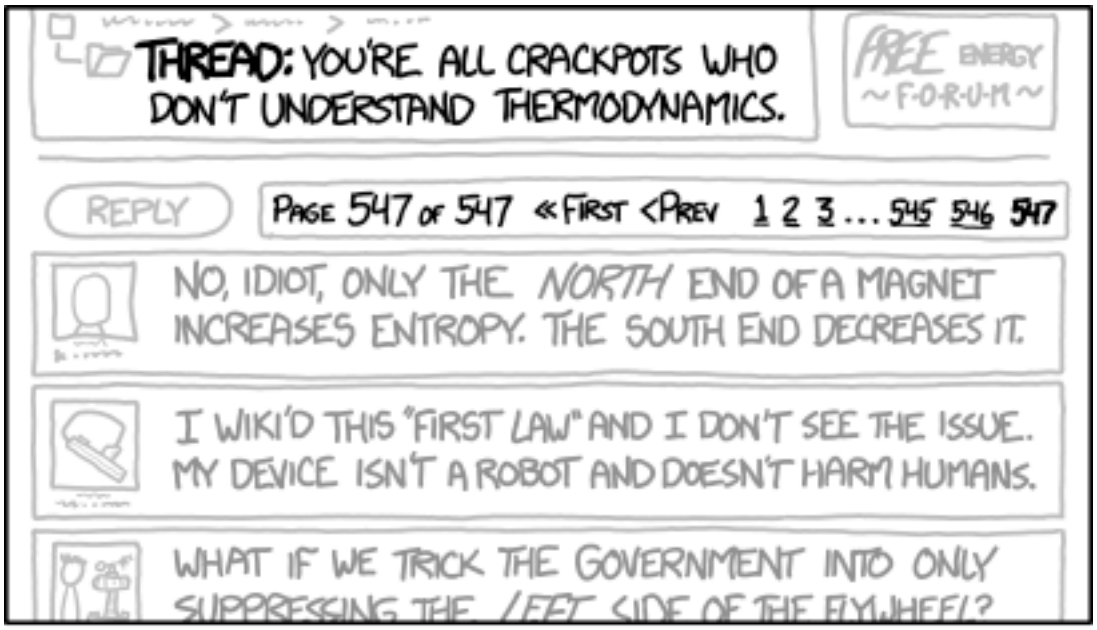
PHYS 535 01W – THERMODYNAMICS FOR EDUCATORS

ONLINE COURSE SYLLABUS: SPRING 2016



https://xkcd.com/1166/

Instructor: Dr. William Newton, Assistant Professor
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University Email Address: William.Newton@tamuc.edu

Course Time Zone: Central Time USA
Online Office Hours will be held each Wednesday 7-8 pm and Thursday from 5:30 p.m.-7:30 pm I will be active during those times on the discussion threads, and also will start a thread on Live/Chat (accessible from the top menu on LearningStudio) where I can ask and answer any questions live.

In emails, please put “PHYS 561 Online” in the subject header. I will reply to emails within 24 hours (48 at weekends and holidays). ***Note:*** *I will exclusively use your TAMUC university email addresses for email communication.*

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

The required book can be ordered from online retailers for generally less than $100.

Textbooks Required

Schroeder, V. Daniel. (1999), *An Introduction to Thermal Physics,* Addison-Wesley, ISBN-10: 0201380277, ISBN-13: 978-0201380279

Course Prerequisites

Math: Students are required to know mathematics through Calculus 3 or equivalent, or have taken or be currently taking *Mathematical Methods for Educators Course* (PHYS 530). We’ll be making extensive use of algebra, trigonometry, basic differentiation and integration, plus some occasional (simple) ordinary differential equations.

Physics: A course in calculus-based physics (sometimes called University physics) is required. Some knowledge of basic thermodynamics and statistical mechanics will be an advantage, but I will explain concepts from those subjects when we need to use them.

Course Description

Thermodynamics is the study of the flow of heat between physical systems, and the effects of those flows. It encompasses the variety of ways one can compress, expand, heat and cool fluids and the ways in which one can extract or impart energy to systems. The most immediately practical application of thermodynamics involves the quantification of the amount of useful energy (work) a system can impart, a consequence that led, upon the scientific development of thermodynamics, directly to the industrial revolution and the modern world. In doing so, the far-reaching concept of entropy is introduced, the quantification of the amount of energy not available to do work - the amount of disorder in a physical system.

