CE 321: Introduction to Environmental Engineering and Science

LABORATORY SYLLABUS

FALL 2019

Lab Instructor:
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Lab: RISC 230
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Objectives

- Reinforce the environmental engineering and science topics covered in lecture through an assortment of hands-on laboratories and field trips.
- Demonstrate an understanding of the use of fundamental tools through laboratory activities, special projects, and discussions.

General

Students will typically work in groups of two or three. These groups will be assigned at the laboratory instructor's discretion and will rotate throughout the semester. There is no laboratory manual for this course. Materials outlining the exercises to be performed on a given day will be provided in advance on the Moodle CE321Lab site, and a copy will also be made available to the students during lab.

Required Materials

Students are required to come to lab with a calculator (use of your phone calculator is allowed), a writing utensil for recording group work, and a notebook for taking notes, especially during field trips. In addition, for laboratory safety, students must arrive to lab with appropriate clothing and footwear, which consists of long pants and closed toed shoes. Students will also be required to wear safety glasses during lab (see Laboratory Safety Section for more details).

Attendance

Each student is expected to take an *active role* in performing each week's lab. It is necessary that each student arrive for lab on time and remain engaged with their group. If a student arrives late, leaves early, or appears disengaged from the effort of the group, a reduction in the student's score on that exercise may occur. The amount of the reduction is at the discretion of the instructor and will depend upon the degree to which the student's absence or lack of engagement impacts the work of the group.

There are no make-up labs for this course. A score of zero will be assigned for each missed lab, including field trips. Students MUST arrive on time for field trips. The van will depart promptly at the schedule lab start time. If you miss the van for the field trip it will count as a zero.

In the case of *foreseeable absences* such as athletic events, music performances, or other class related trips, etc., it is the student's responsibility to let the instructor know as soon as possible. There may be a way to attend a different lab section or make up the lab for partial or full credit, depending on the circumstances.

Lab Reports and Grading

For most labs a single lab report form for the entire group will be completed and handed in at the end of lab. There will also be individual take home work required for some labs.

Most group laboratory reports are graded out of a total of 20 points and individual submissions 10 points. Grading rubrics for each lab will be provided. Reports will typically be due by the start of the next lab session.

Laboratory Safety

Disregard for the following safety measures can result in dismissal from the laboratory at any time:

- No eating or drinking in the lab
- Safety glasses must be worn at all times.
- Do not wear sandals or shorts to any lab session held in RISC 230. Long pants and closed toed shoes are required to work in the lab.
- Do not use equipment in the laboratory until you get the go-ahead from the instructor
- All lab work must be performed when the instructor is present, unless specific arrangements have been made in advance.
- Do not, under any circumstances, work alone in the lab
- Know the location of the exits, first aid kit, safety shower, and eye wash. If chemical is spilled on your skin, flush immediately with tap water
- Gloves must be worn when handling concentrated acids or bases (caustics).
- Always add acid or base slowly to water; do not add water to concentrated acid or base
- Never return chemicals to the stock bottles or insert a pipet or dropper directly into a stock bottle. First pour the chemical into a small beaker, then use the pipet.
- Broken glass should be reported to the instructor, and placed in the square metal glass container, not in the trash can.
- Inorganic wastewaters can be diluted and poured in the sink with the water running; for organic wastes, use the designated waste container in the exhaust hood.
- Bench areas must be tidy and chemicals returned to their proper cabinets after lab.
- All glassware must be rinsed and placed in the sink after lab.

Guidelines for Fieldtrips

- Do not go directly to the site; meet first at designated site on campus.
- Be on time or be left behind - some of the field trips will require the full three hours!
- Always bring a notebook or clipboard and take notes, you will need them for your write-up.
- Do not wear shorts or sandals on the field trips to the water treatment plant, the wastewater plant, or the landfill.
- The instructor will arrange for rental vehicles (typically vans) for the field trips – depending on class size additional College certified student drivers may be required.
- Do not venture into Bushkill Creek under high flow conditions! Use caution and be sure of your footing when in the stream.
- Avoid poison ivy (hairy vines, smooth, shiny dark green leaves-of-three), which causes a nasty rash.
- Ticks are common in tall grass, weeds and woods throughout the Easton area, and may carry Lyme disease. Check yourself thoroughly when we return from the field!
- In the event of heavy rain or snow, field trips may be rescheduled. In general, we go rain-or-shine.