

**IVY TECH COMMUNITY COLLEGE – REGION 03**  
**SYLLABUS PHYS 101: Summer 2014**

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**Instructor:** James Cutright

**E-mail:** jcutright@ivytech.edu

**Classroom:** SL 151

**Meets:** Tuesday, Thursday 5:00 -9:50 pm

**COURSE TITLE:** Physics I

**COURSE NUMBER:** PHYS 101

**PREREQUISITES:** MATH 121 Geometry-Trigonometry or MATH 131 Algebra/Trigonometry or MATH 134 Trigonometry or MATH 137 Trigonometry with Analytic Geometry

**SCHOOL:** Liberal Arts and Sciences

**PROGRAM:** Liberal Arts

**CREDIT HOURS:** 4

**CONTACT HOURS:** Lecture: 3 Lab: 2

**DATE OF LAST REVISION:** Fall, 2013

**EFFECTIVE DATE OF THIS REVISION:** Fall, 2013

**CATALOG DESCRIPTION:** Introduces the basic concepts of mechanics, including force and torque, linear and rotational motion, work, energy and power, fluids, and the physics of heat.

**MAJOR COURSE LEARNING OBJECTIVES:** Upon successful completion of this course the student will be expected to:

1. Use and convert physical quantities and measurements in the SI and USCS systems.
2. Correctly define vector and scalar quantities, and compute vector components and resultants, and quantitatively analyze physical systems using the concepts of translational and rotational equilibrium, and kinetic and static friction.
3. Solve problems using the concepts of moment arm, torque, and center of gravity.
4. Solve problems that require an ability to apply Newton's Three Laws of Motion; describe the interaction of force, mass, weight, and acceleration due to gravity; and compute time, distance, average speed, average acceleration, speed, and acceleration for motion with constant acceleration.
5. Perform computations using the physical relationships among work, momentum, energy, power, equivalence of work and energy, and conservation principles.
6. Compute the rotational motion, centripetal force and acceleration, moment of inertia, and rotational energy for rotating physical systems.
7. Solve problems in elasticity and fluid statics, including static pressure and hydraulics.
8. Measure and/or compute temperature and linear expansion.
9. Compute the quantity of heat transferred using the concepts of specific heat capacity, latent heats of fusion and vaporization, and heat of combustion.
10. Compute the quantity of heat transferred using the concepts and mathematics of thermal conductivity, convection, and radiation.
11. Use the gas laws to compute values for volume, temperature, pressure, and amount of a gas.
12. Use laboratory equipment to demonstrate scientific principles.
13. Recognize uncertainties in data.
14. Tabulate and graph data and compute results.
15. Work in teams.
16. Draw reasonable conclusions from quantitative data and communicate results to others.

**COURSE CONTENT:** Topical area of study include –

Introduction to measurement and units  
Kinematics in one and two dimensions  
Motion and force  
Circular motion and gravity  
Work and energy  
Impulse and linear momentum  
Rotational motion  
Bodies in equilibrium  
Elasticity Fluids  
Temperature and expansion  
Kinetic theory and gas laws  
Heat  
Laboratory experiments will be selected from the topics above.

**REQUIRED TEXT AND MATERIALS:**

*Giancoli, Physics Sixth Edition Person Prentice Hall, 7<sup>th</sup> Edition*

**COURSE SOFTWARE:**

This course uses online software from the textbook publisher -- “Mastering Physics.” You **must** have access to this software online. To access the online homework you can go through this course’s page on blackboard. Instructions for accessing the online homework will be posted on blackboard as a pdf.

**COMPUTER DOWNLOADS:**

This link provides you with important computer information, including security software, viewer software for users without Microsoft products, adobe reader, flash player, java, and more.  
<http://www.ivytech.edu/helpdesk/tech/downloads.html>

**OPTIONAL CAMPUS SUPPORT**

You are welcome to use the services and equipment available at the Ivy Tech Community Campus most convenient to you. Services include academic advising, equipment, libraries, and tutoring. Please locate the Ivy Tech Community College campus most convenient to you at <http://ivytech.edu/campuses/>

For distance learners, the Virtual Library offers full-text journals, books, and other resources essential for completing course assignments. Please visit <http://ivytech.edu/library/distance-learning/index.html> to access Resources and Services for Distance Learners.