Kinetic theory and statistical mechanics seek to derive the laws of thermodynamics from more fundamental considerations of the underlying motions and energy states of the microscopic constituents of the system. Due to the fact that most physical systems are made up of far too large a

number of constituents to describe each one individually, statistical methods have to be employed. The distribution of velocities and, more generally, energy states, among the constituents can be described mathematically described and hence the average properties of the constituents as a whole can be derived and macroscopic quantities such as pressure emerge. Astrophysics is a unique branch of physics in which the objects of study are not accessible to controlled experimental investigation in the laboratory; it is an *observation* driven science. We know what stars are made of, despite the fact that they appear only as points of light unfathomable distances away. We know the universe is around 13.7 billion years old, and originated in an intense fireball called the Big Bang, despite the fact that we can't travel back in time to check this out. It is important we understand how we come by this knowledge, and some of the techniques used in figuring it out.

The purpose of this class is 2-fold:

1) To give you a working knowledge of thermodynamics, kinetic theory and statistical mechanics.

2) To discuss how to present the topics we will cover to a high school audience, design lesson plans and explore the many tools available on the web to aid us.

Student Learning Outcomes

At the end of the course students will:

1. Students will be able to correctly define energy, heat, functions of state and other thermodynamic quantities.
2. Students will be able to correctly apply the first law of thermodynamics in thermodynamical problems.
3. Students will be able to correctly apply the second law of thermodynamics in thermodynamical problems.
4. Students will be able to apply the statistical description of velocities of atoms and molecules to derive the pressure of a fluid and its effusion, diffusion and viscosity coefficients.
5. Students will be able to construct the relevant partition functions of a given physical system and use it to derive thermodynamic quantities.

COURSE REQUIREMENTS

Instructional Methods / Activities / Assessments

The details of the course structure are given below. Any changes will be communicated via email and announcements on LearningStudio (eCollege).

Your TAMUC email account will be used at all times, and it will be your responsibility to check it regularly (at least once every 24 hours).

Introductory week tasks, material and due dates

The semester starts at **12.01 a.m.** Monday, August 31st, which is when the introductory week's material will become available. The introductory week will end on Sunday, September 6th at **11.59 p.m. (midnight).**

During the introductory week, you will complete the following activities:

(1) Complete the **pre-course quiz**, which will be given again at the end of the course to measure Student Learning Outcomes 1, 2 and 3. This quiz *can only be taken once* and once you begin the quiz you will have *40 minutes* to complete it. The **pre-course quiz** is not graded, but it must be taken before you can gain access to the rest of the course.

(2) Read the **Start Here** section near the top of the left side of **LearningStudio (eCollege)** learn how to access course material and familiarize yourself with the environment.

(3) Read the **syllabus**

(4) Take the **syllabus quiz** to make sure you understand the mechanics of the course. This can be taken *any number of times* during the introductory week. The **syllabus quiz** will not be graded, but it must be completed *with 100% correct answers* before the 1st week's material becomes available.

(5) Watch **mini-lecture 1**, the scales of the universe, and make discussion posts in the scales of the universe thread (these will be for credit).

(6) Read the material about Fermi questions, discuss the example Fermi questions in the discussion thread (these will be for credit), and complete the **introductory week homework.**

(7) **The introductory week discussion posts for credit, and the introductory week homework,** must be completed by Sunday September 6th at **11.59 p.m. (midnight).**

NOTE: You must complete the pre-course assessment to access the intro week, and complete the syllabus quiz with 100% correct answers to access the first week.

Regular week tasks, material and due dates

The course material will be organized by week. The week's material will be located under the week's tab in the left hand menu in LearningStudio (eCollege).

Each week begins on a **Monday at 12.01 a.m.** and ends the following **Sunday at 11.59 p.m. (midnight)**. So, e.g., the first week starts at **12.01 a.m.** on Monday, September 7th and ends at **11.59 p.m. (noon)** on Sunday, September 13th. All of the week's materials and assignments become available only when the week stars. There will be 14 weeks in total. The 14th week will be extended, starting 12 a.m. Monday, December 7th, and going through to the end of the semester at 11.59 p.m. on Friday, December 18th.

Each week, the following tasks must be completed.

