

Thermal and Fluid Mechanics – 2230 Hybrid 50-85 Percent Online

Dr. Zahra Hooshmand

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Course Hours: M/W 11:00-11:50 (Hybrid)

Office Hours: T/Th: 12:00-1:00 (Online Only)

This class will be delivered in Hybrid format. No more than five students will meet in person each session. Students are required to wear facemasks and follow the strictest social distancing guidelines.

Those who come to campus without a face mask will not be allowed to attend the class.

On campus meeting location: Undergraduate Learning Center 128

There will be homework assignments each week. These assignments are due each Monday before 11AM. Most of the class will be solving problems and similar problems will be assigned as homework.

This class is a 2-credit course for undergraduate students in physics and engineering. Students are required to take PHYS 2420 before taking this course. During this course students are expected to develop an understanding of macroscopic properties of fluids and thermal mechanics.

Course Objective and Contents:

This course will cover the following topics:

- Fluids and Elasticity
- A Macroscopic Description of Matter
- Work, Heat and First Law of Thermodynamics
- The Micro/Macro Connections
- Heat Engines and Refrigerators

References: Although students are always encouraged to read different reference books in physics, the original one for this course is: PHYSICS FOR STUDENTS AND ENGINEERS WITH MODERN PHYSICS, KNIGHT, 4th EDITION. The material of each session will be posted to blackboard.

Grading of this course will be based on five exams, students' involvement in class in solving problems, homework assignments and Final exam:

- Classroom activity → 20%
- Homework → 20%
- Exams → 40%
- Final → 20%

Important factors in your grade:

1. Homework assignments that are submitted after due date and time, will not be accepted. If due to a personal problem, you may not be able to submit your assignment on time, your instructor should be notified AT LEAST 24 HRS prior to the due date and time. All the homework assignments MUST be submitted as scanned documents. No typed homework will be accepted.
2. All the students MUST actively participate in classroom problem solving. The students will be randomly asked to solve a problem in the class, so they are expected to attend all the sessions with review on the material that was presented in previous session and take notes and ask questions during each session.
3. Attendance in class is MANDATORY. Since due to COVID-19 pandemic some sessions will be online, all the students MUST keep their videos on through the entire class.

4. Attendance in all the exams is MANDATORY.
5. Makeup for exams will only happen at instructor's discretion.
6. On campus meetings will be held every week on Wednesdays with NO MORE THAN 5 STUDENTS.
7. The students with disability should contact The Center for Accommodations and Support Services (CASS) at 747-5148 or by email at cass@utep.edu or visit the office located in UTEP Union East, Room 106. Please notify the instructor of your disability and present a document from a medical official or CASS.

Course, Homeworks and Exams schedule

| Date | Chapter | Homework/Exam |
|----------------------|----------------------|---|
| Aug 24 th | 14 | |
| Aug 26 th | 14 | |
| Aug 31 st | 14 | First Homework due by 10:58 AM |
| Sep 2 nd | 14 | |
| Sep 7 th | Labor Day – No class | Second Homework due by 10:58 AM of Tuesday Sep 8th |
| Sep 9 th | 14 and review | |
| Sep 14 th | Exam Day | First Exam |
| Sep 16 th | 18 | |
| Sep 21 st | 18 | Third Homework due by 10:58 AM |
| Sep 23 rd | 18 | |
| Sep 28 th | 18 | Fourth Homework due by 10:58 AM |
| Sep 30 th | Exam Day | Second Exam |
| Oct 5 th | 19 | Fifth Homework due by 10:58 AM |
| Oct 7 th | 19 | |
| Oct 12 th | 19 | Sixth Homework due by 10:58 AM |
| Oct 14 th | 19 | |
| Oct 19 th | 19 | Seventh Homework due by 10:58 AM |
| Oct 21 st | Exam Day | Third Exam |
| Oct 26 th | 20 | |
| Oct 28 th | 20 | |
| Nov 2 nd | 20 | Eighth Homework due by 10:58 AM |
| Nov 4 th | 20 | |
| Nov 9 th | Exam Day | Fourth Exam |
| Nov 11 th | 21 | |
| Nov 16 th | 21 | nineth Homework due by 10:58 AM |
| Nov 18 th | 21 | |
| Nov 23 rd | Exam Day | Fifth Exam |
| Nov 25 th | Review session | |

During Exams and class hours your webcams should be on. Only handwritten answers will be accepted.

All the students MUST be online at least 3 minutes before start time of the class. Please make sure that your connection is working. When on campus, students MUST be at class at least 5 minutes before the start of the class. All the sessions will start ON TIME.