

# ANALYTICAL ENVIRONMENTAL CHEMISTRY LABORATORY

11:375:310 2 credits

**INSTRUCTOR:** Jeffra Schaefer, ENR 356, (848) 932-5779, [jschaefer@envsci.rutgers.edu](mailto:jschaefer@envsci.rutgers.edu)

## TEACHING ASSISTANTS:

Wednesdays and Thursdays: **Sarah Janssen**, [sjanssen30@gmail.com](mailto:sjanssen30@gmail.com)

Wednesdays and Fridays: **Isatis Cintron**, [isatis.cintron@rutgers.edu](mailto:isatis.cintron@rutgers.edu)

## COURSE TIMES:

Lecture (all sections): Tuesdays 9:15 – 10:35, Room 109 CDL

Section 1: Wednesdays 10:55 – 1:55, Room 205 ENRS

Section 2: Thursdays 10:55 – 1:55, Room 205 ENRS

Section 3: Fridays 9:15 – 12:15, Room 205 ENRS

**DESCRIPTION:** A chemistry laboratory course covering basic chemical lab techniques for the analysis of environmental samples and on written presentation of analytical results.

## REQUIRED MATERIALS:

1. Lab manual (Sakai)
2. A lab notebook (spiral-bound, lab notebook, or composition book; no loose pages)
3. Safety glasses/goggles

## LEARNING GOALS:

This class will contribute toward students' ability to:

1. apply knowledge from the sciences and mathematics to environmental problems and solutions
2. use the skills and modern environmental science techniques and tools necessary for a successful career in the field
3. design and conduct experiments, and analyze and interpret data;
4. function effectively on multidisciplinary teams
5. communicate technical information effectively (orally, in writing, and through electronic media)
6. professional ethical responsibilities
7. contemporary environmental science issues and the impact of environmental science in a global and societal context

**IMPORTANT NOTICES:**

Must attend *all* Tuesday lecture classes

There are NO make-up labs. Attend **ONLY** the lab you are assigned to, not other sections.

Bring your laptop to class. We will be using Excel 2013 in this class.

No cell phones or texting in class

Must wear shoes with closed toes and bring safety glasses.

**GRADING:** 3 short lab write-ups (35% total), 2 formal lab reports (40% total), weekly quizzes (7.5%), and problem sets/homework (7.5%).

**HOMEWORK:** Homework in the form of problem sets, short assignments, figures, etc... will be assigned throughout the semester. This is due at the **start** of the lecture or lab period. All homework must be submitted in hard copy (paper only); electronic versions will NOT be accepted without prior approval.

**QUIZZES:** Starting week 3, short quizzes will be given at the **start** of each lab class (and occasionally lecture) to determine whether you are prepared for the lab exercise by reading the lab manual ahead of time. Late-comers will not be accommodated; you must arrive on time. See schedule provided and that posted on the Sakai website to ensure you are prepared for the week's lesson.

**LAB REPORT WRITING ASSIGNMENTS:** There are two types of writing assignments: short lab write-ups and formal lab reports. Late reports will be docked 10% per day, including weekends. No electronic versions allowed without prior approval.

**Short lab write-ups** (due one-week **after** the completion of lab topic):

Lab 1: Water quality measurements (15%); Due Week 4.

Lab 3: Methane by Gas Chromatography (10%); Due Week 8.

Lab 4: PAH by HPLC (10%); Due Week 11.

**Formal lab reports** (usually due two weeks **after** the final lab):

Lab 2: Nutrient inputs and their affect on water quality. Completed draft due Week 8. Final version due Week 9 (25%)

Lab 5: Bioaccumulation of metals in the Hackensack River region. Completed draft due Week 13. Final version due Week 14 (last day of class). (25%)