MICHAEL C. HOLCOMB

TEACHING PORTFOLIO

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TABLE OF CONTENTS

Appendices available upon request.

INTRODUCTION

Thank you for taking the time to read my portfolio. This collection of documents, testimonials, and statements has been compiled to provide a summary of my teaching experience and development as an instructor. To offer insight into who I am as a teacher, many components of this portfolio will include reflective comments from myself. These comments will be distinguished by the presence of a text box as shown below:

Reflective Quote

To maintain brevity, some the following will consist of collated data sets, excerpts, and selected comments; however, documents in their full form will be included in the appendices for reference. Additionally, a selection representative course materials, graded student work, and samples of curriculum development are available in the appendices.

STATEMENT OF TEACHING PHILOSOPHY

ADAPTABLE TEACHING

Good teaching is an intricate art which requires devotion and the willingness to be critical of oneself. There is no easy, simplistic formula for effective teaching. Flexibility in teaching strategies is essential for success as an educator; the approach that works well for an instructor in one setting may easily become disastrous in another. For this reason, an instructor must be open to changing their approach, both reactively and proactively, to ensure they excel under whatever circumstances are presented to them. For example, an instructor's approach to an upper-level physics course does, and undoubtedly should, differ greatly from their approach to a freshman seminar. An effective instructor must be able to assess the needs of their students in various scenarios and deliver solutions that work in each instance.

My teaching strategy is very flexible and adaptive, readily allowing for adjustments while retaining the integrity of a high standard. For traditional lectures, I prepare detailed lecture notes that are tailored to the general audience taking the course; however, I vary my delivery depending on each class' particular dynamic. This variance could simply be a shifting of factoid focus to emphasize field-specific relevance or a more substantial adjustment to the prominence of certain topics. Every class is different. I tend to prefer giving a few more complex example problems per chapter, but sometimes a class will have a better grasp of the material if I give them several simple example problems instead. I have high expectations for my students, but also help support them in meeting those expectations by working closely with them to help them gain mastery of the subject matter.

STUDENT CENTERED MENTORSHIP

A large part of my strategy centers on the removal of artificial academic formalities that can and do create barriers to learning. For example, I exercise as close to an open-door policy as I can and do my best to create a trusting environment in which my students feel that they can come to me with questions or concerns. Students seeking my help are never turned away and I encourage them to pose well considered, relevant questions. I tailor my explanations to each individual student and endeavor to be there as a knowledgeable helping hand rather than a judge that they need to impress. My particular style of teaching was inspired by the faculty and staff of Austin College. The atmosphere they created was extremely beneficial to my development, and I owe who I am as an instructor largely to the hands-on mentoring I experienced as an undergraduate student.

I seek to foster a similar environment for my students where they feel that I am working with them rather than against them, a quality often noted by students in my teaching evaluations. This includes encouraging my students to be the driving force behind their own academic and personal developments. Students need to be active participants in their education. I encourage this through high expectations, guided explorations of their understanding, and my own willingness to be both a mentor and a teacher. There are many facets to being a mentor; however, one thing that has a profound effect is helping a student fundamentally reexamine how they view graded work. Reviewing graded work by looking for one's mistakes rather than looking for what the instructor

took off is a huge paradigm shift for many students, but it is also a huge step towards viewing instructors as guides to a wealth of knowledge rather than gatekeepers of a good grade.

CONTINUED DEVELOPMENT

Education is inherently a collaborative effort and I have found that there is much that can be gained by working with other educators as a team. This can come in the form of coordinating while teaching parallel sections or discussing ways to improve student engagement at a brown bag lunch, but the key component is being open to learning from each other's experiences. When I first started lecturing I had the good fortune of teaching in parallel to a senior faculty member who was willing to take me under his wing. We would meet weekly to touch base on how much material we each had covered and discuss how things were going. I learned a lot from him; however, the thing that impacted me the most was that this experienced educator was open and able to learn things from me as well.

I am confident in instructing a classroom; however, I recognize that I will always be learning and endeavor to keep myself open to further development. In an effort to ensure continued refinement, I welcome student comments and solicit peer critiques. It is very important to me that my students finish out the course with an appreciation for the subject matter and a sense of satisfaction towards their experience. The mentality and backgrounds of students change yearly, and there is a continual emergence of new teaching methods and technologies to implement in the class room. The continued improvement of my proficiency as an educator is the only way that I can ensure I reach and motivate my students as I would like to. In the end, my goal is to see students leave my classroom with the knowledge, confidence, and critical thinking ability that will help them reach their goals.

IMPLEMENTATION OF TEACHING PHILOSOPHY

SELECTIONS FROM OFFICIAL END OF TERM STUDENT EVALUATIONS

Since Fall 2014, student evaluations at TTU have consisted of a comments section and 3 questions (ranked 1-5, 5 being the highest):

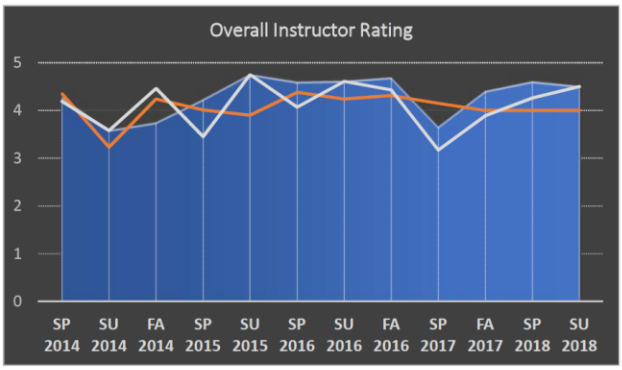
1. The course objectives were specified and followed by the instructor.
2. Overall, the instructor was an effective teacher.
3. Overall, this course was a valuable learning experience.

