PHYS-160-004 (SPRING 2021), University Physics I - TENTATIVE SYLLABUS
ONLINE SYNCHRONOUS COLLABORATIVE COURSE, Jan 25, 2020 - May 10
M&W 3:30 PM – 5:20 PM, in Blackboard Collaborate Ultra

Instructor:

Dr. Branislav Djordjevic
Room: Virtual
Email: **bdjordje@gmu.edu**
Office hours: TBD, in Webex

Tutor: Dr. S. Fisher
Tutor Hours: Check: **https://learningservices.gmu.edu/physics-tutoring/** for tutoring hours & location

Text: ***University Physics, 15th ed, Young and Freedman*** **(14th and 13th editions are equally fine)**
Blackboard: 202110.19133 PHYS-160-004 (Spring 2021)

COLLABORATIVE COURSE:

This is an Active Learning course and will have a very different format from the traditional lecture style. **This is not a lecture course**. Students in this class will engage in active learning which will require preparation before class begins, group efforts, class participation, investigative research and hands-on work. Students will collaborate on solving problems in class, in Blackboard Collaborate Breakout Groups. Two Learning Assistants and I will be moving from group to group to monitor what you are doing, and to help you move forward toward finding the right way to solve physics problems.

The class will typically start with my mini lecture, which will introduce the topic. However, students are expected to come to class prepared. To be prepared for the class means: students will study the relevant chapter in their textbook before the class, and complete pre-lecture quiz in Mastering. This is *conditio sine qua non* for succeeding in this class.

Attendance and active participation in the class will be graded.

Homework and Quizzes:

You have two options to purchase access to Mastering, directly from Pearson: **a)** Mastering with e-Book: $119.99, or **b)** Mastering without e-Book: $69.99. **However, you will register for Mastering and access your homework FROM WITHIN BLACKBOARD**! Your Mastering homework is integrated with your Blackboard course. Never log directly into Mastering website! **First log in your Blackboard course, and then click on** "**Access your Mastering Homework and Quizzes here**" link in the content. I will post detailed instruction about how to register. All Mastering assignments should be completed by their due dates, which are given in Mastering. NO EXTENSIONS WILL BE GIVEN! YOU NEED TO STAY ON TOP OF THE SCHEDULE throughout this short course. Due dates are given in Mastering.

Brief description of the Course:

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 realistic physical problems. The secondary 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 of 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: Class meets **ONLINE** in a **synchronous mode**. Most of the class time will be students' work in groups.

Attendance: **Attendance in this class is not only mandatory, but you are expected to actively work on problem solving in Blackboard Collaborate Breakout Groups. This graded category carries 10% toward your final grade.**

Exams:

- There are **two midterm exams and the final**. **There are NO make-up exams!**
- You **MUST have a working computer** to work in this course. Phone cannot be used – phone will not let you do the exams.
- The exams will be **timed**, you will have **one attempt**.
- **Exams will be done in Respondus Lockdown Browser, for integrity. No webcam is required. Please, download and install Lockdown Browser on your computer.**
- Exams will be multiple choice questions with parts that require students to solve real problems on paper first to be able to select the right answer, as well as multiple-choice conceptual questions. Some questions will require uploading students detailed, step-by-step solutions with explanations of what was done.

Extra-credit and "curving": **There is NO extra-credit, and there is no "curving" in this course.**

Students with accommodations must contact me via email and send me the faculty contact sheet.

Honor Code:

Copying homework, use of online homework solutions or the instructor solution manual, giving or receiving assistance on exams, posting exam questions online and asking for solutions, viewing answers on exam questions during the exam, participating in any kind of discussion groups during the exam, and any other improper conduct will be considered a violation of the Honor Code. Students who cheat in any way will be reported to the GMU Honor Committee, without exception!

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

Look here:
https://registrar.gmu.edu/calendars/spring-2021/#dates

Graded Assignments:

2 Midterm Exams (20% each)	**40 %**
Final Exam (Comprehensive)	**30 %**
Mastering - Homework	**10 %**
Mastering – Quizzes (Pre-lecture assignments)	**10%**
Attendance and active participation working in groups	**10%**
Total	**100**

Grading Scale:	**Percentage**	**Grade**
	97	**A+**
	90	**A**
	87	**B+**
	80	**B**
	77	**C+**
	70	**C**
	60	**D**
	<60	**F**

Tentative Schedule:

Week of (**MON**)	**Chapters**	**Homework** Due **Sundays 11:59 pm** **See Mastering for dates**	**Pre-lecture Quiz** Due **Mondays 3:30 pm** **See Mastering for dates**
01/25	Ch. 1 Introduction; vectors, math review		(Ch1) Monday 3:30 PM
02/1	Ch. 2 Kinematics in 1D	(Ch1)	(Ch2) Monday, 3:30 PM
02/8	Ch. 3 Kinematics in 2D	(Ch2)	(Ch3)
02/15	Ch. 4 Newton's Laws	(Ch3)	(Ch4)
02/22	Ch. 5 Application of Newton's laws	(Ch4)	(Ch5)
03/1	**Exam 1 Chapters 1-5 (3/3, Wednesday)** Ch. 6 Work, Kinetic Energy	(Ch5)	(Ch6)
03/8	Ch.7 Potential Energy, Conservation of Energy	(Ch6)	(Ch7)
03/15	Ch.8 Linear Momentum	(Ch7)	(Ch8)
03/22	Ch.9 Rotational Kinematics	(Ch8)	(Ch9)
03/29	Ch.10 Rotational Dynamics	(Ch9)	(Ch10)
04/05	**Exam 2 Chapters 6-10 (4/7, Wednesday)** Ch. 11 Equilibrium	(Ch10)	(Ch11)
04/12	Ch. 13 Gravitation	(Ch11)	(Ch13)
04/19	Ch. 14 Oscillations	(Ch12)	(Ch14)
04/26	Ch. 14 Oscillations Reviews of everything	(Ch13)	
5/7	**Final Exam (Comprehensive) TBD**		

Class Etiquette:

Our communication must be courteous, polite, respectful, and precise. Always sign your emails with your full Name and specify your course. When asking about specific topic, or problem – be it from the homework, or from the book, be specific, instead of letting your instructor search to find the problem you are referring to.

Course Goals and Learning Outcomes:

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 realistic physical problems. The secondary objective of the course is to improve students' symbolic reasoning skills to assist them in further enhancing their analytical skills.

By successfully completing this course students will achieve the following Mason Core learning outcomes:

1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
    a) evolves based on new evidence
    b) differs from personal and cultural beliefs
2. Recognize the scope and limits of science.
3. Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
4. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).