**MATERIALS AND EQUIPEMENT SUPPLIED BY STUDENTS**

Paper, pencils, ruler/straight edge, graph paper, scientific calculator (no graphing calculators)

## EVALUATION PROCEDURES:

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|-------------------|---------|
| 1. Exam 1.....    | 100 pts |
| Exam 2.....       | 100 pts |
| Exam 3.....       | 100 pts |
| Final Exam .....  | 100 pts |
| Homework.....     | 200 pts |
| Labs .....        | 200 pts |
| <hr/>             |         |
| Total points..... | 800 pts |
2. Grading Scale  
90%-100% = A  
80%-89% = B  
70%-79% = C  
60%-69% = D  
Below 60% = F
3. Assignments and Quizzes  
The assignments and quizzes are due as directed by the instructor and may not be made up.
4. Exams  
The dates for the exams are shown on the weekly outline. Only one exam may be made up during the semester. To make up an exam you **must** inform your instructor in advance of the scheduled exam time. Failure to notify an instructor in advance will result in an exam score of zero. Exams must be made up within one week of the original test date. There are no “retries” on any exams.
5. Final Exam  
This final exam is scheduled during the last week of class.

## GENERAL INFORMATION:

1. Attendance is very important. Students are expected to attend all classes. Students are responsible for all class notes, materials, and problems assigned whether absent or present. Excessive absences will have a negative effect on the learning experience. Students are expected to arrive at class on time and stay for the duration of the class.
2. Cell Phones and pagers are to be turned off or turned to ‘vibrate’ during class. Laptop and other computers are to be turned off during class, except as required for current classroom activity.
3. Seek help immediately if the work becomes too difficult. Help is available in the following ways:
  - Stop by the Center for Academic Excellence, Main Campus Room 2380 for free tutoring.
  - Form a study group with classmates and meet before or after class.
  - Find someone who has already successfully completed the course.
  - Use the resources you purchased with your textbook.
  - See the instructor before or after class or during office hours.

4. Exams, once taken and graded, are the property of Ivy Tech Community College and are confidential. Students may review tests and ask questions but may not keep the test itself.
5. It is college policy that no food or beverages are allowed in the classroom

### **ACADEMIC HONESTY STATEMENT**

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

### **COPYRIGHT STATEMENT**

Students shall adhere to the laws governing the use of copyrighted materials. They must insure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

### **PLAGIARISM STATEMENT:**

Presenting within one's own work the ideas, representations, or words of another person without customary and proper acknowledgment of that person's authorship is considered plagiarism. Students who are unsure of what constitutes plagiarism should consult with their instructors. Claims of ignorance will not necessarily excuse the offense. The instructor reserves the right to use the resources of the College to check student work for plagiarism.

### **ADA STATEMENT:**

Ivy Tech Community College seeks to provide reasonable accommodations for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, please contact the Office of Disability Support Services.

## **Ivy Tech Growing Greener**

Ivy Tech Community College–Northeast is committed to the development and implementation of a comprehensive sustainability plan. We're emphasizing our responsibility to go green. To that end, we are asking students, faculty, and staff to actively participate in energy conservation measures and proper recycling on campus. The recycling bins located in classrooms and offices are for paper and paper products only. Ivy Tech participates in single-stream recycling for other items. All aluminum, glass, and plastic beverage containers can co-mingle in the same recycling bins located in the hallways. Please remember to empty the liquid from your containers before depositing them in the bins. Any materials that cannot be recycled should be placed in garbage cans. It is also important to turn off lights and computers when leaving a room. Together, we can make an impact on conserving our limited resources. Remember to reduce, reuse, and recycle!

## **BREATHE EASY:**

Ivy Tech–Northeast is committed to providing a healthy, comfortable and productive environment for the students, faculty and staff of this campus. The use or sale of any tobacco product is prohibited on college-owned, operated, or leased property or vehicles at any time. The policy applied to all Ivy Tech–Northeast facilities and grounds, regardless of location. Smoking, including the use of an e-cigarette, shall not be permitted in any enclosed space and is also prohibited outdoors on all college campus property, including parking lots. This policy applies to all students, faculty, staff and visitors. Tickets and fines will be issued to violators.

