Hydraulics
CWR 4202

Meeting Times: Section HYD1 12211: Tuesday Periods 6-7 (12:50 PM – 2:45 PM)
Section HYD2 12212: 100% Online

Location: Florida Gym (FLG) Room 270

Academic Term: Fall 2022

Instructor:

Dr. Mark A. Newman
Office location: 206 Black Hall
E-mail address: 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. The class email list is automatically generated based upon the class roll maintained by the Registrar's Office.

Course Description
(3 credits) Fundamental equations for pipe and open conduit flow. Development of design oriented formulas for pipes and open channels. Introduction to hydrology.

Course Pre-Requisites / Co-Requisites
CWR 3201 (Hydrodynamics) or consent of instructor.

Course Objectives
To familiarize the student with the analysis upon which modern hydraulic engineering design is based and with the design process itself. Emphasis is placed on the basic understanding of the potential and unavoidable limitations of today's methods in hydraulic analysis and design. Provide students a suitable applied background in hydraulics through lectures, assignments, and software applications.

Course Material and Assignments
All course material (lectures, reading, assignments, and supplemental information) will be provided through UF e-Learning site http://elearning.ufl.edu/.

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

- *Computer Applications in Hydraulic Engineering*, 7th edition, published by Bentley Institute Press. (Available on Amazon)
- *Hydraulics in Civil and Environmental Engineering* by John Chadwick, John C. Morfett, and Martin Borthwick. Spon Press. NY, New York. 2004. (Available on Amazon)

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 time on Tuesday is an optional interactive problem session that allows you the chance to ask questions while working on the weekly assignments.
- Anyone can attend the Tuesday problem session regardless of which section they are registered for.

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, environmental, and economic factors	High
3. An ability to communicate effectively with a range of audiences	
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	
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	
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

Module 1: Course Introduction and Review of Hydrodynamics
Module 2: Flow Classification
Module 3: Fundamental Principles of Flow
Module 4: Unified Approach to Open Conduit and Closed Conduit Flow
Module 5: **Exam 1 Primer**
Module 6: Empirical Power Formulae Relating Mean Velocity (and Flow) to Friction Loss
Module 7: Characteristic Pipe Loss: Friction and Local Losses

Module 8: Common Forms of Manning's Equation
Module 9: **Exam 2 Primer**
Module 10: Open Channel Hydraulics
Module 11: Gradually Varied Flow
Module 12: **Exam 3 Primer**

Weekly Assignments: Assignments will be due weekly through the UF e-Learning Canvas site http://elearning.ufl.edu/, and will be the basis for class discussion. All assignments will be submitted by completing an online Assessment. Starting the second week of class, **the weekly Assignment will always be due Thursday by 5:00PM**.

Late Assignments: You will have one week after an assignment deadline passes to contact me and request that an assignment be re-opened for late submission or re-submission. **After one week has passed from the assignment deadline no submissions will be allowed.**

Exams: There are three 2-hour in-semester exams and one 2-hour optional final exam. The exams are scheduled as follows.

	Date	**Location and Time**
Exams:	Tuesday, October 4	Online
	Tuesday, November 8	Online
	Tuesday, December 6	Online
Final Exam:	Wednesday, December 14	Online

Important Information Regarding the optional Final Exam:

- The Final Exam is optional as a replacement for one of the prior three exams.
- **In order to take the optional final exam you must take all three of the in-semester exams and submit all of your work to receive credit for the exams. You cannot skip an in-semester exam and take the optional final**.
- The Final Exam can only help you—it will not count against you if you do poorly.
- The Final Exam is cumulative.

Grade Distribution

Assignments	**Total Points**	**Percentage of Final Grade**
Weekly Assignments (12)	100 each	25%
Exams (3)	100 each	(25% each) 75%

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 suppor*t*, 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*.