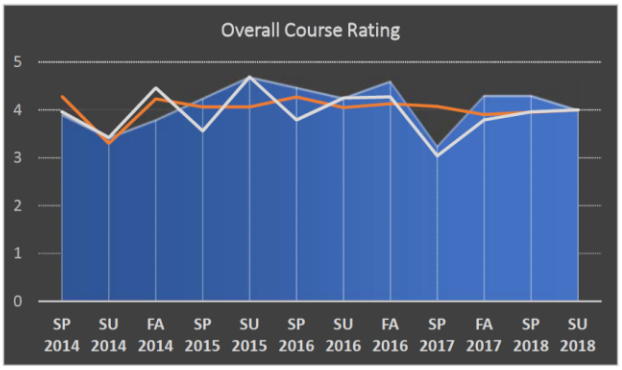
Below are excerpts from my student evaluations. Full results are provided in Appendix A.

ANONYMOUS STUDENT RATINGS OF COURSE AND INSTRUCTOR

Physics Student Ratings

Personal	SP 2014	SU 2014	FA 2014	SP 2015	SU 2015	SP 2016	SU 2016	FA 2016	SP 2017	FA 2017	SP 2018	SU 2018	Avg.	W. Avg.
Overall, the instructor was an effective teacher.	4.27	3.58	3.74	4.22	4.75	4.59	4.61	4.68	3.65	4.40	4.60	4.50	4.29917	4.24234
Overall, this course was a valuable learning experience.	3.91	3.42	3.79	4.24	4.69	4.47	4.25	4.6	3.24	4.30	4.30	4.00	4.10083	4.11355
Number of Students who Responded:	33	19	121	126	32	17	28	47	17	27	41	52		





*Personal Averages (Blue), Departmental Averages (Orange), Course Averages (Gray)

*Highest possible rating is a 5.

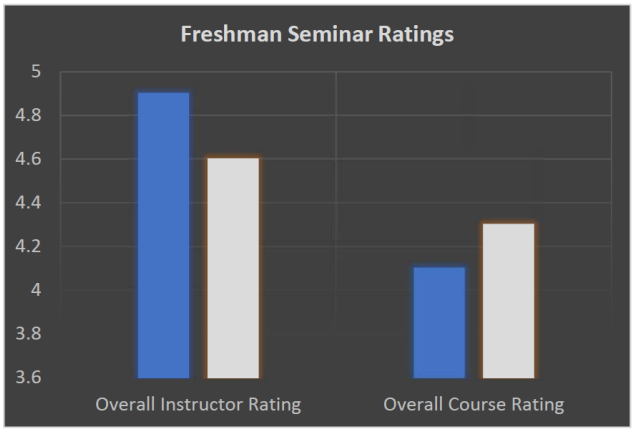
Departmental	SP 2014	SU 2014	FA 2014	SP 2015	SU 2015	SP 2016	SU 2016	FA 2016	SP 2017	FA 2017	SP 2018	SU 2018	Avg.	W. Avg.
Overall, the instructor was an effective teacher.	4.35	3.23	4.24	4.01	3.9	4.38	4.24	4.31	4.15	4.00	4.00	4.00	4.0675	4.19389
Overall, this course was a valuable learning experience.	4.28	3.3	4.23	4.06	4.06	4.27	4.05	4.13	4.07	3.90	3.95	4.00	4.025	4.10224
Number of Students who Responded:	1109	56	1193	1265	124	3890	96	3892	3180	3259	1488	131		

Course	SP 2014	SU 2014	FA 2014	SP 2015	SU 2015	SP 2016	SU 2016	FA 2016	SP 2017	FA 2017	SP 2018	SU 2018	Avg.	W. Avg.
Overall, the instructor was an effective teacher.	4.19	3.58	4.46	3.45	4.75	4.07	4.61	4.43	3.17	3.89	4.26	4.50	4.11333	3.95115
Overall, this course was a valuable learning experience.	3.96	3.42	4.46	3.56	4.69	3.79	4.25	4.27	3.04	3.79	3.96	4.00	3.9325	3.83464
Number of Students who Responded:	150	19	371	287	32	155	28	184	366	378	182	52		

The drop in SP 2017 was influenced by substantial changes in how registration for inquiry-based sections was handled. Previously, any student who wished to enroll in a inquiry-based section would have to receive instructor approval, giving instructors an opportunity to advise students of how this course varies from a traditional lecture. The department is moving towards only offering algebra based physics in the inquiry-based format and this was the first semester that no instructor approval was required.

Freshman Seminar Student Ratings

FA 2017	Personal	Course
Overall, the instructor was an effective teacher.	4.9	4.6
Overall, this course was a valuable learning experience.	4.1	4.3
Number of Students who Responded:	7	697



***Personal Average (Blue), Course Average (Gray)**
***Highest possible rating is a 5.**

ANONYMOUS STUDENT COMMENTS

Positive Written Comments

"Professor Holcomb is one of the best physics teachers that I have had. He is very thorough in his notes. He does not skip steps or cut corners. I have class during his office hours but he holds an open door policy and I'm usually able to go talk to him once or twice a week. I find him a very fair grader. One of the best teacher that I have had!!"

