

# ASEN 3713: Thermodynamics and Heat Transfer, Spring 2026

Lecture Time/Location: Tu/Th 4:00 pm - 5:15 pm AERO 120

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**Text:** McGraw Hill Connect: Cengel, *Fundamentals of Thermal-Fluid Sciences*, 5<sup>th</sup> Edition.

**Prerequisites:** ASEN 2702 or equivalent.

**Introduction:** This course follows ASEN 2702 and covers the Second Law of Thermodynamics, Entropy, Power/Energy Cycles and Heat Transfer (conduction, convection, and radiation). The emphasis will be on understanding the basic physical principles associated with these topics and developing the student's ability to solve numerical problems associated with them.

**Course Objective:** Given regular class attendance, reading of assigned text material in preparation for quizzes, careful and comprehensive completion of all assignments, students should be able to: (1) understand the general concepts of thermodynamics and

heat transfer in order to develop an intuitive grasp of the subject matter; (2) develop an ability to apply these basic concepts to engineering design problems.

**Course Structure:** The textbook will be followed closely but some additional material may be introduced to broaden a particular subject. Students are expected to read the assigned textbook section in time to prepare for both in class discussion and for quizzes given approximately every week. Homework assignments will be weekly or bi-weekly.

This class utilizes the iClicker system to enhance learning and reward participation in class discussion. You will need to have an iClicker student app account, [register your clicker there](#), and download and set up the app **BEFORE** you get to class. For more information:

<https://oit.colorado.edu/services/learning-spaces-technology/cuclickers/help/student-resources>

**Exams:** There will be 3 1-hr-long mid-term exams and a final exam. All mid-term exams will be in-class and cover the material between it and the previous exam. All Exams are closed book, but you are allowed to have one single-sided 8.5x11 page crib notes for your first exam, and you are allowed to fill out the other side of the same crib sheet for your second exam, and so on. Always bring a calculator. Thermodynamic Tables will be provided to you for the exams. There will be no make-up for exams. **Acceptable excuses**, such as medical or family emergencies, will be considered on a case-by-case basis. There will be no make-up quizzes since the lowest three are dropped.

## GRADING

Our grading scheme is designed to indicate your level of competency compared to the standards set by the AES faculty. Do you meet the minimum level of competency? Do you exceed the minimum? Are you below the minimum? This should be indicated by the final grade. We (the faculty) are professionals, and it is our job to set and maintain standards. We are expected to use our education, experience, and interactions with industry, government laboratories, others in academe, etc., to determine the content of these standards. Because our program is accredited by ABET (Accreditation Board for Engineering and Technology), the AES curriculum meets or exceeds that board's standards. As with any other professionals (doctors, lawyers, etc.) you must trust that we know what we are doing and that we are obliged to uphold standards.

The final grade indicates your readiness to continue to the next level of courses. Meeting the minimum requirements indicates that you are prepared to continue, at least at the minimum level required for the next sequence of courses. Exceeding the minimum means you are ready to enter the next course and that you have mastery of material beyond the minimum, i.e., you show some level of proficiency.

**Grade Breakdown According to Assignments:** Your final grade is determined according to the following percentage breakdown:

Reading/lecture quizzes (<~10 min each; drop the lowest 3)	10%
Clicker quizzes (random; drop the lowest 3)*	10%
Three Mid-term Exams (10% each)	30%
Homework*	25%
Final (TBD)	25%
	100%

\*Group effort only counts toward final grade if total individual grade is C- or better

### Letter Grading Scheme:

Letter grades may be assigned based on the following preliminary **guidance**, which may be changed to only benefit the students.

Letter Grade	Percent Grade
A	93.00 – 100.00
A-	90.00 – 92.99
B+	87.00 – 89.99
B	83.00 – 86.99
B-	80.00 – 82.99
C+	77.00 – 79.99
C	73.00 – 76.99
C-	70.00 – 72.99
D	60.00 – 69.99
F	Below 60.00

### Regrade Requests

- 1) Regrade requests must be made via Gradescope within **1 week** of the regrade request window being opened, keeping in mind the points below. The regrade request window is usually opened within 24 hours of the graded assignment or exam being returned.
- 2) The purpose of a regrade request is to bring grading errors to the attention of the Instructional Team, and not to request a modification to the grading process or design of the rubric. The rubrics are final and cannot be changed or adjusted.
- 3) The regrade request should clearly specify the rubric item where-in the suspected grading error was made. It should also clearly explain, with direct references to the submitted work, why and where the student believes that a grading error was made. In other words, the regrade request should clearly and directly explain why the submitted work should qualify for the stated rubric item.
- 4) Regrade requests submitted without the required information will not be

reviewed.

- 5) As for the final exam and final grade, any question/dispute will be resolved during the first week of the next semester (**not during the break**). There are certain due processes to be followed.

