

MAE 331 – Fluid Mechanics
Spring 2013 M,W,F - 5-5:50, G83 ESB

• **Text**

Fundamentals of Fluid Mechanics (Custom Book), by Munson, et al., 7th edition, John Wiley & Sons, Inc., ISBN 9781118608722 (**this ISBN also contains the WileyPLUS registration code**).

• **Course Description**

Basic governing equations for fluid flow are derived and used to solve engineering problems. Fluid statics, Bernoulli equation, mass, momentum, and energy conservation, dimensional analysis, internal and external flow, and laminar and turbulent flow are covered.

WileyPlus course website=

• **PRE-REQUISIT:** Must have passed MATH 251 with a grade of C or better and MAE 241, Statics

• **Course Instructor:** Dr. Jason N. Gross, MAE Department

Contact Information (Office Hours Tues 5-6, Wed 4-5) – Rm. 331 ESB – 293-3770

Jason.Gross@mail.wvu.edu (I do NOT check my mix account)

• **Grading**

The final grade in the course will be assigned on the following basis:

Homework/Project	10%
Quizzes	10%
Exam 1	25%
Exam 2	25%
Final Exam (comprehensive)	30%

The letter grade will be based on a straight 90-80-70-60... scale.

NOTE: a final course score of 59.4% and below is a letter grade of “F”, whether you are graduating or not, have a job lined up or not. No exceptions.

• **General Information**

Make-up exams and late homework will NOT be allowed without prior approval, consistent with WVU policies. Homework problems will be assigned approximately once per week. These problems will either be graded or we will have an in-class short quiz covering the material. Neat work is expected on all material submitted for grading (i.e. have to be able to read it to grade it). You may use engineering problem paper or standard notebook paper, but NOT scratch paper or paper torn from a spiral notebook. Attendance is not mandatory, but is strongly encouraged, and will be used as an aid in assigning borderline grades at the end of the semester. Unexcused absences on exams will NOT be made up, except as required by WVU policy.

• **COURSE LEARNING OBJECTIVES MAPPING**

Course Learning Objective	ABET Outcomes*
Develop a logical approach to solving engineering problems in fluid statics and fluid dynamics	A
Be able to detect the types of problems that can be solved in a simple analytic process	A
Apply knowledge from mathematics, physics, and statics to solve fluid flow problems	A
Learn to apply assumptions and simplifications in the solution to various	A

fluid problems	
Understand that the study of fluids and their motion is an enormous field and there are still fluid flow phenomena that are not well understood; fluid mechanics continues to be an active area of research and innovation	J
Gain an appreciation that we are surrounded by fluid mechanics in every-day life	

This course effectively supports more ABET Outcomes than those shown in this table, but will provide evidence to support the assessment of ABET outcomes A and J.

Outcome A. *An ability to apply knowledge of mathematics, science, and engineering;*

Outcome J. *Graduates will have knowledge of contemporary issues;*

• Teaching Philosophy

1. As the instructor, I will do everything possible to help you learn and understand the material, but you must do your part. The student is ultimately responsible for actually learning the material.
2. In my course, a grade of “C” means that you have gained an average knowledge of the topic material and have a grasp of only the basic concepts. It is not a trivial matter to obtain an “A” in my course, but by the same token, it is also difficult to get an “F”.
3. If you have a question on material, the textbook, homework, how I graded, and life in general, come and see me. I am always open to answering your questions or meeting with you to discuss your questions and concerns.

• Notes on Class Etiquette

1. Make sure cell phones are turned off, or at minimum set to vibrate, during lecture. I do not want to hear your cell phone.
2. If you are so tired that you will likely fall asleep in class, stay home. Your bed will be much more comfortable than the desk.
3. Do not engage in idle chat with friends during lecture. It is distracting to me and there are students around you that want to hear the lecture.
4. It is also distracting to other students around you if you are a) texting, b) playing a game on your phone, c) reading the newspaper, d) on your laptop, e) etc. Please be respectful of others in the class.

• Social Justice Statement

"West Virginia University is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veterans status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Disability Services (293-6700)."

• Academic Dishonesty

Instances of academic dishonesty will be handled by the issuance of a grade of unforgivable "F". This includes evidence of cheating on exams, quizzes, homework assignments, etc. and is applied to both the individual using the work of another and the individual who allows his/her work to be used by another. Please refer to the West Virginia University Student Handbook for information relating to academic dishonesty.