

# SYLLABUS – PHYSICS 218 - UP: Mechanics

## Fall 2017

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**Course Description:** *Mechanics* for students in science and engineering. This is the first semester of a two-semester sequence in introductory physics. The topics covered include Newton's Laws, the concepts of energy and work, conservation of energy and momentum, rotational motion, gravity, and simple harmonic motion.

### Course Objectives:

**Conceptual knowledge to gain:** Understanding of the physical laws of motion, static and dynamical Newtonian mechanics, and harmonic motion; the scientific approach.

**Skills to gain:** Learning to think more critically/scientifically, and developing the skills need to attack difficult problems.

### Instructor Information:

<b>Name:</b>	Prof. Alexey Akimov
<b>Office:</b>	MPHY 443
<b>E-mail:</b>	<a href="mailto:akimov@physics.tamu.edu">akimov@physics.tamu.edu</a> (please start subject line with <b>PHYS218</b> )
<b>Sections:</b>	531 – 536
<b>Lectures:</b>	Mondays and Wednesdays, 5:45 – 7:00 pm
<b>Office hours:</b>	Tuesday and Thursday 5:30 PM and/or by appointment
<b>FlipItPhysics course access key:</b>	95e3b278

### Web Pages:

- [physics218.physics.tamu.edu](http://physics218.physics.tamu.edu) – website with information common to all PHYS 218 sections using the 'University Physics' textbook
- [ecampus.tamu.edu](http://ecampus.tamu.edu) site for this class will have lecture notes and grades
- [pearsonmylabandmastering.com](http://pearsonmylabandmastering.com) - Mastering Physics (register through [ecampus.tamu.edu](http://ecampus.tamu.edu)) for homework submission
- [www.flipitphysics.com](http://www.flipitphysics.com) for pre-lectures and checkpoints
- [www.webassign.net/tamu/login.html](http://www.webassign.net/tamu/login.html) for the labs
- <https://freshman.physics.tamu.edu/p218> to check your status on achieved learning objectives

### Pre-Requisite: MATH 151 or 171.

You must have a working knowledge of plane geometry, trigonometry, and algebra. As the semester progresses you will also be expected to have a working knowledge of derivatives and integrals, and be proficient in the use of vectors (addition, subtraction, dot and cross products).

## Text and required materials:

<b>Primary text</b>	<b>Volume 1, University Physics, Young and Freedman 14th edition.</b> From the TAMU bookstore you can buy the loose-leaf book or the bound book. The version bundled with Modified MasteringPhysics access includes access to the online homework for this course. Your more economic option is the loose-leaf book. <b>Do NOT get the LAB book.</b>
<b>Homework (Mastering)</b>	All 218 sections use the <a href="#">ModifiedMastering</a> on-line homework system. <b>You do not need a course access code;</b> you should go to <a href="#">eCampus</a> , login with your NetID and password, and click the link on the left menu under "Homework (Mastering)", which will be linked with the correct course automatically.
<b>Clicker</b>	<p>Get the iClicker2 from your bookstore. "REEF polling" using smartphones may or may not be enabled, depending on your instructor. The iClickers will be used for in-class conceptual testing and polling. To encourage class participation, credit for iClickers will be based in part on participation, and your instructor may also award points based on correct answers. To gain participation credit you must pre-register your device, and answer all of the questions in class. <i>Cheating by bringing a friend's clicker is a violation of the Aggie Honor Code, and will result in loss of all clicker points, and disciplinary action.</i></p> <p>To register the iClicker, follow the instructions given <a href="#">here</a>. Please direct all technical issues with the support team at iclicker.com.</p>
<b>Pre-Lectures (FlipItPhysics)</b>	<p>All 218 sections use the <a href="http://www.flipitphysics.com">http://www.flipitphysics.com</a> on-line pre-lecture system (formerly known as SmartPhysics). Follow the instructions to <a href="#">setup your login</a> and subscribe to my course using the course access key described in the first page of this document. The FlipItPhysics website will allow you to subscribe without paying for the first 30 days. <b>DO NOT BUY THEIR BOOK.</b></p> <p>You are required to view the prelectures (narrated slides including a few online questions) ahead of the lectures, and the lectures will include quizzes to see if you have gained a basic understanding. The remainder of the lecture will then focus more on problem-solving. The FlipItPhysics site also includes "Checkpoints" following most pre-lectures, which are short quizzes to test for understanding.</p> <p>There are a few customized pre-lectures ("Math review", "Work and kinetic energy", "Dynamics of rotational motion" and "Conservation of angular momentum"), which don't show up well in flipItPhysics; though you need to view those on flipItPhysics for credit, higher resolution copies are maintained at <a href="http://physics218.physics.tamu.edu/custom-prelectures.shtml">http://physics218.physics.tamu.edu/custom-prelectures.shtml</a>.</p>
<b>Labs (WebAssign)</b>	All 218 sections use the <a href="#">WebAssign</a> on-line laboratory system. Follow the instructions to <a href="#">setup your login</a> . By following the WebAssign link above (notice the link's ending in tamu/login.html) and logging in with your TAMU NetID the system will take you to the section that you are registered for so you join the correct course automatically. Some of you already obtained WebAssign access for you math class, but unfortunately you need to have a <i>separate</i> access code for your physics work. After registering, the WebAssign website will allow you 14 days of grace before you are required to pay.
<b>Calculator</b>	You also should have a pocket calculator capable of calculating arithmetic and trigonometric functions for exams.

