

# College Physics – Summer 2015

## Syllabus

*College Physics* is a 6-credit intensive and accelerated introductory algebra-based physics course. In this four-week summer session, students will cover fundamental topics in physics equivalent to the first quarter of a year-long introductory physics course, focusing on classical mechanics. Students will focus on conceptual understanding, problem solving, and lab work. The course will provide a solid foundation in physics especially for those working toward careers in medicine, the allied health fields, or the life sciences. Students will be evaluated on participation in lecture, labs, and problem-solving sessions and performance on homework assignments and exams.

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### **Required Texts & Materials**

- *College Physics*, available freely at <http://openstaxcollege.org/textbooks/college-physics>.
- A scientific calculator that in addition to the basic arithmetic functions is capable of powers, roots, trigonometric functions (sin, cos, tan), exponential and logarithmic functions, and the inverse of those functions. Such calculators are available for <\$20. If you already have a graphing calculator, that is fine. Also, there are many calculator apps (free or inexpensive) available for smartphones, and one of those would be fine as well.
- 3-ring binder.
- A bound notebook which can be divided into 3 sections (though 3 separate bound notebooks are recommended): one for reading/lecture notes, one for lab notes, and one for problem sets.
- Access to WebAssign, an on-line homework for submitting your physics homework (purchase required, <\$40).

### **Program Schedule and Activities**

All students will participate in coordinated *Lectures* and *Problem Sessions* and in *Labs*. A preliminary summary schedule of these activities is below, and details will be provided separately.

- ***Lectures:*** Interactive Lectures expand on material from the text as well as gathering student questions. Students prepare for Lecture by completing the assigned reading before coming to Lecture and taking reading notes. Students participate during Lecture by taking lecture notes and engaging in lecture discussion and activities. Students follow through on Lecture by preparing for the associated Problem Session.
- ***Problem Sessions:*** Collaborative Problem Sessions follow each Lecture. A set of homework problems will be assigned for each Problem Session. Students prepare for Problem Session by attempting to complete all problems before Problem Session and documenting their work in their notebook. Students participate in Problem Session by working in small groups to complete problems which gave difficulty and documenting their work in their notebook. Students follow through on Problem Session by submitting the homework set online via WebAssign.
- ***Labs:*** Labs will give students opportunities to discover or apply physics principles and to develop hands-on experience and transferable skills with equipment and computers. Students prepare for Labs by bringing appropriate materials such as lab notebooks. Students participate in Lab by reading the lab handout, engaging appropriately in the assigned activities, and documenting their work in their notebook. Students follow through on Lab by completing any remaining analysis or other tasks associated with the lab.

### **Assignments and Assessments Overview**

Regular assignments include *Reading Assignments* for each Lecture, *Reading/Lecture Notes*, *Lab Notes*, and *Homework Sets* (prepared for Problem Session and submitted online). There will be 2 *Exams*. Students will maintain an ongoing *Portfolio* of their work.

- ***Reading Assignments:*** For each Lecture, students will be assigned reading from the physics text. These must be completed before the associated class meeting.

- **Reading/Lecture Notes** and **Lab Notes**: Students will take and keep notes from reading and lectures. Students will document the process and results of lab investigations through lab notes.
- **Homework Sets**: Homework Sets give students practice with important basic concepts and calculations, as well as with problems that are generally richer and more complicated, requiring an application of concepts and skills beyond the basics. Students should attempt all problems before the associated Problem Session and then work on remaining questions during Problem Session. Individual Homework Sets are due by 6:00 pm following the Problem Session, through the on-line platform WebAssign. In addition, work on Homework Sets should be documented in student notebooks.
- **Exams**: There will be 2 in-class Exams: a mid-term exam on Day 10 (Jul 3) and a cumulative final exam on Day 20 (Jul 17). These exams provide students an opportunity to demonstrate what they have learned through reading, lectures, labs, homework, and other program activities.
- **Portfolio**: Students will maintain an ongoing portfolio of their work consisting of reading/lecture notes, lab notes, homework sets, and exams to serve as a lasting record and resource for their own future reference.