"Michael is an amazing professor, one of the best I've had during my four years at TTU. He works well to meet with students outside of office hours if needed. I really enjoy his style of teaching, he really wants his students to learn and enjoy physics."

"Michael was very friendly and usually went out of his way to make sure all his students felt comfortable in his classroom."

"Professor Holcomb is a brilliant professor. He discusses topics thoroughly with you and answers any questions you have. He is also really helpful when it comes to the one-on-one meetings we had to have in this class. He actually cares about his students and their success."

"I found this course to be extremely difficult and I had to study a lot, but Dr. Holcomb was an amazing lecturer, and went above and beyond in order to make sure that students understood what was

happening. He met with many students outside of his regular office hours not because he had to but because he wanted to help."

Constructive Written Comments – Traditional Lecture Sections

"Could be great if he was more detailed with the less emphasized parts of the lecture. Kinda fast and brushes over stuff a little quickly."

The breadth of material that we cover in our two-semester introductory physics sequence makes addressing this issue difficult. Rather than covering all material moderately, I lightly discuss some material so that more time can be dedicated to the material that will best prepare them for their upper level course work. The department is currently considering a three-semester intro sequence, which would help resolve this issue.

"Very effective in lecture, but some difficulties when going into homework. More examples in class may help."

I like to use complex example problems that show students how multiple ideas can be combined and adding more is difficult due to time constraints. I tried increasing the number of example problems by using several simple examples rather than a few complex ones. It helped in some cases, but students continued to have issues with homework and started to have more difficulty with problems that required them to combine multiple ideas. Currently, I use a combination of complex and simple example problems depending on the class.

"Maybe explain the derivations a little more and make sure to not assume that we see the problems the same way you do. Also maybe show us the final equation than show us the work that leads to it."

I tested giving students the final equation before going through the derivation, but found that this would often result in students writing down the final equation and then not paying attention to the derivation itself. The derivation helps to solidify the connection between concepts and equations, and exposes students to the physics way of thinking. To ensure that my students write down the derivation, I continue to not provide the final equation first. I did, however, start taking a little more time with derivations by writing out algebraic manipulations in more detail so that students could better follow along.

"Reviews for exams would be helpful."

I tried offering a student directed review session the following semester, where I held a two-hour session in which students could ask me anything. Unfortunately, most students who attended this session later commented that it wasn't helpful because what they really wanted was a review over the specific material that was going to be on the exam. Currently, I have returned to not offering reviews before exams and advise students at the beginning of the semester so that they are aware.

Constructive Written Comments – Inquiry-Based Lecture Sections

"I feel as if you shouldn't HAVE to come to office hours to succeed on the homework. This makes it clear that we aren't learning everything that we need to in class. I feel as if what I learned wasn't near what I needed to. What is in class is COMPLETELY different from what is on homework and quizzes. very frustrating."

Teaching students how to apply equations and concepts to problems is a current shortcoming of our inquiry-based sections. I have been working with the other instructors to design and implement opportunities for students to develop and practice problem solving skills during class. I have personally experimented with weekly small group exercises that have students identify mistakes in an incorrect solution and then solve the problem correctly. These exercises are not taken up for a grade and fully worked out solutions are made available on my webpage. I also have tried giving students problem sets with answers to work on outside of class for additional practice. Other instructors have tried other kinds of exercises; however, we have not yet found a full solution to this shortcoming.

"We were tested over material that was not covered in class several times. He expected us to know how to answer problems with no practice and got mad when the last exam grade averaged a 46."

I give my students some statistics when graded exams are returned so that they have an idea of how they are doing relative to their peers. The exam that this student is referring to was the third exam of the semester, the last one given before the final. The average was a 51, median 47, high score 101, and low score 30. I do not recall being angry at them. I was both confused and disappointed. Exam averages normally trend upwards over the term, but this exam was 10 points below the first exam average and 17 points below the second. I did express my concern and confusion to them when exams were returned; however, it appears that this student interpreted that discussion with the class as me being mad at them.

In our inquiry-based section, students are divided into tables of 3-4 students and work through guided experiments as small groups throughout the semester. Rather than giving them a flat curve on this exam, students were given the opportunity to earn some points back by retaking the individual portion of the exam as a table with access to their notes. This gave them the opportunity to raise their exam grades while also providing me a measure of whether the class as a whole had not absorbed the material. The resulting curved exam had an average of 68, median of 63, high score of 110, and low score of 47. This showed me that the class as a whole did have a better understanding than the test initially reflected and helped me to identify specific tables which were struggling with this material as a unit.

Some of the students in the course verbally expressed their dislike of the inquiry-based format because they felt that they were being tested over material that was never introduced to them in the class. I believe that this comment was made by one of these students. The course is designed to expose them to concepts through guided experiments and conceptual check points with instructors; however, there were some that found this kind of inquiry-based learning unpalatable. I tried offering weekly sessions where students could come to discuss concepts and how to apply them to problems in a manner more similar to a traditional lecture, but they continued to experience a disconnect and were not able to see how the concepts were both introduced and explored in the experiments they were performing.

