NOTE: You are expected to read through this document and be familiar with the policies and dates described within; print out, sign, and pass in the signature page with your first homework assignment. Some dates may be subject to change; changes will be announced in class, via email, and on the website. Check this document prior to emailing me for logistical information.

CLASS M-W 6:30 – 8:15 PM, PHO 203

PROFESSOR Caleb Farny (farny@bu.edu)
Office: 110 Cummington, Rm 207, 353-8664
Office hours: MW 10 – 12 pm, or by appointment

GTF Aliya Mukhazhanova (maliya@bu.edu)
Office hours: M 3:30 – 4:40 pm, Rm 410, 110 Cummington

RESOURCES

DISCUSSION SECTION
ME304 instruction consists of your twice-weekly class and an open-door discussion section. Your course registration asked you to sign up for a specific discussion section, but attendance is purely voluntary. The Discussion section will be run by the Graduate Teaching Fellow (GTF). The GTF will review relevant problems to the current topics in the course. If you do attend, please visit the section you registered for:

Section B1: Wednesdays 4:40 – 5:30 pm, EPC 206
Section B2: Thursdays 11:15 – 12:05 pm, SOC B63
Section B3: Fridays 12:20 – 1:10 pm, EPC 206

WEBSITE
The course website is on BlackBoard (learn.bu.edu). Electronic materials will be posted periodically throughout the semester, so check the website often for updates. These will include the course syllabus, homework problems, and solutions. Note that while grade assignments will be posted for your review, I do NOT use the Blackboard Gradecenter to calculate semester grades. Ignore any interpretation of your grade based on whatever Blackboard-reported “points” that are displayed.

COURSE LEARNING OUTCOMES
As an outcome of completing this course, students will:

i. Understand underlying principles of engineering thermodynamics: properties of simple compressible fluids, use of "steam tables" for fluids, use of closed-form expressions for gasses, first and second laws of thermodynamics for closed and open systems, concept of entropy, thermodynamic temperature scale, concept of humidity.

ii. Understand and be able to analyze simple gas and vapor cycles: Carnot cycle, Rankine cycle, Brayton cycle, Refrigeration cycle, Otto and Diesel cycles.
iii. Be able to carry out experiments involving thermal systems: application of 1st law to open and closed systems; refrigeration system performance.

iv. Be able to write clear, concise, technical reports: Individual reports are required for each laboratory exercise. Students are expected to succinctly describe the experimental system, present the measured results, and compare results to the theory developed in class.

v. Be able to use computational tools: The analysis of experimental data and a selection of homework problems require the use of computational programs such as Matlab or Excel.

**GRADING**
Your progress and evaluation for the course material will consist of weekly problem sets, weekly in-class quizzes, two lab exercises and reports, two midterm exams, and a final exam. The two lowest quiz grades will be dropped. The breakdown for the grade weighting is:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weightage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Minute papers &amp; Project</td>
<td>5%</td>
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<tr>
<td>Lab reports</td>
<td>20%</td>
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<tr>
<td>Exams</td>
<td>65%</td>
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</table>

Nominally, the mean of the overall score across the class will set the dividing line between a B- and a C+.

**PROBLEM SETS**
One of the best methods to learn the material is to read the text *before* the material is presented in class, attend and pay attention in class, and work through the assigned problem sets. The course is structured to give you ample feedback regarding your understanding of the material through the problem sets. Assistance will be provided in the Discussion Section, so please seek out help if you need it!

Another helpful practice is to alternate teaching the problems to your classmates, which will force you to think about how to tackle and solve a problem. It is common for engineers to work in groups, so keeping in mind the Ethics Code, I encourage you to form groups to work out (but not copy) the problem sets. The exams are solo efforts however, so it is in your best interest to make sure you understand the problems and not rely too heavily on your classmates or the GTF.

A perfect homework solution (this applies to quizzes and exams as well) should be:

(a) legible and well organized, with labeled diagrams
(b) demonstrate a thought process and worked-out steps
(c) correct!

Each problem will be graded on a 10/7/3/0 scale. A high score of 10 indicates that you worked through the entire problem and came to a correct or mostly correct solution. A score of 7 indicates that you made a valiant effort, a 3 will be given for a starting effort with several mistakes or incomplete work, and a 0 will be given for a minimal attempt or lack thereof. Partial credit will be given for all forms of evaluation, so steps (a) and (b) are in your best interest! If you are short on time (particularly for exams), please at least attempt to set up and show your steps for how to solve the problem. Please keep the following rules in mind when writing up your solution:

(a) Your name, section number, and problem set number must appear at the top of every sheet.
(b) Do not submit work that has ragged edges.
(c) Start each problem on a new page.
(d) Indicate the final solution by drawing a solid box around it.
Problem sets will be based on class material, and generally will be due at the beginning of the Monday class. The Discussion Section will be one of your best resources for assistance with questions on the homework. Since solutions to the problem sets will be posted following the Monday class, **late problem sets are not permitted** and will receive a zero.

