

Urban Stormwater Systems Design

CWR 4306/CGN6905

Meeting Times:	Section CAMP Class # 26785	M, W Period 4 (10:40 AM – 11:30 PM)
	Section 0004 Class # 28134	100% Online
	Section USD1 Class # 27072	100% Online
	Section USD2 Class # 27073	100% Online
	Section USB3 Class # 28055	M, W Period 4 (10:40 AM – 11:30 PM)

Location: NEB 0201

Academic Term: Fall 2022

Instructor:

Dr. Mark A. Newman

Office location: 206 Black Hall

E-mail: mark.newman@essie.ufl.edu

Office hours will be held **online by appointment**:

To schedule an appointment please use: [Mark Newman Bookings Page](#)

Email communication is highly encouraged as it allows information to be shared more readily with the entire class.

Course Description

(3 credits) Stormwater system design including: time of concentration, peak runoff rate, open-channel flow, gravity storm sewer, culvert, stormwater pumping, filtration systems, hydrograph generation, flood routing, site layout, site grading and permitting.

Course Pre-Requisites / Co-Requisites

CWR 4202 Hydraulics (Hydraulics can be a co-requisite with this class).

Course Objectives

Students will gain an in-depth understanding of the design, modeling, and permitting of urban stormwater systems.

Course Material and Assignments

All course material including lectures packets, reading, assignments, and supplemental information are provided on the UF e-Learning site <http://elearning.ufl.edu/>.

Referenced Textbooks: No textbooks are required—all reading assignments will be posted on the course site.

- Durrans. 2003. *Stormwater Conveyance Modeling and Design*. 1st Edition. Bentley Institute Press. Exton, PA.
<http://www.bentley.com/en-US/Training/Products/Resources/Books/SCMD.htm>
(Also available on Amazon)
- Walski, Barnard, Durrans, Meadows, Lowry, and Whitman. 2007. *Computer Applications in*

Hydraulic Engineering. 7th Edition. Bentley Institute Press. Exton, PA.

<https://store.bentley.com/en/products/9781934493168--Computer-Applications-in-Hydraulic-Engineering> (Also available on Amazon)

Required permitting documents and technical publications (available online)

Environmental Resource Permit Applicant's Handbook, Volume I (General and Environmental) from St. Johns River Water Management District (SJRWMD)

<https://www.sjrwmd.com/documents/permitting/#erp>

Permit Information Manual (includes ERP Volume II) from St. Johns River Water Management District (SJRWMD)

<https://www.sjrwmd.com/documents/permitting/#erp>

Urban Hydrology for Small Watersheds, Technical Release 55 (TR-55):

Available from United States Department of Agriculture, Natural Resources Conservation Service (NRCS)

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf

Additional textbooks referenced in course notes include the following

- Gribbin. 2002. Introduction to hydraulics and hydrology with applications for stormwater management. Delmar. New York.
- Wanielista and Yousef. 1993. Stormwater Management. Wiley. New York.
- Wanielista, Kersten, and Eaglin. 1997. Hydrology Water Quantity and Quality Control. Wiley. New York.

Attendance and Expectations

- There are no attendance requirements.
- All course content is provided online in Canvas.
- Everything you need to do well in the course is provided through the Canvas course site.
- The scheduled meeting times on Monday and Wednesday are optional interactive problem sessions that allow you the chance to ask questions while working on the weekly assignments. You do not have to attend in person as they are held live in Zoom for those who would prefer to participate remotely.
- The Zoom problem sessions are recorded and posted on the Canvas site for your convenience.
- It does not matter what section you are registered for, you can choose to attend remotely if you prefer this option.
- Dr. Newman will be hosting the Zoom sessions while the course TA will be hosting the in-class meetings with the classroom linked live to the Zoom sessions.

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social,	High

environmental, and economic factors	
3. An ability to communicate effectively with a range of audiences	Low
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Medium
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	Medium
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	High

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Course Outline

- Week 1 Course introduction / Precipitation
- Week 2 Rainfall Analysis
- Week 3 Precipitation and Design Storms (IDF Curves)
- Week 4 NRCS Design Storms
- Week 5 Site and basin delineation
- Week 6 Rainfall and runoff—Estimating peak runoff—Unit hydrographs
- Week 7 Stormwater conveyance and detention/retention
- Week 8 Storage routing
- Week 9 Regulations and Environmental Resource Permits (ERPs)
- Week 10 Design project I
- Week 11 **Design project I Due**
- Week 12 Design project II
- Week 13 Design project II
- Week 14 Design project II
- Week 15 Design project II
- Week 16 **Design Project II Due**

Assignments: Assignments (including Design Projects I and II) will be submitted using the UF e- Learning Canvas site <http://elearning.ufl.edu/>.

Late Assignments: You will have one week after an assignment deadline passes to contact me and discuss/request the possibility of the assignment being opened for resubmission. **After one week has passed from the assignment deadline no submissions will be allowed.**

Grade Distribution

Assignments	Percentage of Final Grade
Assignments	30%

Design Project I	30%
Design Project II	40%

Note: Undergraduate Students (CWR 4306) will work in **teams for Design Project II**.
 Graduate students (CGN 6905) will work **individually for Design Project II**.

Grading Scale

Percent	Grade	Grade Points
94 - 100	A	4.00
90 - 93	A-	3.67
87 - 89	B+	3.33
84 - 86	B	3.00
80 - 83	B-	2.67
77 - 79	C+	2.33
74 - 76	C	2.00
70 - 73	C-	1.67
67 - 69	D+	1.33
64 - 66	D	1.00
60 - 63	D-	0.67
0 - 59	E	0.00

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of

a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <https://counseling.ufl.edu>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling;
<https://career.ufl.edu>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>; <https://care.dso.ufl.edu>.

On-Line Students Complaints: <https://distance.ufl.edu/state-authorization-status/#student-complaint>.