PHYS-160-002 University Physics I

(Jan 21- May 13)

Spring 2020, Innovation Hall 103, MWF, 9:30-10:20 AM

TENTATIVE SYLLABUS

Instructor:

Branislav Djordjevic Room 201B, Planetary Hall E-mail: **bdjordje@gmu.edu**
Office Hours: **TH: 3 pm – 5 pm. Webex**
Please, announce your visit via email, so that I don't step out of my office when you come.

Recitations Instructors (look for their schedules in PatriotWeb):

Tutor: **Dr. Shalom Fisher,** Planetary Hall room 2A
Tutor Hours: Check department office (Planetary Hall room 203) for tutor schedule

Text: **Young & Freedman, University Physics with Modern Physics, 14e (13th edition is equally good). We will not use Mastering products so you don't need to purchase them.**

Blackboard: **XLSNL202010: 202010 - Master - PHYS-160-002 / PHYS-160-P02 / PHYS-160-316 (Spring 2020)**

Attendance: You will get 5% toward your final grade for attending the lectures. Attendance will be done through Blackboard. Bring your smart phone, laptop, or similar device to check yourself in when told.

Recitation: You will get 5% toward your final grade for attending your recitation sessions and actively participating in them.

Exams: There will be 4 midterm exams, each carrying 15% weight, and the final comprehensive exam carrying 30%. No exam will be dropped. But I will reward your continuous improvement from exam to exam, especially on the final exam. See the tentative lecture and exam schedule below.

So, Graded Assignments are:

Midterm Exams (15% each) x 4	**60 %**
Final Exam (Comprehensive)	**30 %**
Recitation Attendance and ACTIVE Participation	**5 %**
Attendance	**5 %**
Total	**100 %**

Tentative Schedule:

Week of (**MON**)	**Chapters**
01/20	Ch. 1 Introduction; vectors, math review
01/27	Ch. 2 Kinematics in 1D
02/03	Ch. 3 Kinematics in 2D
02/10	**Test 1 Chapters 1-3 (2/10, Monday)** Ch. 4 Newton's Laws
02/17	Ch. 5 Application of Newton's laws
02/24	Ch. 6 Work, Kinetic Energy Review for Test 2
03/02	**Test 2 Chapters 4-5 (3/2, Monday)** Ch.7 Potential Energy, Conservation of Energy
03/9	**SPRING BREAK** **No classes**
03/16	Ch.7 Potential Energy, Conservation of Energy Ch.8 Linear Momentum
03/23	Ch.9 Rotational Kinematics
03/30	Ch.10 Rotational Kinematics
04/05	**Test 3 Chapters 6-8**
04/06	Ch.10 Rotational Dynamics Ch.11, Equilibrium
04/13	Ch.10 Rotational Dynamics Ch.11, Equilibrium
04/19-20	**Test 4 Chapters 9-11 (4/19-20, Sunday/Monday)**
04/20	Ch.13 Gravitation Ch. 14 Oscillations
04/27	Ch. 14 Oscillations
05/4	REVIEW (Chapters 1-14) Monday is the last day of classes
5/18	**Final Test (Chapters 10,11-1st part,13, and 14) MONDAY 5/18**

Grading Scale:

>= 97%	**A+**
>= 90%	**A**
>= 87%	**B+**
>= 80%	**B**
>= 77%	**C+**
>= 70%	**C**
>= 60%	**D**
< 60%	**F**

Goals and Prerequisites:

First semester of three-semester, calculus-based introductory physics sequence, designed primarily for science and engineering majors. The topics covered in this course are in Mechanics. This course also fulfills general education requirement in natural science.

This course is designed to assist students to comprehend the fundamental ideas of mechanics and to help them to apply the basic physical principles appropriately. Furthermore, the students will develop the ability to solve physical problems. The additional objective of the course is to improve students' symbolic reasoning skills to assist them in further enhancing their analytical skills.

Math 113 is a prerequisite for this course. Students are expected (**with no exception**) to have the knowledge of first semester calculus. It is assumed that all students have the knowledge of high school algebra. **Math 114 is a co-requisite of this course.**

Lecture Format:

Lectures are given face-to-face in the classroom. Lectures will include problem solving by hand, as in recitations. You need to come to class prepared.