## Important Notes

1. We reserve the right to reply to email questions only in business hours, i.e., Monday through Friday, 8:00 am – 6:00 pm. Emails received 24 hours or less before the exams are not guaranteed a response. We also reserve the right to reply all (to the entire class) if the questions/answers are deemed to benefit others in the class (the identities of the questioners are not to be revealed). To better help us manage and track your emails, from the junk and clutter that we receive daily, please include **ASEN3713** at the beginning of the subject line. Please refrain from sending emails for questions that are already addressed in the course syllabus, such emails will not be answered.
2. Attendance in person to all lectures is expected and always have a calculator for lectures.
3. Why have reading assignments, homework, and various quizzes?

- Reading assignments are to be completed before the lecture/discussion. The lecture/discussions should help to clarify and supplement what you have read.
- Homework assignments will cover both material from lectures and material assigned but not covered in lectures. Homework enforces the mental processes that help you to become proficient in a subject. In addition, homework may encourage you to learn other material not included in lectures.

$$HW(\text{Score}/30) = 10\text{pts (random P1)} + 10\text{pts (random P2)} + 10\text{pts (\# of remaining problems completed)/(\# of remaining problems assigned)}$$

- Reading quizzes at the beginning of class provide a gauge to determine what you have learned independently from the assigned reading. Lecture quizzes, at the end of class, cover the previous days' and/or the same day's lecture.
- Clicker quizzes, another way to measure what you have learned, increase your retention what was taught, and facilitate discussion and peering teaching. **Always bring your iClicker to the classroom.**

#### 4. All assignments must be submitted to Canvas/Gradescope in pdf form only:

All individual submissions must follow the convention:

LastName, FirstName\_AssignmentName, for example: Smith, John\_HW1

5. Always submit work in a professional form. Neatness, clarity, and completeness count. **If submitted work is not legible, you may not receive full credit. Please review before and after submitting. It is your responsibility to make sure the submission is complete.**

**6. Policy on Missed/Late Homework** – No homework submissions will be accepted after the assignment due date/time unless extremely extenuating circumstances prevented timely submission of the homework. This will be considered on a case-by-case basis and is at the sole discretion of the instructor.

Absolutely no homework submissions will be accepted once solutions to the assignment have been posted. Homework solutions are typically posted shortly after the homework due date/time.

There is no lowest-score drop policy for homework assignments. It is your responsibility to complete all assigned homework in a timely manner and to plan for any additional time required to finalize and upload your homework submission via Gradescope. If you wait until the last minute to submit your assignment, and there is an issue with internet connectivity or with Gradescope, then you are liable for any late submissions/missed deadlines.

7. Collaboration is permitted on homework. This means you may discuss the means and methods for solving problems even compare answers, but you are not free to copy someone's assignment. The work that you turn in must be your own--copying is not allowed for any assignments. Collaboration on quizzes and exams or using another student's work or allowing another student to use your work is academic misconduct.

8. This class is not graded on a curve; there are absolute expectations of performance. However, we reserve the right to normalize and adjust the class grades based on the highest performance in the class. This process will not lower a person's grade.

## Other Important Notes

### **Classroom Behavior**

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the [classroom behavior](#) policy, the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

### **Accommodation for Disabilities**

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu) for further

assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

Students should expect to receive accommodations for a timed assessment (e.g., exam) only if their faculty instructor(s) receives the student's accommodation letter **at least 5 business days** before the assessment, as a departmental policy, to facilitate administering the assessment.

If you have a temporary illness, injury or required medical isolation for which you require adjustment, please notify the instructor as soon as possible so that appropriate accommodations can be made. Please note that for health privacy reasons you are not required to disclose to the instructor the nature of your illness or condition, however you are welcome to share information you feel necessary to protect the health and safety of others within the course.

### **Preferred Student Names and Pronouns**

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

### **Honor Code**

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the [Honor Code](#). Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution ([honor@colorado.edu](mailto:honor@colorado.edu)); 303-492-5550). Students found responsible for violating the [Honor Code](#) will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#).

### **Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation**

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, protected-class discrimination and harassment, and related retaliation by or against members of our community on- and off-campus. These behaviors harm individuals and our community. The Office of Institutional Equity and Compliance (OIEC) addresses these policies, and individuals who believe they have been subjected to misconduct can contact OIEC at 303-492-2127 or email [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about university policies, [reporting options](#), and support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of any issues related to these policies regardless of when or where they occurred to ensure that individuals impacted receive information about their rights, support resources, and resolution options. To learn more about reporting and support options for a variety of concerns, visit [Don't Ignore It](#).

### **Religious Holidays**

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, students need to inform the instructor in advance if they need accommodation. See the [campus policy regarding religious observances](#) for full details.