

# Hydraulics

## CWR 4202

**Meeting Times:** Section HYD1 12562: Tuesday Periods 6-7 (12:50 PM – 2:45 PM)  
Section HYD2 12563: Thursday Periods 6-7 (12:50 PM – 2:45 PM)

**Location:** Online

**Academic Term:** Spring 2020

### Instructor:

Dr. Mark A. Newman

Office location: 206 Black Hall

E-mail address: [mark.newman@essie.ufl.edu](mailto:mark.newman@essie.ufl.edu)

Web site: <http://www.essie.ufl.edu/~markn/>

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

**To schedule an appointment please use:** <https://my.timetrade.com/book/64QHG>.

**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*, 7<sup>th</sup> 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 is no specific penalty for missing a class; however, attendance is strongly recommended. Students are responsible for the content of each session, which may or may not be contained in the online lectures and course notes.

## 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:	<b>Exam 1 Primer</b>
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:	<b>Exam 2 Primer</b>
Module 10:	Open Channel Hydraulics
Module 11:	Gradually Varied Flow
Module 12:	<b>Exam 3 Primer</b>

**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:** Three 2-hour written exams and one 2-hour final exam (optional). The tests and the final exam are scheduled as follows.

	<b>Date</b>	<b>Location and Time</b>
Exams:	Tuesday, October 13	Online
	Tuesday, November 10	Online
	Tuesday, December 8	Online
Final Exam:	Tuesday, December 15	Online

### **Important Information Regarding the optional Final Exam:**

- The Final Exam is optional as a replacement for one of the prior three exams.
- The Final Exam can only help you, it will not count against you if you do poorly.
- The Final Exam is cumulative.

## Grade Distribution

<b>Assignments</b>	<b>Total Points</b>	<b>Percentage of Final Grade</b>
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 requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure 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/>.

### ***Online Course Privacy Policy***

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

### ***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/policies/student-honor-code-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
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Assoc. Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Assoc. Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto: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](mailto: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:** <http://www.counseling.ufl.edu/cwc>, 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](mailto: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](mailto:Learning-support@ufl.edu).  
<https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.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://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.