

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

Environmental Health and Safety Management 115 – Runoff Sampling for Construction

1 hour lecture, 1 unit

Catalog Description

Runoff Sampling for Construction provides basic understanding of sampling protocol generally associated with runoff sample collection under the Construction General Permit (CGP), but also for runoff sample collection in general. Attendance will involve online and in-person events, including hands-on sampling practice. The course will benefit those assigned to sample stormwater runoff that may not have a strong stormwater background. The course may also be used as credit for ongoing education for those performing stormwater sampling or reviewing sampling results and protocols.

Prerequisite

None

Course Content

- 1) pH and turbidity.
- 2) Non-visible pollutants
- 3) History of construction runoff sampling
- 4) Field analytical instruments
- 5) Sampling for submittal to laboratory
- 6) Sampling kits
- 7) Sampling safety
- 8) Municipal Separate Storm Sewer System (MS4) Permit
- 9) Construction General Permit (CGP)
- 10) Sampling locations and Best Management Practices (BMPs)
- 11) Surface Water Ambient Monitoring Program (SWAMP)
- 12) Total Maximum Daily Loads (TMDLs)

Course Objectives

Students will be able to:

- 1) Perform field equipment operations.
- 2) Apply key protocols for effective and defensible sampling.
- 3) Identify techniques to avoid bad construction sampling results.
- 4) Practice completing sampling forms.
- 5) Practice completing a chain-of-custody forms.

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in a subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Quizzes that measure students' ability to identify, describe and apply California and Federal construction stormwater permits and Surface Water Ambient Monitoring Program (SWAMP).
- 2) Exercises that measure students' ability to perform stormwater runoff sampling and completing forms associated with construction permitting protocols.

Special Materials Required of Student

Field meters for practice will be provided

Minimum Instructional Facilities

- 1) Smart Classroom
- 2) Classroom space for hands-on applications

Method of Instruction

- 1) Online lecture and discussion
- 2) Hands-on application, on campus.

Out-of-Class Assignments

- 1) **Reading:** Lecture notes, WEF, AWWA, CASQA conference proceedings or articles, SWPPP (publicly available in SMARTS) Construction Site Monitoring Plan reviews for sampling protocols; Caltrans sampling guidelines, SWAMP sampling protocols (for Surface Waters), other State sampling program online videos.
- 2) **Writing:** Review sampling protocols, editing site plans or drawings for sampling methods, assessing tools required for sample collection, review of sampling plans and methods, write review of sampling videos from other States or programs, run through scenarios for sampling
- 3) **Other:** Witness on-site collection methods, assessing a construction site (from public view) for sample collection methods and difficulties.

Texts and References

- 1) Required (representative example): California State Water Resources Control Board. (n.d.). *NPDES 2022 Construction Stormwater General Permit*. Retrieved September 24, 2025, from https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction/general_perm_it_reissuance.html
- 2) Supplemental: California Department of Transportation. (2024, March). *Construction site best management practices (BMP) manual* (Report No. CTSW-RT-24-425.11.1). Division of Environmental Analysis, Stormwater Program. Brown and Caldwell. <https://dot.ca.gov/programs/environmental-analysis/stormwater-management-program>

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1) Review and analyze sampling programs and protocols for meeting construction stormwater criteria.
- 2) Assess and evaluate sampling results for BMP corrective actions.
- 3) Perform construction runoff sampling field duties safely.
- 4) Discuss the relationship between sampling, BMPs, and protecting waterbodies, including the sources and impacts from constituents sampled.