(1) Complete the **reading assignments**. These will come from the course textbook or online articles and material available in Document Sharing or the Webliography in LearningStudio (eCollege), located on the top menu bar. The reading material for each week will be announced with the week's material each Monday at **12.01 a.m.**

(2) Watch **1-3 Mini-lectures** each week which will cover one or two key concepts at a time, to reinforce reading material, or give examples of problem solving. Mini-lectures for each week will be available with the week's material each Monday at **12.01 a.m.**

(3) Complete the weekly **quizzes** designed to assess students' comprehension of the reading assignments, mini-lectures and basic knowledge of key principles. Quizzes for a week's material will available with the week's material each Monday at **12 a.m.** and must be completed by **11.59 p.m. (midnight)** ***the following Friday****. (Note the quizzes are due 2 days before the week ends).*

(4) Participate in the **discussion threads** on the week's topics (up to 5 graded posts/week are required, and at least one in each topic). A week's discussion thread opens at **12.01 a.m. each Monday** and remain open until **11.59 p.m. (midnight)** the following Sunday.

(5) Complete the **weekly homework**. Each homework will become available with the week's material at **12.01 a.m. Mondays** and will be due **at 11.59 p.m. (midnight)** the following **Sunday**.

(6) In addition, 2 projects will be assigned at various stages during the semester. You will have around 5 weeks to complete each one.

The following table gives as an example the first three week's timetable in detail. Subsequent weeks repeat the pattern of weeks one and two. *A complete list of due dates* ***for discussion posts, quizzes and homeworks are given on pp. 18, 19 and 20 of this syllabus.***

Monday 31st Aug	Semester starts; Introductory week available after course pre-assessment is completed
Wednesday 2nd Sept	Online office hours 5:30 p.m.-7:30 p.m.
Thursday 3rd Sept	Online office hours 6:30 p.m.-7:30 p.m.
Friday 4th Sept	
Saturday 5th Sept	
Sunday 6th Sept	Introductory week discussion threads close Midnight. Introductory homework due Midnight
Monday 7th Sept	Week 1 becomes available provided syllabus quiz had been completed
Tuesday 8th Sept	
Wednesday 9th Sept	Online office hours 5:30p.m.-7:30 p.m.
Thursday 10th Sept	Online office hours 6:30p.m.-7:30 p.m.
Friday 11th Sept	Week 1 quiz due 11.59p.m. (midnight)
Saturday 12th Sept	
Sunday 13th Sept	Week 1 Homework due Midnight Week 1 Discussion thread closes Midnight.
Monday 14th Sept	Week 2 becomes available
Tuesday 15th Sept	
Wednesday 16th Sept	Online office hours 5:30p.m.-7:30 p.m.
Thursday 17th Sept	Online office hours 6:30p.m.-7:30 p.m.
Friday 18th Sept	Week 2 quiz due 11.59p.m. (midnight)
Saturday 19th Sept	
Sunday 20th Sept	Week 2 Homework due Midnight. Week 2 Discussion thread closes Midnight.
Monday 21st Sept	Week 3 becomes available.

Learning Activities and Assessments

The following describes the assignments you must complete which will contribute to your progress through the course and to your final grade, together with how they will be assessed.

- **Quizzes** are designed to assess students' comprehension of the reading assignments, mini-lectures and basic knowledge of key principles, often in response to the mini-lectures and reading assignments.

  Quizzes are designed to provide you with initial assessment of your learning and *will not be graded based on whether you got the answer*

correct, but that you have attempted an answer thoughtfully. A small amount of extra-credit will available for correct responses, however.

You will only be able to take quizzes once. Once you begin taking the quiz, you will have a time limit of one hour to complete it. Once completed, you cannot return to it and revise your answers.

Quizzes address: Learning Outcomes 1-4

- **Ongoing Discussions** will be conducted each week on the concepts introduced in the reading material and lectures. I will get things started with some open-ended questions about the week's material, and take part we brainstorm, analyze and debate the material.

  Learning and understanding is significantly enhanced by active engagement in the class through continual discussion of topics. All students are required to participate in the discussions with a number of substantive posts. **At least 5 posts per student will be graded *each* week; sometimes, when we cover topics that warrant more substantial discussion, a number of posts in addition to the first 5 will be graded as the week's homework.**

  The rubric for grading the online discussions is found on pp.22-23 of the course syllabus.

  Of course, continued discussion beyond the minimum posts required is strongly encouraged. I will pitch into the discussion at various times during the week, answering queries and asking new questions to make sure we discuss all the week's material adequately.

