

ME 509 – Intermediate Fluid Mechanics
Course Syllabus
Fall 2015

Class Meeting Time and Location

12:00-1:15 pm TuTh
Room: WANG2599

Course Instructor

Prof. Steve Wereley
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Course TAs

Gaojin Li: li1803@purdue.edu

Office Hours

1:15-3:00 pm TuTh or by appointment
ME 1077 or via WebEx

Course Text

Panton, R.L., *Incompressible Flow*, 4th edition, Wiley (2013)
ISBN-10: 1118013433; ISBN-13: 978-1118013434

Reference Texts

Batchelor, G.K., *An Introduction to Fluid Mechanics*, Cambridge University Press.
Fox, R.W. and McDonald, A.T., *Introduction to Fluid Mechanics*, Wiley.
White, F.M., *Viscous Fluid Flow*, 3rd edition, McGraw-Hill.

Course WWW Page

All electronic course materials and grades will be distributed via Blackboard. Note: I cannot discuss grades via email because of federal privacy regulations.

Course Email Communication

All official course communication will occur via your official Purdue email account. If you prefer to use a different account, make sure that your Purdue email account is forwarded to your non-Purdue account otherwise you may miss important emails.

Course Goals

The goal of ME 509 is to unify and strengthen each student's background in fluid mechanics. In the first half of the course fundamental concepts are reviewed thoroughly and extended. The second half is devoted to more advanced topics. Students who complete the course successfully are prepared to read the current literature and to pursue advanced studies in fluid mechanics or aerodynamics.

Prerequisites

Courses: Undergraduate Fluid Mechanics (ME 309 or equivalent)
Topics: dynamics, calculus, ordinary and partial differential equations, complex variables

Computer Usage

None is *required* although some knowledge of a spreadsheet or programming language would be helpful in completing a few of the homework assignments.

Attendance Policy

Attendance is not figured into the course grade. However, students should strive to attend (or watch) all classes to receive full benefit of the lectures and the ability to interact with the instructor.

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Honesty Policy

All students are expected to adhere to the Purdue University policy on academic dishonesty. See <https://www.purdue.edu/odos/osrr/academic-integrity-brochure/> for more information.

Homework

Homework exercises will be assigned periodically throughout the semester. Solutions will be posted on Blackboard approximately two weeks after the homework is assigned. Homeworks will be collected and cursorily graded. Collaboration on homework is encouraged as an essential part of learning the material but the work submitted by each student must be the student's own work. Resources are available through Blackboard to aid students in this collaboration. Although the homeworks will have been graded by 509 staff, the grading will be "big picture" to determine whether the student understood the main point of the homework, not the details. Students are urged to compare their graded solutions to the posted solutions to determine where they might have made errors or to determine alternate ways of solving the problems. Prof. Wereley and the class TA will be available to discuss solutions.

Quizzes

4 in-class, closed-book (and other resources) quizzes will be administered throughout the semester. Formula sheets and blank paper will be provided with the quizzes. They will take place in the usual classroom during the usual class time and last 75 minutes or through an off-campus proctor for ProEd students. The quizzes will not be rescheduled except in the case of legitimate, verifiable excuses brought to the instructor's attention ahead of time. Please see the Dean of Students policy on absences, especially with regard to quizzes and exams at http://www.purdue.edu/studentregulations/regulations_procedures/classes.html. No devices with connectivity of any sort may be used or even visible during quizzes.

Final Exam

There will be a closed-book (and other resources) final exam during the scheduled final exam period. Formula sheets and blank paper will be provided with the exam. The date, time and location of the final will be determined by the registrar and posted during the first month of class. The final exam will not be rescheduled except in the case of legitimate, verifiable excuses brought to the instructor's attention ahead of time. Please see the Dean of Students policy on absences, especially with regard to quizzes and exams at http://www.purdue.edu/studentregulations/regulations_procedures/classes.html. No devices with connectivity of any sort may be used or even visible during the final exam.

Reading

Reading sections of the textbook or reserve material will be assigned periodically. Students should read the assigned material prior to coming to class so that they can contribute to the discussion and make the most of every class period. An interactive class improves everyone's experience.

Grading Policy

Each of the four quizzes and the homework will be worth 1/8 of the total course score. The final exam will be worth 3/8 of the total course score. The total course score will be converted to letter grades not more strictly than one grade per decade, e.g. A (of various varieties) corresponds to scores of 90-100% and B corresponds to 80-90, etc. This distribution may be relaxed at the instructor's discretion depending on the difficulty of the quizzes and final exam.

Campus Emergencies

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Please see <http://www.purdue.edu/emergency/> for a comprehensive discussion about responses to campus emergencies.