AE 6765 Fall 2021 Syllabus

Mackenzie Lau

2021-08-23

Lectures take place every Tuesday from 16h30 to 17h45 and Thursday from 15h00 to 16h15 in the Green room. All lecture slides have been posted to Canvas.

The objective of this course is to provide students with a foundational understanding of the principles and concepts underpinning both classical and statistical thermodynamics, as well as the relationships between the two. A balance between theoretical comprehension, achieved through presentations and discussions in class, and practical application, achieved through a computer project.

The course will be graded according to the following:

- 30%: Project
- 20%: Midterm exam 1 (early to mid October, date TBD)
- 20%: Midterm exam 2 (mid to late November, date TBD)
- 30%: Final exam (early December, date TBD)

All material covered in class, provided by the instructor or any assistants, or assigned as reading material outside of class, up until the date of each exam, is eligible for questioning. Homeworks will be provided for students to practice outside of class, but they will not be graded. Solutions will be posed to Canvas within seven calendar days after the homework is released.

Attendance will not be checked after the first day of class. Due to policy, **lectures cannot be recorded or posted to Canvas**. It is the responsibility of the student to acquire notes from their peers in the event they miss class. Students must notify the instructor, as well as Dr. Paul Voss (paul.voss@ece.gatech.edu) or Adeline Kremer (adeline.kremer@georgiatech-metz.fr), in case they fall ill.

Each student's weighted score will be used to determine their letter grade according to the following:

- A: 90-100
- B: 80-89
- C: 70-79
- D: 60-69
- F: <60

All students are expected to adhere to the Georgia Tech honor code, available at `https://policylibrary.gatech.edu/student-affairs/academic-honor-code`, at all times and under all circumstances. Violations of the Honor Code will be subject to serious consequences.

Below is a tentative schedule for the course. Dates are subject to change based on the pacing of classroom discussions.

Week	**Subject**
1 (23 Aug)	Introduction, Overview
2 (30 Aug)	Fundamental Laws, Chemical Potential
3 (06 Sep)	Measurable Quantities, Thermodynamics of Gases
4 (13 Sep)	Perfect Gas Mixtures
5 (20 Sep)	Gas Phase Equilibrium
6 (27 Sep)	Formation Reactions
7 (04 Oct)	Quantum Mechanics, **Midterm 1**
8 (11 Oct)	Quantum Mechanics cont.
9 (18 Oct)	Wave Mechanics
10 (25 Oct)	Statistical Mechanics, Microstates
11 (08 Nov)	Revisiting Thermodynamic Relations
12 (15 Nov)	Partition Functions, **Midterm 2**
13 (22 Nov)	Polyatomics, **Project Assigned**
14 (29 Nov)	Intro to Kinetics, Velocity Distributions
15 (06 Dec)	Review