  When appropriate, at least one thread will be devoted to discussing how one might teach the week's concepts at the undergraduate level.

  The discussion threads will be found underneath each week's tab on the left side of the LearningStudio window.

  Discussions address: Learning Outcomes 1-5

- **Weekly homeworks** will be set. These will generally come in five forms: questions requiring a more substantive analysis of the week's reading, problem solving questions, an online laboratory, a reflection on how the material would be presented in the high school classroom, or more discussion posts. Full instructions will be provided each week, together with the method of assessment, in the weekly content area.

Homeworks are due at midnight each Sunday, 7 days after they are set, to be delivered to DropBox (under the DropBox tab on the top toolbar).

Virtual labs as part of some homeworks will often be conducted using the open educational resource PhET simulations.

Homework that involves problem solving, pictures, or other material that is difficult to submit as a Word format or similar, may be submitted as hand written work scanned in or photographed. If you use a camera phone to take pictures of your work, a useful app is CamScanner (https://www.camscanner.com), which compiles multiple pictures into one document for ease of uploading. There is a free version that I encourage you to check out.

Homeworks address: Learning Outcomes 1-5

- **2 Projects** will be assigned throughout the semester, one after about 5 weeks and one after about 10 weeks. Each one will be due by the date I set the next one (giving you about **5 weeks for each one**.) **They must be submitted to DropBox (under the DropBox tab on the top toolbar).** I will give more details and instructions closer to when they are assigned. For now, I will give you an idea of what each one involves:

  Project 1: Write-up, in the manner of a popular science article (i.e. aimed at the general public), a piece of Nobel-Prize winning astronomy research. *Addresses: Learning Outcomes 1,4.*

  Project 2: Investigate citizen science astronomy and astrophysics projects: try one in depth, write up what you did, your experience of it, and develop a complete lesson plan, including exercises and evaluation, based upon it. *Addresses: Learning Outcome 4,5*

GRADING

Quizzes (worth 1% each week)	15%
Discussion (worth 1% each week)	15%
Homeworks (roughly 3% per HW)	40%
Project 1	15%
Project 2	15%
Extra Credit (Correct answers to quizzes/other credit TBD)	5%

Current scores will be available for students to see in the Gradebook on LearningStudio (eCollege).

Grading Scale:

90-100%	A
80-89.99%	B
70-79.99%	C
60-69.99%	D
<59.99%	F

TECHNOLOGY REQUIREMENTS

- To fully participate in online courses, you will need to use a current, Flash enabled browser. For PC users, the suggested browser is Internet Explorer 9.0 or 10. For Mac users, the most current update of Firefox is suggested.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
    - 512 MB of RAM, 1 GB or more preferred
    - Broadband connection required courses are heavily video intensive
    - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
    - sound card, which is usually integrated into your desktop or laptop computer
    - speakers or headphones.

- Depending on your course, you might also need a:
    - webcam
    - microphone

  For courses where interactive tools are used, like VoiceThread or Class Live Pro, headphones are suggested for use with recording and playback. We recommend a webcam with an integrated microphone, such as the Microsoft LifeCam Cinema. All devices should be installed and configured before class begins.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. Java can be downloaded at: http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

- You will need some additional free software for enhanced web browsing. Ensure that you download the free versions of the following software:
    - Adobe Reader
    - Adobe Flash Player

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

- For additional information about system requirements, please see: https://secure.ecollege.com/tamuc/index.learn?action=technical

- If you use a camera phone to take pictures of your work, a useful app is CamScanner (https://www.camscanner.com), which compiles multiple pictures into one document for ease of uploading. There is a free version that I encourage you to check out.

ACCESS AND NAVIGATION

Pearson LearningStudio Access and Log in Information

Note: eCollege has recently changed its name to LearningStudio.

This course will be facilitated using Pearson LearningStudio, the learning management system used by Texas A&M University Commerce. To get started with the course, go to: http://www.tamuc.edu/myleo.aspx.

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu**.**
It is strongly recommended that you perform a "Browser Test" prior to the start of your course. To launch a browser test, login to Pearson LearningStudio, click on the 'myCourses' tab, and then select the "Browser Test" link under Support Services.

Pearson LearningStudio Student Technical Support

Texas A&M University Commerce provides students technical support in the use of Pearson LearningStudio.

