

**Syllabus for PHYS 415**  
**Fluid Mechanics – Spring 2019**

**Class Times:** Tuesdays and Thursdays, 12:15-1:30 PM, RITA 363

**Instructor** Dr. Mike Larsen

**Office Phone:** 843-953-2128

**Email Address:** LarsenML@cofc.edu

**Office Hours:** Wednesdays 10 AM - noon, Thursdays 3-4 PM, by appointment, or informally pretty much whenever. I plan to stop by the student room every day on my way home to ensure nobody needs any extra help. Unless I'm actively in a meeting or working with someone else, chances are I'll drop whatever I'm doing to help you if you can find me.

**Office Locations:** RITA 317

**Larsen Lab Location:** RITA 392

**Prerequisite:** MATH 323 or PHYS 272 or Permission of Instructor

**Course Webpage:** [http://larsenml.people.cofc.edu/phys415\\_spr19.html](http://larsenml.people.cofc.edu/phys415_spr19.html)

(Please see course page for supplementary information).

**Recommended Textbook:** Guyon, E., J-P. Hulin, L Petit, and C.D. Mitescu (2012). *Physical Hydrodynamics* (2nd ed.). Oxford University Press. ISBN: 978-0-19-870245-0. Information about this and some other textbooks will also be handed out as a supplement to the syllabus and will be on the course webpage.

### **Policies**

**Attendance Policy:** It is expected that you will attend class. I will. You are responsible for any material missed in class, including announcements about homework/test date changes, etc. If you do come to class, please do not be tardy – late arrivals are disruptive to everyone.

**Classroom Policy:** Please treat your classmates and professor with the respect due to them as fellow adults and human beings. Your professor always reserves the right to dismiss you from the room. Please do not text message, browse the internet, check email, or engage in other non-class-related communications during class.

**Cell Phone Policy:** Please be considerate and turn it on vibrate during lectures. Also, all cell phones must be turned off (NOT JUST TO VIBRATE) during all exams. You may be asked to leave your cell phone at the front desk during your midterm and/or final.

**Honor Code / Code of Conduct:** It is expected that you will adhere to the university's honor code and student code of conduct, as can be found in your student handbook.

**Course Description**

An introduction to fluid mechanics that develops physical concepts and formulates basic conservation laws. Topics include fluid statics, kinematics, stresses in fluids, flow of real (viscous) fluids and compressible flow.

**Learning Outcomes**

At the end of this course, successful students will be able to:

- analytically solve problems related to static and moving fluids
- apply fundamental concepts in fluid systems
- apply physical principles to novel situations

**Tentative Midterm Test Date** (Subject to Change): Thursday, February 28th, 12:15-1:30 PM

**Final Exam Time Period:** Thursday, April 25th, 12-3 PM.

**Students with Disabilities**

The College will make reasonable accommodations for persons with documented disabilities. Students should apply at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying your professor as soon as possible and subsequently contacting your professor again at least one week before any specific accommodation is needed.

## Grading

Grades will be based on three components:

- Performance on midterm exam (25%)
- Performance on final exam (25%)
- Performance on Homework Assignments (50%)

Your instructor makes every effort to return homework and exams as soon as possible after receiving them. Because of this, you will often receive homework back the class after it was due and you may go through some of the problems in class. Since it would be unfair to accept work from students who had the advantage of hearing the correct answers in class, late work will be docked 50% if turned in between the original due date and the next class, and will not be accepted for credit more than one class after it was originally due. Your lowest homework grade will be dropped.

If, for some reason, you miss the midterm exam it is up to *you* to schedule a makeup with the professor prior to the next class. You will be given an alternative form of the exam that will be demonstrably harder than the original exam, so every effort should be made not to miss an exam. If you know in advance that you will miss the midterm or the final, it may be possible to take a different alternative version of the exam (not harder than the original exam) *before* the rest of the class takes the exam. That being said, you must contact the professor at least 2 weeks before the proposed exam date to schedule this alternative exam.

On the homework, you are encouraged to work with your classmates – but try to ensure that everyone is learning the requisite content. Everyone has to turn in their own work, and the exams are not collaborative; the homework is designed to help prepare you for exams, so you will be in trouble come exam time if you haven't been working through the homework.

**Grading Scale:** The formal numerical scale might move around a little bit depending on the class' performance, but the final grading scale will be *no more stringent* than:

A	$\geq 91$	B+	89	B-	80	C	71-78	D	60 - 69
A-	90	B	81-88	C+	79	C-	70	F	<60