

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Civil, Environmental & Geomatics Engineering College College of Engineering & Computer Science		
Current Course Prefix and Number ENV6418		Current Course Title Water Supply Treatment	
<i>Syllabus must be attached for ANY changes to current course details. See <u>Guidelines</u>. Please consult and list departments that may be affected by the changes; attach documentation.</i>			
Change title to: Change prefix From: _____ To: _____ Change course number From: _____ To: _____ Change credits* From: _____ To: _____ Change grading From: _____ To: _____ <small>*Review Provost Memorandum</small>		Change description to: Change prerequisites/minimum grades to: None Change corequisites to: None Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.	
Effective Term/Year for Changes: Fall 2019		Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Ramesh Teegavarapu, 297-3444			
Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____		Date 02/26/2019 3/11/19 3/11/2019	

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

**Department of Civil Environmental and Geomatics Engineering
Florida Atlantic University
Course Syllabus**

1. Course title/number, number of credit hours	
Water Supply and Treatment – ENV 6418	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisites: None	
3. Course logistics	
<p><i>Term:</i> Spring 2018 This is a classroom lecture course also available in distance learning format <i>Class location and time:</i> T 1:00 -3:50 PM (Lecture) FL 424</p> <p>Homework assignments are given weekly, typically. Field trip(s) will be scheduled. A major design report and oral presentation is required. Examinations consist of a midterm and a final.</p>	
4. Instructor contact information	
<i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	Dr. Daniel E. Meeroff, Professor Engineering West (EG-36) Bldg., Room 206 T and Th 11:00 -1:00 PM 561-297-3099 dmeeroff@fau.edu
5. TA contact information	
<i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	TBA
6. Course description	
Bacteriological, chemical, and physical water quality standards; distribution systems; water treatment theory and design; aeration; coagulation and flocculation; sedimentation; filtration; disinfection; softening; membranes.	
7. Course objectives/student learning outcomes/program outcomes	
<i>Course objectives</i>	A. Present the fundamental principles applied in the analysis, design, modeling, and operation of engineered solutions for potable water. B. Present the issues and constraints involved with potable water engineering applications. C. Relate theory to real life problems with the design of engineered systems for potable water management. D. Expose students to the complex interaction between potable water supply and treatment issues and the needs of society.

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<i>Student learning outcomes & relationship to ABET a-k objectives</i>	<p>A. Ability to understand the chemistry, biological, ecological, and physical concepts necessary to analyze basic potable water engineering problems. (a, b, c, e, f, h, k)</p> <p>B. Ability to understand the of the physical, chemical, and biological unit processes for wastewater treatment and to apply these concepts to determine design specifications (a, b, e, f, h, k)</p> <p>C. Ability to understand the important local, regional, and global problems as they relate to potable water engineering solutions (b, e, f, h, j)</p> <p>D. Ability to understand the process of potable water engineering management, including pertinent laws and regulations (e, f, h, j, k)</p> <p>E. Ability to perform advanced-level design in water supply engineering (a, b, e, f, h, k)</p> <p>F. Ability to communicate effectively about issues in water supply engineering (d, e, f, g, i)</p>
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8. Course evaluation method

<table> <tr><td>Class assignments</td><td>18%</td></tr> <tr><td>Midterm</td><td>17%</td></tr> <tr><td>Final exam</td><td>33%</td></tr> <tr><td>Design report/presentation</td><td>27%</td></tr> <tr><td>Class participation</td><td>5%</td></tr> </table>	Class assignments	18%	Midterm	17%	Final exam	33%	Design report/presentation	27%	Class participation	5%	<p><i>Note: The minimum grade required to pass the course is C.</i></p> <ul style="list-style-type: none"> • <i>Academic Service-Learning assessments count toward the Design report/presentation component of the grade.</i> • <i>Reflection assignment counts toward the Class Assignments component of the grade.</i>
Class assignments	18%										
Midterm	17%										
Final exam	33%										
Design report/presentation	27%										
Class participation	5%										

9. Course grading scale

Grading Scale:

90 and above: "A", 87-89: "A-", 83-86: "B+", 80-82: "B", 77-79: "B-", 73-76: "C+", 70-72: "C", 67-69: "C-", 63-66: "D+", 60-62: "D", 51-59: "D-", 50 and below: "F."

10. Policy on makeup tests, late work, and incompletes

Exams will be given only at the scheduled times and places, unless previous arrangements have been made no less than one (1) full week in advance. No one is exempt from exams. *Makeups* are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exams will be administered and proctored by department personnel unless there are other pre-approved arrangements.

Late work is not acceptable. *Incomplete grades* are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation, incomplete grades will not be given. Note: Incomplete grades are only reserved for those students who were passing but could not complete the required work due to exceptional circumstances.

