

## CE319 F - Elementary Mechanics of Fluids

### COURSE OUTLINE: Lectures, Reading, and Homework Assignments (Fall 2013)

Date	Topic	Reading	Homework Assignment	Due Date
<b>Week of Aug 26</b>				
<b>No Laboratory</b>				
Th, Aug 29	Introduction to Fluid Mechanics	Ch. 1	<b>HW1:</b> Ch 1 – 1C, 8C, 20C, 35, 64, X	Sept 6
<b>Week of Sept 2</b>				
<b>No Laboratory</b>				
T, Sept 3	Fluid Properties	1.6; 2.1-2.2	<b>HW2:</b> Ch 2 – 3C, 8, 12E, 16, 132, X	Sept 11
Th, Sept 5	Fluid Properties	2.3 & 2.5	<b>HW3:</b> Ch 2 - 9, 24E, 25, 48, 135, X	Sept 13
<b>Week of Sept 9</b>				
<b>Lab 1a – Fluid Properties</b>				
T, Sept 10	Fluid properties	2.6-2.7	<b>HW4:</b> Ch 2 - 105E, 109, 110, 149, X	Sept 18
Th, Sept 12	Fluid properties/Fluid Statics (P)	2.6-2.7	<b>HW5:</b> Ch 2 - 73C, 81, 87, 146, X	Sept 20
<b>Week of Sept 16</b>				
<b>Lab 1b – Fluid Properties</b>				
T, Sept 17	Fluid Statics (pressure)	3.1	<b>HW6:</b> Ch 3 – 5C, 8, 10E, 14, 18, X	Sept 25
Th, Sept 19	Fluid Statics (pressure/forces)	3.1–3.2	<b>HW7:</b> Ch 3 – 12, 38, 41, 56, 179, X	Sept 27
<b>Week of Sept 23</b>				
<b>Lab 2a – Pressure Measurements</b>				
T, Sept 24	Fluid Statics (submerged objects)	3.3-3.4	<b>HW8:</b> Ch 3 – 63C, 67, 69, 71, 180, X	Oct 2
Th, Sept 26	Fluid Statics (submerged objects)	3.3-3.4	<b>HW9:</b> Ch 3 – 73, 75, 83, 92, 183, X	Oct 4
<b>Week of Sept 30</b>				
<b>Lab 2b - Hydrostatics</b>				
T, Oct 1	Fluid Statics (buoyancy)	3.6	<b>HW10:</b> Ch 3 – 94C, 97C, 100E, 151, 191, X	Oct 9
Th, Oct 3	Velocity and Acceleration	4.1	Problems from these sections on HW11	-
<b>Week of Oct 7</b>				
<b>No Laboratory</b>				
T, Oct 8	Reynolds Transport Theorem / + ....	4.2 & 4.6	<b>HW11:</b> Ch 4 - 4, 10C, 17, 94, 114, 125, 129, X	Oct 16
Th, Oct 10	<b>*** EXAM 1 ***</b>	-	No homework assignment	-

X = Student derived problem and solution on material relevant to specific assignment. Top five X problems per assignment receive 5 bonus points.

Date	Topic	Reading	Homework Assignment	Due Date
<b>Week of Oct 14</b> <b>Lab 3a – Flow Visualization</b>				
T, Oct 15	Conservation of Mass	4.6; 5.1-5.2	<b>HW12:</b> Ch 5 – 2C, 5C, 7E, 13, 120, X	Oct 23
Th, Oct 17	Conservation of Mass	5.1-5.2	<b>HW13:</b> Ch 5 – 9, 16, 17, 122, X	Oct 25
<b>Week of Oct 21</b> <b>Lab 3b – Continuity Equation</b>				
T, Oct 22	Bernoulli Equation	5.4	<b>HW14:</b> Ch 5 – 33C, 44, 52, 59, 131, X	Oct 30
Th, Oct 24	Bernoulli Equation	5.4	<b>HW15:</b> Ch 5 – 63, 66, 103, 106, 137, X	Nov 1
<b>Week of Oct 28</b> <b>Lab 4a – Bernoulli Equation</b>				
T, Oct 29	Energy Equation	5.5-5.6	<b>HW16:</b> Ch 5 – 75C, 80, 84, 86, 125, X	Nov 6
Th, Oct 31	Energy Equation	5.5-5.6	<b>HW17:</b> Ch 5 – 82, 87, 97, 140, X	Nov 8
<b>Week of Nov 4</b> <b>Lab 4b - Cavitation</b>				
T, Nov 5	Momentum Principle / Equation	6.1-6.3	<b>HW18:</b> Ch 6 – 10C, 22, 24E, 32E, 101, X	Nov 20
Th, Nov 7	Momentum Principle / Equation	6.4	<b>HW19:</b> Ch 6 – 37E, 40, 42, 68, X	Nov 22
<b>Week of Nov 11</b> <b>Lab 5 – Momentum Equation</b>				
T, Nov 12	Dimensional Analysis	7.1-7.4	Problems included on HW20	-
Th, Nov 14	<b>*** EXAM 2 ***</b>	-	No homework assignment	-
<b>Week of Nov 18</b> <b>No Laboratory</b>				
T, Nov 19	Dimensional Analysis	7.4-7.5	<b>HW20:</b> Ch 7 – 37, 45E, 52, 62, 120, 135, 138, X	Nov 27
Th, Nov 21	Flow in Pipes & Ducts	8.1-8.2	<b>HW21:</b> Ch 8 – 1C, 9C, 12E, 47E, 178, X	Dec 4
<b>Week of Nov 25</b> <b>Lab 6 – Dimensional Analysis and Similitude</b>				
T Nov 26	Flow in Pipes & Ducts	8.4-8.6	<b>HW22:</b> Ch 8 – 77, 83E, 90, 91, 182, X	Dec 6
Th, Nov 28	Thanksgiving	-	No homework assignment	-
<b>Week of Dec 2</b> <b>Lab 7 – Laminar and Turbulent Flow</b>				
T, Dec 3	Drag Forces /Particles (time permit)	11.1-11.4	No homework assignment	-
Th, Dec 5	Wrap-Up		No homework assignment	-
<b>Saturday Dec 14</b>	<b>FINAL EXAM ----- 7 p.m. to 10:00 p.m.</b>			

X = Student derived problem and solution on material relevant to specific assignment. Top five X problems per assignment receive 5 bonus points.