

Wright College
Physics 236-GIK Course Syllabus
Fall 2015

COURSE INFORMATION

Course Number:	Physics 236	IAI # BIO 904
Course Name:	Engineering Physics II: Electricity & Magnetism	
Course Length:	1 academic semester	
Course Hours:	5 credit hours, 8 contact hours	
Course Location:	Classes: S335	Labs: S326
Class Times:	Mon & Wed 12:30pm – 4:20pm	
Prerequisites:	Grade of C or better in Physics 235 and concurrent enrollment in Math 208 or consent of Dept. Chairperson. It is strongly recommended that Math 208 be taken before Physics 236.	

INSTRUCTOR INFORMATION

Instructor:	Dr. Andrew Kruger
Office Location:	L389, Tel. (773) 481-8384
Email:	akruger@ccc.edu
Office Hours:	Mon & Wed 9:45am – 11:30am
Dept. Secretary:	L378, Tel. (773) 481-8377

COURSE RESOURCES

Required Text:	<u>Physics for Scientists and Engineers with Modern Physics</u> . Raymond A. Serway & John W. Jewett, Jr. 9 th Edition by Serway & Jewett. ISBN: 1-133-95405-7
Course Websites:	http://ccc.blackboard.com http://akruger.weebly.com (If asked for a password to access anything, use "wright".)
Course Materials:	Notebook and paper for notes and homework, and a scientific calculator.

COURSE OBJECTIVE/OVERVIEW

Catalog Description: Exploration of electricity and magnetism as they relate to fields, forces and energy using calculus to analyze theoretical and practical problems in lecture and laboratory. Writing assignments, as appropriate to the discipline, are part of the course.

Objective: The course will introduce the concepts of Electric and Magnetic fields and the effects of these fields on electric charges and the study, properties, and practical applications of direct current and alternative current circuits. This course is expected to serve students majoring in science and engineering.

Method of Instruction: The format will be a combination of direct instruction lecture style, followed by activities like cooperative learning, and internet use for virtual experiments. Special attention is given to laboratory sessions.

CLASS PARTICIPATION

Students are expected to participate in class lectures. Questions will be given as part of the lectures which students will answer using electronic response clickers. The responses will be graded and will count toward the student's grade. Students must sign in each class with their clickers and be present to answer questions in order to receive credit. If a student is absent for part of class, it is their responsibility to obtain class notes from another class member.

HOMEWORK

Homework will be fulfilled through the on-line application <http://www.webassign.net>. There will be two categories of homework. The first category will be instructional and will teach information that needs to be learned before coming to class. The classes for which these are assigned will start with further work on the concepts covered, *and cannot be handed in late*. The second category of homework will consist of problems from the end of each chapter. All homework must be finished through WebAssign by the date and time indicated in the assignment. Late assignments will be deducted 20%. Any late homework must be finished by the day of the exam in which the chapter is covered, before the exam is started, and will not be accepted after that.

LABORATORY EXPERIMENTS

Labs will take place in S326 rather than the regular classroom unless otherwise notified by the instructor. Lab work has to be fulfilled during class time on the assigned day. Because labs require in-class experiments, they cannot be made up if the student is absent. If a student is more than 15 minutes late, they will be considered absent and will not get credit for doing the lab. Students must hand in their own, unique lab reports. If two students hand in copies of the same lab report, both students will receive a zero for that lab. The due dates for the labs are given on the calendar, typically due one week after the lab was performed. Lab reports must be typed and turned in through a TurnItIn link that will be provided on Blackboard by the due date and time given. Late Labs will be deducted 20%. Any late labs must be turned in by the day of the exam in which the chapter is covered, before the exam is started, and will not be accepted after that (except those labs indicated in the schedule).

QUIZZES AND EXAMS

Quizzes: Quizzes will be given for each chapter after the chapter has been taught. These will act as mini-tests to prepare the students for unit exams. If a student is more than 10 minutes late to class, they may not participate in the quiz. The lowest quiz grade will be dropped.

Exams: There will be four unit exams. The lowest test score will be dropped from the final grade. Students must bring their own calculator to tests, and they may not be shared. Exams cannot be made up if missed, regardless of the reason. In the case that a test is missed, it will be the score that is dropped. Any late homework or labs from the unit must be turned in *before starting the exam*. The test must be finished within the class period it is given.

METHODS OF EVALUATION

Weighted Grading:	Students will be evaluated according to the following weighted formula:	Grade Scale:	Final grades will be computed according to the following scale:
	Class Participation	10%	$90\% \leq A \leq 100\%$
	Homework	10%	$80\% \leq B < 90\%$
	Laboratory Experiments	15%	$65\% \leq C < 80\%$
	Quizzes	15%	$50\% \leq D < 65\%$
	Exams	50%	$0\% \leq F < 50\%$

EXPECTED OUTCOMES

Learning Outcomes: Upon successful completion of this course, students will be able to:

- 1) demonstrate understanding of the basic concepts of physics in Electromagnetism theory and applications.
- 2) analyze and interpret graphs, and make conclusions and prediction of the physical variables of the graphs.
- 3) demonstrate the ability to solve problems, to work independently and to work as members of a team.
- 4) design and set up an experiments, collect and analyze data, identify sources of error, and interpret their result and connect it to related areas of physics.

