San José State University
College of Science, Department of Physics & Astronomy
Physics 49: Introduction to Physics, Section 1, Fall 2018

Instructor: Dr. Olenka Hubickyj
Office Location: Science Building, Room 310
Telephone: (408) 924-5256
Email: olenka.hubickyj@sjsu.edu
Office Hours: M, T, W, Th 11:00 – 12:00 or by appt.
Class Days/Time: Tuesday Thursday 12:00 – 1:15 pm
Pre-requisite: C or better in Math 19 (or pre-calc placement test)
Co-requisite: Math 30 or 30P (Calculus 1).

Faculty Web Page and MYSJSU Messaging
Copies of the course materials such as the syllabus, lecture power points, and major assignment handouts, etc. will be found in our course link in Canvas. You are responsible for regularly checking with the messaging system in Canvas to learn of any updates. Grades will not be posted in Canvas; please contact me for information about your grades.

Course Description
Physics 49 is a preparatory course for Physics 50. Although not required, this course is now being offered because the Physics 50 series is very fast-paced and has a very high failure rate. Because of high enrollment, Physics 50 is not easy to be repeated at SJSU. Students who do not have strong backgrounds in high school math and physics, or who have earned less than a C in a math course at the college level, are very strongly urged to take Physics 49. There is no lab component in Physics 49.

We will study the first five chapters that are covered in Physics 50. With time permitting rotational motion will be introduced. The main purpose for this is to develop good problem solving and quantitative analysis skills which will then be applied to the fundamental concepts of physics. Much more time is devoted in Physics 49 to building all the skills and mathematical tools such as significant figures, unit conversions, quantitative reasoning, interpreting plots, and vector math to successfully solve problems related to projectile motion and Newton’s Laws of Motion.

Course Learning Outcomes (CLO)
Upon successful completion of this course, you will
A. Be able to assign the proper units and significant digits to solutions of quantitative problems
B. Be able to convert quantities from one system of units to another, including area and volume conversions.
C. Understand the sources of error in experimental data and the limitations that they impose.
D. Be able to interpret plots of position vs. time, velocity vs. time, etc.
E. Be able to methodically solve a physics problem on paper, clearly showing the work for each step.
F. Qualitatively describe simple mechanical systems in terms of velocity, acceleration, forces, energy, momentum, and angular momentum.
**Required text assignments, course requirements**

The required textbook is the same as the one used in Physics 50: *University Physics* by Young and Freedman. The publisher has provided us with a customized text with only the chapters that will be covered in Physics 50. This customized version is a manageable book size compared to the whole book which includes all the chapters that will be covered in Physics 50, 51, and 52.

There is an additional online learning system called Mastering Physics. You are required to sign up for this. The login URL is:

[http://www.masteringphysics.com/site/login.html](http://www.masteringphysics.com/site/login.html)

The link below is a tutorial on how to register for the online homework and textbook study tools:

[http://www.youtube.com/watch?v=BCWgNu-kxi0&list=PLRpRY65o3rxaYhYB9UC- _OeCB1yaU93wz](http://www.youtube.com/watch?v=BCWgNu-kxi0&list=PLRpRY65o3rxaYhYB9UC-_OeCB1yaU93wz)

The Student Access Code is included in your text if purchased from the Spartan Bookstore or you may purchase this separately.

**NOTE:** because of the low supply of books at the Spartan Bookstore we have a **temporary** Student Access Code:

**DSSAVH-SCOFF-FLORY-SPRUE-IBIZA-DENSE**

You will need the Course ID ((please note this code is case sensitive!)) to register into the correct class section:

**Course ID  MPHUBICKY.JJ2472**

The student access code will not work after Oct 1 so you need to purchase one before that time. Once you have your Student Access code please email our book rep: april.krishnan@pearson.com

with the following info:
- your name, SJSU class (Physics 49) section (sec 2), and your new code
I will let you know when the textbooks WITH the student access codes will be available for you to purchase at the Spartan Bookstore.

IF you choose not to purchase the text (bad idea, BTW) and just buy the student access code from the MP website, please email Ms. Krishnan as soon as you can.

**How to succeed in this course**

Physics is fundamental to every problem you will encounter as an engineer or scientist. The principles you learn in Physics 49 will continue to apply throughout your coursework and career as an engineer or scientist. Therefore, it is essential to develop good problem solving skills. All majors require a C- or better to count toward your degree program.

