

***This course will allow you to help communities that are in dire need of safe drinking water and sanitation in the world. It will also help you to aspire and discover new technologies to provide sustainable drinking water and wastewater treatment technologies.***

**LECTURE:** Monday Wednesday REXT 320 8:00-9:15 AM

**LABORATORY:** Monday and Wednesday REXT 118 9:30-12:15 PM

**INSTRUCTOR:** Kauser Jahan, Rowan Hall, CEE Office Rowan Hall First Floor  
Phone: 856-256-5323; E-mail: [jahan@rowan.edu](mailto:jahan@rowan.edu)

**PRE/COREQUISITE:** Chemistry I

**TEXT:** ***Title: Introduction to Environmental Engineering***  
***Authors: Mackenzie L. Davis and David A. Cornwell***  
***Publisher: McGraw Hill***  
***ISBN 978-0-07-340114-0 (Fifth Edition)***

**OFFICE HOURS:** 8:30-9:30 AM (M-W-F) or any time by appointment

**DESCRIPTION:** This course is designed as an introduction to environmental engineering. The course focuses on fundamentals of environmental engineering such as material and energy balances, applied chemistry and ecosystems. It also covers aspects of the water and wastewater environments including principles, applications, and design concepts pertinent to water and wastewater quality and pollution, drinking water treatment and wastewater treatment.

**OBJECTIVES:**

1. To present the fundamental physical, chemical, and biological concepts important to the understanding and solution of environmental problems;
2. To introduce the student to significant environmental problems dealing with water and wastewater pollution;
3. To introduce the student to design concepts and to the technology of drinking water treatment and wastewater treatment;
- 4. To broaden education necessary to understand the impact of engineering solutions in a global/societal context;**
- 5. To recognize need for and the ability to engage in lifelong learning;**
- 6. To understand contemporary issues.**

<b>GRADING:</b>	Homework Assignments	10%
	Quiz	10%
	Design Projects	15%
	Exams 1 and 2	20%
	Final Exam	20%
	Laboratory	15%
	Presentations	10%

## LEARNING ENVIRONMENT

*I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.*

## ACCOMODATION

Your academic success is important. If you have a documented disability that may have an impact upon your work in this class, please contact me. Students must provide documentation of their disability to the Academic Success Center in order to receive official University services and accommodations. The Academic Success Center can be reached at 856-256-4234. The Center is located on the 3rd floor of Savitz Hall. The staff is available to answer questions regarding accommodations or assist you in your pursuit of accommodations.

## PREFERRED NAME POLICY

The purpose of this policy is to enable members of the campus community including students, faculty and staff to use and be known by a preferred name that affirms, reflects, and/or expresses their gender, culture, and/or other aspects of their social identity in the classroom and to conduct general business at the university. Please let your instructor know about your preferred name.

## ATTENDANCE POLICY

Attendance is **required**. If you know that you will be absent from a class for a valid reason, obtain approval from instructor 24 hours before the class period. The only exception to this rule is a medical emergency.

## Tips for Success:

Buy/borrow textbook; Attend class regularly; Read study guides; Prepare for class (this means reading your textbook etc); Do your homework and other assignments on time; Participate in class discussions; Stay connected to global news; Get involved in service activities; Have fun learning!

## Rowan Success Network

The [Rowan Success Network](#) powered by Starfish is designed to make it easier for you to connect with the resources you need to be successful at Rowan. Throughout the term, you may receive email from the Rowan Success Network team regarding your academic performance. Please pay attention to these emails and consider taking the recommended actions. Utilize the scheduling tools to make appointments at your convenience including tutoring.

## PROFESSIONAL BEHAVIOR

As an engineering professional, it is extremely important that you treat people with respect and consideration. It is expected, therefore, that you will maintain good professional conduct throughout this course, in all your interactions with your peers and the instructor. You will earn points for having good professional conduct, and you may lose points for exhibiting poor behavior. Some examples of good conduct and poor conduct are given below.

<b>Good Conduct</b>	<b>Poor conduct</b>
<ul style="list-style-type: none"><li>• Be on time</li><li>• Pay attention</li><li>• Have good attendance</li><li>• Be prepared (read the text, review notes from previous class, read handouts before coming to lab)</li><li>• Respect the office hours</li><li>• Be prepared for office hours</li><li>• Have a good attitude toward learning and problem solving</li><li>• Make constructive comments</li></ul>	<ul style="list-style-type: none"><li>• Arrive late for class frequently / making a conspicuous and disruptive late entrance.</li><li>• <b>Not paying attention in class</b></li><li>• <b>Disruptive behavior in class (side conversations, etc.)</b></li><li>• <b>Be absent from class frequently</b></li><li>• Be unprepared for class</li><li>• Disregard office hours</li><li>• Not being prepared when coming to ask questions during office hours</li></ul>