Constructive Written Comments – Freshman Seminar Section

"I feel that the meeting times for the class were too infrequent, enough so that it limited any potential good discussion about certain important topics. Overall, I really enjoyed the course, as well as the more approachable nature that the instructor has which kind of made that student-professor barrier less frightening."

I agree that the meeting times were too infrequent. The freshman seminar course at TTU is scheduled to meet one day a week for an hour and twenty minutes. Many of the other instructors and I would very much like for this to change and have expressed our opinions to the administrative entity overseeing these courses.

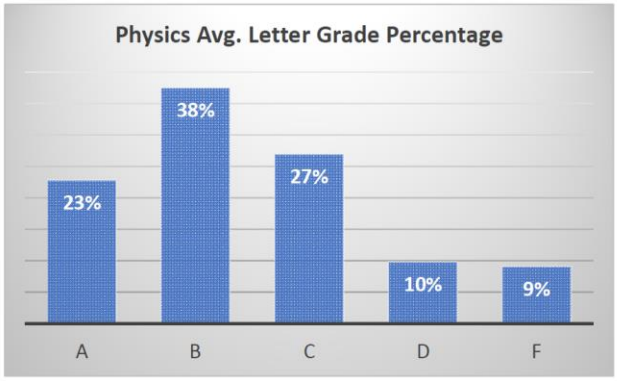
GRADE DISTRIBUTIONS

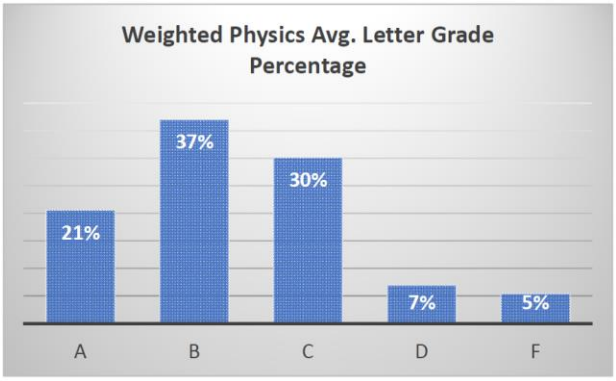
Grade distributions for individual courses are provided in Appendix A.

Physics Lecture Courses

	SP 2014		SU 2014		FA 2014		SP 2015		SU 2015		SP 2016		SU 2016		FA 2016	
A	12	15%	14	17%	14	8%	24	14%	24	36%	9	41%	43	46%	9	16%
B	19	24%	26	32%	40	23%	68	38%	21	32%	10	45%	39	41%	28	50%
C	28	35%	27	33%	73	43%	64	36%	16	24%	2	9%	11	12%	15	27%
D	6	8%	7	9%	28	16%	14	8%	4	6%	0	0%	1	1%	2	4%
F	15	19%	7	9%	16	9%	7	4%	1	2%	1	5%	0	0%	2	4%
Total*	80		81		171		177		66		22		94		56	

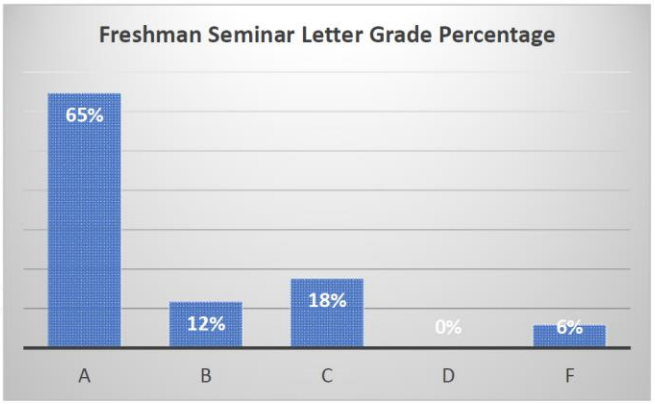
	SP 2017		FA 2017		SP 2018		SU 2018		Avg. %	W. Avg. %
A	2	8%	9	18%	17	31%	25	24%	23%	21%
B	13	52%	29	57%	24	44%	47	45%	38%	37%
C	8	32%	9	18%	13	24%	30	29%	27%	30%
D	2	8%	2	4%	1	2%	1	1%	10%	7%
F	0	0%	2	4%	0	0%	2	2%	9%	5%
Total*	25		51		55		105			





