental site assessment, including sample planning and collection, quality control, chain of custody, chemical analysis, data interpretation, impact analysis and communication of results
2) document the process in a podcast format for use in future courses

Site assessment is common across various environmentally-focused careers with resulting data central to management decisions. Students will gain hands-on experience in site assessment and practice communicating appropriate processes in video podcasts that will form the foundation of a new pollution class and a "how to" database on pollutant characterization at CI (housed on ESRM.zone for any future students/courses).

Students in my Spring 2018 ESRM410 class will determine appropriate pollutants to evaluate at a local site, take water and sediment samples using EPA designated methods and submit those samples to Weck or Fruit Growers Laboratories (professional environmental laboratories) using appropriate chain of custody procedures. The results will be returned to the students allowing students to evaluate the data via quality assessment/quality control parameters, compare pollutant amounts to toxicological references to determine the possible impacts of those pollutants.

During the semester, students will make other pollutant measurements and toxicology assays both in the field and in-house, but the experience of sending samples to a professional laboratory and interpreting the results will likely be a common practice in their future careers and is therefore an important experience for students.

As students walk through both the in-house and professional laboratory pollutant characterizations, they will document each step with video podcasts that will be freely available to CI students and others through the ESRM Program's website (esrm.zone). For students in my ESRM410 class, these videos will challenge them to strongly assimilate and digest material so that they can then articulate the assessment process to a beginners audience. For our new ESRM300 Coastal Contaminants and Ecotoxicology class, the videos can serve as flipped classroom material and the foundation for a future laboratory manual (undergraduate texts and manuals in this specialty are slim). For ESRM and other CI capstone or research students, these videos will serve as a valuable "how to" resource on pollutant characterization. Pollutant characterization strongly connects with many project types: bioassays, water quality, stream assessment, health sciences, oil spills, soil quality, beach health and more. These videos can guide students through pollutant characterizations and serve as a starting point for students prior to delving into more complex primary literature.

All together this project will provide students in my ESRM410 class with important hands on experience in environmental site assessment, specifically sending samples to a professional laboratory and interpreting the results, and challenge them to effectively communicate those methodologies. It will further provide foundational material for our new ESRM300 class and a "how to" database on pollutant characterization for a broad range of CI undergraduate researchers.

3. Learning Outcomes and Relation of IRA to Course Offerings

All IRAs must be integrally related to the formal instructional offerings of the University and must be associated with scheduled credit courses.

1. Please list all classes that directly relate to the proposed activity.
2. For each class listed, describe in detail how exactly the IRA activity will be integrated with the class's activities, how often/ on what expected date(s), and to what extent

Learning Outcomes and Relation of IRA to Course Offerings

ESRM410 and CI Capstone/Research projects that decide to incorporate chemical or toxicological analyses.

The student-learning outcomes for ESRM410 in Spring 2018 will be:
[1] Describe the major pollutants classes including their anthropogenic and natural sources, transport through ecosystems and eventual fate.
[2] Identify pollutants' exposure pathways and mechanisms of toxicity, as well as coping mechanisms organisms develop in response to pollutants.
[3] Explain and apply the steps involved in the assessment a polluted field site: sampling strategy, collecting and preserving samples, sample chain of custody, sample preparation for analysis, detection of analytes and data quality control/assurance.
[4] Examine chemical data and toxicity parameters to identify potential ecosystem and human impacts of different pollutants concentrations.
[5] Summarize the options for source reduction and remediation of major pollutants.
[6] Blend existing scientific knowledge and new field generated data to effectively communicate the hazards and mitigation of pollutants to the public.
[7] Professionally communicate quantitative information and methodologies.

This activity will address outcomes 1-4, 6 & 7: it will allow students to apply their new knowledge of major pollutants and modes of toxicity to the assessment of a local site, going from sampling to impact analysis. At the same, students will practice synthesizing assimilated knowledge and new field-generated data to effectively communicate material via video podcasts and a final assessment report.

ESRM Capstone and other CI research students will have access to the "how to" videos posted to esrm.zone to guide them through pollutant characterization at any stage of their research projects.

▾ 4. Activity Assessment

Describe the assessment process and measures that the program will use to determine if it has attained its educational goals. **Please note that a report will be due at the end of the semester.**

Description of Assessment Process

Students will carry out the above activity working in groups of three, focusing on one class of pollutant and documenting the process via video podcasts. In the end, they will submit: [1] a formal site assessment report that includes the site sampling plan and data, the Weck/Fruit Growers Laboratory results with quality checks, appropriate statistics and their toxicological/impact assessment of the site and [2] podcasts documenting the process and a "how to" guide on measuring their class of pollutant either in-house or via a professional laboratory.

▾ 5. Activity Budget

Please enclose a complete detailed budget of the entire activity. Indicate specific items that you are requesting IRA to fund.

