

**San José State University**  
**Department of Physics and Astronomy**

**Physics 205, Fall, 2018**

**Course and Contact Information**

<b>Instructor:</b>	Patrick Hamill
<b>Office Location:</b>	Sci 240
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<b>Office Hours:</b>	MW 2:00-4:00. I will try to be available on Tuesdays. Any other time by appointment.
<b>Prerequisites</b>	PHYS 105B, MATH 112 and MATH 133B or equivalent.
<b>Classroom:</b>	Sci 242

**Course Format :** Lecture

**Course Description**

According to the catalog, the course consists of, “Generalized methods and selected topics in classical mechanics.” To be more specific, we will be considering Lagrangian and Hamiltonian mechanics. If time permits, we will also consider small oscillations and the dynamics of rotating rigid bodies.

**Course Goals (Optional)**

To have an in-depth understanding of Lagrangian and Hamiltonian mechanics.

**Course Learning Outcomes**

Upon successful completion of this course, students will be able to:

1. Understand the Lagrangian and Hamiltonian techniques of Classical Mechanics
2. Understand the Hamilton-Jacobi equation and its role in physics
3. Know canonical transformations
4. Be able to solve complicated physics problems

**Textbook**

“A Student’s Guide to Lagrangians and Hamiltonians, “ by Patrick Hamill and “Classical Mechanics, Third Edition” by H. Goldstein, C. Poole and J. Safko. Both of these books are available at Amazon.com.

**Course Requirements and Assignments**

The student will be assigned a large number of mechanics problems as homework. It is expected that students will work the problems individually and only request help from colleagues in cases of complete brain meltdown.

Furthermore, students will be subjected to two grueling mid-term examinations and a final exam. Homework will be due at the beginning of each class. I will try to assign less homework for Wednesdays, but be aware that solving the problems will generally require a significant amount of time.

There will be mid-term exams in the time frame of late September through early November, the precise dates to be determined by a democratic vote of the students.

### **Final Examination or Evaluation**

The final exam will be held on Friday, December 13 from 2:45 pm to 5:00 pm.

### **Grading Information**

The grading scheme is

Homework	20%
First Midterm	15%
Second Midterm	30%
Final Exam	35%

The letter grades will be assigned according to the usual algorithm

A = 90 – 100
B = 80 – 90
C = 70 – 80 etc.

### **Classroom Protocol**

Please! No laptops, ipads, iphones, etc.

### **University Policies**

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>"