Freshman Seminar

	FA 2017	
A	11	65%
B	2	12%
C	3	18%
D	0	0%
F	1	6%
Total*	17	



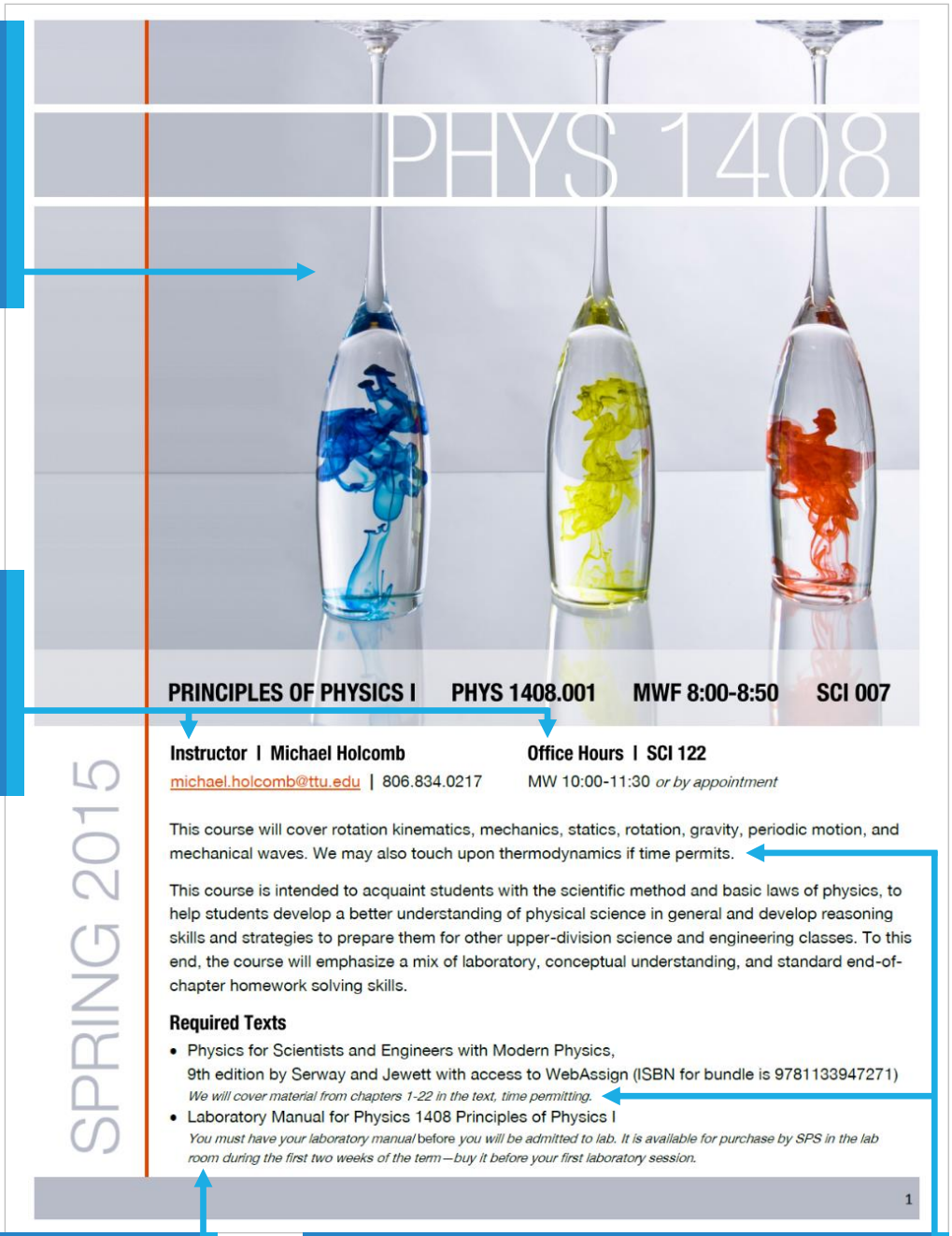
Totals do not include drops or withdrawals, only students who completed the course and were assigned a grade are counted.

REFLECTIVE COURSE SYLLABUS

Below is a representative course syllabus with reflective comments. The syllabus without comments and other representative course materials are available for review in Appendix B.

I believe that representative images of the material that will be covered throughout the semester makes the course more relatable. In this case, the image represents fluids.

My contact information is prominently placed so that it is easier to find for students. I want my students to be able to easily contact me.



After observing that students would show up to the first day of lab without their manual, this comment was added to help remind them both that they needed to buy it and who they needed to buy it from.

Initially added because I was advised by more experienced faculty that there was not enough time to cover the full amount of material. During my first semester teaching the course, I discovered for myself that covering 14 chapters was a stretch and so the "time permitting" notes have persisted.

Attendance is mandatory; however, I do not assign a grade for attendance. Holding students responsible for the material they miss while not directly penalizing them for being absent places responsibility for their education into their own hands and encourages them to be active participants by letting them choose to attend rather than being required to attend.

Another representative photo; however, this time referring to the story of Newton's apple.

I am more interested in their understanding of physics concepts and how to apply them than how well they can memorize. This is also a study technique as students will be studying while they figure out what equations or concepts they should write on their notecards. Some students will try copying down homework solutions at first, but figure out very quickly that this does not help them on my exams.

Course Components

Homework

Online homework from the WebAssign website will be assigned and graded roughly weekly. You must register yourself using your purchased access code. Use both your legal name and your TTU ID (ex: R12345678) when setting up your account. Be sure to select the correct section of PHYS 1408, section 001. The class key is ttu 9181 8983.

Even though the homework is weighted lightly in your final grade, it is not in any way optional; it is crucial for your understanding of the course material. Homework will be made available before the material is covered in lecture and will be due on the posted date before the exam covering that material.

Lecture

Attendance is mandatory and will be taken daily, but is not a part of your grade in the lecture portion of the class. A spirit of honesty will be maintained in the attendance policy. Note that you are responsible for everything that we do in lecture, so it is to your advantage to attend.

Please thoroughly read the section on the next page regarding classroom etiquette for further information on expectations for lecture attendance.

Top Hat is an app that allows me to conduct conceptual surveys of my class and use their individual cell phones as clickers. In addition, I can also make my survey questions available for them to review and assign additional problems for them to complete outside of class.

We will be using Top Hat this semester during lecture. I will send out an email during the first week of class with more information.

