



Shih Chien University
STP Program (July 01-Aug 02)
PHY 100 Physics I with Lab
Course Outline

Course Code: PHY 100

Instructor: TBA

Home Institution: TBA

Office Hours: TBA

Email: TBA

Credits: 4

Class Hours:

This course will have 144 class hours, including 50 lecture hours, professor 30 office hours, 20-hour TA discussion sessions, 10-hour review sessions, 10 laboratory hours, 24-hour extra classes.

Course Description:

This course will provide an introduction to Classical Mechanics, the precise description of motion and the causes of change of motion.

Course Objectives:

1. Students will be able to develop quantitative models appropriate to problems in Physics.
2. Students will be able to assess the strengths and limitations of quantitative models and methods used in Physics.
3. Students will be able to apply symbolic systems of representation.
4. Students will be able to collect, organize and analyze data from a variety of

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sources. Students will be able to formulate structured and logical arguments.

5. Students will be able to test hypotheses and make recommendations or predictions based on results.

6. Students will be able to communicate and represent quantitative information or results numerically, symbolically, aurally, visually, verbally, or in writing.

7. Students will have a basic understanding of the laws of mechanics and Newton's law of gravitation.

Required Course Materials:

Fundamentals of Physics by David Halliday, Robert Resnick and Jearl Walker

Grading & Evaluation:

Course will be evaluated based on homework 25%, two midterm exams 50%, and one final exam 25%. Typically, the standard grade assignment will apply.

Grading System (1 ~ 100):

Quality Points	Grade	Percentage %
4	A	80-100
3	B	70-79
2	C	60-69
1	D	50-59
0	E	0-49

Course Schedule: (Tentative)

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	<ul style="list-style-type: none"> Introduction Units and Dimensional Analysis 	1-d Kinematics: <ul style="list-style-type: none"> Speed Velocity Acceleration 	Constant Acceleration: <ul style="list-style-type: none"> Free Fall 	Lab: <ul style="list-style-type: none"> Free Fall 	TA Session

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Week 2	2-d Kinematics: <ul style="list-style-type: none"> • Vectors • Projectile Motion 	2-d Kinematics: <ul style="list-style-type: none"> • Circular Motion 	Dynamics: <ul style="list-style-type: none"> • Newton's Laws 	Lab: <ul style="list-style-type: none"> • Projectile Motion 	TA Session
Week 3	Exam 1 <ul style="list-style-type: none"> • Exam discussion 	<ul style="list-style-type: none"> • Centripetal forces • Work and Kinetic Energy 	<ul style="list-style-type: none"> • Potential Energy • Conservation of Energy 	<ul style="list-style-type: none"> • Systems of Particles and Momentum 	TA Session
Week 4	<ul style="list-style-type: none"> • Rotational Kinematics 	<ul style="list-style-type: none"> • Rotational Dynamics 	<ul style="list-style-type: none"> • Static Equilibrium 	Lab: <ul style="list-style-type: none"> • Newton's Laws-Friction 	TA Session
Week 5	<ul style="list-style-type: none"> • Oscillatory Motion 	<ul style="list-style-type: none"> • The Law of Gravitation 	<ul style="list-style-type: none"> • Kepler's Laws 	Lab: <ul style="list-style-type: none"> • Gravitation and Dark Matter 	Exam 2 <ul style="list-style-type: none"> • Exam Discussion

Homework assignments from the textbook by Halliday, Resnick, and Walker.

Homework Set 1:

Chapter 2: Questions: 1, 3, 4, and 9. Problems: 5, 7, 15, 42, 49

Chapter 3: Problems: 3, 5, 8, 15

Chapter 4: Problems: 14, 28, 61, 64

Homework Set 2:

Chapter 5: Problems: 6, 24, 54, 63

Chapter 6: Problems: 12, 16, 23, 32

Chapter 7: Questions: 2, 5, 7. Problems: 20, 30, 32

Homework Set 3:

Chapter 8: Questions: 2, 4. Problems: 7, 19, 21

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Chapter 9: Questions: 5, 8. Problems: 2, 13, 50,

Chapter 10: Problems: 9, 29, 40, 41

Chapter 11: Problems: 12, 49, 53

Homework Set 4:

Chapter 12: Problems: 3, 13, 17

Chapter 13: Questions: 3, 4, 10 Problems: 12, 13, 20, 47, 50,

Chapter 15: Questions: 2, 7 Problems: 21, 33, 41

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