# Physics 141: Introductory Mechanics – Spring 2018

A first course in Newtonian mechanics; introduces freshman-level students to the statics and dynamics of point particles, rigid bodies, and fluids. Topics include vector algebra, projectile and circular motion, Newton's Laws, conservation of energy, collisions and conservation of momentum, rotational dynamics and conservation of angular momentum, statics, harmonic oscillators and pendulums, fluid statics and dynamics, gravitation and Kepler's Laws.

**Professor:** Charles Stafford **Office:** PAS 347
**Phone:** (520) 626-4260 **email:** staffordphysics92@gmail.com

**Lectures:** WF 10:00–10:50am in PAS 201 **Web:** http://d2l.arizona.edu/
**Office hours:** Thursdays 2–4pm

**Required Text:**

*University Physics*, by Young and Freedman (14th Ed., Pearson), including *Mastering Physics* (needed for online homework).

**Course Prerequisites:** Math 122B or 124 or 125 (Calculus I)

**Grading scheme:**

Your grade in this course will be based on your cumulative score, which is determined as follows:

| | |
|---|---|
| Homework on *MasteringPhysics* (15 assignments, weekly) | 9% |
| Recitation activities | 9% |
| Exam 1 (February 9) | 13% |
| Exam 2 (March 23) | 13% |
| Exam 3 (April 20) | 13% |
| Laboratory | 18% |
| Final Exam (Wednesday 5/9/2018 6:00–8:00 pm) | 25% |

**Grading scale:**

| | |
|---|---|
| 87–100 | A |
| 74–87 | B |
| 60–74 | C |
| 50–60 | D |
| 0–50 | E |

**Photo ID required when turning in Exams**

You must show proof of identity when turning in your exam. Acceptable photo IDs are a UA Cat Card or AZ Driver's License.

**MasteringPhysics online homework**

There will be 15 homework assignments due weekly using MasteringPhysics. Please go to www.masteringphysics.com and register for the course. The course ID is MPSTAFFORD37390. The first homework assignment using MasteringPhysics will be CH 01 HW due January 17.

If you bought a textbook without the access code for MasteringPhysics, it is possible to buy the access code separately, or pay by credit card or paypal when you register for the course. MasteringPhysics access includes access to the e-textbook.

**Course Format and Teaching Methods**

Lecture, lab, and recitation combination with web-based interactive homework. Interactive activities in lecture will be handled using the *tophat app* accessed on your mobile phone or wifi-enabled tablet or laptop.

**TopHat registration**

Go to app.tophat.com/register/student/ and enter the 6-digit join code **262408**. For more info contact support@tophat.com, 1-888-663-5491.

**Course Communications**

All online communications should be sent to `staffordphysics92@gmail.com`.

**Final Exam**

Wednesday 5/9/2018 6:00–8:00 pm.

Final Exam Regulations:
https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information
Final Exam Schedule: http://www.registrar.arizona.edu/schedules/finals.htm

**Course Objectives and Expected Learning Outcomes**

Student will obtain proficiency in calculus-based Newtonian mechanics, as measured by in-class written examinations, recitation activities, laboratory work, and homework.

**Absence and Class Participation Policy:**

Attendance of the laboratories and exams is mandatory.

A missed exam or homework due to an excused absence or a planned absence that is documented ahead of time by the student and approved by the instructor will be substituted with a make-up exam or homework or an alternative arrangement at the discretion of the instructor.

All work to be considered for a regrade must be submitted at most one week after it was returned.

The UAs policy concerning Class Attendance, Participation, and Administrative Drops is available at: http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, http://policy.arizona.edu/human-resources/religious-accommodation-policy.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: https://deanofstudents.arizona.edu/absences

**Required Special Materials**

A scientific calculator is needed for the exams and other coursework. A cell phone, or wifi-enabled tablet or laptop is required for in-lecture activities.

**Classroom Behavior Policy**

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

**Threatening Behavior Policy**

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself.
See http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

**Accessibility and Accommodations**

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit http://drc.arizona.edu.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available

for students who find that standard classroom seating is not usable.

**Code of Academic integrity:**

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog.
See: http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity

The University Libraries have some excellent tips for avoiding plagiarism, available at http://www.library.arizona.edu/help/tutorials/plagiarism/index.html

If you decide to take and continue in this course, you are agreeing to submit your papers online, when so instructed, to a plagiarism-prevention program called TurnItIn.com via the d2l drop box. You should note that TurnItIn.com, always without your name and any personal information, will retain your paper as part of their database so that students who plagiarize from it can be detected. Because of this program, the vast majority of you who do your own work and cite your sources of information properly will not have to compete with students who commit undetected plagiarism.

*Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructors express written consent.* Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

**UA Nondiscrimination and Anti-harassment Policy**

The University is committed to creating and maintaining an environment free of discrimination; see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

**Additional Resources for Students**

UA Academic policies and procedures are available at http://catalog.arizona.edu/policies

Student Assistance and Advocacy information is available at
http://deanofstudents.arizona.edu/student-assistance/students/student-assistance

**Homework (HW):**

There will be interactive online HW administered through `www.masteringphysics.com`.

HW is an extremely important part of this class. First, it is worth 9% of your grade. Second, it is critical to do the HW or you will not be able to do well on the exams.

You are encouraged to work in groups to learn from one another. However, you must understand all the solutions yourself and do your own work on the online homework.

The HW assignments are long; they will take several hours each week.

**Guidelines for success in this course:**

Physics is a difficult subject. You cannot learn it just by listening to the lectures. You can only learn by *doing it*. You must participate in classroom activities and work hard outside of class, reading the text and completing the homework, to learn the material.

You cannot *memorize* physics. You must *understand* the equations and the concepts behind them. Otherwise, it will be difficult if not impossible to use the equations correctly.

It is important for you to read the textbook and study its examples. You should read the appropriate sections of the text before you begin each homework assignment.

*Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.*