

**1. Course Title:****General Physics II  
PHYS 182 – 4 Credits**

4 hr Lecture per week

MET Core Program Requirement

Prerequisite: PHYS 181. Pre- or corequisite, MATH 173. Must be taken concurrently with 182LAB

This is a basic Science content course under ABET Criterion 5

**2. Faculty Member Information:**

Instructor: Mike Jackson  
 Office: Lind 201A  
 Phone: 509- 963-2914  
 E-mail: jacksonm@cwu.edu

**3. Course Description:**

Lecture: Topics in physics including rotational dynamics, wave mechanics and conservation principles.  
 Analyzing physical systems using algebra, trigonometry and calculus

**4. Textbook and other required materials for the course:***Physics for Scientists and Engineers, by R. Knight*

Lecture Notes can be purchased at the Wildcat Shop

**5. Specific Learner and Expressive Outcomes and Assessment Strategies:**

ABET Outcome Criteria #	Learner Outcomes	Assessment
	1. To demonstrate knowledge and understanding of the fundamental concepts in mechanics (momentum, energy, and rotational motion), fluids, and waves.	The student will complete a written test and perform assignments.
	2. To demonstrate an ability to effectively apply this knowledge in solving problems.	The student will complete a written test and perform assignments.
	3. To demonstrate enhanced quantitative reasoning skills and mathematical analysis	The student will complete a written test and perform assignments.

**6. Course Topics and Schedule:**

**7. Grading:**

<i>Grading</i>	
<i>Exam I</i>	<i>23%</i>
<i>Exam II</i>	<i>23%</i>
<i>Final Exam</i>	<i>24%</i>
<i>Quizzes</i>	<i>15%</i>
<i>Mastering Physics</i>	<i>15%</i>

*The A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F grading system will be used.*

**8. ADA Statement:**

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact me or Robert Harden, ADA Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related educational accommodations.

Prepared by Roger Beardsley June 22, 2009

**1. Course Title:**

**General Physics Laboratory II**

**PHYS 182L – 1 Credit**

2 hr Lab per week

MET Core Program Requirement

Prerequisite: Must be taken concurrently with PHYS 182

This is a basic Science content course under ABET Criterion 5

**2. Faculty Member Information:**

Instructor: Bruce Palmquist  
Office: SCI 107C  
Phone: 509- 963-2728  
E-mail: palmquis@cwu.edu

**3. Course Description:**

Laboratory Investigation of topics in physics including rotational dynamics, wave mechanics and conservation principles

**4. Textbook and other required materials for the course:**

Physics for Scientists and Engineers, by R. Knight

**5. Specific Learner and Expressive Outcomes and Assessment Strategies:**

ABET Outcome Criteria #	Learner Outcomes	Assessment
	1. Demonstrate knowledge of key ideas associated with the topics listed in the PHYS 182 syllabus through oral and written communication	The student will complete a written test and perform assignments.
	2. Appropriately apply mathematics to analyze physical systems.	The student will complete a written test and perform assignments.
	3. Demonstrate through oral and written communication proficiency and prudence in the use of the scientific method including designing labs, making hypotheses, and critiquing proposals.	The student will complete a written test and perform assignments.

## 6. Course Topics and Schedule:

**Lab Structure:** This course is not set up like most introductory labs in that there will be no instructor-written labs or step-by-step procedures for you to follow. The general idea is for students to get experience designing labs, making hypotheses, and critiquing proposals as well as learning physics. The instructor will pick four main topics that would be investigated over a two week cycle. The first week of the cycle would be open ended with the instructor acting as a consultant. You and your partners would explore the topic with the goal of developing a basic lab outline and a hypothesis to present to the class. At the end of lab period, each group would present their one page proposal to the class. The class will vote. Whichever lab proposal gets the most votes would be the one that every group does the next week. Week two of the process, all groups would do the winning lab but have the option to modify it as they want. The lab handout would be the winning proposal from week one of the two week cycle. The first one or two weeks of the quarter will be organized to help you acquire the skills for creating your own labs. Your group designs each lab proposal in consultation with the lab instructor. The job of the lab instructor is provide guidance when you are stuck and to give you feedback on your lab work. S/he will not tell you specifically what to do. You must take responsibility for learning the concepts in lab. Many students underestimate their ability to ask and answer questions about a system or phenomenon. You have the ability to succeed in this lab. See "Hints for productive experiments" at the end of the syllabus for more information.

## 7. Grading:

Grading Specifics	Relative Weight
Lab notebook (due each week)	75%
Lab proposals (due every other week)	<u>25%</u>
Total	100%

**Final Grades** for the course will be calculated as follows:

A (92 - 100%)   A- (90 - 91%)   B+ (88 - 89%)   B (82 - 87%)   B- (80 - 81%)   C+ (78 - 79%)  
C (72 - 77%)   C- (70 - 71%)   D+ (68 - 69%)   D (62 - 67%)   D- (60 - 61%)   F (<60%)

## 8. ADA Statement:

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact me or Robert Harden, ADA Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related educational accommodations.

Prepared by Roger Beardsley June 22, 2009