

CME 211: Fluid Mechanics and Hydraulics

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	% of total grade
3 cr Fall 2008 MW 3:00-3:50 PM Room C006 2LCC	
Midterm exams (2; one closed book/notes, 1 open book/ closed notes)	30
Graded Homework (SEE NOTE ON FAILING HOMEWORK BELOW)	15
Final (open book, closed notes)	30
Laboratory writeups (10)	20
Participation (attendance in labs and lecture)	5

Office Hours: Wednesdays 1-3 Room 3077 ERF

TA Office Hours: Thursdays 1-3 Room 3071 ERF and/or 1070 SEL

Objectives: Students successfully completing this course will be able to analyze the forces of static and moving fluids with an emphasis on incompressible flow in buoyant structures, static hydraulic structures, pipe networks, open channels, dams, reservoirs and flow measurement devices. CME 201 (Statics) is a pre-requisite for this course. Homework problems will be assigned approximately every week and are due in class 1 week after assigned. Ten laboratory reports will be prepared based upon hands-on training in the CME/Christopher Burke hydraulics and hydrology laboratory. Laboratory reports will be a group effort with your assigned lab group. Each student will be the lead author for two lab reports. All group members must participate in each lab report and will grade each other at the end of the semester.

NO CELLPHONES ALLOWED IN CLASS!

HOMEWORK IS GRADED. Problems will be assigned approximately every week and are DUE IN CLASS 1 week after assigned. Grades are based on a three point system: 1 point for turning in complete homework, 2 points for complete and mostly correct, 3 points for 100% correct and neat. **NO LATE HOMEWORK IS ACCEPTED; INCLUDING IMMEDIATELY AFTER CLASS. DO NOT ASK ME (OR THE TA) IF YOU CAN TURN IT IN LATE. NOTE: Failing the homework by receiving less than half of the total homework grade will result in a grade reduction to the next lowest grade! If you have any confusion as to what the definition of homework is, confusion over what less than half means, or if you do not understand what this policy means in any way, please see me. Once grading is complete, do not come to me and say you misunderstood this policy.**

Grading is by total points as per UIC guidelines for grades: **85% and higher = A ; 70%-84.99% = B ; 60%-69.99% = C, 50%-50.99% = D, below 50% = F** All grading is to 2 decimal points and has a strict cut off.

Laboratory sessions will be held on Tuesdays in Room 1253, SEL-East PLEASE READ THE EXCEL TUTORIAL for information on how to graph continuous and discrete datasets, as well as statistical tools in EXCEL. You will prepare laboratory reports based on your results in the lab due one week after the lab AS A GROUP. Groups will be comprised of five (5) students and each student will be the lead author on two lab reports each (labs 1 & 6, 2 & 7, 3 & 8 etc.). All students must participate in the writing of the lab report to ensure a good grade. **NO LATE LAB REPORTS WILL BE ACCEPTED.** Pay attention to the lab report writeup instructions. Do not ask me what needs to be included without first having read the instructions.

A NOTE ON CHEATING. Cheating will result in failure of the class. This includes copying of another students work in any context. **HATS OR SUNGLASSES ARE NOT ALLOWED during ANY exam!** You must spread out and cannot be seated above and within 2 seats to either side of another student during exams. We have caught cheaters before (it is not difficult!) and they have been dealt with harshly. **YOU HAVE BEEN WARNED.**

Course text: *Applied Fluid Mechanics* (2006), 6th Ed. by Robert L. Mott (ISBN 0-13-114680-7; Prentice-Hall)

Class #	Date	Day	Topic	Reading	Lab
1	25-Aug	Mon	Course Intro, nature of fluids	Ch. 1.1-1.11.1, 1.12	
2	27-Aug	Wed	Viscosity	Ch. 2.1-2.5, 2.6-2.7.5	
	1-Sep	Mon	LABOR DAY; NO CLASS		Lab 1: Fluid Properties
3	3-Sep	Wed	Pressure measurement	Ch. 3.1-3.10	
4	8-Sep	Mon	Pressure measurement (continued)	"	Lab 2: Pressure measurement
5	10-Sep	Wed	Fluid statics	Ch. 4.1-4.12	
6	15-Sep	Mon	Fluid statics (continued)	"	Lab 3: Hydrostatics
7	17-Sep	Wed	Fluid statics (continued)	"	
8	22-Sep	Mon	Buoyancy/stability	Ch. 5.1-5.7	Lab 4: Buoyancy
9	24-Sep	Wed	Bernoulli's equation	Ch. 6.1-6.11	
10	29-Sep	Mon	Bernoulli's equation (continued)	"	
11	1-Oct	Wed	General energy equation	Ch. 7.1-7.7	
12	6-Oct	Mon	MQ Exam I (closed book/closed notes, Ch. 1-6)	Covers Ch. 1-6	Lab 5: Bernoulli/ Energy equation
13	8-Oct	Wed	General energy equation (continued)	Ch. 7.1-7.7	
14	13-Oct	Mon	Flow measurement	Ch. 15.1-15.4, 15.12	Lab 6: Flow measurement
15	15-Oct	Wed	Laminar and turbulent flow	Ch. 8.1-8.6	
16	20-Oct	Mon	Frictional losses	Ch. 8.5-8.11	Lab 7: Pipe friction
17	22-Oct	Wed	Frictional losses (continued)	"	
18	27-Oct	Mon	Velocity profiles	Ch. 9.1-9.6.4	Lab 8: Minor losses
19	29-Oct	Wed	Minor losses	Ch. 10.1-10.10	
20	3-Nov	Mon	Minor losses (continued)	"	
21	5-Nov	Wed	Pipe flow in series	Ch. 11.1-11.6	
22	10-Nov	Mon	MQ Exam II (open book/closed notes, Ch. 7-10, 15)	Covers Ch. 7-10, 15	
23	12-Nov	Wed	Pipe flow in series (continued)	Ch. 11.1-11.6	
24	17-Nov	Mon	Parallel pipe problems	Ch. 12.1-12.4	Lab 9: Pipe networks
25	19-Nov	Wed	Parallel pipe problems (continued)	"	
26	24-Nov	Mon	Open channel flow	Ch. 14.1-14.10	Lab 10: Open channel
27	26-Nov	Wed	Open channel flow measurement	Ch. 14.11	
28	1-Dec	Mon	Drag and lift	Ch. 17.1-17.6, 17.8-9	
29	3-Dec	Wed	Drag and lift	"	
FINAL	8-Dec	Mon	Exam (8:00-10:00, open book/closed notes, Comprehensive w/emphasis on Ch 11-17)		