	Monday	Tuesday	Wednesday	Thursday	Friday
	Day 1 (Jun 22)	Day 2 (Jun 23)	Day 3 (Jun 24)	Day 4 (Jun 25)	Day 5 (Jun 26)
<b>Week</b>	Introduction	Lecture 1	Problem Session 1	Lecture 2	Problem Session 2
<b>1</b>	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5
		Safety Quiz due 9 am	HW 1 due 6 pm		HW 2 due 6 pm
	Day 6 (Jun 29)	Day 7 (Jun 30)	Day 8 (Jul 1)	Day 9 (Jul 2)	Day 10 (Jul 3)
<b>Week</b>	Lecture 3	Problem Session 3	Lecture 4	Problem Session 4	<b>EXAM 1</b>
<b>2</b>	Lab 6	Lab 7	Lab 8	Review	
		HW 3 due 6 pm		HW 4 due 6 pm	
	Day 11 (Jul 6)	Day 12 (Jul 7)	Day 13 (Jul 8)	Day 14 (Jul 9)	Day 15 (Jul 10)
<b>Week</b>	Lecture 5	Problem Session 5	Lecture 6	Problem Session 6	Lecture 7
<b>3</b>	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13
		HW 5 due 6 pm		HW 6 due 6 pm	
	Day 16 (Jul 13)	Day 17 (Jul 14)	Day 18 (Jul 15)	Day 19 (Jul 16)	Day 20 (Jul 17)
<b>Week</b>	Problem Session 7	Lecture 8	Problem Session 8	Lab 17	<b>EXAM 2</b>
<b>4</b>	Lab 14	Lab 15	Lab 16	Review	
	HW 7 due 6 pm		HW 8 due 6 pm		

Tentative Reading Schedule:

Lecture 1: Ch. 1 (skip 1.4, 1.5); Ch. 2

Lecture 2: Ch. 3

Lecture 3: Ch. 4

Lecture 4: Ch. 5, Ch. 6 (skip 6.5, 6.6)

Lecture 5: Ch. 7

Lecture 6: Ch. 8 (skip 8.7)

Lecture 7: Ch. 9 (skip 9.3, 9.5), Ch. 10: 10.1 - 10.3

Lecture 8: Ch. 10: 10.4 - 10.7

## Covenant

Program activities, assignments, and assessments are designed to help students meet their personal academic goals and the learning goals of this course. In order to achieve these goals, we ask you to agree to participate in creating our learning community and abiding by this covenant.

### **Building a learning community**

In an Evergreen “learning community” we are all co-learners with the opportunity to learn from each other, and we all have a responsibility to cultivate conditions for collaborative learning. Community is a state of being in the world that requires our attention and work to achieve. In a learning community, we collaborate to expand our knowledge and abilities. Collaborative learning develops a set of skills and experiences that will equip you to deal with a broad array of situations in future learning and work of almost any kind.

Success in a learning community does not mean that we all agree with each other all the time, or that conflicts never emerge. It means that we acknowledge each other as human beings, take delight in the variety of perspectives we bring to the table, and seek to address conflicts and differences of opinion with a spirit of generosity and flexibility.

### **In order to build a successful learning community, all members of the program share these responsibilities:**

- Encouraging the free exchange of ideas in a respectful and civil manner. This includes showing respect for others who are speaking or listening (for example, talking, whispering, text messaging, cell phone ringing, or inappropriate use of portable computers is disruptive to the speaker and to those listening; turn off and store all electronic devices unless relevant for class activities).
- Keeping confidential any personal information others may reveal during program discussions.
- Recognizing that no one is exempt from dynamics of privilege and oppression and striving to be aware of how our actions and words affect others and communicating honestly to others about how their actions affect us.
- Responding civilly and productively when others communicate to us how our words or actions have affected them.
- Abiding by the Social Contract, Student Conduct Code and the Sexual Harassment policy.