Technical assistance is available 24 hours a day/ 7 days a week.

If at any time you experience technical problems (e.g., you can't log in to the course, you can't see certain material, etc.) please contact the Pearson LearningStudio Help Desk, available 24 hours a day, seven days a week.

The student help desk may be reached by the following means 24 hours a day, seven days a week.

- **Chat Support:** Click on *'Live Support'* on the tool bar within your course to chat with an Pearson LearningStudio Representative.

- **Phone:** 1-866-656-5511 (Toll Free) to speak with Pearson LearningStudio Technical Support Representative.

- **Email:** helpdesk@online.tamuc.org to initiate a support request with Pearson LearningStudio Technical Support Representative.

Accessing Help from within Your Course: Click on the *'Tech Support'* icon on the upper left side of the screen inside the course. You will then be able to get assistance via online chat, email or by phone by calling the Help Desk number noted below.

Note: Personal computer problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library,

office service companies, an Internet cafe, or a bookstore, such as Barnes & Noble, etc.

Policy for Reporting Problems with Pearson LearningStudio

Should students encounter Pearson LearningStudio based problems while submitting assignments/discussions/comments/exams, the following procedure **MUST** be followed:

1. Students must report the problem to the help desk. You may reach the helpdesk at
2. helpdesk@online.tamuc.org or 1-866-656-5511
3. Students **MUST** file their problem with the helpdesk and obtain a helpdesk ticket number
4. Once a helpdesk ticket number is in your possession, students should email me to advise me of the problem and to provide me with the helpdesk ticket number
5. At that time, I will call the helpdesk to confirm your problem and follow up with you

PLEASE NOTE: Your personal computer/access problems are not a legitimate excuse for filing a ticket with the Pearson help desk. You are strongly encouraged to check for compatibility of your browser **BEFORE** the course begins and to take the Pearson LearningStudio tutorial offered for students who may require some extra assistance in navigating the Pearson LearningStudio platform. **ONLY** Pearson LearningStudio based problems are legitimate.

Internet Access

An Internet connection is necessary to participate in discussions and assignments, access readings, transfer course work, and receive feedback from your professor. View the requirements as outlined in Technology Requirements above for more information.

myLeo Support

Your myLeo email address is required to send and receive all student correspondence. Please email helpdesk@tamuc.edu or call us at 903-468-6000 with any questions about setting up your myLeo email account. You may also access information at https://leo.tamuc.edu.

Learner Support

Go to the following link One Stop Shop- created to serve you by attempting to provide as many resources as possible in one location.
Go to the following link Academic Success Center- focused on providing academic resources to help you achieve academic success.

COMMUNICATION AND SUPPORT

The following is the list of communication methods used in this class and their purposes. These include student-instructor, instructor-student and student-student communication.

You will be expected to check your university email account and log onto eCollege at least once every 24 hours Monday-Friday in order to keep abreast of the latest class announcements.

- **Email** will be used by me to communicate to the class as a whole general information about upcoming assignments, due dates, and any changes in the schedule or syllabus that might occur.

  I will also email students individually with occasional feedback from assignments and on the class as a whole.

  Students can use email to ask me any questions about (i) course logistics (upcoming assignments, due dates...) (ii) as any questions about the way their specific assignments were graded and feedback they have been given (iii) constructive feedback to me about how the course is going and any problems/concerns with the course structure (and even things that work particularly well!)

  In emails, please put "PHYS526 Online" in the subject header. I will reply to emails within 24 hours (48 at weekends and holidays)

  I will always send emails to your official University Email address as given through MyLeo. It will be your responsibility to check your university email regularly.

- **Announcements** on LearningStudio (eCollege) will be used to communicate to the class as a whole general information about upcoming assignments, due dates, and any changes in the schedule or syllabus that might occur. New announcements will appear to you the next time you log in to LearningStudio (eCollege).

- **Discussion threads** for each week should be the main way in which you ask and debate the answer to questions you have about the course material itself. Here you can brainstorm problem solving techniques and analyses of reading material. These questions should be continually addressed by your fellow students, and by myself,

although in the spirit of discussion concrete answers will only be given after an honest and sustained attempt to figure out the answers yourselves.

