

**PHY 3221: Mechanics I**  
**Fall Term 2018**  
**Syllabus**

Class number: 14474, Section 3908, 3 credits

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### **Synopsis**

This is the first of a two-semester sequence on classical mechanics. We will cover Chapters 1-7 of the textbook “**Classical Mechanics**” by **John R. Taylor**. Topics include: Newton’s laws and applications, projectile motion, rocket motion, conservation laws, oscillations, dimensional analysis, calculus of variations, Lagrange’s equations and their applications. The second semester of this sequence, PHY4222 Mechanics II, covers the remaining chapters in the textbook. Note that for the first time this year the UF Physics Department is offering PHY4222 Mechanics II both in the Fall and in the Spring semesters.

### **Prerequisites**

Introductory physics with calculus (PHY 2048 or equivalent). The further you are in the calculus sequence (Calc I-III and Differential Equations), the better. Nevertheless, the course is pretty much self-contained and any required material is typically reviewed in class as the need arises.

### **Time and Location**

The class will be meeting three times a week, Monday, Wednesday and Friday from 12:50 - 13:40 pm (6th period) in NPB 1002, aka the “small auditorium”, which is located on the first floor of the New Physics Building (NPB).

### **Office Hours**

Office hours will be held on Mondays after class (2-3 pm). Any changes will be announced in class and on the website. Note that the grader also has office hours.

### **Required Materials**

The main text is John R. Taylor, ”Classical Mechanics”. The textbook is necessary — we shall work through most of the end-of-chapter problems in class and on the homework.

### **PHY 3221 web page**

The class webpage is

[www.phys.ufl.edu/~matchev/phy3221](http://www.phys.ufl.edu/~matchev/phy3221)

The web page will contain the most up-to-date information about the class. There you will find the homework assignments, the class diary, the syllabus, the exam schedule and a link to e-learning. Please check for updates regularly, especially if you miss a lecture.

### **Homework assignments**

There will be a total of ten homework assignments which will be posted on the webpage. The homework must be turned in no later than the class lecture on whatever day it is due. You are also allowed to hand in the homework BEFORE the due date - you may bring it to my office (NPB 2055) or just slide it under the door if I am not there. Late homework will not be accepted. Solutions should be complete and legible. The homework constitutes 20% of the total grade (see grading policy below).

### **Exams**

There will be three in-class (12:50 - 13:40 pm) exams. The dates of the exams are as follows. The first exam will be on **September 26** and will cover chapters 1, 2 and 3. The second exam will be on **October 24** and will cover chapters 4 and 5. The third and last exam will be on **December 3** and will cover chapters 6 and 7. There will be no final exam. Each exam will contribute 20% towards the final grade. All three exams will be "closed book", but a formula sheet will be provided (the formula sheet can be found on the class web page). Calculators, cell-phones and other hi-tech gadgets are not allowed.

### **Quizzes**

In addition, there will be a total of five quizzes on certain Wednesdays throughout the semester: September 5, September 19, October 10, October 17 and November 14. For convenience, the quiz dates are already marked on the class diary. Each quiz will last 10-15 min and will be administered at the end of the lecture. There will be no make-up quizzes, but the lowest quiz score will be dropped. The quizzes will contribute a total of 20% towards the final grade. The quizzes will be "closed book", and calculators, cell-phones and other hi-tech gadgets will not be allowed.

### **Course webpage on e-learning**

The course will also have a page on e-learning, which I will be using only to keep track of your grades and to send mass emails to the whole class.

### **Grading policy**

The lowest score among the five quizzes will be dropped (this is why no make-up quizzes will be given) and the remaining quiz scores will contribute 20% of the final grade. The homework will contribute another 20%, and each of the three exams will also contribute 20%.

A guaranteed grading scale has been announced with the following lower cut-offs for each letter grade:

A: 85%  
A<sup>-</sup>: 80%  
B<sup>+</sup>: 75%  
B: 70%  
B<sup>-</sup>: 65%  
C<sup>+</sup>: 60%  
C: 56%  
C<sup>-</sup>: 52%  
D<sup>+</sup>: 48%  
D: 44%  
D<sup>-</sup>: 40%

These thresholds may be lowered, depending upon numerous factors, but will not be raised (ideally, the median student will get a B<sup>+</sup>). **C is the lowest passing grade for physics majors!** At <http://www.phys.ufl.edu/downloads/grade政策.pdf> you can see the Physics Department policy on incomplete grades. For additional details regarding grading policies, see the university website:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### **Accommodations for students with disabilities**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### **Academic honesty**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.”

### **Online evaluations**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

## Advising and Counseling

Due to the nature of the environment at the university, it is not uncommon for students to experience stressful situations, and “study harder” sometimes does not seem to work. If you find yourself in this situation, you are encouraged to seek confidential counseling, see: <http://www.counseling.ufl.edu/cwc/>.

## Final word of advice

1. **Work hard.** This is not an easy course, to a large extent your success will be correlated with the total number of problems you solve *independently* throughout the semester.
2. **Attend Class.** Remember, the syllabus is defined by what is covered in lectures. You will not be tested on material not covered in class. If you miss class, my advice is to ask a class-mate (or me) for notes. In office hours, I am happy to explain things which you did not understand in class. I am not so happy to explain things that you have not seen because you were not in class and did not get anybody’s notes. Also, if you get sick, please stay at home and ask a class-mate (or me) for a copy of the notes later (after you have recovered). Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.
3. **Stay ahead of the class pace.** You may find it beneficial to read in advance the sections to be covered in the next lecture, so that you do not see the material in class for the first time. This practice will allow you to ask questions about subtle points which you did not understand when you were reading on your own. Another side benefit is that you will be able to do the homework problems on your own and turn in the homework early if you have to miss class on a day when homework is due.
4. **Be on time for class.** Announcements are generally made at the beginning of each lecture, and you are responsible for learning of these whether you attend class or not.
5. **If you are struggling, ask for help.** The best way to get hold of me is right after class, or preferably in our assigned office hours. If you want to discuss physics and cannot make time during my office hours, you can attend the office hours of the TA.
6. **Take notes.** Something that is obvious at the time is quickly forgotten. When it comes to the night before a test, you will appreciate a good set of lecture notes. If it is not in your notes, you’ll regret it!
7. **Do your own homework.** I cannot police copying, but you will look foolish if you can do a homework question and then, when the same question comes up on a test, you have no idea how to approach it.