College Physics II  
Autumn 2013 Syllabus

Instructor Information

- Instructor: Dr. Benjamin Grossmann
- E-mail: benjamin.grossmann@umontana.edu
- Office Phone: (406) 243-2013
- Office Location: CHCB 232
- Office Hours: WR 10:15 am–12:00 pm
  If you need to meet with me outside my office hours, you can make an appointment.

Course Information

- Course Request Number: 73517
- Credits: 4
- Lecture Schedule: MTWR 9:10 am–10:00 am
- Lecture Location: CHCB 230
- Prerequisite: PHSX 205N (College Physics I)
- Corequisite: PHSX 208N (College Physics II Laboratory)

Course Description and Expectations

College Physics II is the second of two algebra-based introductory physics courses. In this course, you will continue to study basic concepts in physics and develop problem solving skills. It is essential that you keep up with the material as the concepts presented in this course build on each other.

The use of mathematics will be necessary for understanding the topics that we will cover. The mathematics we will use in this course are algebra, geometry, and trigonometry. It is imperative that you are comfortable with these to be successful in this course.

To be successful in this class, time will need to be spent outside of lecture reviewing information from the course. It is highly recommended that you keep up with the reading assignments to gain a better understanding of the concepts being presented in lecture. Homework assignments also make up a large portion of your overall grade. These assignments will usually take 2–5 hours to complete, so don’t wait until the last minute to start your homework. Remember, one credit hour represents three hours of work by the student, including class time. Being a four credit course, you can expect to put around 12 hours per week into the course to be successful.

Course Materials

  The hard copy of this textbook is available as a single book or divided into two volumes. This course will cover material found in the second volume. Most students enrolled in the course should already have this textbook. However, if you do not, be aware that PHSX 205N is moving to 7th ed this semester. If you choose to use 7th ed, that will work fine. Just be aware that your text may be a little different.
- Online Content: MasteringPhysics online homework system.
  It is accessible at http://www.masteringphysics.com/. An access code is bundled with the course textbook sold by the Bookstore. It is also possible to buy an access code separately from the Bookstore or online. If you acquired an account within the last two years, then you can use that account as your access is good for 24 months.
Online Content: Moodle course management system.
Grades and other materials will be posted through the UMOline-Moodle system. It can be accessed at https://login.umt.edu/cas/login and requires your NetID to log in.

Scientific Calculator.
You will need a basic scientific calculator with trigonometric functions. You are expected to learn how to use your calculator. Do not expect to get help using it during an exam.

Notebook.
The type of notebook you use doesn't matter (e.g. spiral notebook, three-ring binder, composition notebook). Taking good notes can be a useful learning aid. Besides taking notes during lecture, also take notes as you read the book. If you have questions when you're studying, write them in your notebook. Nobody can answer your questions if you've forgotten what they are.

Course Objectives

Physics requires problem solving skills, and one of the purposes of this course is to help you practice these valuable skills. If you rely heavily on memorization of facts, laws, and formulas without understanding how to use these pieces of information or how they relate to each other, then you will not succeed in this course. During this course, you should develop your skills in the following areas:

- Quantitative Reasoning.
  This includes tasks such as estimating the value of an unknown quantity and evaluating the reasonableness of numerical answers.

- Transference of Ideas.
  This includes the ability to apply learned concepts in new contexts and to combine concepts when analyzing a situation.

- Critical Thinking.
  This is the application of various cognitive skills in solving problems. It includes, but is not limited to, determining how different aspects of a problem are related and evaluating solutions and ideas for correctness.

- Understanding and application of basic principles and theories of physics. Some areas of interest will include:
  - Electric fields and electric forces.
  - Electric potential and electric potential energy.
  - Electric currents and direct current circuits.
  - Magnetic fields and magnetic forces.
  - Properties of visible light and other electromagnetic waves.
  - Special relativity
  - Atomic theory and quantization

Homework Problems

Regular homework problems will be done through the MasteringPhysics online homework system. If you already have an active account, you will only need to join the homework course. Otherwise, you will need to create an account. You will require the following information:

- The University’s ZIP code: 59812
- The Course ID: MPGROSSMANN@86863
- A valid email address.
- A student access code.
In general, each problem is worth 5 points. Many problems have multiple parts, and the points are divided among all parts of the problem. For each part of a problem, every incorrect answer will reduce the number of points you can earn for that part. For multiple choice questions, the point reduction is dependent upon the number of choices available, such that for \( n \) choices, the reduction is \( 100%/({n - 1}) \) for each incorrect response. When required to type in an answer, incorrect answers reduce the number of points you can earn by 10% for that part of the problem.

