

Physics 201 - General Physics II

Instructor:

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Office Hours: See information on-line at <http://www.mnstate.edu/lindaas>

Official Course Description:

Calculus-based study of general physics presented in a guided activity-based format which integrates laboratory and lecture using cooperative learning techniques. Continuation of PHYS 200 including electric charges, electric fields, capacitance electric circuits, magnetic fields, electromagnetic induction and an introduction to optics.

Prerequisites:

This course is a continuation of PHYS 200. This course is also a continuation of PHYS 160 but students switching into this calculus-based course should check with the instructor. Students are expected to have taken or be enrolled in MATH 262 (Calculus II). You will be using algebra, trigonometry and calculus to quantify physical concepts. If you have questions about the mathematical rigor expected this semester, please speak with the instructor.

Required Texts:

- WebAssign (<https://www.webassign.net>) The class key is **mnstate 7910 6533**. You can use the same username you used last fall. Please make sure to use your Dragon ID. You have a 2-week trial period after which you must enter an access code.
- *Matter and Interactions* 3rd Edition, by Ruth Chabay and Bruce Sherwood, Wiley (2011). We will be using volume 2 – Electric and Magnetic Interactions – this semester. The material in volume 2 builds on the material covered in volume 1.
- VPython – free software that you can install on your computer
- Physics 201 Lab Activities (directions and suggestions), *available on-line*

Required Supplies:

- Lab Notebook. I recommend a quad-ruled spiral or bound notebook but a regular spiral notebook will also work. You do not need to buy the really expensive hard cover lab notebooks – less expensive options actually work better for what we will be doing.

Course Objectives / Student Learning Outcomes:

Physics Content Covered

- Participants will become familiar with a variety of physics concepts including electrostatics, magnetism, AC and DC circuits, oscillations, energy and geometric optics.
- Participants will develop critical thinking skills.
- Participants will develop estimating and unit analysis skills.
- Participants will participate in inquiry-based experiences.
- Participants will become familiar with the scientific method.
- Participants will develop laboratory skills and technical writing skills
- Participants will develop data analysis and error analysis within a laboratory experiment.

Course Web Site: <http://web.mnstate.edu/lindaas/>

This course makes extensive use of the internet to distribute course materials (homework, solutions, etc.). If you anticipate having difficulty accessing the internet, please see Dr. Lindaas as soon as possible.

Evaluation:

Each component of the course counts as follows –

		Exams		
Homework	Labs	Unit Tests	Group Problems and Quizzes	Final
30%	26%	21%	9%	14%

Note: It is your choice what work you complete. However, it is to your advantage to complete all homework – even an incomplete assignment is better than no assignment.

Grades will be assigned on the absolute scale below; pluses and minuses will be used for the top or bottom quarter of a bracket.

A	B	C	D	F
100-90%	89-80%	79-70%	69-60%	< 60%

- **Homework:** Homework problems will be assigned each week from the text via WebAssign. Typically there will be two parts – a conceptual part and a more rigorous problem solving part. You are encouraged to work in groups, but you are responsible for learning the material. Late work does not help your learning. There are automatic extensions available for two weeks after an assignment due date. You are responsible for knowing when assignments are due.
- **ABC Labs:** The lab is an extension of our classroom. In fact, you could say it really is our classroom. The lab provides you with an arena where you are free to explore and familiarize yourself with the concepts we are learning. You will be expected to keep a lab journal (notebook) and turn-in lab summaries. There will be 3 components to every lab:

Level	Purpose	Summary
C	Conceptual understanding	Conceptual Diagram and Relationships
B	Basic Experimental measurement	Graph showing quantitative relationship
A	(Advanced) Extended lab exercise	Additional relationship or analysis (error)

- Each component will be graded on the following scale
1=poor, 2=needs improvement, 3=good, 4=excellent
- A group must receive a 3 at the C-level to receive credit for B-level work
- A student must receive a 2 at the B-level to receive credit for A-level work
- The lab percent is given by $[5*(C)+3*(B)+2*(A)+42]/82$. There is no credit given for missed labs. The lab score is weighted towards the C-level.
- You are expected to come to lab with a conceptual diagram and/or answers already written in your lab journal. If you come to lab unprepared your C-level grade will be reduced a point.

- **Exams:** Exams will consist of several questions similar to homework problems as well as questions based on your knowledge of lab activities. Partial credit will be given, but only if what you have written is logical and well organized. Make up exams will be given only in cases of documented emergencies. Please see the Universal Excuse Form below.
- **Group Problems:** You will be working with your lab partners to solve group problems one day a week. Every few weeks the problem will be graded. Your group is given 50 minutes to complete each problem. No make up problems will be given.
- **Quizzes:** Quizzes may be given periodically that will focus on unit concepts or activities/results you have covered in lab. Lab journals may be used for quizzes concerning lab results. Hence, you are strongly encouraged to utilize good organization and experimental technique while writing in your lab journal. No make up quizzes will be given.
- **Attendance:** Attendance at all class meetings is expected. You will be working in groups on many activities, so your absences and/or tardiness hurt your classmates as much as they hurt your personal learning. It is also difficult to get started if you are late. There is a high correlation with attendance and understanding what you are doing.
- **Universal Excuse Form:** Sometimes life happens. The purpose of the Universal Excuse Form (UEF) is to allow you to take responsibility for your education. You must use it if you want to:
 - turn in late homework or labs
 - arrange alternative test dates –preferably in advance!
 - petition to make up missed quizzes or exams
- **Academic Honesty:** Your education is only as good as your integrity. If you have any questions as to what is acceptable behavior see the instructor or review the MSUM Student Academic Policy in the Student Handbook: <http://www.mnstate.edu/sthandbook/> (under Student Policy Info).

Class Schedule:

Lecture: Monday, Wednesday, Friday	(Everyone)	10:30 – 11:20 am	Hagen 325
Lab: Tuesday and Thursday	Section 1:	9:00 – 10:15 am	Hagen 317
	Section 2:	3:00 – 4:15 pm	
We will get our hands “messy” in lab. However, the ABC lab format means that your brain has to come prepared and ready to work also.			

Special Accommodations:

Students with disabilities who believe they may need an accommodation in this class are encouraged to contact Greg Toutges, Director of Disability Services at 477-4318 (Voice) or 1-800-627-3529 (MRS/TTY), Flora Frick 154 as soon as possible to ensure that accommodations are implemented in a timely fashion. Information regarding Disability Services is available at <http://web.mnstate.edu/disability/>