PHYS 20 (General Physics I) SPRING 2017

Section 5738: Shuhaw 1786, M & W 3:00 - 4:30 pm
Section 5186: Shuhaw 1786, M & W 4:30 - 6:00 pm

Instructor: Augustine Stav, Office TBD, astav@santarosa.edu, Tel: TBD (email is faster)
Office Hours: M W 2:00-3:00 pm & 6:00-7:00 pm
Class Website: on Canvas

Prerequisites: Completion of MATH 27 or higher OR Course Completion of MATH 25 and MATH 58.
Recommended Preparation: Course Completion or Concurrent Enrollment in PHYS 1 or Completion of high school physics.

Course Description and Student Learning Outcomes: The course provides an introduction to basic laws of translational and rotational motion, statics, conservation laws, oscillations, mechanical waves and sound, fluid mechanics, heat and thermodynamics. Upon successful completion of this course you will be able to:

- Describe the physics concepts pertaining to motion, various types of energy, conservation of momentum and energy, static equilibrium, fluid pressure, simple harmonic motion and wave propagation/interference.
- Solve problems related to various types of motion, various types of energy, conservation of momentum and energy, static equilibrium, fluid pressure, simple harmonic motion and wave propagation/interference.

The complete course outline is available at the SRJC homepage under “Academics” → “Course Outline Information” (portal.santarosa.edu/SRWeb/SR_CourseOutlines.aspx?Semester=20173&CVID=36483)

Required Textbook: *“Physics” - 10th edition*, by David Young, Shane Stadler, Kenneth W. Johnson, John D. Cutnell.

Other Required Materials: Every class you will need to have: four colored 3” x 5” ındex cards (I will provide these on the first day of class, please have them each time you come to class), 1 white index card, notebook, pencil, calculator.

Grading:

Your total grade is based upon:

Quizzes (on Canvas):	10%
Homework:	15%
Exam 1:	20%
Exam 2:	20%
Exam 3:	20%
Final Exam:	15%

GRADES:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Class Website: We will use the Canvas for assignments, due dates, submitting quizzes, announcements, solutions to homework, and viewing grades periodically. You are responsible for keeping up-to-date.

Attendance and Conduct: Attendance is **mandatory**. Students who fail to attend the first class meeting may be dropped by the instructor. No-Shows will be dropped immediately after the second meeting. I may drop you if you have more than three absences not excused in advance. If you do miss a class you are responsible for all announcements and material covered in your absence. **If you decide to discontinue this course, it is your responsibility to officially drop it.**

Using cellphones, headphones, tablets, and similar electronic devices is not allowed during class. Set your phone on vibrate for in case of emergency notification and stow it away. Pay attention to lecture, participate in class activities. **Conduct yourself according to the SRJC Student Conduct rules. No disruptive behavior will be tolerated–I reserve the right to ask you to leave the classroom and you will lose participation points, or the behavior may result in disciplinary action.**

Reading Assignments: Expect to read on average **a chapter per week, twice**. There is **reading** and **active reading**. When **reading**, you are reading the book as a novel. Read the words, think about the concepts, vocabulary, skim through the examples, and try to answer some of the questions in the "Check your understanding" section. For **active reading**, grab paper and a pencil! Read the words and follow the flow of equations. Write each equation and fill in the missing steps to the next one. Redraw the diagrams, and do the examples yourself. Before lectures read, after lectures actively read. You will be quizzed on the reading (more details below).

The lectures are not a repeat of the textbook–they are rather complementary to the text. **While in lecture we focus on the core concepts and problem solving, you are responsible for all the material assigned for reading from the text**. Reading is an **ABSOLUTELY** necessary component for success in this class. I will also sometimes assign videos to watch on Canvas before you come to class. For the reading schedule, see the "Tentative Schedule" section.

Homework: Homework is generally **assigned weekly,** and you will have one week to complete them. The **assignments and the due dates for the entire semester are available on Canvas.** The assignments will be **due at the beginning of class** on the due date. Late assignments **will not** be accepted, unless extension is approved in advance for a very special reason. No exceptions! It is imperative that you do **all** of the assigned problems. This is how you get a grasp on the material and gain problem solving skills. The homework is the essential part of your test preparation. Make sure you **understand the concepts in each problem rather than looking for equations that might work**! Never study physics by memorization. If you memorize a problem–you will be able to do that one problem; if you know how to do a problem–you will be able to do 100 other problems involving similar concepts. See the "Homework Policy and Guidelines" document for formatting and grading.

Note: While you are encouraged to study together, and work on homework with your classmates, the work that you turn in should be worked and written by you. I also suggest that you first think about a problem for yourself, before you discuss it with classmates.

Quizzes: You will have two weekly quizzes that you will take on Canvas, one **Reading Quiz**, and one **Concepts Quiz**. If you do the reading assignments and pay attention in class, the quizzes will be straightforward. The **Reading Quiz** tests you on the reading assignments; 5-7 quick multiple choice questions that will be **due by 8:00 am on the day that the reading assignment is due**. You will have limited time (10-20 min) to answer the questions. I suggest you do not attempt a reading quiz before you are finished with the reading assignment. The **Concept Quiz** tests your understanding of concepts

already discussed in class or have been assigned for reading the previous week. The "Focus on Concepts" questions in the textbook are representative of these questions. You will have 10-15 min. to complete a 5-7 question quiz. The concept quizzes will be **due by 8:00 am on the day that the written homework assignment is due.** You can have your notes from lecture open, so I encourage you to take good notes. **NO make-up quizzes. If you miss a quiz you get zero points.** I will drop the lowest score.

