

# PHYS 212: COLLEGE PHYSICS

## COURSE SYLLABUS

### COURSE DESCRIPTION

**PHYS 212 COLLEGE PHYSICS II, 4 credits, T,TR @ 9:30-10:45 AM, PS# 19166**

Pre-requisite: PHYS 211 or equivalent. The non-calculus general physics course sequence recommended for pre-medical and pre-professional students. Topics: vibration and waves, electricity and magnetism, light and optics, and an introduction to modern physics. Includes lab.

### INSTRUCTOR

**Lance Olson:** Office location (SC 203), phone number: 701-774-4230 (office), 701-770-6607 (mobile)

Email, [Lance.olson@willistonstate.edu](mailto:Lance.olson@willistonstate.edu)

Office Hours: MWF 10-11 AM, 2-3 PM, T,TH 3-4 PM, or by appointment.

Feel free to stop by my office anytime.

### TEXTBOOKS & MATERIALS

- *College Physics, 8<sup>th</sup> edition, Serway & Vuille,*
- *ISBN# 0-495-38693-6*
- Scientific calculator

### STUDENT LEARNING OUTCOMES

#### INSTITUTIONAL OUTCOMES

- I. Students will use reasoning skills to analyze and solve problems.

#### PROGRAM OUTCOMES

- A. **Mathematics**-including numerical literacy and knowledge and use of logical and statistical processes.
- B. **Analytical thinking**-gathering, organizing and evaluating information
- C. **Analogical thinking**-using former knowledge and experience to help comprehend and explain new situations

- D. **Critical thinking**-the ability to identify and define criteria, understand biases, and construct objective judgments
- E. **Problem solving**-the ability to analyze and synthesize solutions.

## COURSE OUTCOMES

1. \*Students will apply physics principles to real world situations and/or future academic pursuits.
2. \*Students will work effectively within a collaborative group to achieve a distinct result.
3. \*Students will be able to Integrate learning theory with laboratory performance.

## ASSESSMENT TASKS (FOR COURSE OUTCOMES)

### ACTIVITIES

Participate in in-class activities both in lecture and lab.

### EXAMS

Complete examinations demonstrating mastery of both concepts and process skills.

### TEXTBOOK

Complete textbook readings, questions, and problems (both individually and collaboratively) demonstrating mastery of both concepts and process skills.

## PROCESS SKILLS

- \* Use an understanding of mathematics, along with physics principles to effectively solve problems.
- \*Apply knowledge of subject material to explain natural physical processes
- \*Use traditional and alternative algorithms to solve physics problems.
- \*Use Polya's problem solving strategies to set up and solve a variety of physics problems.

## CONCEPTS & ISSUES

- \*Oscillatory motion
- \*Wave Motion
- \*Sound waves
- \*Super position and
- Standing waves
- \*Electric fields
- \*Gauss's Law
- \*Electric potential
- \*Capacitance and
- \*Dielectrics
- \*Current and Resistance
- \*Direct-Current circuits
- \*Magnetic fields
- \*Faraday's law
- \*Inductance
- \*AC currents
- \*DC currents
- \*Ray optics
- \*Image formation
- \*Wave optics
- \*Problem solving

## GRADING POLICY

Your final grade in the class will be dependent upon several factors, which may include the following: Participation, Tests, Quizzes, Assignments, or homework problems.

## LATE ASSIGNMENTS

There will be a 10% deduction for any test, quiz or other assignment that is late. An additional 10% deduction will be applied per week that until make-up is completed. The deduction is capped at 50%. In other words, you may submit any assignment (excluding exams) at any time for half credit. Unless an extreme extenuating circumstance occurs, you must be present for the Final Exam to pass the course.

## ATTENDANCE AND GRADING SCALE

Regular attendance is highly encouraged. If you are unable to attend class, notify me in advance. As previously noted, in-class assignments may not be able to be made up unless you have given me prior notice.

Grading Scale:

A = 90%-100%, B = 80%-89%, C = 70%-79%, D = 60%-69%, F = 59% and below

## STUDENT ACADEMIC INTEGRITY

Students will be held responsible for any breaches of academic integrity. Academic integrity is outlined in both the *WSC Catalog* and *WSC Code of Student Conduct*. Violations may result in failure of the class. Although I encourage collaboration on many non-examination assignments, unless otherwise stated, you must provide unique submissions using your own original wording. Generally, the first act of academic dishonesty will result in a 0 given for the assignment. Any subsequent violation will generally result in an F in the course. Because of the many different possible circumstances surrounding academic dishonesty, additional or alternative sanctions may be imposed based on the violation.

## DISABILITY STATEMENT

Williston State College is committed to providing equal access to students. If you have a disability which may impact your performance, attendance, or grades in this course that requires accommodations, you must first register with Disability Support Services (Stevens Hall Room 104A). Please note that classroom accommodations cannot be provided until your instructors receive an Accommodations Form, signed by you and the Disability Support Services Coordinator.

## SCOPE AND SEQUENCE OF THE COURSE (SUBJECT TO CHANGE)

Because this course involves considerable classroom discussion, no exact timeline is in effect.

## IMPORTANT DATES

- Last Day to Drop Without Transcript Notation: Wednesday, January 16, 2013
- Last Day to Withdraw: Friday, April 5, 2013

## ACADEMIC RESOURCES

Take advantage of academic resources available to you at Williston State College:

- **Academic Success Center:** Tutoring is provided to assist students who are either having difficulty or desiring extra help with specific subjects. This service is provided by qualified instructors or peer tutors proficient in specific subjects. The general subject areas for tutoring are accounting, math, computer application, English composition, and reading. Students wanting to utilize this service should contact their instructor. Fees are not charged for tutorial services. For more information, please contact Laurel Kaae (701-774-4221).
- **Learning Commons:** It's not just the Library anymore. In addition to the normal library functions (book checkout, research assistance, etc.), the Learning Commons serves a number of other functions. Get help with Moodle and other Distance Ed questions. The "technology counter" provides an opportunity to play with some of the latest technology. Computers and printers available. If you have questions, visit (Stevens Hall Rm 200) or call (701-774-4226). If it's after business hours, check out our LibGuides through the Learning Commons website.
- **Smarthinking:** Web based program that offers live tutoring services in a variety of subject areas at no cost to the student. With Smarthinking you can access live tutors, ask a question and come back the next day for a response, and/or submit writing pieces to be reviewed. If you have further questions or need assistance in using this great tool, please stop in the Academic Success Center in Stevens Hall Room 104 or contact Katie Peterson at 701-774-4594.