

CTC 261-Hydraulics Schedule

January/February

Monday/Wednesday Class	Wed Lab/Project (Noon-2 pm on Wed)
18-Wed Lecture 1 (Intro)	Will not meet for the lab
23/25 Lecture 2 (Fluid Statics)	Meet in D1155 Intro to Experimental Lab (Safety, specs, etc.)
30/1 Lecture 3 (Fluid Statics)	Review Blackboard and Visualization Lab
6/8 Lecture 4 (Bernoulli Equation)	D1155: Visualization/Fluid Statics Labs
13/15 Lecture 5 (Energy equation)	D1155: Visualization/Fluid Statics Labs
20/22 Lecture 6 (Orifices, Weirs and Sluice Gates)	D1155: Visualization/Fluid Statics Labs (Makeup)

March

Monday/Wednesday Class	Wed Lab (Noon-2 pm pm on Wed)
27/1 Lecture 7 (Open Chanel Flow)	Visualization Lab Report due on Blackboard
6/8 Bentley Software (Flowmaster) & Review for Midterm	D1157: Midterm Exam (use lab time of 2 hours)
13/15 SPRING BREAK	
20/22 Lecture 8 (Culvert Basics)	Work on Fluid Statics Procedure and Lab Report
27/29 Lecture 9 (Culvert Hydraulics)	Work on Fluid Statics Procedure and Lab Report

April/May

Monday/Wednesday Class	Wed Lab (Noon-2 pm on Wed)
3/5 Lecture 10 (Culvert Designs)	Fluid Statics Procedure and Lab Report due On Blackboard
10/12 Lecture 11 (riprap design) Work on Culvert Designs (Project 1a and 1b)	Review Critical/Subcritical/Supercritical Depths and Froude Number
17/19 Culvert Design Presentations (on board)	Review culvert controls types and velocity calculations
24/26 Review for Final and Hand out Take-home final	Work on Final Culvert Designs Due online via Blackboard on Friday, May 29th

Midterm Exam:

Will test ability to:

- Solve manometer problems
- Find resultant forces/center of pressures on horizontal plane surfaces, vertical plane surface and inclined submerged plane surfaces
- Determine Reynold's number
- Calculate friction losses using Darcy-Weisbach
- Use Bernoulli's and energy equations
- Sketch or graph EGL/HGL lines

Final Exam: Due Monday May 2 at 12:15 pm (Blackboard dropoff, drop off at G143 or Don 1159)

Final Review PPT

Will test ability to:

- **Solve orifice/weir problems**
- **Find capacity, velocity and normal depth using Manning's equation**
- **Find critical depth/Froude number and determine whether you have critical/subcritical or supercritical flow**
- **Calculate headwater elevation, downstream velocity and what type of control (inlet or outlet) for a given culvert using the culvert worksheet**
- **Determine the type of control for a culvert**
- **Design a riprap apron**

Last Updated on February 15, 2023