Physics 203

**College Physics I**

**Spring 2017**

**Lecture** MTR 4:00-4:50 D101 SCI

# Lab : B104 SCI Discussion

# Sec 1: M 10-12:50 Sec 1: R 11-11:50 A106 SCI

# Sec 2: T 10-12:50 Sec 2: F 11-11:50 A106 SCI

# Sec 3: W 3-5:50 Sec 3: R 12-12:50 A106 SCI

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**Text**

“Physics” by James Walker 4rd Edition available at the bookstore for rental

Lab Manual – Labs manual at the bookstore

**Contents**:

Briefly we will study, motion in one and two dimensions, forces, energy, momentum, rotational motion, oscillations, waves and fluid

**Learning Outcomes**

Ideas will be presented both mathematically and conceptually in lecture and the laboratory. During the semester there will be three main goals:

1. Make a connection between the conceptual, mathematical, and experimental aspects of physics. This means you will be able to:

* Interpret concepts in multiple representations (i.e. words, diagrams, graphs, equations, etc.)
* Solve problems using numbers and variables
* Explain how and why a concept applies to a specific situation or problem.
* Design simple experiments and prove they work
* Analyze and interpret data taken from experiments.

1. Become a better a problem solver. This means you will be able to:

* Describe and analyze problems both qualitatively and quantitatively in various representations (words, diagram, graphs, equations, etc.)
* Correctly apply appropriate principles and concepts to a problem
* Construct solutions by solving successive sub-problems.
* Check solutions for non-sense answers and make an appropriate statement of answer.

3. Appreciate how physics applies to everyday life. This means you will be able to:

* Explain how physics applies to the body, scientific instruments, and medical instruments.
* Describe how the concepts of physics apply to common devices.

**My Teaching Philosophy**

I think the college classroom should reflect basketball practice. Mentally picture what basketball practice looks like. What do you see? Its active, people are moving around and doing things. Players don’t spend 100% of their time watching their coach draw diagrams on the chalkboard then go on the floor and walk through the plays. The players spend a good portion of their time working on the skills with each other and analyzing game situations. That is what I want us to do, work on our skills and analysis abilities during class *with each other*. Will we eliminate the lecture? No, but I hope to reduce the amount of time in that mode so we can practice and ask questions. (If basketball doesn’t work for you, substitute learning a musical instrument, you don’t learn by just watching a teacher).

Because of my teaching philosophy, you will be getting a handout nearly every day in class. It is suggested you get a folder or a three ring binder and a 3-hole punch. While we practice these, my expectation is that every student gives an honest good faith effort while time is given during class. At times, these may be collected and graded on an effort basis. These scores will be included as a part of homework score.

**Grading**

Homework 50 10% of total grade

Four Exams 400 80% of total grade

Labs 50 10% of total grade

Total 500 pts

## Grading Scale as a Percentage of Total Points

A 93-100

A- 90-92.9

B+ 87-89.9

B 83-86.9

B- 80-82.9

C+ 77-79.9

C 73-76.9

C- 70-72.9

D 60-69.9

F 00-59.9

**Examinations**

Four examinations will be given during the semester. Three exams will give during the semester. We will have them Thursday evenings 4-6 pm, and you will have two hours to finish them. The fourth exam will be given during the final examination period. Part of the final exam will be cumulative and part will only test on the last segment of the course. Each exam will be worth 100 points. Missing an exam will earn a grade of 0 (zero).

**Homework**

1. **The Wonderful World of Physney** - Usually, there will sometimes be one hand-in problem based on a movie clip from an animated movie or movies. Our goal will be to determine what type of world the animated characters live in. Sometimes they will be open ended and at other times, you will be given guidance how to explore these clips. The clips and assignments will be distributed through Desire To Learn (D2L), <https://uwsp.courses.wisconsin.edu/>. There is a link to D2L on UWSP’s home page in the upper right hand corner.