**LAB EXERCISES**

There are two lab exercises in this course: a boiler lab (~2 hours) and a refrigeration lab (~90 min). They will be run by the GTF and will be scheduled on an ad hoc basis (see the syllabus for the rough timing). Lab reports will be written as a group report, with 3-4 students per group. Details on the lab report format will be discussed in class and posted on the course website.

**EXAMS**

There will be two in-class exams given during the semester, administered in class on February 22nd and April 10th. **DO NOT MAKE TRAVEL PLANS FOR THESE DATES.**

The final exam will be given during the final exam period, and the date is TBD. Since the Registrar will set the date later during the semester, **DO NOT MAKE TRAVEL PLANS BEFORE THE END OF THE EXAM PERIOD.**

Make-up exams will be given only in extreme circumstances. It is your responsibility to let your instructor know as far in advance as possible of an unavoidable conflict or medical emergency.

I am happy to accommodate additional testing time per qualification by the Office of Disability Services but it is your responsibility to (a) deliver your letter of qualification to me ASAP, no later than one week before the exam, and (b) contact me at least a week before the exam to make logistical arrangements.

**PROJECT**

There will be a two-part project involving a report and peer feedback on a current commercial research and development application of thermodynamics. You may choose to work with a partner or make this a solo effort.

**CLASS POLICY**

I expect that if you are registered for ME304, you should attend class. Most of the course material can be found in a textbook, but not everything, and you will be tested on what is covered in class, not what is simply covered in the textbook. Tuition at B.U. is expensive, so make the most of your time and money by taking advantage of all the resources you are paying for! I also expect that you will do your best to pay attention during class. You will have a busy schedule with many academic (and social) demands, so I know from experience that paying attention 100% of the time can be a difficult task. However, I do ask that you not distract your peers if your attention starts to wander. Please ignore all forms of non-approved (!) electronic communication temptation (texting, email, web surfing, etc) and turn off your cell phone during class.

If you find that I am going over material too quickly or you do not understand something crucial, don’t hesitate to ask questions during class. For longer questions, see me or the GTF outside of class.

**MINUTE PAPERS**

This is a low-stakes reflection exercise that we’ll run at the end of most classes. Its goal is to help you clarify the concepts discussed in class and think critically about the course material. It will be nominally graded for completeness and I expect you to take it seriously.
ETHICAL RESPONSIBILITIES
Cheating on homework, exams, project reports, or any form of assignment, may be a form of plagiarism and is an infringement of every code of engineering ethics. Plagiarism is a serious academic offense and should not be taken lightly. Understanding your ethical responsibilities is an integral part of becoming a professional. A copy of the Code of Ethics of engineers, promulgated by the Accreditation Board for Engineering and Technology (ABET) and the National Society of Professional Engineers can be found on the main course web site.

Please recall that when you enrolled at Boston University, you agreed to an Academic Honesty Pledge. A copy of this pledge can be found in your student handbook. It details your responsibilities as well as the results of code violations.

DROP AND WITHDRAWAL DATES
The last day to DROP (with no ‘W’ on your record): day, February 23rd
The last day to WITHDRAW (with a ‘W’ on your record): day, March 31st

INCOMPLETES
Incompletes will be permitted only for extenuating circumstances, and must be arranged with me as soon as such a circumstance arises. This situation only pertains to assignments whose due dates have not yet passed.

COURSE EVALUATIONS
There will be a standard course evaluation near the end of the semester, include a written evaluation on how well you believe the course accomplished its stated learning outcomes. These outcomes are described on the ABET course syllabus, which is posted on the ME course webpage.

I am happy to discuss any comments and concerns that may arise during the semester during my office hours.
I’ve read through this document and the semester dates that follow.

Signature: ___________________________
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<thead>
<tr>
<th>L #</th>
<th>Date</th>
<th>Reading</th>
<th>Agenda</th>
<th>HW</th>
<th>LABS</th>
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<td>Course overview</td>
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<td>P-V-T surface and steam tables</td>
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<td>Enthalpy and specific heats</td>
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**Notes:**
- #1 due
- #2 due
- #3 due
- #4 due
- #5 due
- #6 due
- #7 due
- #8 due
- #9 due
- #10 due
- #11 due

**EXAM 1:**
- 2/22

**LAST DAY TO DROP:**
- 2/23
- 3/31

**Lab 1:**
- 2/23

**Lab 2:**
- 3/31