

**PROJECT NAME: Occurrence, Distribution, & Persistence of Campus Stormwater Pollutants**

**CALL CHAMPION: Megan Moscol**

**LEAD FACULTY PARTNER: Dr. Sudarshan Kurwadkar**

## Learning Outcomes

- **Describe proposed course in one sentence; including campus sustainability element**
- This course will establish a baseline and monitor the physiochemical composition of campus stormwater
- **What specific skills will students learn? What knowledge will they gain?**
- Students will learn analytical instrumentation skills, data analysis, planning & writing, and effective dissemination of information
- **What Sustainability Outcomes does your team want the students to achieve?**
- Students will support campus water sustainability and optimization of campus stormwater management in support of Proposition 1 goals

## Connecting to CALL

- **How does this proposed course align with CALL program objectives?**
- Students will practice real-world stormwater testing and management techniques to support improvement of campus stormwater management. This is a high impact practice implemented in an environmental engineering course that supports campus sustainability goals of reducing runoff and flooding in addition to contributing to Proposition 1 grant objectives.
- **Which activities can CALL program support?**
- Purchase of water quality measurement equipment for stormwater testing.
- **What is the team's vision for the next year as part of the CALL redesign program?**
- Complete GIS mapping of stormwater outfalls, establish sampling points to be monitored and collect baseline characterization information, characterize stormwater flow and measure water quality parameters upstream and downstream of Fullerton Creek that receives campus stormwater.

## Overcoming Obstacles

- **Are there mismatches between desired learning outcomes and sustainability outcomes?**
- Objectives contribute to the enhanced learning experiences to undergraduate and graduate students of environmental engineering by providing them hands-on water quality parameter measurements. It also enables them to directly put into practice what they have learned through classroom instructions and as such they do fit specifically within the sustainability policy's stated objectives, and also support statewide objectives for stormwater management and quality. Also, campus requires continuous monitoring of stormwater and course is currently only held in the spring, and rain occurs primarily in December and January.
- **Do you need to modify existing outcomes?**
- Outcomes deemed acceptable by awarding committee.

## Tracking Success

- **How will you know if students achieved Sustainability Outcomes?**
- Students will demonstrate understanding through direct application of classroom instruction to study real world scenario and through dissemination of their work in conferences
- **How will you know if this redesigned course is an improvement over the current version? How will you measure?**
- Class-room survey will be administered specifically addressing the water quality issues, importance of prudent stormwater management practices and long-term implications of sustainable stormwater management practices especially in the drought prone areas.
- Facilities will have the physio-chemical characterization data for stormwater, which it did not have before.

## Taking Action

- **What tasks/activities will the students perform?**
  - (1) Characterize the stormwater
    - physical
    - chemical
    - micro-biological
  - (2) Tabulate, synthesize, and analyze stormwater data and draw water quality inferences.
- **What role will facilities/sustainability officer have in redesign process and course delivery?**
- Facilities will provide background information including flow, campus contours, and any other resources deemed appropriate, as well as direction on stormwater criteria and sampling locations.
- Facilities operations will assist students in locating sampling points both on-campus and off-campus (receiving streams—Fullerton Creek)
- Incorporate data into existing GIS maps of campus stormwater.

## Future Tasks

- Designing the assignments**
- **Structure of assignments (group/solo)**
  - **Sequencing of assignments**
  - **What kind of formative assessment/feedback along the way?**
  - **Background info needed to achieve goals of this course?**
- Defining Criteria for Success**
- **Characteristics of the finished product**
  - **How will you assess whether product demonstrates student learning?**
  - **How will you assess whether students have addressed Sustainability Outcomes?**
  - **How will you describe assignment to students?**
- Establish trends of stormwater pollutants and seasonal variations in contaminants of concern.**
- Develop strategies to control and manage on-campus stormwater pollutants.**
- Design and implement interdisciplinary best management practices.**
- Continue to monitor stormwater for changes post-**

## CALL OBJECTIVE

The 'Campus as a Living Lab' Grant Program is a unique opportunity to partner faculty and facilities management staff in using the campus as a forum for the exploration of sustainability concepts and theories.