Repeated disruption of the learning environment by violating these guidelines and the spirit from which they arise may result in expulsion from the program.

### **Students have these responsibilities:**

- Engage actively with the program. This includes coming to class on time and prepared to participate in all activities.
- Complete and submit all assignments on time according to submission guidelines. Assignments must be submitted in the appropriate format to be considered for evaluation. Students should not expect faculty to read or comment on work received late, nor should they expect to receive credit for late work.
- Keep up. Check college email and the program blog regularly for information about the program. If you miss class it is your responsibility to find out from another student what you have missed and to catch up on all assignments and announcements including changes to the program syllabus.
- Be proactive and communicate. If you have questions or concerns about your work or the program, contact faculty directly. Students who require accommodations for academic work should contact Access Services (ph. 360-867-6348/TTY: 360-867-6834). Information about such accommodations is confidential and protected by legal and ethical considerations.
- Take care of yourself: If you become ill, stay home and recover quickly rather than extending your illness by over-exertion. While protecting your privacy, let the faculty know by e-mail or voice-mail as soon as possible when you miss class because of illness.
- Approach all program work with integrity. If faculty detect cheating, plagiarism, or other lapses of academic integrity, they will discuss the issue with the student and may report the instance for the Campus Grievance Officer to pursue further. Plagiarism includes:
  - Copying *any* material from the Internet for inclusion in your work without citing the author and context clearly.
  - Copying text, images, or ideas from a book, magazine, journal, essay, web-site, etc. by anyone else without clear citation of the author or original context.

- Conduct program activities in a responsible manner. This includes:
  - cleaning up after yourself so that overworked janitorial staff or others don't have to do so,
  - following and respecting all lab safety protocols and requirements, including safe and appropriate use of equipment, careful attention to safety rules, and appropriate and timely clean-up,
  - using College equipment, facilities, and other shared resources responsibly,
  - acting in compliance with all relevant College policies.
- Maintain a portfolio of your work.
- Write an evaluation of the faculty at the end of the program.

**Faculty have these responsibilities:**

- Plan and implement the program and communicate changes to the syllabus.
- Provide timely and thoughtful responses to student work.
- Make time available for individual conferences with students during Evaluation week and as needed.
- Make every effort to notify students when they are at risk of losing credit.
- Handle all disputes in a spirit of respect and goodwill.
- Conduct interactions collaboratively and professionally.
- Write formal evaluations of student achievement at the end of the quarter.

**Credit and Evaluation**

Students' work in the program will be evaluated with the requirements provided in the Syllabus in mind. Fulfilling minimum requirements and/or receiving full credit does not guarantee a positive evaluation.

**Credit Equivalencies:**

6 Credits      Algebra-based (or Conceptual) Physics w/Lab

**Basis for Awarding Credit**

- Demonstration of comprehension of content knowledge and competence in process skills covered in the program as shown through exams, homework assignments, and in-class work.
- Completion and timely submission of assignments.
- Regular, punctual attendance and engaged participation in all program activities.

**Loss of Credit**

- Too many absences could affect credit. Tardiness or early departure may be considered equivalent to absence.
- Students may lose some or all credit because of unsatisfactory performance, failure to complete assignments, poor attendance, or other violations of the covenant.
- As a rule, late assignments and make-up work will not be accepted. Faculty may make exceptions if extenuating circumstances (such as illness or extraordinary family/relational needs) make class attendance or timely submission of work impossible. Clear communication is essential in these cases.
- Cheating, plagiarism, dishonesty, or other lapses of academic integrity may lead to total loss of credit.

By signing below, I certify that I have read the College Physics – Summer 2015 Syllabus and Covenant and agree to abide by it, and that I have placed a copy of the Syllabus/Covenant in a secure location with my program handouts.