Contact Information

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Office Hour:	1 pm days 1 and 3 (or by appointment or just stop by)

Course Information

Lecture:	8:00–9:10 am Days 135
Room:	167 Peter Engel Science Center
Textbook:	*Classical Dynamics of Particles and Systems* by Thorton and Marion (Fifth Edition)
Web Sites:	http://www.physics.csbsju.edu/339/
	https://moodle.csbsju.edu/course/view.php?id=265

Introduction

Physical mechanics (often called classical mechanics) is probably the oldest branch of physics, dating back to at least Newton, and it is still an important part of the world of physics today. Most "everyday" processes still can be described adequately with classical mechanics, even though at some deeper level quantum mechanics and general relativity might apply.

From the standpoint of your physics education, this is also a crucial class. This course will probably be the most mathematically intensive physics class that you have taken so far, and the mathematical formalism that is introduced here will show up again in later courses.

In a sense, this course consists of the retelling of physics that you learned in 191. You now have a stronger mathematical background, as well as a basic understanding of classical mechanics, so we can go back over the material in more detail and cover topics that were not within your reach before.

Class Time

Lectures will probably fill the majority of the class time for this course, but I would still like to keep the course fairly active. I have some ways to liven up the class already planned, but the most important way to keep this class interactive is for you to ask questions. This is difficult material and if you do not understand a problem or concept it is likely that a good fraction of the rest of the class does not either. So please ask questions either during or outside of class.

Quizzes

Quizzes will be given in class frequently. Most will be very short problems which will just be graded on whether or not a serious attempt was made to complete the problem. Other quizzes will be like homework problems and will be graded normally.

Homework Problems

Homework will be assigned and graded for this course. I encourage you to work together on homework, though make sure you write up and understand your own solutions to the problems.

Tests

You can bring a single-sided (double-sided for the Final) cheat sheet to each test that has relevant formulas and constants on it. No worked out problems or examples allowed on the equations sheet. Tests will consist of several problems.

Grading

The grades in this class will be based on 6 scores: quiz, homework score, 3 test scores, and the final exam score. Quizzes will be worth 10 %, while the homework and tests will be worth 15 % each and the final will be worth 30 %.

Tentative Course Schedule

Test 1	Oct. 1	
Test 2	Oct. 31	
Test 3	Dec. 3	
Final Exam	Dec. 18	10:30am – 12:30 am

References

- *Analytical Mechanics* by Fowles and Cassiday – similar to Thornton and Marion with more emphasis on Newtonian methods and less on Lagrangian methods.
- *Classical Mechanics* by Barger and Olson – a more concise book at a similar level to Thornton and Marion.
- *Analytical Mechanics* by Hand and Finch – introduces Lagrangian mechanics immediately.
- *Classical Mechanics* by Goldstein – a standard graduate level text.