Success in this course is based on the expectation that students will spend time studying and solving problems. The typical recommended amount of time per week that a student should study for a course is a minimum of 2 hours per credit. In the case of Physics 49 which is 3 credits the minimum study time is 6 hours a week. That is one hour a day with time off on Sundays 😊. My experience is that good students study more; maybe that is why they are good students. Please keep in mind, that the outcome for studying is understanding the material, and the time to study should not be limited.

Initially, it may take you a very long time to solve a homework problem. But with practice and determination, the time to solve problems will decrease. Solving problems should not have a YouTube component (i.e. watching someone doing the problem or getting the answer on the Internet) but you should only use your notes, your brain and an equation sheet. Before attempting the homework, you might want to do some practice problems where you can compare your answers to the solution. There are many worked examples in the book, the answers to odd-numbered problems are in the back of the book, and there is a solution manual available as well. The online homework contains many tutorials and also gives hints for when you get stuck. If you miss class, you should schedule an additional 2-3 hours to cover on your own what you missed. Coming to office hours will help, but is not a substitute for coming to class.

Studying and problem-solving in groups is highly recommended, but you should also schedule time to solve problems on your own, because that is 100% of what your grade depends on. There are no group testing so during exams your grade will depend only on YOU! Most importantly: Do not fall behind! Every week builds on what we did in the weeks before.
Classroom Protocol

Attendance

While attendance per se is not used as a criterion for grading according to Academic Policy F-69-24, attending class will be the most time-effective method to succeed in this course. You will be working on a problem to turn in just about every class session, so please do not miss.

Class attendance is crucial to your success. The class will consist of lectures but mostly of working on white boards and work sheets. It is not possible to make-up this kind of interaction with problems and physics learning. I understand that occasionally it may be difficult to attend a class meeting, so please be sure to let me know and we can make an arrangement to meet and go over the missed class work or you can attend the other section of Physics 49. The lecture PowerPoints and other files will be posted in the Files link in Canvas. If you find that you have a situation that causes you to miss more than one or two classes, please contact me ASAP to figure out how to succeed in this course.

Please arrive on time to class. If an illness or emergency causes you to miss an exam, please notify me ASAP.

Electronic devices

Please remember to bring your calculators to class, especially on quiz and exam days. If you forget you will not be able to use your phones and points will be deducted for not completing a calculation if it involves numbers. Please remember to keep your cell phones quiet (and stowed away!) during class. Please use your laptop computer during class for physics only. This really is not a good time to be catching up with your emails or other social activities.

Office Hours

The best way to get in touch with me outside of class or office hours is via email (olenka.hubickyj@sjhu.edu). Please keep in mind that I am not a 24-hour physics hotline, questions about homework will be addressed best in person. I am happy to address homework questions in detail during class or right after class if you have specific questions. There will be many opportunities in class to ask about homework and/or any other assignment.

Please come by during office hours or make an appointment with me if you can't make it to my posted office hours. Please email me to let me know when you would like to meet. Make sure to have your questions ready when you come to office hours. When other students are waiting, either join into our discussion or wait your turn. Please keep in mind that whatever is shared in office hours may also be discussed with the department chair and/or other relevant university staff concerned with your education.

Additional Help

The Physics Tutoring Center will start up again this semester Room and time schedule will be announced as soon as the physics department has it set. The Tutoring Center is an informal setting where you can get help from your fellow SJSU students. The schedule of tutoring hours will be posted at http://www.physics.sjsu.edu/index.php?q=node/3. Also, there are Academic Excellence Workshops for your core courses, including this one. These workshops are open to all students, but you have to register for them. Students who participate in these workshops typically earn almost a whole letter grade higher than those who do not. Contact Dr. Singmaster in DH16 or singmast@aol.com for more information.

Dropping and Adding

Friday, August 31 is the last day to drop without penalty. Monday, September 10 is the last day to add a class. Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. This information can be accessed at http://www.sjsu.edu/aars.
Assignments and Grading Policy

Exams

There will be 3 tests during the semester. The tests will entail solving problems similar to the example problems worked in class and homework problem sets. I will provide the equation sheet if needed, but it is best for you to compose one for yourself. There will be weekly quizzes. These quizzes will be administered the first 15 minutes of class on Thursday and will test material covered that week. If you are late, you will have less time to do the problem(s). There are no make-ups.