There is a “show answer” button available if you decide you cannot answer a particular part of a problem. In the event that you use the “show answer” button, no points can be earned for that part of a problem. Even if you do use the “show answer” button on one part of a problem, you can still get credit for other parts of a problem if you answer them correctly.

Homework problems may be submitted late; however, there is a penalty of 5% for each hour.

### In-class Group Problems

There will usually be a written group problem given once a week. The problem will be worth five points. One point is earned for participation. The remaining four points are earned from clarity and correctness of the solution your group turns in. Every member of a group earns the same number of points on a problem.

Attendance is not required for this course. However, if you choose to not attend class regularly, your grade can be adversely affected due to losing points for in-class problems and missing out on the lectures themselves.

### Exams

There will be four exams throughout the summer semester. For each exam, you will be provided with a sheet of equations and information and the use of a calculator is allowed. Exams will contain different types of questions. Questions which can possibly be guessed correctly (e.g. multiple choice questions) won’t have partial credit allowed. Computational problems can earn partial credit. Most of the points for these problems will usually be for the correctness of your written solution leading to your answer.

The first three exams will be given on Thursday evenings and will focus primarily on the most recent material covered in class. The final exam will be comprehensive. The exams are scheduled on the following dates and times:

- Exam 1: Thursday, 6:10 pm–8:00 pm, September 19 (evening exam)
- Exam 2: Thursday, 6:10 pm–8:00 pm, October 17 (evening exam)
- Exam 3: Thursday, 6:10 pm–8:00 pm, November 14 (evening exam)
- Exam 4: Thursday, 8:00 am–10:00 am, December 12 (morning exam, final exam)

The dates scheduled are subject to change if necessary. Final Exams are subject to the University schedule, which can be found on-line.

[http://www.umt.edu/registrar/students/finalsweek2/default.aspx](http://www.umt.edu/registrar/students/finalsweek2/default.aspx)

Make-up exams will only be given with advanced notice for known scheduling conflicts or under extreme circumstances. If you need to reschedule an exam, you must submit an Exam Reschedule Form. The form will be available on the Moodle course web page.

### Grading

This course can be taken for a tradition letter grade (A, B, C, D, F) with possible + or − suffixes. The Credit/No-credit option is not available for this course. Course grades are determined from the following course components:

- 25% from the homework problems.
- 5% from the in-class group problems.
• 20% from the non-final exam with the highest score.
• 15% from the non-final exam with the middle score.
• 10% from the non-final exam with the lowest score.
• 25% from the final exam.

Your numerical course score will be calculated as a weighted sum of the scores you’ve earned from each course component.

\[ S_{\text{course}} = 0.25S_H + 0.05S_G + 0.15(S_1 + S_2 + S_3) - 0.05\min(S_1, S_2, S_3) + 0.05\max(S_1, S_2, S_3) + 0.25S_4 \]

where \( S_H \) is your earned score from homework problems, \( S_G \) is your earned score from group problems, \( S_1 \) is your earned score from exam 1, etc. The grading scale for determining a letter grade is as follows:

- \( 90\% \leq (A-) < 93\% \leq (A) \)
- \( 80\% \leq (B-) < 83\% \leq (B) < 87\% \leq (B+) < 90\% \)
- \( 70\% \leq (C-) < 73\% \leq (C) < 77\% \leq (C+) < 80\% \)
- \( 60\% \leq (D-) < 63\% \leq (D) < 67\% \leq (D+) < 70\% \)
- \( 0\% \leq (F) < 60\% \)

Students should not expect an adjustment to this scale. Any of these grade boundaries may be lowered only if it is deemed appropriate to do so. If your exam scores demonstrate a significant improvement over the semester, it may be possible for your course score to have a small amount added to it to better reflect your improved abilities. This will be exercised at the instructor’s discretion.

---

**Academic Honesty**

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online.


---

**Students with Disabilities**

If you are a student with a disability and wish to discuss reasonable modifications for this course, contact me privately to discuss the specific modifications you wish to request. Please be advised I may request that you provide a letter from Disability Services for Students verifying your right to reasonable modifications. If you have not yet contacted Disability Services, located in Lommasson Center 154, please do so in order to verify your disability and to coordinate your reasonable modifications. For more information, visit the Disability Services website.

[http://life.umt.edu/dss/](http://life.umt.edu/dss/)

---

**Complaint Procedure**

If anyone is having issues with the way that the course is being taught or the way that material is being presented I hope that you will come to me first to express your concerns. If you feel that you cannot come to me with these issues, you can contact the chair of the department, Dr. Dan Reisenfeld, CHCB 130.