

Spring 2019

CE418

WATER AND WASTEWATER TREATMENT

Instructor: Bruce DeVantier

Office: EGR B 38

Phone: 453-7819 (office) 203-0638 (cell)

E-mail: bdevanti@siu.edu

Homepage: <http://engr.siu.edu/ce3/> Class Page: <http://engr.siu.edu/ce3/ce418.htm>

Office Hours: 11:00-12:30 Monday through Friday

Required Text: **Water Supply and Pollution Control**, Viessman, Hammer, Perez, and Chadik, 8th Edition, 2005, Pearson Prentice Hall, Publishers. ISBN 9780132337175

References: **Water Treatment: Principles and Design**, Second Edition 2005, MWH, John Wiley and Sons, Publishers.

Wastewater Engineering: Treatment and Reuse, Metcalf and Eddy, Fourth Edition, 2003, McGraw-Hill, Publishers.

Course Organization:

Homework: Assigned in sets, due as stated in class, 25 % of total grade

Exams: 2 In-Term exams-25% each of total grade, final (3rd) exam-25% of total grade

Course objectives:

The objectives of this course are (1) to prepare the student to be able to select and design appropriate treatment technologies for providing safe drinking water to the public and for returning wastewater safely to receiving streams; and to (2) develop an understanding of the relevant standards and regulations governing drinking water supply and wastewater treatment.

Grading Policy:

*Grading scale will be relative, but any grade below 50% should be considered failing.

*Late homework will not be accepted, a valid excuse will be grounds to have the zero grade dropped.

*It is the student's responsibility to make sure that all material to be graded is included in any assignment papers or exam papers, i.e. "It somehow got left out," will not be an acceptable excuse.

*Any complaints concerning grading of an exam must be lodged immediately after the class meeting at which the exam is returned. Leaving class with the exam in hand will be assumed to be tacit acceptance of the grade.

*There may be a pop quiz at any time with points added to homework total points.

*The student is reminded that any academic misconduct such as turning in work not that of the student, or any sort of cheating on tests can result in a failing grade for the course, conduct board penalties, or both.

TENTATIVE COURSE OUTLINE

Week	Topics	Related Reading
1/14-1/18	Introduction and History Water Regulations and Policy Water Quality: Measures and Standards	Chapter 1 Ch. 2 Ch. 8-sec.1-4
1/22-1/25	Water Quality: Measures and Standards "	Ch. 8-sec.5-12 "
1/28-2/1	Flow Diagrams/Plant Layouts for Wastewater " Flow Diagrams/Plant Layouts for Drinking Water " "	Ch. 9-sec.1-2 " Ch. 9-sec.3-6 " "
2/4-2/8	Physical Treatment Processes: Preliminary Units Mixing and Flocculation "	Ch. 10-sec.1-5 Ch. 10-sec. 6-7 "
**** First In-Term Exam ****		
2/11-2/15	Mixing and Flocculation Sedimentation "	Chs. 1, 2, 8, 9 Ch. 10-sec. 6-7 Ch. 10-sec.8-12 "
2/18-2/22	" " Filtration "	" " Ch. 10-sec.13-17 "
2/25-3/1	Chemical Treatment: Concentrations "	Ch. 11-sec.1-2 "
3/4-3/8	Equilibrium & Kinetics Coagulation Water Softening	Ch. 11-sec. 3-8 Ch. 11-sec. 11-14 Ch. 11-sec. 15-17
3/11-3/15	***** Spring Break *****	
3/18-3/22	Water Softening Chlorination Chemistry, DBPs C·t Product	Ch. 11-sec. 15-17 Ch. 11-sec. 21-27 Ch. 11-sec. 28-30

TENTATIVE COURSE OUTLINE, continued

Week	Topics	Related Reading
3/25/-3/29	Wastewater Disinfection	Ch. 11-sec. 31-32
	Biological Treatment: Microbiological Processes Review	Ch. 12-sec. 1-9
	Wastewater Characterization	Ch. 12-sec. 10-11
4/1-4/5	Trickling Filter Description	Ch. 12-sec.12
	Trickling Filter Design	Ch. 12-sec.15-16
	Activated Sludge Description	Ch. 12-sec.19-21
4/8-4/12	Activated Sludge Mass Balance	"
	**** Second In-Term Exam ****	Chs. 10, 11
	Activated Sludge Mass Balance	Ch. 12-sec. 22-26
4/15-4/19	Activated Sludge Design	"
	Lagoons and Ponds	Ch. 12-sec. 27-30
	"	"
4/22-4/26	Lagoons and Ponds	Ch. 12-sec. 27-30
	"	"
	Sludge Handling and Disposal	Ch.13-sec.1-17
4/29-5/3	"	"
	"	"
	"	"
5/6-5/10	Final Exam Week **** Third In-Term Exam ****	Chs. 12, 13

Syllabus Attachment

Spring 2019

MISSION STATEMENT FOR SOUTHERN ILLINOIS UNIVERSITY CARBONDALE

SIU embraces a unique tradition of access and opportunity, inclusive excellence, innovation in research and creativity, and outstanding teaching focused on nurturing student success. As a nationally ranked public research university and regional economic catalyst, we create and exchange knowledge to shape future leaders, improve our communities, and transform lives.