Exams: We will have 3 mid-term exams, and a comprehensive final exam. The exams will test your understanding of concepts and problem-solving skills similar to what you encounter in homework assignments. **Bring a basic (non-symbolic) calculator.** Cell phones and other internet-ready devices are forbidden during exams–using one will result in penalty. The exams will be closed book and closed notes. **I will post a formula sheet on Canvas that you can print and bring to exam.**
Make-up exams will be given only under special circumstances of which I am notified in advance. If a notification in advance was not feasible, collect appropriate documentation and schedule a meeting with me. Once I give the graded exams back, you will have two business days to appeal your grade, should you believe that it is incorrect. Be advised that just as I could give a higher grade in review of the exam, I may see that a lower grade is deserved if I consider I have been originally too generous.

Academic Integrity: Cheating, plagiarism, collusion, and other academic misconduct will not be tolerated. Please consult section 3.11P of the Academic Policy in the Policy Manual for definitions and procedures. The instructor reserves the right to award zero credit in the event of academic misconduct.

Extra Credit Opportunities: One or two extra credit problems will be assigned on each exam. There will be no other extra credit options, so please do not ask for an extra credit assignment. Come to lectures and recitations, do your homework, come to my office hours, visit the Tutorial Center, form study groups, address any struggles with the material **on time** and you should be in a good shape!

Special Needs: Students with disabilities are encouraged to contact the Disability Resources Department (DRD) to verify their eligibility for appropriate accommodations and provide me with the Authorization for Academic Accommodations letter. Except for unusual circumstances, request for academic accommodations are to be made during the first three weeks of the semester.

A Word of Advice: If you are struggling with the material, **ask for help immediately.** Come see me during office hours, or email me. I respond within 48 hours. Take advantage of the Tutorial Center (Doyle Library 4251), or the MESA Student Study Center (Bertolini 4832). **Do not fall behind!** Catching up is difficult and often impossible.

Disclaimer: This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. It is subject to change.

Important Dates:

Class begins	1/17/2017 (1/18/2017 for our class)
Last day to add without instructor's approval	1/22/2017
Last day to drop for refund	1/29/2017
Last day to add with instructor's approval	2/5/2017
Last day to drop without W	2/5/2017
Last day to opt for P/NP	2/26/2017
Last day to drop with W	4/23/2017
Class ends	5/17/2017 (then final examinations)

Tentative Schedule:

Monday	Wednesday
Jan 16 **NO CLASS** Dr. Martin Luther King Jr. Day	**Jan 18** Intro and math concepts Follow the reading schedule!
Jan 23 Vectors and Displacement 1.6 – 1.8 & 2.1	**Jan 25** **HW 1 DUE** 1D Kinematics 2.2 – 2.5
Jan 30 Free Fall and 2D Kinematics 2.6 – 2.7 & 3.1 – 3.2	**Feb 1** **HW 2 DUE** Projectile Motion and Newton's Laws 3.3 – 3.4 & 4.1 – 4.4
Feb 6 **HW 3 DUE** Forces and Newton's 3rd Law 4.5 – 4.10	**Feb 8** Applications of Newton's Laws 4.11 – 4.12
Feb 13 **HW 4 DUE** Circular Motion 5.1 – 5.4	**Feb 15** Circular Orbits and Work 5.5 – 5.7 & 6.1 – 6.2
Feb 20 **NO CLASS** Washington's Day	**Feb 22** **HW 5 DUE** **EXAM 1** Chapters 2 – 5
Feb 27 Work and Energy 6.3 – 6.7	**Mar 1** **HW 6 DUE** Energy Conservation, Impulse, and Momentum 6.8 – 6.9 & 7.1 – 7.2
Mar 6 Collisions 7.3 – 7.5	**Mar 8** **HW 7 DUE** Kinematics of Rotation 8.1 – 8.6
Mar 13: Midterm Progress indicators posted Torque 9.1 – 9.3	**Mar 15** **HW 8 DUE** Angular Momentum 9.4 – 9.6
Mar 20 **NO CLASS** Spring Break	**Mar 22** **NO CLASS** Spring Break

Monday	Wednesday
Mar 27 Simple Harmonic Motion 10.1 – 10.5	**Mar 29** More on Harmonic Motion 10.6 – 10.8
Apr 3 **HW 9 DUE** Fluids 11.1 – 11.6	**Apr 5** **EXAM 2** Chapters 6 – 10
Apr 10 Bernoulli's Equations 11.7 – 11.10	**Apr 12** **HW 10 DUE** Temperature and Thermal Expansion 12.1 – 12.5
Apr 17 Specific Heat Capacity and Convection 12.6 – 12.8 & 13.1	**Apr 19** **HW 11 DUE** Transfer of Heat 13.2 – 13.4
Apr 24 Ideal Gas Law 14.1 – 14.3	**Apr 26** **HW 12 DUE** Thermodynamic Laws 15.1 – 15.7
May 1 Heat Engines 15.8 – 15.10	**May 3** Entropy 15.11 – 15.12
May 8 **HW 13 DUE** Mechanical Waves 16.1 – 16.4	**May 10** **EXAM 3** Chapters 11 – 15
May 15 Sound Waves 16.5 – 16.11	**May 17** **HW 14 DUE** Wave Interference 17.1 – 17.3 & 17.5 – 17.6

May 20-26 **HW 15 DUE** **FINAL EXAMINATIONS** Dates to be determined, check admissions.santarosa.edu/academic-calendar#spring2017