## TENTATIVE LECTURE SCHEDULE FOR SPRING 2019

Date	Topic	Book Chapter
Jan 23	Introduction	
Jan 28	Material and Energy Balance	Chap. 2
Jan 30	Material and Energy Balance	Chap. 2
Feb 4	Reactions and Reactors	Chap. 2
Feb 6	Reactions and Reactors	Chap. 2
Feb 11	Reactions and Reactors	Chap. 2
Feb 13	Thermodynamics	Chap. 2
Feb 18	Water Treatment	Chap. 4
Feb 20	Water Treatment	Chap. 4
Feb 25	Water Treatment	Chap. 4
Feb 27	Water Treatment	Chap. 4
March 4	Water Treatment	Chap. 4
March 6	Water Treatment	Chap. 4
March 11	Wastewater Treatment	Chap. 6
March 13	Wastewater Treatment	Chap. 6
March 25	Wastewater Treatment	Chap. 6
March 27	Wastewater Treatment	Chap 6
April 1	Wastewater Treatment	Chap 6
April 3	Wastewater Treatment	Chap 6
April 8	Wastewater Treatment	Chap 6
April 10	Wastewater Treatment	Chap 6
<b>April 15</b>	Water Quality Management	Chap 8
April 17	Water Quality Management	Chap 8
April 22	Water Quality Management	Chap 8
<b>April 24</b>	Water Quality Management	Chap 8
April 29	Global and Contemporary Issues	External Notes
May 1	Final Review/Classes End	

**EXAM 1 during  
LAB Period  
Feb 12  
Fundamentals**

**EXAM 2 during  
LAB Period  
March 12  
Water Treatment**

**FINAL EXAM WEEK May 4-10, 2019**

**Environmental Engineering I, Spring 2019  
Laboratory Schedule**

**Tuesday 9:30-12:15 AM, REXT 118**

Monday/Wednesday	Topic
Jan 22	All students take lab safety training
Jan 29	Basic Water and Wastewater Quality Parameters Field Measurements (pH, Turbidity, DO, Conductivity, Alkalinity, Hardness)
Feb 5	Solids
<b>Feb 12</b>	<b>EXAM # 1 (Mass Balance, Reactions and Reactors)</b>
Feb 19	Gas Transfer
Feb 26	Coagulation and Flocculation (Jar Test)
March 5	Virtual Field Trip to a Water Treatment Plant
<b>March 12</b>	<b>EXAM # 2 (Water Treatment)</b>
March 19	Spring Break
March 26	BOD / COD
April 2	Bacteria Enumeration
April 9	<b>Virtual Wastewater Treatment Plant Trip</b>
April 16	Nitrogen and Phosphorus
April 23	Presentations
April 30	Final Exam Review

**EXAM AND QUIZ INSTRUCTIONS**

*Announced quizzes* will be given throughout the semester. No make-up exams or quizzes will be given for unexcused absences (See Attendance Policy Section). **All quizzes and exams are closed book and notes. The final exam will have a duration of 2 hours and will be announced near the end of the semester.**

**HOMEWORK ASSIGNMENT INSTRUCTIONS**

Team homework assignments and lab reports will be given every week. ***Late homework will not be accepted.*** To receive full credit for a problem both your method of calculation and the correct answer must appear in a legible and readily understandable form. No hand-drawn graphs will be accepted.

**All assignments are due at the beginning of the class period.**

## **Rowan Engineering Homework Format**

All homework problems, unless otherwise directed by your instructor, should follow the Rowan Engineering Format. This format is used for most professional engineering work. Unless otherwise directed by your instructor, you should use engineering paper or the equivalent for all homework assignments. Instructions are available on course website. Multiple problems are allowed in one sheet.

### **Laboratory Safety**

Please read the laboratory safety guidelines available on the course website and be prepared to take a quiz. Professional conduct is required in the laboratory to avoid safety violations. No shorts, open sandals, food/drinks are allowed in the laboratory. Every student team will need to bring a laboratory notebook to record raw data and submit a copy. The copy will count as attendance.

### **Teamwork**

Students will work in teams for their laboratory experiments, assigned homework and presentations.

### **Academic Misconduct**

You are encouraged to work together on assignments. However, copying is not acceptable. Copied assignments will receive a zero grade (both original and copies). Cheating on a test will cause the student to receive a zero grade, at a minimum and lead to a departmental hearing. If you are to miss an assignment due date, exam, quiz, field trip, or laboratory session you must have a valid excuse and notify me prior to the event (except in case of emergency).

### **Presentation**

Each team will have to research a global problem addressing water or wastewater treatment. A 15 minute presentation along with a report is required at the end of the semester. Details will be discussed in class.