

University of Montana

ScholarWorks at University of Montana

University of Montana Course Syllabi

Open Educational Resources (OER)

Fall 9-1-2018

PHSX 207N.01: College Physics II

Eijiro Uchimoto

University of Montana - Missoula, eijiro.uchimoto@umontana.edu

Follow this and additional works at: <https://scholarworks.umt.edu/syllabi>

Let us know how access to this document benefits you.

Recommended Citation

Uchimoto, Eijiro, "PHSX 207N.01: College Physics II" (2018). *University of Montana Course Syllabi*. 8302.
<https://scholarworks.umt.edu/syllabi/8302>

This Syllabus is brought to you for free and open access by the Open Educational Resources (OER) at ScholarWorks at University of Montana. It has been accepted for inclusion in University of Montana Course Syllabi by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

PHYSICS 207N – College Physics II Autumn Semester 2018

LECTURES

Mon, Tue, Wed. & Thu. 8:00 – 8:50 a.m., CHCB 131

INSTRUCTOR

Eijiro ('Ebo') Uchimoto

Office: CHCB 127 (Tel. No. 243-6223)

Email: eijiro.uchimoto@umontana.edu

Office Hours: Mon. 10 – 11 a.m., Tue. 2 – 3 p.m., Wed. 3 – 4 p.m., Thu. 1 – 2 p.m.,
Fri. 11 a.m. – 12 noon (and by appointment)

SCOPE

- Detailed studies of electricity, magnetism, optics, relativity and quantum physics at the introductory level
- Development of physical intuition and problem solving skills necessary for analyzing a wide range of phenomena in these areas of physics

OUTCOME

- Will have acquired thorough and coherent understanding of electricity, magnetism, optics, relativity and quantum physics at the introductory level
- Will have acquired physical intuition and problems solving skills necessary to tackle a wide range of basic and applied problems in these areas of physics
- Will have acquired solid physics background to pursue advanced study in life, health and earth sciences and closely related fields

NUMBER OF CREDITS

4 credits

PREREQUISITES

Successful completion of PHSX 205N - College Physics I, or equivalent

PRE/COREQUISITE

PHSX 208N – College Physics II lab, or equivalent

TEXTBOOK

Physics, Principles with Applications, 7th edition by Giancoli,

HOMEWORK

Reading assignments and problem sets to be announced in class

Take-home quizzes to be handed out in class

EXAMS

Five midterm exams (8:00 – 8:50 a.m., Fri. 9/14, Fri. 10/5, Fri. 10/19, Fri. 11/9 & Fri. 11/30)

Final exam (8:00 a.m. – 10:00 a.m. on Tue. 12/11)

COURSE GUIDELINES AND POLICIES

Student Conduct Code

The Student Conduct Code at the University of Montana embodies and promotes honesty, integrity, accountability, rights, and responsibilities associated with constructive citizenship in our academic community. This Code describes expected standards of behavior for all students, including academic conduct and general conduct, and it outlines students' rights, responsibilities, and the campus processes for adjudicating alleged violations. [Full student conduct code.](http://www.umt.edu/vpsa/policies/student_conduct.php)
http://www.umt.edu/vpsa/policies/student_conduct.php

Course Withdrawal

Students may use Cyberbear to drop courses through the first 15 instructional days of the semester. Beginning the 16th instructional day of the semester through the 45th instructional day, students use paper forms to drop, add and make changes of section, grading option or credit. PHSX 207N may not be taken as credit/no-credit.

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Grading Policy

Your grade will be based on the following:

50-minute exams	60 % (4 best scores, 15 % each)
Take home quizzes:	10 % (drop three lowest scores)
Final exam:	30%

Typical cutoffs for the final course grade:

A-/B+	83%
B-/C+	72%
C-/D+	58%
D-/F	45%

TENTATIVE COURSE OUTLINE

Date	Topics
Week 1: Aug 28 – 31	overview of the course electric charge, Coulomb's law, electric field, field lines (Chapter 16)
Week 2: Sept 4 – 6	electric potential, electric potential energy, electric field and electric potential, capacitance (Chapter 17)
Week 3: Sept 10 – 13	electric current, Ohm's law, resistance electric power (Chapter 18)
Sept 14	Exam #1
Week 4: Sept 17 – 20	alternating current (Chapter 18) resistor combinations, batteries, Kirchhoff's laws, capacitor combinations (Chapter 19)
Week 5: Sept 24 – 28	RC circuits (Chapter 19) magnets, magnetic field, Ampere's law (Chapter 20)
Week 6: Oct 1 – 4	magnetic force on electric current, magnetic force on moving electric charge (Chapter 20)
Oct 5	Exam #2
Week 7: Oct 8 – 11	electromagnetic induction, Faraday's law transformers (Chapter 21)
Week 8: Oct 15 – 18	electromagnetic waves (Chapter 22) geometric optics, laws of reflection and refraction (Chapter 23)
Oct 19	Exam #3
Week 9: Oct 22 – 26	lens and mirrors, lens combinations (Chapter 23)
Week 10: Oct 29 – Nov 1	more on lens combinations (Chapter 23) wave optics, interference and diffraction (Chapter 24)
Week 11: Nov 5,7,8	more on wave optics (Chapter 24) (Tue. Nov 6 – No class, Election Day)
Nov 9	Exam #4
Week 12: Nov 13 – 15	Einstein's special relativity (Chapter 26) (Mon. Nov 12 – No class, Veteran's Day)
Week 13: Nov 20,21	early quantum theory (Chapter 27) THANKSGIVING BREAK (Nov. 22 – 24)
Week 14: Nov 26-29	Photon's interactions with matter atomic models (Chapter 27)
Nov 30	Exam #5
Week 15: Dec 3-6	introduction to quantum mechanics (Chapter 28) review
Week 16: Dec 11	FINAL EXAM