Agenda

• Course info
• Why is fluid mechanics important?
• Course objectives / syllabus
• Fluid property 1
Course info

- Synchronous lectures
  - Tue and Thu 11:15 am-12:30 pm
  - Zoom link
    - https://umn.zoom.us/j/97998699814?pwd=SFRHQXNLVWFEdVBrbEw1Z1FpWkVLZz09Meeting
    - ID: 979 9869 9814
    - Passcode: Fluids2020
  - Videos will be available for asynchronous attendance
    - Link to the videos will be shared in the class folder of each week
Canvas: everything for the course

- **https://canvas.umn.edu**

- **Grading**
  - **3502**
    - Homework 20%
    - Lab reports 20%
    - Midterm 30% (2*15%)
    - Final 30%
  - **4522**
    - Homework 30%
    - Midterm 30% (2*15%)
    - Final 40%

- Bonus: an upgrade (e.g., from B+ to A-) can be requested at the end of the semester based on participation/attendance.
Book (recommended)

- Default: perpetual access for $72.95 (email)
- Opt Out Deadline is **September 18**th
  - The email will have the subject line "Course Materials Charged on Your Student Account".
  - The original email comes from [verbasoftware.com](http://verbasoftware.com) or [inclusiveaccess@umn.edu](mailto:inclusiveaccess@umn.edu)
  - Students must set up an account with VitalSource to access their material.
  - [https://support.vitalsource.com/hc/en-us/articles/360052630174](https://support.vitalsource.com/hc/en-us/articles/360052630174)
Questions or Concerns?
Why is fluid mechanics important?

Water

Travel

Electricity

Hydropower

Wind turbine

gas turbine
Why is fluid mechanics important?

Disease transport

Turbulent gas cloud

Drops fall continuously, depending on weight and other factors. The most visible drops would fall within 6 feet.

Sports

Mysteries in nature

IMAGE: ASKNAATURE.ORG
Course objectives: characterize and solve Fluid Mechanics problems

1. Fluid properties (e.g., density, viscosity, etc.)
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1. Fluid properties (e.g., density, viscosity, etc.)
2. Forces in fluids and on their boundaries
Course objectives: characterize and solve Fluid Mechanics problems

1. Fluid properties (e.g., density, viscosity, etc.)
2. Forces in fluids and on their boundaries
3. Conservation equations
   - Mass
   - Momentum
   - Energy
Course objectives: characterize and solve Fluid Mechanics problems

1. Fluid properties (e.g., density, viscosity, etc.)
2. Forces in fluids and on their boundaries
3. Conservation equations
4. Dimensional analysis
Syllabus

https://canvas.umn.edu/courses/193574/assignments/syllabus

1. Fluid properties (e.g., density, viscosity, etc.)
2. Forces in fluids and on their boundaries
3. Conservation equations
4. Dimensional analysis
Homework, lab reports, and exams

1. Knowledge + technical skills + writing:
   – make a sketch, define variables, state the problem (Intro)
   – make assumptions (Methods)
   – step-by-step derivations & explanation with clear numbers and units
   – clear figures and calculation (Results)
   – highlight final results and/or explain the results (Conclusions)

2. Upload on canvas (scanned documents or clear images)
Questions or Concerns?