

EML3100: Thermodynamics Syllabus -- Spring 2021 – Section 27G3

(Modifications to this syllabus may be required during the semester. Any changes to the syllabus will be posted on the course web site and announced in class.)

1. **Catalog Description:** Application of the first and second laws of thermodynamics to closed and open systems and to cyclic heat engines. Includes the development of procedures for calculating the properties of multiphase and single phase pure substances. Credits: 3
2. **Pre-requisites:** *CHM 2045, MAC 2313 and PHY 2048.*
3. **Course Objectives:** This course provides an introduction level coverage of thermodynamics. The course stresses the fundamentals while emphasizing application problems of relevance to a wide range of engineering disciplines with emphasis of mechanical and aerospace applications. Students will learn the first law and the second law of thermodynamics, the use of these laws in a variety of engineering applications and analyze most common thermodynamic cycles.
4. **Contribution of course to meeting the professional component:** This course is designed primarily for students of mechanical and aerospace disciplines. The course content is 100% engineering science.
5. **Relationship of course to program outcomes:** This course achieves the following ABET outcomes [note that the outcome number corresponds to the respective ABET outcomes (a) through (k)]: (a) Apply knowledge of mathematics, science, and engineering (high coverage, addressed by lectures and example problems, assessed by exams and homework) (e) Identify, formulate, and solve engineering problems
6. **Instructor:**
Corin Segal.
Telephone: 392-6132
Web site: <http://elearning.ufl.edu> (e-learning in canvas system)
Office hours: MWF 1:30 – 2:30 pm or by appointment.
Teaching Assistants:
Utkarsh Ahuja
Office hours:
7. **Meeting Times and Location:**
 - MWF 8 Period (3:00 – 3:50pm) via Zoom.
8. **Textbooks Required:** *Fundamentals of Thermodynamics* by Sonntag, Borgnakke and Wylen, Wiley; 6th Edition.
9. **Course Outline:**
 - Introductory concepts (Chapter 2)
 - Properties, energy, & first law of thermodynamics (Chapters 3-6)
 - Second law of thermodynamics (Chapters 7-9)
 - Availability and Exergy (Chapter 10)
 - Vapor and Gas Power Systems (Chapter 11)
 - Gas Mixtures (Chapter 12)
 - Chemical Reactions and Equilibrium (Chapters 14, 15)
10. **Attendance and Expectations:** Lecture attendance is imperative. Although attendance will not be taken or used in assigning grades, students will be held responsible for knowing all changes made to scheduling and all class announcements.
Note:
 1. Although information will be posted on the website, class announcements prevail in case there are discrepancies.
 2. **UF General Statement:** Our class sessions may be audio visually recorded for students in the class to refer and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to

consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

11. **Assessment Methods and Grading:** Homework will be assigned periodically during the semester. Homework will not be graded. Selected solutions will be posted online.

Please submit your solutions ONLY via Canvas. The HW problems may be downloaded from the course web site <https://lss.at.ufl.edu/> (use Canvas system).

There will be four exams during the semester in class. All exams will be cumulative but will emphasize the most recently covered material. The exams will be during the regular class period. Exam dates will be announced at least two weeks ahead.

The relative weighting of the HW Problems and Exams in the final grade will be:

- | | |
|----------|-----|
| a. HW | 25% |
| b. Exams | 75% |

In general, each exam will have two (2) problems each for eight (8) total exam problems. Your lowest score on an exam will be dropped with your exam grade being based on the other six (6) problems.

Late assignments will not be accepted. The lowest grade for the HW problems will be dropped.

Dropped exam and HW grades are designed to mitigate exceptional conditions; consequently there will be NO make-up exams ONLY – see below for more details.

If a student feels that an exam or homework is graded unfairly, or if there is an error in the grading, please bring it to the instructor attention within a week after the graded material is handed back. Scores will not be reconsidered beyond the one week period.

12. **Grading Scale:**

93 – 100: A	87 – 89.9: B+	77 – 79.9: C+	60 – 69.9: D	0 – 59.9: E
90 – 92.9: A-	83 – 86.9: B	73 – 76.9: C		
	80 – 82.9: B-	70 – 72.9: C-		

13. **Make-up Policy:** No late assignments will be accepted. There will be no Make-up exams

Note: The lowest EXAM grade will be dropped. This has the ONLY purpose to accommodate exceptional situations that may appear during the semester. It is NOT meant to eliminate low grades.

14. **Honesty Policy and Ethical Considerations:** All students admitted to the University of Florida have signed a statement of academic honesty committing to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
15. **Accommodation for Students with Disabilities:** Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.
16. **UF Counseling Services:** Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
 - Career Resource Center, Reitz Union, 392-1601, career and job search services.

- 17. Software Use:** All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.