IMPORTANT DATES *

Semester Classes Begin:	01/14/2019
Last day to add full-term course (without Dean's signature):	01/20/2019
Last day to withdraw from the University with a full refund:	01/25/2019
Last day to drop a full-term course for a credit/refund:	01/27/2019
Last day to drop a full-term course (W grade, no refund):	03/31/2019
Final examinations:	05/6—05/10/2019

Note: Please verify the above dates with the Registrar calendar and find more detailed information on deadlines at <https://registrar.siu.edu/calendars>. For add/drop dates that apply to shorter-than-full-term courses, please look at the Schedule of Classes search results at <https://registrar.siu.edu/schedclass/index.php>

SPRING SEMESTER HOLIDAYS

Dr. Martin Luther King, Jr. Birthday 01/21/2019
Spring Break 03/9—03/17/2019

DIVERSITY

Southern Illinois University Carbondale's goal is to provide a welcoming campus where all of our students, faculty and staff can study and work in a respectful, positive environment free from racism and intimidation. For more information visit: <https://diversity.siu.edu/#>

DISABILITY SUPPORT SERVICES

SIU Carbondale is committed to providing an inclusive and accessible experience for all students with disabilities. Disability Support Services coordinates the implementation of accommodations. If you think you may be eligible for accommodations but have not yet obtained approval please contact DSS immediately at 618-453-5738 or <https://disabilityservices.siu.edu>. You may request accommodations at any time, but timely requests help to insure accommodations are in place when needed. Accommodations and services are determined through an interactive process with students and may involve consideration of specific course design and learning objectives in consultation with faculty.

MILITARY COMMUNITY

There are complexities of being a member of the military community and also a student, and military and veteran related developments can complicate academic life. If you are a member of the military community and in need of accommodations please visit Veterans Services at <https://veterans.siu.edu/>

STUDENT MULTICULTURAL RESOURCE CENTER

The Student Multicultural Resource Center serves as a catalyst for inclusion, diversity and innovation. As the Center continues its work, we are here to ensure that you think, grow and succeed. We encourage you to stop by the Center, located in the Student Services Building Room 140, to see the resources available and discover ways you can get involved on the campus. Visit us at <https://smrc.siu.edu/>

SALUKI CARES

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For information on Saluki Cares: call(618) 453-2461, email siucares@siu.edu, or <https://salukicare.siu.edu/>

SAFETY AWARENESS FACTS AND EDUCATION

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: <https://safe.siu.edu>

MORRIS LIBRARY HOURS: <https://libguides.lib.siu.edu/hours>

ADVISEMENT: <https://advisement.siu.edu/>

SIU ONLINE: <https://online.siu.edu/>

WITHDRAWAL POLICY ~ Undergraduate only

Students who officially register for a session must officially withdraw from that registration in a timely manner to avoid being charged as well as receiving a failing grade for those classes. An official withdrawal must be initiated by the student, or on behalf of the student through the academic unit, and be processed by the Registrar's office. For the proper procedures to follow when dropping courses and when withdrawing from SIU visit:

<https://registrar.siu.edu/students/withdrawal.php>

INCOMPLETE POLICY~ Undergraduate only

An INC grade may be assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments for the course. An INC must be changed to a completed grade within one full semester (undergraduates), and one full year (graduate students), from the close of the term in which the course was taken or graduation, whichever occurs first. Should the student fail to complete the remaining course requirements within the time period designated, the incomplete will be converted to a grade of F and such grade will be computed in the student's grade point average. For more information visit:

<https://registrar.siu.edu/grades/incomplete.php>

REPEAT POLICY

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit more than once. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Effective for courses taken Summer 2013 or later, only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned.

This policy will be applied to all transferrable credit in that only the last grade will be used to calculate grade point average. Only those courses taken at the same institution are considered repeats under this policy. See full policy at

<https://registrar.siu.edu/students/repeatclasses.php>

SIU's EARLY WARNING INTERVENTION PROGRAM (EWIP)

Students enrolled in courses participating in SIU's Early Warning Intervention Program might be contacted by University staff during a semester. More information can be found at the Core Curriculum's Overview webpage:

<https://corecurriculum.siu.edu/program-overview/>

EMERGENCY PROCEDURES

We ask that you become familiar with **Emergency Preparedness @ SIU**. Emergency response information is available on posters in buildings on campus, on the Emergency Preparedness @ SIU website, and through text and email alerts. To register for alerts visit: <https://emergency.siu.edu/>

CENTER FOR LEARNING AND SUPPORT SERVICES

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:

Tutoring : <https://cls.siu.edu/tutoring/>

Math Labs <https://math.siu.edu/courses/course-help.php>

WRITING CENTER

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit:

<https://write.siu.edu/>

GRADUATE POLICIES

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please refer to the graduate catalog at

<https://gradschool.siu.edu/about-us/grad-catalog/>

Need help with an issue? Please visit SALUKI SOLUTION FINDER at

<https://solutionfinder.siu.edu/>

PLAGIARISM

See the Student Conduct Code <https://srr.siu.edu/student-conduct-code/>