Exam policies:

1. The only items you need to bring for exams are your GMU ID, pencils and/or pens (black or blue ink only), and, if indicated, a scientific calculator. All other items, including papers, books, and other electronic devices, must be stored in a closed bag out of sight.
2. Any instance of cheating is a violation of the Honor Code Pledge and will result in a score of zero on the exam and referral to the Honor Committee. The website for the Office of Academic Integrity is https://oai.gmu.edu/.
3. If you have a disability and need academic accommodations, please contact Disability Services. Their website is https://ds.gmu.edu/. All academic accommodations must be arranged through Disability Services.
4. If you believe you were awarded too few points due to a grading error and want a grade adjustment, then you must contact me within one week of the class when the exams were returned. If your claim is accurate, then your grade will be adjusted accordingly. If not, then an additional 10% will be deducted from your exam grade, for each inaccurate claim.
6. Once you leave the classroom during an exam, you may not return to resume taking the exam.
7. If you arrive late for an exam, you may still take the exam if the following two conditions are met:
(i) no students have yet left the classroom since the start of the exam, (ii) the proctors, or I can set you up to take the exam without distracting other students. To maximize the odds of (ii) being met, enter the room quietly with your pencils and/or pens and calculator out and everything else packed, and wait for a proctor to assist you.

Class Etiquette

1. Please stow cell phones out of sight and set them not to ring.
2. Please stay actively engaged with class at all times. Even if you quietly pursue other activities, like browsing the internet on your laptop or tablet, this can still be very distracting to other students. If you would prefer not to engage with class, please leave the classroom quietly and do not return.
3. Class time will be split between lecture and problem-solving examples. You are strongly encouraged to ask questions during lecture, but please raise your hand and wait to be acknowledged. If, after a short time, the lecturer has not noticed your hand raised, then you may call out that you have a question. Otherwise, please refrain from talking during lecture. Talking is extremely distracting to other students and to the lecturer.
4. Please come to class on time. Please be in your seat ready to start class at 9:30, not walking in the door at 9:30. Late arrivals can be extremely distracting to both students and the lecturer. Given traffic in Northern Virginia and parking on campus, you may be unavoidably late on rare occasions. In these cases, please make sure to have your materials for class (e.g. notebook, pencil) in hand and everything else packed, come in as quietly as possible, and take a seat near the back of the classroom. If you are consistently late, then you may be asked to stop attending class.
5. Similarly, leaving the classroom briefly and returning can be distracting. You may do so if you need to use the restroom, but please consider using it before class instead.

Advice for Successful Study

Scientific research on effective learning has shown that students must actively think about and apply concepts in order to learn. Passively consuming information does not yield durable learning.

In this course, the only way to really learn well is to solve lots of physics problems. Problems will be posted (but not collected or graded). Detailed solutions will be posted as well. Work the problems on your own, consult the solutions if you get stuck, go through the posted solution carefully once you've finished the problem (since the posted solution might contain additional insight or a more efficient method of solution), and redo the problems that challenged you after a couple of days or more have passed. Also make note of any questions or issues that weren't resolved by the posted solutions so you can ask about them in class, recitation, or office hours. If you have time to work on more problems besides those that are assigned, this will further help your learning. There are lots of problems at the end of each chapter to choose from, and the instructors, and department tutor will be happy to go over the solutions with you.

The other facet of active learning in this course is active reading. When reading the assigned sections in the textbook, constantly challenge yourself to make sure you understand the content. For example, check that you can provide the mathematical steps in derivations and in the example problems and try to express the text's logical arguments in your own words. Again, make note of anything you don't understand so you can ask about it.

Any of the material in the assigned reading could potentially appear on exams, whether it was explicitly covered in class or not. The same is true of the posted problems in Blackboard—all are fair game for exams, whether we ever discuss them explicitly in class, or not. However, you should not expect that exam problems will be selected from the posted problems. You must take responsibility for your own learning and recognize the instructors as facilitators of your learning. Keep up with the reading and problem solving and ask for help whenever needed.

Education research has also shown what most of us know from experience—that cramming is not an effective way to learn. That's why there are four in-class exams, in the hope that it will force you to continually keep up with the material.

Solving lots of physics problems and actively reading the textbook will consume a lot of time and require serious concentration. It's essential to schedule significant blocks of uninterrupted time for study. Make a schedule that includes enough study time and be sure to stick to it. And set up your work environment to keep distractions, like your phone, away. It's not easy to develop time-management and concentration skills, but it's well worth it, since they'll help you succeed in all parts of your life, not just in school.

University Resources

Learning Services https://learningservices.gmu.edu/
Student Support and Advocacy Center https://ssac.gmu.edu/ Counseling and Psychological Services https://caps.gmu.edu/

Important Dates

See: https://registrar.gmu.edu/calendars/fall-2019/