Lecture Preparation

You are expected to bring your assigned texts, paper for notes, and a suitable writing utensil (preferably a pencil with an eraser), a scientific calculator, and your Texas Tech Student ID with you to every class meeting. You will likely find it helpful to read ahead in the textbook before each class.

Discussion and Laboratory

You will receive one grade for the lecture, discussion, and laboratory combined. They are not separate courses and they are not optional. The course grading policy on the last page of this syllabus describes how each will be weighted in your final grade.

Discussion will help you understand and practice problems related to homework and exams. Laboratory is an opportunity to learn the material from a hands-on perspective. The laboratory section of this course has a separate syllabus which you will receive during your first laboratory session. Laboratory and discussion will be conducted during the assigned periods for those components of the course.

Attending your laboratory and discussion sections is the only way to get credit for those components of this course. *The laboratory component is essential for your success in this course; if you fail the laboratory portion of this course, you will fail the whole course.*

Exams

Three (3) in-class exams will be administered as scheduled. No makeup exams will be given, so please plan accordingly. You are permitted to bring one (1) 3x5 notecard to each exam, on which you may list any desired information. You may bring three (3) notecards to the final exam. All exams will be given in our normal classroom. Please see the course schedule on the last page of this syllabus for the scheduled dates.

Exam Rules

Scientific calculators *only* are permitted. All other electronics must be stowed out of sight during the exams. Cell phones are not considered to be calculators regardless of what apps may have been installed. If you are seen attempting to use a cell phone during the exam, you will be asked to leave and issued a zero for the exam without exception.

I allow students to use only scientific calculators because most of the students are pre-engineers who are heading towards taking their Fundamentals of Engineering (FE) exam, which only allows certain scientific calculators. While I do not require that the calculator they use be on the approved list, I do verbally encourage them to use one of the approved calculators so that they can start getting used to it early.

This is a lab science course. This note has been placed twice in my syllabus to remind students that they need to take their lab seriously.

If a student decides that they do not want to be attentive during lecture, that is their choice so long as they are only hurting themselves, but I cannot allow one student to become a distraction to their peers. This becomes more of an issue when students are using laptops in our large lecture hall because I cannot monitor what they are doing. Additionally, I do not feel that physics inherently lends itself to notetaking on a laptop and so I restrict their usage; however, I have allowed students to take notes on handwriting capable tablets with the express understanding that they need to remain on task or I will revoke the permission.

Policies and Grading

Classroom Etiquette

Attending lecture is mandatory. You are considered both advised and responsible for anything discussed during lecture. Leaving lecture early or arriving late is considered both rude and distracting. If you have an expected reason to depart early, please inform the lecturer at the beginning of class and sit in a convenient location for leaving without disturbing the class.

All students are expected to be respectful of their peers during lecture by not becoming a distraction. If you become a distraction to other students, then you will be dismissed from class for the day. Some actions, including but not limited to the following, will result in you being considered a distraction to your peers: repeatedly arriving late, reading unrelated material, using your cell phone in any way outside of approved exercises, visiting with your neighbor, sleeping, eating, "vaping," and the use of any and all tobacco products. No laptops or any other electronic devices are allowed in class unless the need for such a device for reason of a disability is documented by Student Disability Services (Access TECH).

This section was inspired by senior faculty to whom I taught parallel. These strategies seem standard; however, it has been my experience that many of the freshman who take this course do not have well-developed study habits and are not sure where they can turn for help. Anecdotally, I have had students tell me that they found this section really helpful.

Strategies for Success

Be prepared! Study your notes, read the material in the text before we cover it in class, and take advantage of the online resources. This will help you keep up, make for more productive classroom interaction, and help keep you prepared for homework, labs, and exams that make up your semester grade. Pay special attention to examples worked in class.

Begin all homework assignments as soon as possible. Don't get behind or wait until the due date to begin. If you are stuck, use available department resources including your lecture instructor, TAs, and SI. Once you can work through a problem with your notes, book, study group, etc., be sure you can rework it entirely on your own.

Don't "blow off" any exam just because there is a dropped score. The purpose of the dropped score is in case of illness or other extenuating circumstances.

Expected Learning Outcomes

The expected learning outcomes for the course, listed below, will be assessed through performance on guided classroom discussions, lab exercises, homework, and embedded questions within the in-class exams.

1. Be able to apply scientific reasoning to the solution of problems
2. Understand and apply concepts of force, energy, and momentum to translational and rotational motion
3. Recognize and address instances of simple oscillatory motion

Academic Integrity

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. For details, see TTU OP 39.12.

Accommodations

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall (806-742-2405).

Religious Holidays

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

These university policies are required to be present in all TTU syllabi. While I believe that all three are important, the accommodations policy is the most important of the three. Some students are not aware of Student Disability Services (SDS) and many SDS students feel awkward about approaching the professor to discuss their needs. I strive to make the full breadth of allowed accommodations accessible and feel that having this policy in the syllabus helps with that.

I like to give students a clear picture of how much things are weighted and include visual aids so that the weighting can be quickly understood.

I will usually have an expanded "B" and "C" range or "C" and "D" range depending on my student population; however, I do not expand the "A" range. I also assign appropriate +/- qualifiers even though these qualifiers currently have no effect on GPA at TTU.

Policies and Grading, con't.

Grading Scale

Your letter grade will be determined on the following scale: F (≤ 49), D (50-64), C (65-77), B (78-89), A (90-100).

