

## **ANALYTICAL ENVIRONMENTAL CHEMISTRY LABORATORY**

11:375:310 section 01&02, Spring 2019

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

Section 1 Lab: Wednesdays 10:55 am – 1:55 pm, Room 205 ENRS

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

Recitation: Tues or Thurs 5:35 – 6:30 pm, Computer Room 323 ENRS

### **CONTACT INFORMATION:**

Instructor(s): Dr. Jeffra Schaefer

Office Location: Room 356, Environmental & Natural Resource Sciences Building

Phone: 848-932-5779; Email: jschaefer@envsci.rutgers.edu

Office Hours: by appointment

### **Teaching Assistants:**

Wednesday (Lab); Tuesday (Recitation): TBD

Thursday (Lab); Thursday (Recitation): TBD

### **COURSE MATERIALS:**

1. Lab manual (Sakai course website)
2. Lab notebook (spiral-bound or composition book; no loose pages)
3. Safety glasses or goggles
4. Access to Sakai course website ([www.sakai.rutgers.edu](http://www.sakai.rutgers.edu))

### **COURSE DESCRIPTION:**

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

### **LEARNING GOALS:**

#### **General Education Requirements:**

#### **Writing and Communication requirement WCD (writing in the disciplines).**

- t. Communicate effectively in modes appropriate to a discipline or area of inquiry; evaluate and critically assess sources and use the conventions of attribution and citation correctly; and analyze and synthesize information and ideas from multiple sources to generate new insights. [WCD]

#### **Information Technology and Research ITR.**

- y. Employ current technologies to access and evaluate information, to conduct research, and to communicate findings. [ITR]

### **Environmental Science Majors:**

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

**ASSIGNMENTS & ASSESSMENTS:**

	<u>% within area</u>	<u>% of total, final grade</u>
1. <i>Individual performance</i> .....		75%
Two short lab write-ups (Lab 1 & 4):	30%	
Two formal lab reports:	60%	
Problem Set assignments	10%	
2. <i>Team performance</i> .....		20%
Pre-lab quizzes (avg individual & team score):	50%	
Team Problem Sets & Activities	50%	
3. <i>Team contribution</i> .....		5%

**Lab report writing assignments:** There are two types of writing assignments: short lab write-ups and formal lab reports. Formal lab reports are to be written in the style of a journal article and will be subjected to in-class peer review. Late reports will be docked 10% per day, including weekends. No electronic versions allowed without prior approval.

**Short lab write-ups (% of individual performance grade):**

- Lab 1: Water Quality (15%); *Due Week 4.*
- Lab 3: Methane by Gas Chromatography (Team Activity Grade); *Due Week 7 in class.*
- Lab 4: PAH Analysis by High Performance Liquid Chromatography (15%); *Due Week 11.*

**Formal lab reports (% of individual performance grade):**

- Lab 2: Nutrient Inputs and Eutrophication. *Due Week 8 and revisions due Week 10 (30%)*
- Lab 5: Metals in the Raritan River. *Due Week 13. Revisions due last day of classes. (30%)*

**Recitation:** It is expected that each student will attend recitation each week. Attendance will be recorded. While I prefer that you attend the same recitation section week, you are welcome to attend any of the available sections. Important information will be covered in recitation each week. Activities completed in recitation will be uploaded to the Assignments Tool on Sakai at the end of the period. These assignments will be used to assign grades for those individuals on the cusp between two grades ( $\pm 1\%$ ). Regular attendance and successful completion of the assignments will raise those students to the higher grade. Poor attendance and poor scores on the assignments will drop you to the lower grade.

**Pre-Lab Quizzes:** Starting week 3, short quizzes will be given at the **start** of each lab class to determine whether you are prepared for the lab exercise by reading the lab manual ahead of time. After the individual assessment, teams will complete the quiz again as a group. The average score of your individual and team grade will serve as your Quiz grade (50% of your team performance grade). Late-comers will not be accommodated; you must arrive on time. See schedule provided and posted on the Sakai website to ensure you are prepared for the week's lesson.

**Problem Sets:** Short assignments, in the form of problem sets, figures, etc... will be assigned throughout the semester. Each student is expected to complete the assignment individually and be prepared to discuss the assignment in their assigned groups. All homework must be completed in a word processor and submitted in hard copy (paper only). Late problem sets will not be accepted.

**Boat Trip:** On Saturday May 4, each student will take a boat trip down the Raritan River on board the research vessel, the R/V Rutgers. Students will have the opportunity to collect field data, water and sediment samples at three different stations along the river. Students may choose either the morning or afternoon trip (2-3 hours in length). This is a **required** activity and will occur rain or shine. Missing this event will result in a **-5% penalty** of final grade, except in the event of a university or instructor-approved absence.

**LATE ASSIGNMENTS AND MAKE-UPS:**

Meeting deadlines and completing assignments on time are important parts of this class. Thus, late lab reports and write-ups without an acceptable excuse will be penalized 10% per day, including weekends. Students must make it to lab on-time – there will be no make-up quizzes or problem sets (these must be completed on time).

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES:**

Students with a disability: please see me immediately so that we may make any necessary arrangements to support a successful learning experience. For more information, please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

**ABSENCE POLICY:**

Students are expected to be on-time and attend all classes, including lecture (Tues) and the recitation (either Tues or Wed). There are *no* make-up labs. You must attend only the lab you are assigned to, not any other section.

**COURSE SCHEDULE:**

See schedule in handout and posted on Sakai. Be sure to check the Announcements and Calendar on Sakai regularly for any changes.

**FINAL EXAM:**

There is no final exam.

**ACADEMIC INTEGRITY:**

Cheating will be taken very seriously in this class. All suspected cases of cheating will be automatically referred to the Office of Judicial Affairs, and we will recommend penalties appropriate to the gravity of the infraction.

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

**STUDENT WELLNESS SERVICES:**

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.