Specific Outcomes: Upon successful completion of this course, students will be able to:

- 1) apply Coulomb's Law to an electrostatic set of charges with geometrical symmetry.
- 2) find the electric field due to a point charge and also due to a continuous distribution of charge with symmetry. For example be able to find the electric field due to a charged long wire, charged disk, charged rods.
- 3) apply Gauss's Law in order to find the electric field to cases with symmetry.
- 4) obtain the value of the electric field from the electric potential.
- 5) find the electric potential due to a continuous distribution of charge.
- 6) find the capacitance of key figures with geometrical symmetry.
- 7) find the equivalent capacitance of a combination of series and parallel capacitors.
- 8) apply Ohm's law in order to find the electric current in a circuit.
- 9) find the equivalent resistor for a series and parallel circuit.
- 10) apply Kirchhoff law's to solve a combination of series and parallel circuits.
- 11) find the power dissipated through a resistor.
- 12) find the magnetic field due to an electric current for specific cases like long wires and loops.
- 13) apply Faraday's Law of induction to specific cases.
- 14) solve a RC, RL, RLC circuit with AC source.
- 15) manipulate electronic lab equipment like the oscilloscope, digital volt-meter, power supplies, and signal generators.

COMMUNICATION

Any announcements about the course will be made in class as well as through the “Announcements” section of Blackboard. It is the responsibility of the student to update their email on Blackboard so they will receive any course announcements. Changes to the calendar will be announced, and an updated calendar will be uploaded to akruger.weebly.com. If you have any questions or concerns, please feel free to email the instructor at akruger@ccc.edu. While the instructor will always try to respond in a timely manner, be warned that any emails sent in the evening may not be received until the following day.

CLASS POLICIES

Classroom Etiquette: Please turn off or silence your cell phones. Absolutely no food or drink is allowed in the lab. If food in the classroom creates a distraction, the student may be asked to remove it from the class. Students should maintain a respectful environment for their fellow classmates. Disruptive behavior will not be tolerated and may lead to the student being dismissed from the class.

“No Show” Policy: If a student registered for the course before the start time of the first class period but is absent from the first two class sessions, and has not contacted his/her instructor of intent to pursue the course, he/she will have his/her registration canceled by the college and will be given NSW (no show withdrawal) status.

Active Pursuit: District and college attendance policies are listed in the college catalog and the Student Policy Manual: <http://www.ccc.edu/departments/Documents/studentpolicymanual.pdf>. Active pursuit of this course constitutes participation in 50% of 1) lectures, 2) homework, 3) quizzes and 4) exams. It also requires the successful completion of 50% of laboratory experiments, where completion refers to attendance, full participation, and submission of a report. *A student who is not actively participating in any one of the areas described above can be dropped at the mid-term and receive a grade of ADW.*

UNIVERSITY POLICIES

Disabilities: Any student with a disability, including a temporary disability, who is eligible for reasonable accommodations should contact the Disability Access Center located in room L135, Learning Resource Center of the Wright North Campus or call (773) 481-8016 as soon as possible.

Academic Integrity: The City Colleges of Chicago is committed to the ideals of truth and honesty. In view of this, students are expected to adhere to high standards of honesty in their academic endeavor. Plagiarism and cheating of any kind are serious violations of these standards and will result, minimally, in receiving a zero for the assignment without being eligible to be dropped as one of the lowest grades. In the case of multiple offenses or cheating during an exam, the student will receive a grade of “F” for the course, and further disciplinary action may be taken.

Student Conduct: City Colleges of Chicago students are expected to conduct themselves in a manner which is considerate of the rights of others and which will not impair the educational mission of the College. Misconduct for which students are subject to College Discipline (e.g. expulsion) may include the following: (1) all forms of dishonesty such as stealing, forgery, (2) obstruction or disruption of teaching, research, administration, disciplinary proceeding, (3) physical or verbal abuse, threats, intimidation, harassment, and/or other conduct that threatens or endangers the health or safety of any person, and (4) carrying or possession of weapons, ammunition or other explosives.

SUPPORT SERVICES

Wright College is committed to your success. Below you will find a list of offices you may wish to contact during the semester for assistance:

Academic Support Center (Tutoring)	Room A-245
Center for Academic Success (Advising)	Room A-120
Writing Center (for help with papers)	Room L-212
Wright in Your Corner (Student Center)	Room S-100
Financial Aid	Room A-128
Business Services	Room A-138
Math Tutoring	Room L-125 or L-300
Wellness Center (Personal Counseling)	Room S-132 - (773) 481-8634