2. **Reality Check(s)** - There will be one original non-book problem assigned as homework and will be of moderate difficulty. The Reality Checks problems are distributed on D2L in the same way Physney problems are distributed. This problem is to be completed on paper and handed in with the Physney assignment.

**Each class period that hand-in type homework is late, 20% of your grade is lost.**

At the end of the semester the homework will be scaled to 50 points (i.e. the percentage of total points earned divided by 2.

Ungraded/Suggested Homework – Each chapter, suggested homework problems and their solutions are posted on D2L. These problems should prepare you to complete the Physney and Graded Homework. There are also example problems for each chapter posted on D2L.

### Laboratory

Labs are usually done in groups of two or four. The focus of some of the labs is mostly concept development with a small focus on actual measurements, while other labs are purely experimental with the goal of measuring a particular parameter. Each lab is graded out of 10 points which is a combination of your group score and your individual score. The group score comes from work done during the lab period (usually 6 or 7 points). The individual score comes from an individual quiz at the end of lab which is done to ensure each student has taken *persona*l responsibility for their own learning. At the end of the semester, the lab grade will be scaled to 50 points (i.e. the percentage of total points earned divided by 2).

Attendance: Attendance will not be kept. Attendance is not required for lecture or discussion, but **attendance is required when examinations are given. Attendance is required every time that you will be graded. That means you must attend all examinations and all laboratory periods.** Make up work will only be accepted for excused absences. Excused absences include a death in the immediate family, an illness with a note from a doctor, PA, NP, or Health Services, a conflict with religious observances, or an event where you officially represent the University of Wisconsin – Stevens Point (i.e. sporting events, artistic events) and the event directly conflicts with the test or lab. **All excused absences must be approved before the day missed with appropriate documenting materials.** All unexcused absences will automatically earn a grade of zero (0).

In accordance with the University of Wisconsin policy, any potential conflict between class work and religious observances must be made known to the instructor within the first two weeks of class. The student must notify the instructor of the specific days and dates of specific religious observances for which the student seeks relief from academic requirements.

“(Physics) Success is 1% inspiration, 98% perspiration, and 2% attention to detail.” *Phil’s-osphy*, by Phil Dunphey

**Tentative Schedule**

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| --- | --- | --- | --- |
| Week | Date | Topic | Lab |
| 1 | 1/23 | Ch. 2 One Dimensional Motion | 0. No Lab |
| 2 | 1/30 | Ch. 2 1D Motion | 1. Constant Motions |
| 3 | 2/6 | Ch. 3 Vectors, Ch. 4 2D Motion | 2. Measuring Acceleration |
| 4 | 2/13 | Ch. 4 2D Motion | 3. 2D Motion –Graphical and Numeric |
| 5 | 2/20 | Ch. 5 Newton’s Laws | **Test 1 Thursday Feb 23, 4-6pm** |
| 6 | 2/27 | Ch. 6 Force | 4. Bungee Barbie |
| 7 | 3/6 | Ch. 11 Torque | 5. Drag and Electrophoresis |
| 8 | 3/13 | Ch. 11 Equilibrium | 6. Winter Wonderland |
| 9 | 3/27 | Ch. 7 Work and Energy | **Test 2 Thursday, March 30, 4-6pm** |
| 10 | 4/3 | Ch. 8 Work and Energy | 7. Work by Pulley |
| 11 | 4/10 | Ch. 15 Fluids | 8. Inclined Plane |
| 12 | 4/17 | Ch. 15 Fluids | 9. Ideas of Fluid Flow |
| 13 | 4/24 | Ch. 13 Oscillations | **Test 3 Thursday April 27 4-6 pm** |
| 14 | 5/1 | Ch. 14 Waves and Sound | 10. Stringed Instruments |
| 15 | 5/8 | Ch. 14 Waves and Sound |  |

**Final Exam Tuesday, May 16th 17:00-19:00**

Squares

Net Force

Jars

Monte Hall