

Spring 2014

MAE 3309-001 – Introduction to Thermodynamics and Heat Transfer

Instructor: Dr. Dora Musielak

The main emphasis of MAE 3309 is to study the basic concepts of thermodynamics and heat transfer, including the conversion of heat into work using pure substances, ideal gases, the application of the first and second laws of thermodynamics, and an introduction to heat transfer by conduction, convection and radiation.

Prerequisite: MATH 2325 and PHYS 1444.

Text Book: Introduction to Thermodynamics and Heat Transfer, 2nd Ed. by Yanus A. Cengel

Course Overview:

- Basic Concepts of Thermodynamics
- Properties of Pure Substances
- First Law of Thermodynamics
- Isolated, closed and control volume thermodynamic systems
- Steady and Transient Heat Conduction
- Forced and Natural Heat Transfer by Convection
- Heat Transfer by Radiation

Class Time: M-W 5:30 p.m. – 6:50 p.m.

Class Room: WH 221

Office Hours: 5:00 pm - 5:30 pm, Monday and Wednesday, or by appointment

Instructor Office: SH 129 B

TA: TBA

EXAMINATIONS: (Any change to these dates will be announced in class)

- Two Midterms: February 17, and March 31
- One Final Exam: May 5, 2014

* Material covered on the tests will include problems covered in lectures and homework.

MAKE-UP EXAMINATION POLICY:

If you miss a midterm for an authorized reason (hospitalization, death in the family, major illness, etc), which can be verified with official documentation, I may replace the missed test grade by the grade from the final exam or previous test score.

Please contact Dr. Musielak immediately if such eventuality occurs: dmusielak@uta.edu.

Final Exam:

The final exam is **comprehensive** (i.e., it covers all course material) and mandatory.

Exam Rules:

- Exams will be closed book. You may not use notes or other aids. Students should not talk or communicate in any way with each other during exams. No texting!
- Exams will be formatted so that there is adequate scratch space for your calculations, but if you need more scratch paper, request it from the instructor.
- You must enter your name and 4 last digits of your ID number on the exam sheet. You must also record the section unique number and provide your signature.

Grading : Course average = $(T1 + T2 + H + FE) / 4 + E$

where **T** is a midterm exam score, **H** is the grade for homework, **FE** is the final exam score, and **E** may be for extra credit points on any extra work assignments. Partial credit may be given on exams or for special projects and extra homework. **No scores will be dropped.** Letter grades will be assigned in the ranges below:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: 0 – 59

Homework: This is the most important activity outside the classroom to learn the material in this course.

Homework has the same weight as the regular exam. Thus, I urge you all to attempt to solve all problems assigned; otherwise your final grade will be affected. Problems will be assigned every week and no assignment will be accepted after the day it is due.

If you need help solving problems, please email me immediately.

Study Suggestions:

A university or college classroom provides an ambience that traditionally is significantly different than the ambience found in primary or secondary schools. In college level classes, the burden of the educational effort is on the shoulders of the student—the instructor conveys some information and answers some questions, but it is the student's responsibility to become an active learner. Also, the amount of outside work (i.e., homework) done for a class may be significant. The traditional college norm is that for every hour (i.e., standard 50 minute period) spent in the classroom, a student should plan on spending at least two hours outside the classroom learning the subject matter of the course through additional reading and solving the problems in the weekly assignments.