Grades which are two points on either side of a grade boundary will receive the appropriate +/- qualifier. For example, grades of 76 or 77 earn a C+ while grades of 78 or 79 earn a B-.

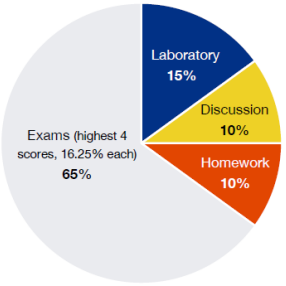
Course Components

Laboratory	15%
Discussion	10%
Homework	10%
Exam	16.25%
Exam	16.25%
Exam	16.25%
Exam	16.25%
TOTAL	**100%**

Reminder: *even though the combined laboratory and discussion sections of the course are worth a total of 25% of your grade, failing the laboratory portion will result in a failing grade for the whole course.*

Grading Policy

The following scores will be accumulated during the course of the semester: Homework, Laboratory, Discussion, Exam 1, Exam 2, Exam 3, Final Exam, Final Exam. The course grade will be the weighted average of Laboratory at 15%, Discussion at 10%, Homework at 10%, and the four highest exam scores of the five listed above at 16.25% each.



This is a lab science course. This note has been placed twice in my syllabus to remind students that they need to take their lab seriously.

Tentative Course Schedule

Week of	Chapter	Lecture	Laboratory
January 12	1-2	Wednesday, Jan. 14th - First class day	
19	2-3	*Monday, Jan. 19th - No class*	
26	4	Friday, Jan. 30th - Last day to drop *without academic penalty*	*Experimental Uncertainty*
February 02	5		*1-D Motion Part I*
09	6	**Friday, Feb. 13th - Exam 1 (Ch. 1-5)**	*1-D Motion Part II*
16	7		*2-D Projectile*
23	8		*Vector Forces*
March 02	9		*Force and Momentum*
09	10	**Friday, March 13th - Exam 2 (Ch. 6-9)**	*Work and Energy*
16		*Spring Break - No class*	
23	10-11	Wednesday, March 25th - Last day to drop	*Collisions*
30	12		*Rotation*
April 06	13	*Monday, April 6th - No class*	
13	15	**Friday, April 17th - Exam 3 (Ch. 10-13)**	*Statics*
20	15-16		*Gravity*
27	17-18	Thursday, April 30th - Last day to withdraw from the university	*Periodic Motion*
May 04	19	Monday, May 4th - Last class day	
May 09		**Comprehensive Final Exam - Saturday, May 9th, SCI 007, 7:30-10:00 a.m.**	

PHYS 1408.001 | SPRING 2015 4

This tentative course schedule gives students the ability to plan their semester and keep track of important dates. A good number of students are working jobs and giving them set exam dates allows them to plan their work schedule to allow for studying. Additionally, drop and withdrawal dates are noted so that students know from the beginning when decisions must be made about whether they will complete the course. I try to keep the last drop date in mind and plan exams so that students have enough feedback to make an informed decision.

TEACHING RESPONSIBILITY

Below is a summary of my previous teaching assignments. A more detailed statement of teaching responsibility is available for review in Appendix A.

GRADUATE PART-TIME INSTRUCTOR

TEXAS TECH UNIVERSITY, DEPARTMENT OF PHYSICS AND ASTRONOMY

- **PHYS 1403 General Physics I – Algebra Based Physics, 1st Semester**

Official Course Description:	Non-calculus introductory physics covering mechanics, heat, and sound, thus providing background for study in science-related areas.
Spring 2017:	Section 003 (50219) – Inquiry-Based Lecture/Lab – 28 Students
	Section 533 (50085) – Inquiry-Based Lecture/Lab – 28 Students
Fall 2017:	Section 002 (10165) – Inquiry-Based Lecture/Lab – 57 Students
	Section 532 (26081) – Inquiry-Based Lecture/Lab – 57 Students
Summer I 2018:	Section 102 (23992) – Traditional Lecture – 107 Students

- **PHYS 1404 General Physics II – Algebra Based Physics, 2nd Semester**

Official Course Description:	Non-calculus introductory physics covering electricity, magnetism, light, and modern physics, thus providing background for study in science-related areas.
Spring 2016:	Section 004 (54847) – Inquiry-Based Lecture/Lab – 24 Students
	Section 534 (54849) – Inquiry-Based Lecture/Lab – 24 Students
Summer II 2016:	Section 001 (61256) – Traditional Lecture – 97 Students
Fall 2016:	Section 001 (24350) – Traditional Lecture – 60 Students
Spring 2018:	Section 002 (40293) – Traditional Lecture – 59 Students

The algebra based physics sequence at TTU primarily services pre-professional health students, but the first semester of the sequence is also a required course for architecture majors. This student population tends to be very motivated and concerned about their GPA. Their nature makes them strong students, but can also make them sensitive when faced with material that they find difficult to get a handle on. They will often struggle with seeing the intricate connection between physics concepts and equations. The methods and techniques they generally use to study for their other science courses are not as effective when applied to studying physics. They will often start to excel once they figure out how to study the concepts and equations together rather than separately.

- **PHYS 1408 Principles of Physics I –Calculus Based Physics, 1st Semester**

Official Course Description: Calculus-based introductory physics covering mechanics, kinematics, energy, momentum, and thermodynamics.