- **Virtual Office** is another place to discuss questions you have about the course individually with me. As well as questions about course logistics, **if anything about the material is unclear to you and preventing you tackling the concepts in the discussion**, this is the place to ask those questions. Any questions that could be answered in the discussion thread, I will only answer here after an honest and sustained discussion on them in the thread. Like emails, I will reply to Virtual Office questions within 24 hours (48 at weekends) unless they are asked during virtual office hours, in which case I'll answer them during those hours.

- **LearningStudio Chat**, accessible under the **Live** tab on the top toolbar, will be used for live communication during virtual office hours. Chatrooms for each week, or for specific topics that come up about the course and its material over multiple weeks, will be set up by myself. In the non-topic specific weekly chatrooms, you can ask questions about class logistics, short questions about the material that clarify meaning rather than explain core concepts, and give feedback as a whole on how the class is going. During virtual office hours, we can engage in real-time conversation there when necessary. Virtual office hours will be when the Chatrooms will be most useful to use, as it is when you have the opportunity to interact with each other and myself live.

- **Online Office Hours** will be held Wednesday 5:30pm-7:30pm and Thursday from 6:30 p.m.-7:30 p.m. I will be active during those times on the discussion thread, **LearningStudio chat** and **Virtual Office**.

- **Student Lounge** is located on the left hand menu under Course Home, and is a place to chat with fellow students about anything you like – as trivial or as deep as you like. This is a place I will NEVER visit, intended for yourselves only.

The following table summarizes where to find the communication tools used in this class:

Communication tool	Where to find
Email	Top toolbar or Leomail
Virtual Office	Left menu under “Course Home”
Chatroom	Top toolbar under “Live”
Weekly discussion thread	Left menu under the relevant Week tab.
Student Lounge	Left menu under “Course Home”
Announcements	New announcements appear when you log on to LearningStudio
Voicethread	Left menu under “Course Home”

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

Academic Honesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including (but not limited to) receiving a failing grade on the assignment, the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. In **ALL** instances, incidents of academic dishonesty will be reported to the Department Head. Please be aware academic dishonesty includes (but is not limited to) cheating, plagiarism, and collusion.

Cheating is defined as:

- Copying another's test of assignment.
- Communication with another during an exam or assignment (i.e. written, oral or otherwise).
- Giving or seeking aid from another when not permitted by the instructor.
- Possessing or using unauthorized materials during the test.
- Buying, using, stealing, transporting, or soliciting a test, draft of a test, or answer key.

Plagiarism is defined as:

- Using someone else's work in your assignment without appropriate acknowledgement.
- Making slight variations in the language and then failing to give credit to the source.

Collusion is defined as:

- Collaborating with another, without authorization, when preparing an assignment.

If you have any questions regarding academic dishonesty, ask. Otherwise, I will assume that you have full knowledge of the academic dishonesty policy and agree to the conditions as set forth in this syllabus.

Attendance Policy

In an online class, attendance means active participation; students are expected to spend at least 2 hours/week on the discussion threads and at least 10 hours/week is required to complete all the assignments, including reading. At least five substantive discussion posts are required by each student each week to gain full points on the discussion part of the grade. If you are unable to log on for an extended period of time (greater than a week) then contact me *in advance* to discuss how to proceed. We recognize that many of you already have a busy work schedule, and that occasionally you might get behind during a week. Spending even 15-30 minutes a day on class material and the discussion threads will help greatly, and if you find yourself struggling at any time, please do not hesitate emailing me; I can be flexible to accommodate your busy schedule.

Assignment policy

All homework assignments will become available with the week's material and will be due 9 days later as outlined in the Course Requirements Section. The due dates for projects will be announced when they are set. Quizzes must be taken between 12 p.m. (noon) Friday when they are made available and the following Wednesday 12 p.m. (noon).

Late work

Late homeworks will be penalized by 10% by each day they are late (i.e. a Homework submitted more than 10 days late gets no credit). Late projects (except the last one, which is due by the last day of classes) will be penalized by 10% by each day they are late. Quizzes and discussion posts will not be accepted past the due date.