Final Exam

The final exam will be comprehensive (it covers everything). You must take the final exam during the time specified by Academic Scheduling, which is Thursday, December 13, from 9:45 to 12:00 pm in our usual classroom.

If you miss the final exam, but you have at least a C in the course at that point, you will receive an incomplete, which must be made up before the end of the following semester. If you miss the final and do not have at least a C, you will receive an F for the course.

Online Homework

The majority of the assignments done outside of class will be conducted online, through Mastering Physics (as describe on p. 2 of this syllabus).

The homework interface is pretty easy to work with, once you get the hang of it. Please be patient, and come see me if you have any problems. It is a lot easier to show me in person what the problem is, rather than over the phone or email.

Final grade determination for the course

Your final grade will be determined from either your final exam grade only or a mix of your semester grade and final. Before the final, your semester grade will be computed. All the quizzes will be averaged and will count as an exam. The average of all the exams will be your semester lecture grade. If your final exam grade is higher than the semester grade, your final exam grade will determine your final transcript grade. If your final exam grade is less than your semester grade, than your final transcript grade will be determine in a 60% (semester lecture) -40% (final exam) grade split.

The homework grade is not a percentile component but will help decide the nuance in your grade (i.e. B or B+/B-).

These letter grades are assigned based on your total score:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>97-100</td>
<td>A</td>
<td>93-96</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>B</td>
<td>83-86</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
<td>C</td>
<td>73-76</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
<td>D</td>
<td>63-66</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please note that students who receive less than C- for the course will have difficulty Physics 50.
Students that receive grades of C- or lower in Physics 49 should reconsider moving on in engineering.

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 at http://www.sjsu.edu/gup/syllabusinfo/"
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics, Readings, Exam dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 21, 23</td>
<td>General course introduction; Introducing the importance of physics in science and engineering;</td>
</tr>
<tr>
<td>2</td>
<td>Aug 28, 30</td>
<td><strong>Chapter 2</strong>: Motion Along a Straight Line Position, velocity and acceleration; Solving problems</td>
</tr>
<tr>
<td>3</td>
<td>Sept 4, 6</td>
<td>Ch 2: continued: Position, velocity and acceleration.</td>
</tr>
<tr>
<td>4</td>
<td>Sept 11,13</td>
<td>Ch 2, continued: Solving problems</td>
</tr>
<tr>
<td>5</td>
<td>Sept 18, 20</td>
<td>Ch 1 starting Vectors and vector addition; graphical vectors started mathematical vectors;</td>
</tr>
<tr>
<td>6</td>
<td>Sept 25, 27</td>
<td><strong>Chapter 3</strong>: Motion in Two or Three Directions</td>
</tr>
<tr>
<td>7</td>
<td>Oct 2, 4</td>
<td>Exam: Ch 1 &amp; 2 (1-D motion and vectors and Chap1 basics)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ch 3: continue</td>
</tr>
<tr>
<td>8</td>
<td>Oct 9, 11</td>
<td>Ch 3: continue</td>
</tr>
<tr>
<td>9</td>
<td>Oct 16, 18</td>
<td>Ch 3: continue</td>
</tr>
<tr>
<td>10</td>
<td>Oct 23, 25</td>
<td>Ch 3: continue; Exam 2: Chap 3 (2 dim motion, vectors)</td>
</tr>
</tbody>
</table>
| 11   | Oct 30, Nov 1 | **Chapter 4**: Newton’s Laws of Motion  
Ch 4 & 5, continued; Solving problems               |
| 12   | Nov 6, 8   | **Chapter 5**: Applying Newton’s Laws  
Ch 4 & 5, continued; Solving problems                                                           |
| 13   | Nov 13, 15 | Ch 4 & 5, continued; Solving problems                                                          |
| 14   | Nov 20     | Thanksgiving break  
Ch 4 & 5, continued; Solving problems                                                              |
| 15   | Nov 27, 29 | Exam 4: Chapter 4 & 5                                                                         |
| 16   | Dec 4, 6   | **Rotational motion**  
Quiz on Rotation and general review                                                               |
| Final| Dec 14     | Cumulative exam: Friday Dec 14 9:45 – 12:00 Chapters 1 through 5                                |