**Laboratory and Recitation:** The Lab is a part of this course, not treated as a separate grade. The Lab Schedule is posted on the common webpage [here](#). The labs, along with pre- and post-lab assignments, will be obtained through the online WebAssign package. Information regarding the format and grading of the Recitations may be found on the common webpage [here](#). Note that you must attend Recitation each week, even if no lab experiment is scheduled (see the Lab Schedule for details). The [policy for absences](#) in Lab and Recitation is the same as for the Exams, and you must consult first with your TA in the case that you have an excused absence.

**Homework:** Homework assignments are posted online from links that are posted in the eCampus course site. You are responsible for completing and understanding these problems in preparation for exams. By the end of the first week you should complete the first homework assignment.

You must work the online problems on your own, and keep up with the weekly deadlines — see the calendar on the [MyLab&Mastering](#) site for posted due dates. Late submissions **are** accepted; however full credit will not be given. The penalty is 2% per hour past the deadline. To encourage doing the homework (which is necessary to succeed in the course!), the maximum penalty—no matter how late—is –50%. Details about the grading policy for individual homework problems can be found on the online site—for example, in some cases you get several attempts to key in the correct answer, with a 3% penalty for wrong attempts.

**Exams:** We will have 3 midterm exams and one comprehensive exam, all of which are common to all 218 sections. Each of these will be given in the evenings as listed in the course schedule when you registered. The midterm exams start at or around 7:30 pm, and are expected to last 1.5 hours. The comprehensive exam is the Friday before finals week and will last 2 hours. Exams generally consist of problems similar in content and difficulty to the homework, and they are expected to include both short-answer and free-response questions. [Formula sheets](#) will be provided for each exam. You only need to bring your TAMU ID, a pen/pencil and hand-held calculator. Any contestations regarding the grading of an exam must be brought to my attention *within 1 week of them being returned to you*.

**Absences:** If you miss an exam due to an [authorized excused absence](#) as outlined in the *University Regulations* (Rule 7.1.6.2a is not acceptable), you should attempt to **contact me prior to the exam but no later than the end of the week of the missed exam**. Make-up exams will only be offered if you miss the comprehensive exam. If you miss a midterm exam due to an excused absence, your final cumulative exam grade will be based on the set of tested objectives in the other exams (including the comprehensive). **Note:** Few conditions qualify as an authorized excused absence, so you must avoid missing exams except for extremely serious circumstances.

**Identification:** You *must* bring your TAMU student ID with you to all exams for identification purposes.

### Course Grade:

The final letter grade on the course is based upon the final numerical course score as detailed in the table below:

Course Score	Final Letter Grade
≥ 90 %	A
≥ 80 %	B
≥ 70 %	C
≥ 60 %	D
< 60 %	F

The column on the left shows the minimum scores necessary to achieve the final letter grade show in the right column. These minimum scores *might* be lowered at the end of the semester. The numerical score is computed

as a weighted average over all different components of the course, with the weights as determined in the table below. With the exception of the clicker quizzes, all components of the course (*i.e.* the exams, lab, recitation, homework and pre-lectures), are all common across all sections of 218-UP.

Course Component	Fraction of final grade
Exams (Three Midterms + Comprehensive exam)	75%
Laboratory	9%
Recitation	4%
Online homework	4%
Pre-lectures and Checkpoints	4%
In-class clicker quizzes	4%
<b>Total:</b>	<b>100%</b>

The “Exams” portion includes the three midterm exams as well as the comprehensive exam. Exams are graded in terms of the learning objectives. The complete list of learning objectives that a student is supposed to master at the end of the semester is posted at [physics218.physics.tamu.edu/los.html](http://physics218.physics.tamu.edu/los.html).

Each exam tests several different learning objectives and could test many times the same learning objective. During the grading we keep track of every instance in which a learning objective is tested and whether in that particular instance the objective was marked as passed or failed. Learning objectives will also be tested multiple times across exams. You may view your status on your achieved learning objectives throughout the semester by logging on with your NetID at <https://freshman.physics.tamu.edu/p218>.

At the end of the semester we call achieved objectives as those who pass either of the criteria below:

- were marked as passing  $\geq 60\%$  of the tested times in the comprehensive exam.
- were marked as passing  $\geq 60\%$  of the tested times in all exams in which they were tested, including the comprehensive exam.

**The fraction of achieved objectives at the end of the semester out of the number of tested objectives gives the numerical grade in the “Exams” portion of the table above.** As an example, if a student has achieved 43 objectives out of the total of 50 objectives tested, he/she has earned 86% of the Exams portion of the course grade.

**ADA Policy:** 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 believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call (979)845-1637. For additional information visit Disability Services website at <http://disability.tamu.edu>. All information and documentation concerning a disability is kept confidential.

**Honor Code:** The Aggie Honor Code states, “An Aggie does not lie, cheat, or steal or tolerate those who do.” Further information regarding the Honor Council Rules and Procedures may be found on the web at <http://aggiehonor.tamu.edu>.