Netiquette: Communication Courtesy Code

Students are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. The same rules apply online as they do in person. Be respectful of other students. Foul discourse will not be tolerated. Please take a moment and read the following links concerning "netiquette". http://www.albion.com/netiquette/
http://www2.nau.edu/d-elearn/support/tutorials/discrubrics/netiquette.php

UNIVERSITY SPECIFIC PROCEDURES

Discrimination statement

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

ADA Statement: Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook).*

Harassment Policy

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

University Title IX Contact: Michele Vieira, 903-886-5025,
mailto:TitleIX@tamuc.edu

University resource webpages:

http://www.tamuc.edu/facultyStaffServices/humanResources/title-ix/resources.aspx

http://www.tamuc.edu/campuslife/campusServices/universityPoliceDepartment/crimePrevention/sexualAssault.aspx

University Counseling Center: 903-886-5145, http://www.tamuc.edu/campusLife/campusServices/counselingCenter/default.aspx

Campus police: mailto:upd@tamuc.edu, call 911 in emergency situations

External resources:

Crisis center of NorthEast Texas: http://www.ccnetx.org
Know you IX: http://knowyourix.org
End rape on campus: http://endrapeoncampus.org
Clery Center for Security on Campus: http://clerycenter.org
Not Alone: https://www.notalone.gov

COURSE OUTLINE / CALENDAR

This schedule is tentative.

Week	Topic	Chapter/Sections
Intro	Introduction to course structure, syllabus	-
1	Basic quantities and concepts – thermal equilibrium, equipartition, heat, work, the ideal gas, the first law of thermodynamics	1.1-1.4
2	Thermal and transport properties of matter: heat capacity, conduction, viscosity, diffusion	1.5-1.7
3	Entropy and microphysics I	2.1-2.3
4	Entropy and microphysics II	2.4-2.6
5	Entropy and microphysics III	3
6	Heat Engines I	4
7	Heat Engines 2	4
8	Chemical Thermodynamics	5
9	Phase transitions	5
10	Boltzmann statistics	6
11	The partition function	7
12	Quantum statistics/Ising model	7/8
13	Quantum statistics/Ising model	7/8

WEEKLY ONLINE DISCUSSION RUBRIC

Each week (except the introductory week) your discussion posts will be graded using the following rubric. Each week's discussion posts contribute up to 1% to your final grade.

Note: One post counts as 75 words or more on topic. Posts with less words or posts not addressing the week's class topic will not be considered for grading. Of course, the discussion should be allowed to flow naturally, and shorter posts will naturally occur, including one word posts of the type "I agree!" and "Yes!" or "No!". This is fine, and indeed necessary – it is just that the grading will be based upon posts of 75 words or more.

A reminder that netiquette should be observed at all times: please make sure you visit and understand the following resources:
http://www.albion.com/netiquette/
http://www2.nau.edu/d-elearn/support/tutorials/discrubrics/netiquette.php

Criteria	**Unacceptable(0)**	**Poor (1)**	**Good (2)**	**Excellent (3)**
Number of posts	No posts during the week.	1-2 posts during the week.	3-4 posts during the week.	5 or more posts during the week.
Spelling and Grammar	Posts are not in complete sentences, or more than half of the sentences have spelling or grammatical errors.	Between a quarter and half of sentences have spelling or grammatical errors.	Less than a quarter of sentences have spelling or grammatical errors.	No spelling or grammatical errors.
Knowledge	Posts demonstrate no evidence of knowledge of the week's reading.	Posts demonstrate evidence of only a cursory reading of the week's material, and little attempt to critically analyze it.	Posts demonstrate reasonable knowledge of the week's reading, and an attempt to critically analyze it.	Posts demonstrate evidence of comprehensive knowledge of the week's reading, and significant attempts to critically analyze it.

Appropriateness and awareness of other student contri-butions	Posts rude/ disrespectful. No attempt to build upon other students' posts or support other people's arguments.	Minimal acknowledge-ment of other students' posts. Little attempt to build upon arguments.	Reasonable attempts to build upon other students' posts and contribute to their arguments.	Excellent awareness os other students' posts and substantial efforts to contribute to their arguments.
References and support	Arguments are unsupported, come across as unsubstantiated opinion.	Minimal support for students' arguments. Student's thinking unclear, hard to discern how student arrived at their conclusions.	Reasonable attempt to justify arguments made, with some references to the week's reading and external sources where appropriate.	Arguments are fully backed up, with clear explanations of how the student arrived at their conclusions, with full references to the week's reading or to external sources where appropriate.

Credit: The following online rubrics have been used to inform the development of the rubric above:
http://www.udel.edu/janet/MARC2006/rubric.html
http://www2.nau.edu/d-elearn/support/tutorials/discrubrics/discrubric.php
https://topr.online.ucf.edu/images/f/f0/IDL6543_Discussion_Rubric.pdf