**COURSE OUTLINE:**

<u>Day</u>	<u>Date</u>	<u>CHAPTER AND SECTION NUMBERS</u>
1	6/10	1.1-1.8, Lab 1
2	6/12	2.1-2.8, Lab 2
3	6/17	3.1-3.6, Lab 3
4	6/19	4.1-4.9, review
5	6/24	<b>Exam 1 (Chapters 1 - 4), 5.1-5.3</b>
6	6/26	6.1-6.3 Lab 4
7	7/1	6.3-6.10, Lab 5, Start Chapter 7, if there is time.
8	7/3	7.1-7.6, 7.8, Lab 6, review
9	7/8	<b>Exam 2 (Chapters 5-7), 8.1-8.4</b>
10	7/10	8.5-8.8, 9.1-9.2, 9.4
11	7/15	10.1-10.10, Lab 7
12	7/17	11.1-11.8, 11.11-11.12, Lab 8, review, Withdraw (7/19)
13	7/22	<b>Exam 3 (Chapters 8 - 11), 13.1-13.10</b>
14	7/24	14.1-14.8, Lab 9
15	7/29	15.1-15.9, review
16	7/31	<b>Tie up loose ends, Final Exam (Chapters 13 - 15)</b>

This course outline may vary at the discretion of the instructor.

**IMPORTANT DATES:**

First Day of Classes: 6/9 (6/10 for our class)

Independence Day: 7/4

Last Day to Withdraw: 7/19

Finals Week: 7/28 – 8/1

## **School of Liberal Arts and Sciences Grading and Makeup Policies**

### **General Policies Regarding All Classes and All type of Assignments**

- The instructor owns the copyright to all original material, and this material may not be duplicated without permission from the instructor.
- Computer/technical problems (printer ran out of ink, computer locked up, flash drive was stolen, etc.) do not constitute an excuse for turning anything in late.
- No late papers or assignments may be turned in during the last week of the semester.
- Being late or not attending class can negatively affect your grade. Missing 25% of the class may result in failure of the course due to missed instruction and missed work that cannot be made up.
- You are responsible for all missed material due to any absences.
- In case of a documentable emergency, the policies may be adjusted at the discretion of the instructor.

### **Classroom Etiquette**

- Cell phones must be turned off or put in vibrate mode. Text messaging is not allowed during the class.
- Children under 16 are not allowed in the classroom.
- You must gain permission from the instructor before you can tape any portion of the class.

### **Homework and Assignments**

- Homework and assignments are due at the **beginning** of class on the due date unless otherwise indicated by the instructor.
- If you are absent from class it is still expected that you will turn your homework or assignment in on time.
- Late homework and assignments may be turned in within **one** week of the due date if permitted by the instructor, but the late homework or assignment will be given only half credit. Certain types of homework or assignments may not be turned in late for any amount of credit. These are clearly identified in the class syllabus.
- After one week an assignment or homework will no longer be accepted for credit.

### **Papers and Projects**

- Papers and projects are due at the **beginning** of class on the due date unless otherwise indicated by the instructor.
- If you are absent on the due date it is your responsibility to make sure the paper or project is still turned in on time.
- The instructor reserves the right to reject any paper that is not completed according to directions given or that fails to meet general college-level standards.
- The responsibility for proof regarding the originality of a paper rests with the you, not the instructor.
- Late papers and projects may be accepted with the following late penalties. Certain types of papers or projects may not be turned in late for any amount of credit. These are clearly identified in the class syllabus.
  - If it is turned in within 24 hours of the due date there will be a 10% reduction.
  - After 24 hours and up to one week there will be a 50% reduction.
  - After one week the paper or project will no longer be accepted for credit.

### **Quizzes and in-class assignments**

- Quizzes and in-class assignments can **not** be made up.
- If you are absent for any reason on a day with a quiz or in-class assignment you will receive 0 points for it.

### **Tests**

- Only one test a semester may be made up. \*
- If you know you will have to miss a test, you must make arrangements with the instructor before the test date in order to take the test at an alternate time.
- In an emergency situation (i.e. flat tire, emergency room visit) you must contact the instructor via means outlined in the syllabus to make arrangements to make up the test.
- Arrangements to make up a test must be made with the instructor within one week of the original date of the test.

### **Labs**

- Labs can not be made up under any circumstances.
- Proper safety guidelines must be followed at all times. Failing to follow safety guidelines will result in a score of 0 on the lab, and the student will be asked to leave the classroom during the lab.
- A score of 0 will be entered for any labs that are missed.

### **Grading**

- If questions about class policies and procedures or grades arise during or after the semester, you must meet with your instructor to discuss this first prior to speaking with a program chair or any other college representative.

### **Midterm**

- Midterms may not be made up.

### **Final Exam**

- There is no make-up for the final exam. The semester is over.

### **End of Semester**

- The last class meeting is the end of the semester. Nothing may be turned in or completed after that date. All graded assignments should be picked up by the end of this meeting or they will no longer be available.

\*This does **not** mean that you may make up one test; rather, it means that you may not make up more than one. **Any** make-up test must be approved by your instructor **in advance**.