You should use either the Regular Activity budget (for events on campus) or -- if your event involves any travel-- you MUST use the IRA Travel Budget Form.

You can download both of the IRA Excel Budget sheets at http://www.csuci.edu/ira/application.htm.

Activity Budget

IRA-regular-budget_Coastal Contaminant_Class_S18.xlsx

▾ 6. International Trips

If your event is an international trip submitted through the Center for International Affairs, you must include copies of:

1. Complete Center for International Affairs/ UNIV 392 proposal
2. The program budget as submitted to the Center for International Affairs (to ensure congruency between the two budgets)
3. as well as a copy of the course syllabus

Center for International Affairs Budget

Copy of Center for International Affairs Proposal

Course Syllabus

Certification

☐ I certify that students attending this trip are not previous or repeat attendees of a prior International UNIV 392 Trip

7. Sources of Activity Support

Please list the other sources of funding (including course fees), and exact expected amounts of additional support for the activity. Please indicate if there are no other sources of funding

Other Sources of Funding

The ESRM Program will supply equipment for sampling in the field, lab space and several pieces of equipment for field characterization of pollutants. Some video equipment already exists in the ESRM or will be checked out from the library, a few other (waterproof) elements will be purchased. Otherwise, there are no other sources of funding available for this activity.

The ESRM410 class in Spring 2108 will be run as a pilot for a new ESRM course: ESRM300 Coastal Contamination and Ecotoxicology. This new course will come with a lab fee to cover the cost of sending samples to a professional laboratory and other equipment, but no lab fee exists for ESRM410.

8. Promoting Participation

What is your intended audience and how do you intend to market this to your students?

Students enrolled in my ESRM410 class will participate in this activity as a class project. The "how to" podcasts on pollutant characterization will be available to other CI Capstone/Research students through the ESRM Program's website (esrm.zone).

If this is an event that is off campus, how do you plan to bring back the benefit of this event to campus?

9. Sustainability

If appropriate, indicate how the content or delivery of the project promotes sustainability at CI.

Sustainability

No direct tie to sustainability save for improved training for students to understand environmental impacts, the first step in improving sustainability.

10. Approval and Acknowledgement

Program Chair/Director

Anderson, Sean S

Dean

Adler, Mary

Conditions and Considerations

☐ **Artist/Performer/Speaker Fees & Honoraria**: On the Activity Budget, please indicate whether the vendor's price was set by you/CI Representative, or is a fee that was set by the vendor.

☐ **Large Event**: For a large event, consultation with the campus Event Coordinator's office at (805)437-8548 is required.

☐ **Field Trip**: Sponsor must comply with all policies found at: http://www.csuci.edu/rm/programs/academic-field-trip-guidelines-and-forms.htm. If approved, Identified Risks of Participation and Release Agreement must be submitted for each student to the Program Office (Public Folders-HR Forms).

☐ **Involves Human Subject Data Collection for Public Dissemination -Requires IRB Approval** : If Project Sponsor proposes to conduct research with human participants, the proposal may be subject to Institutional Review Board for the Protection of Human Subjects (IRB) review. All research that involves any type of interaction with human subjects - from simple surveys to complex biomedical procedures - must be reviewed and approved by the IRB prior to starting the research. Data for "Public Dissemination" indicates interviews/surveys that result in a journal/poster session/newsletter, etc.

☐ **IT Requirements**: If your activity has IT requirements, coordination with and approval from IT Administration is required.

☐ **International Travel**: Requires International Travel application be submitted to Center for International Affairs. Include copy of CIA budget and course syllabus in your IRA application. Must utilize the University's Foreign Travel Insurance Program (FTIP) and follow all International Travel Guidelines listed at: http://www.csuci.edu/rm/insurance/foreign-travel.htm

☐ **Risk Management Consultation**: Events that involve or engage students directly with a performer or artist (i.e. in a workshop or other than as a passive audience member) will require consultation with Risk Management. Requires proof of correspondence with Risk Management.

☐ **Space/Facilities Services Requirements**: Consultation and coordination with Facilities Services is required.

Acknowledgement

☑ I acknowledge that I have reviewed and accepted the Conditions and Considerations herein. Please check off boxes as appropriate.

▾ Chair Review

Recommendation

● I recommend approval of the IRA Funds Request described on this page

○ I DO NOT recommend approval of the IRA Funds Request described on this page

Comments

This is a one time ask, but the benefits of the training videos will help student in several future classes

✎ Sean Anderson   Oct 12 2017

▾ Dean Review

Recommendation

- ● I recommend approval of the IRA Funds Request described on this page
- ○ I DO NOT recommend approval of the IRA Funds Request described on this page

Comments

Concur with the chair that the innovative use of student-generated training videos will extend the professional learning opportunities from this activity.

Marion Adler   Oct 16 2017