Fall 2014: Section 003 (29508) – Traditional Lecture – 193 Students

Spring 2015: Section 001 (45473) – Traditional Lecture – 194 Students

Summer II 2015: Section 001 (67131) – Traditional Lecture – 67 Students

- **PHYS 2401 Principles of Physics II – Calculus Based Physics, 2nd Semester**

Official Course Description: Calculus-based introductory physics covering electric and magnetic fields, electromagnetic waves, and optics.

Spring 2014: Section 003 (49784) – Traditional Lecture – 89 Students

Summer II 2014: Section 001 (61269) – Traditional Lecture – 84 Students

The calculus based physics sequence at TTU primarily services pre-engineering students, but is also required for about half of the biochemistry majors as well. The majority of the pre-engineering students view physics as something esoteric and do not readily recognize the importance of physics to their field of study. It is not uncommon for these students to incorrectly believe that the course will require minimal effort on their part. Although generally more self-reliant than the pre-professional health students, I have found that they share in the struggle of recognizing the intricate connection between physics concepts and equations. However, their difficulty tends to stem from an incorrect belief that physics is really all about equations.

TEXAS TECH UNIVERSITY, ALL-UNIVERSITY PROGRAMS

- **IS 1100 RaiderReady – Freshman Seminar**

Official Course Description: Introduces students to philosophy, history, and applications of higher education and critical thinking.

Fall 2017: Section 099 (33703) – Lecture – 17 Students

The freshman seminar course at TTU is coordinated at the university level and optional for new students; however, specifically within the College of Arts and Sciences, it is strongly suggested during orientation. Working with these students is a very rewarding experience. The small class size (capped at 20) and one-onone meetings outside of class allows the instructor to really get to know their RaiderReady students. Given the opportunity in a safe place, most students reveal that they have many concerns and misconceptions about college. I developed my implementation of the course around small group discussions that would then motivate discussions as a class.

We talked about concerns such as home sickness and feelings of isolation, course difficulty, and how to pick a major. We discussed techniques for success such as study habits, time and stress management, and how to approach professors with questions. We also explored available campus resources (health and wellness services, student disability services, etc.), the topic of consent, and what academic integrity entails.

TEACHING ASSISTANT

TEXAS TECH UNIVERSITY, DEPARTMENT OF PHYSICS AND ASTRONOMY

- **ASTR 1400 – Solar System Astronomy**

Official Course Description:	This course covers the sun, planets, moons, asteroids, comets, gravitation, and formation.
Spring 2013:	Section 501 (33733) – Laboratory – 23 Students
	Section 502 (33734) – Laboratory – 23 Students
	Section 513 (33745) – Laboratory – 21 Students
	Section 514 (33746) – Laboratory – 23 Students
Fall 2013:	Section 502 (10026) – Laboratory – 26 Students
	Section 503 (10031) – Laboratory – 25 Students

- **ASTR 1401 – Stellar Astronomy**

Official Course Description:	This course covers stars, star formation, galaxies, and cosmology models.
Fall 2013:	Section 506 (28089) – Laboratory – 28 Students

Both Solar System Astronomy and Stellar Astronomy are designed to satisfy the natural science requirement for non-science majors. Physics majors with an astronomy focus do not generally take these courses; however, on occasion, a student ends up discovering their interest in the field and changes their major. These students are a lot of fun to work with. Although somewhat intimidated by the math that is required for the course, they are always very excited about the material and open to learning.

- **PHYS 1403 – General Physics I – Algebra Based Physics, 1st Semester**

Official Course Description:	Non-calculus introductory physics covering mechanics, heat, and sound, thus providing background for study in science related areas.
Fall 2012:	Section 003 (10165) – Lecture/Laboratory – 24 Students
	Section 530 (26081) – Lecture/Laboratory – 24 Students
Summer II 2017:	Section 001 (61474) – Lecture/Laboratory – 25 Students
	Section 501 (62053) – Lecture/Laboratory – 25 Students

- **PHYS 1408 – Principles of Physics I – Calculus Based Physics, 1st Semester**

Official Course Description:	Calculus-based introductory physics covering mechanics, kinematics, energy, momentum, and thermodynamics.
Summer II 2012:	Section 501 (67132) – Laboratory – 12 Students
	Section 502 (67133) – Laboratory – 21 Students
	Section 701 (67299) – Discussion – 10 Students
	Section 702 (67300) – Discussion – 17 Students
	Section 703 (67301) – Discussion – 6 Students
Summer II 2013:	Section 501 (67132) – Laboratory – 18 Students
	Section 502 (67133) – Laboratory – 21 Students
	Section 503 (67134) – Laboratory – 19 Students

- **PHYS 3401 – Optics**

Official Course Description:	Covers geometrical and physical optics, waves, reflection, scattering, polarization, interference, diffraction, modern optics, and optical instrumentation. (Writing Intensive)
Fall 2015:	Wednesday – Laboratory – 6 Students
	Thursday – Laboratory – 7 Students
	Friday – Laboratory – 7 Students

This junior level optics course is often taken as an elective by the physics majors at TTU. They have usually completed modern physics and are concurrently enrolled in either classical mechanics or their first semester of electricity and magnetism. These students are enjoyable to work with and often very interested in getting their hands on any kind of equipment they can. The one area where they struggle is in writing their lab reports and properly accounting for error propagation.