

SUNY Orange SYLLABUS

DEPARTMENT OF SCIENCE AND ENGINEERING

35101 – General Physics I

3 lect., 3 lab., 4 cr. (Fall)

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This course covers the concepts of classical physics from introductory mechanics through thermodynamics. Topics include: kinematics, particle dynamics, statics, fluid statics and dynamics, heat and the zeroth, first and second laws of thermodynamics.

Prerequisite: Intermediate Algebra (38104) or
Math Placement into College Algebra (38107).

TEXT AND MATERIALS:

This course will cover the topics presented in the first chapters 1-10 and 13-15 in the text: Douglas C. Giancoli, Physics, (New Jersey: Prentice Hall, 1998), 5th Edition. ISBN 0-13-611971-9. The student will also need a ruled laboratory notebook and a scientific calculator. Laboratory materials will be distributed throughout the course.

RELATIONSHIP TO PROGRAMS:

Physics 35101 is a university parallel course and is designed for the physical science or biological/health related science major. It is also an excellent course for someone planning on a career in science or mathematics education. This course does not require calculus. There is a parallel calculus-based course entitled General Physics (Calc.) 35105-6. If in doubt about the proper physics course to take, consult with your advisor or with the department chair.

COURSE OBJECTIVES:

The student who successfully completes this course can:

- demonstrate an understanding of methodologies employed by natural scientists.
- employ observation, hypothesis development, measurement and data collection on an appropriate level
- describe the importance of modeling in the pursuit of scientific understanding.
- move fluently through the Systeme Internationale rationalized MKS units.
- explain the fundamentals of mechanics embodied in Newton's Laws.
- apply Newton's Laws to 2-dimensional systems of one or more particles.
- place the concepts of energy and momentum in the context of the great conservation laws.
- relate physical principles to the questions of energy and ecology.
- translate physical problems into mathematical expressions and solve resulting equations.
- record laboratory data and explain results in a clear and professional fashion.
- reduce data using spread sheets and prepare graphs using the computer.
- declare (with a clear conscience) that they have enjoyed learning the above.

GRADING SYSTEM:

The grading for this course will be determined as follows

Exam # 1 --	15 %
Exam # 2 --	15 %
Exam # 3 --	15 %
Final Exam --	20 %
Lab. Work --	20 %
Homework/Quizzes--	15 %

For the most part the exams will consist of problem solving and/or derivations. THE CUMULATIVE SECTION FINAL EXAM WILL BE ALL MULTIPLE CHOICE AND WILL BE AN OPEN NOTEBOOK EXAMINATION. It is very advisable to take decent and organized notes on the lecture material presented during the semester.

INSTRUCTOR OFFICE HOURS:

Instructor: Dr. John Cummins Office: Harriman # 317 or Horton #4
Phone: Ext: 341-4562
Email: jcummins@sunyorange.edu

Hours: MON & WED -- 9:00 to 11:00 a.m.
TUESDAY -- 12:00 to 1:00 p.m.
FRIDAY -- 9:00 to 11:00 a.m.

I am around most of the day and you should feel free to stop by any time. It is to your advantage to seek me out and to clear up difficulties as soon as possible. Without organized hard work, you will not do well in this course. On the other hand, if you work diligently you should have every hope of success.

ATTENDANCE AND WITHDRAWAL:

Perfect attendance is assumed in this course. Without this attendance and dedication to the homework one will not be successful in Physics. The student's grade will reflect any lack of attendance, simply because of the difficulty of the course. It is the student's responsibility to speak with the instructor and withdraw from the course if things are not going well. The instructor will not initiate such a withdrawal. An early consult with the instructor can save a great deal of later confusion. MAKE-UP EXAMS DO NOT EXIST.

SUPPORT SERVICES:

Tutoring services are available in the Library. There is also tutoring in Physics available in the Mathematics Study Lounge in Ha 311. The Physical Science Study Lounge (Harriman 315) has proven a valuable resource for students assisting each other in reviewing the material and working together solving homework problems. This strategy, used correctly, can be of great assistance to you. Take advantage of it. Also, get to know your advisor on a personal level.

Also, there are services available for students with disabilities. Any such conditions should be communicated privately to the instructor on the first day of class so that any necessary special arrangements or accommodations can be made.

NOTE REGARDING CLASS SYLLABUS:

The following weekly lecture schedule should be viewed as tentative to the extent that some adjustments may seem advisable as the course progresses.

A detailed syllabus with HW assignments is distributed during the first class meeting.

SYLLABUS

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WEEK	TOPIC	CHAPTER
1.	Velocity/Acceleration	2 - 1 to 2- 7
2.	Vectors and Vector Components	3 - 1 to 3 - 4
3.	2-D Motion; Projectiles	3 - 5 to 3 - 8
4.	Newton's Laws	4 - 1 to 4 - 6
5.	Applications of Newton's Laws	5 - 1 to 5 - 6
6.	Circular Motion and Gravitation	5 - 7 to 5 - 10
7.	Work and Energy	6-1 to 6- 5
8.	Conservation, Energy and Power	6-6 to 6-10
9.	Momentum and Collisions	7-1 to 7-7
10.	Rotational Kinematics	8-1 to 8-6
11.	Rotational Dynamics - Work & K. E.	8-7 to 8-10
12.	Equilibrium; Fluid Static's and Dynamics	9-1 to 10 -11
13.	Temperature and Zeros Law	13 -1 to 13 - 11
14.	Heat and First Law	14-1 to 15 -3
15.	The Second Law of Thermodynamics	15-4 to 15 -11