11. Special course requirements

ACADEMIC SERVICE-LEARNING STATEMENT

This course is designated as an "academic service-learning" course. The assistance you provide to the agency/organization during your academic service-learning (AS-L) experience is a service to the community and will allow you to apply knowledge from the course to local, national, and/or global social issues. Throughout this course you will be participating in AS-L activities while demonstrating civic engagement at campus, local, national, and/or global community levels. You will also reflect on your AS-L experience and the impact on the community as well as your professional development. Academic service-learning notation of hours will post to your transcript with submission of hours to your faculty instructor. An Academic Service-Learning Student Survey is required to be taken at the end of your AS-L project. Please visit the Weppner Center for LEAD & Service-Learning website, www.fau.edu/leadandserve, for the survey link and more information on FAU's Academic Service-Learning program. Minimum hours: 10

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Assumption of Risk Statement for Student:

I understand that there are certain physical risks inherent in every form of service-learning. I understand the risks associated with this Academic Service-Learning assignment. I nonetheless agree to assume those risks so as to gain the benefits from participation in this valuable learning experience. I hereby release the State of Florida, the Board of Trustees, Florida Atlantic University and its agents and employees from any and all liability associated with my participation in this assignment at Florida Atlantic University.

12. Classroom etiquette policy

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in face-to-face class sessions. Please review the university Netiquette policy guidelines at <http://www.fau.edu/irm/about/netiquette.php>. Remember you are an adult—your communication with the professor and your classmates should be appropriate. You are responsible for reading all announcements posted by the instructor. Check the announcements each time you login to be sure you have read all of them since your last login session. Except for Saturdays, Sundays, and holidays, I will respond to messages generally within 48 hours.

13. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS)—in Boca Raton, SU 133 (561-297-3880); in Davie, LA 203 (954-236-1222); or in Jupiter, SR 110 (561-799-8585)—and follow all SAS procedures.

14. Honor code policy

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

15. Required texts/reading

1. Qasim, S.R., Motely, E.M., and Zhu, Guang, **Water Works Engineering: Planning, Design, and Operation**, Prentice Hall, 2000.
2. Handouts provided by instructor.
3. Canvas registration.

16. Supplementary/recommended readings

1. AWWA, **Water Quality and Treatment**, Sixth Edition. McGraw-Hill, 2011.
2. Hammer, M.J. and Hammer, M.J., Jr., **Water and Wastewater Technology** 4th Edition, Prentice Hall, 2001.
3. "Recommended Standards for Water Works" (Ten-State Standards), Health Education Services, Albany, NY, 2003.
4. HDR Engineering, **Handbook of Public Water Systems** 2nd Edition, Wiley, 2001.
5. Hwang, N.D.H. and Houghtalen, R.J. **Fundamentals of Hydraulic Engineering Systems** 3rd Edition. Prentice Hall, 1996.
6. Viessman, W., Jr. and Hammer M.J., **Water Supply and Pollution Control** 6th Edition, Addison Wesley Longman, 1998.
7. Reynolds and Richards (1996). **Unit Operations and Processes in Environmental Engineering**. PWS Publishing.

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17. Course topical outline		
Date	Topic	HW Assignment
Week 1	<ul style="list-style-type: none"> • Introduction; Overview; Drinking Water Regulations • Water Chemistry/Aquatic Microbiology 	
Week 2	<ul style="list-style-type: none"> • Source Water Quality • Water Processing 	<ul style="list-style-type: none"> • Consumer confidence report discussion board
Week 3	<ul style="list-style-type: none"> • Considerations, Water Demands • Water Constituents 	<ul style="list-style-type: none"> • Type of water discussion board
Week 4	<ul style="list-style-type: none"> • Raw Water Intake, Screening • Aeration 	<ul style="list-style-type: none"> • Demand discussion board
Week 5	<ul style="list-style-type: none"> • Disinfection Theory • Disinfection Processes, Fluoridation 	<ul style="list-style-type: none"> • HW#1
Week 6	<ul style="list-style-type: none"> • Filtration Theory • Filter Design 	<ul style="list-style-type: none"> • HW#2
Week 7	<ul style="list-style-type: none"> • Membrane Processes/Ion Exchange • Adsorption 	<ul style="list-style-type: none"> • Design deliverable #1
Week 8	<ul style="list-style-type: none"> • Midterm Exam 	
Week 9	<ul style="list-style-type: none"> • Rapid-Mixing • Flocculation/Coagulation 	<ul style="list-style-type: none"> • HW#3
Week 10	<ul style="list-style-type: none"> • Precipitation Reactions • Lime Softening 	<ul style="list-style-type: none"> • Design deliverable #2
Week 11	<ul style="list-style-type: none"> • Sedimentation 	<ul style="list-style-type: none"> • HW#4
Week 12	<ul style="list-style-type: none"> • Water Distribution Systems • Hardy Cross Analysis 	
Week 13	<ul style="list-style-type: none"> • Pumping/Distribution • Water Storage 	<ul style="list-style-type: none"> • HW#5
Week 14	<ul style="list-style-type: none"> • Treatment Plant Performance Issues • Residuals Management 	
Week 15	<ul style="list-style-type: none"> • Design Project Presentations 	<ul style="list-style-type: none"> • Design deliverable #3
Week 16	<ul style="list-style-type: none"> • Final Exam 	<ul style="list-style-type: none"> • Design deliverable #4