# PHY 2130 GENERAL PHYSICS

# Spring Summer 2016

**TIME (for lectures):** Monday and Wednesday 1:00 - 2:35PM.
**Room:** 1107 Old Main (Lecture Hall)

**TEXT:** College Physics ($10^{th}$ edition) by R. Serway and C. Vuille (**main text book**) by Cengage learning

Reference book:
PHYSICS by Giambattista, Richardson and Richardson, McGraw-Hill.$3^{rd}$ Ed.

**WebAssign:** WebAssign Access Card

**INSTRUCTOR:** Bhim Chamlagain
**OFFICE:** 235 Physics Building

**E-MAIL:** er6430@wayne.edu (please enter PHY2130-SP2016 in the subject line)

**COURSE WEB PAGE:** WSU Blackboard; http://webassign.net

**OFFICE HOURS:** Monday 2:40PM - 4:PM, Wednesday 2:40PM - 4:PM or by appointment Room 235, Physics Research Building

**LABORATORY:** PHY 2131 is the laboratory portion of PHY 2130. It is a co-requisite. Therefore you must be enrolled in both courses, concurrently. *The laboratory is a separate course with its own grades and procedures*, which will be explained by your laboratory instructor. The experiments in PHY 2131 are designed to complement the material covered in PHY2130. Your Laboratory Manual is available online (Blackboard).

**QUIZ SECTIONS:** Quiz sections meet once per week to provide you with an opportunity to ask questions, discuss lecture material, and work through assigned practice problems. Assigned practice problems will be posted chapter by chapter on Blackboard as the course progresses. These practice problems are intended to test your understanding of the course material and help prepare you for quizzes and exams. It is important that you solve these problems to solidify your mastery of the material. The quiz instructors will solve some of the sample problems each week and, in the process, share their knowledge of the subject matter with students. Note that, in general, there will not be enough time to cover each and every assigned problem in any one given quiz section. In these quiz sections you will periodically be given a short quiz on material covered in lecture the previous

week. There will be seven quizzes given during the semester, during the weeks indicated by asterisks. The scores on your five best quizzes, plus attendance (10 points), will be used to calculate your quiz section grade, which contributes 60(50+10) points to the overall grade for the course. **There will be no make-up quizzes offered**. Please contact your quiz instructor for schedule of class and office hour.

| Discussion Sections | Section | CRN | Facilitators | Room |
|---|---|---|---|---|
| Monday 3:00PM to 5:05PM | 001 | 34686 | Kraig Andrews | 212 STAT |
| Monday 10:30AM to 12:35PM | 002 | 34687 | Namita Shokeen | 115 STAT |
| Wednesday 3:00PM to 5:05PM | 003 | 34688 | Kraig Andrews | 123 STAT |
| Wednesday 10:30AM to 12:35PM | 004 | 34689 | Debarati Hajra | 127 STAT |

**EXAMS:** There will be *three* in-class/regular exams during the semester, as indicated on the course schedule. These exams will consist of multiple-choice questions, including both conceptual and computational problems. Each exam will contribute 100 points towards your final grade in the course. You will be provided with a formula sheet prior to these exams. **There will be no make-up exams offered**. The lowest exam score (including, e.g., a missed exam), of the three in-class exams, will be replaced by half of your total score on the Final Exam, if this improves your overall grade in the course. You must bring your Wayne State ID to the exam and be prepared to present it to your professor or a proctor, if asked, during the exam. A group photograph of the class will be taken during each exam. No electronic devices, other than a non-programmable calculator, are allowed at any time during the exams. *Graphing calculators are not allowed*. **The use of any electronic device other than a calculator, including, but not limited to, cellular telephones, music players, or tablet computers, during the exam will be considered as academic misconduct resulting in immediate sanction**. More information on academic integrity can be found in a document prepared by the Office of Teaching and Learning, which can be downloaded from: http://www.otl.wayne.edu/pdf/AIB07Print.pdf.

**GRADING:** Your course grade will be determined by your performance in the three in-class exams, the online homework, the quiz section grade, and a final exam. The final exam will cover the material presented during the entire semester and contribute 200 points towards your final grade in the course. The same policies and procedures for the in-class exams will also apply for the final exam. Students in all PHY2130 sections will take the same final exam at the same time during the final exam period scheduled by the

university. The overall course grade will be determined on the basis of the following distribution:

| | |
|---|---|
| Three in-class exams (100 points each) | 300 points |
| Quizzes (best 5 of 7+Attendance) | 60 (50+10) points |
| Final Exam | 200 points |
| Online Homework | 40 points |
| **Total** | **600 points** |

| Points accumulated | Percent | Grade |
|---|---|---|
| 540-600 | 90-100 | A |
| 510-539 | 85-89 | A- |
| 480-509 | 80-84 | B+ |
| 450-479 | 75-79 | B |
| 420-449 | 70-74 | B- |
| 390-419 | 65-69 | C+ |
| 360-389 | 60-64 | C |
| 330-359 | 55-59 | C- |
| 300-329 | 50-54 | D+ |
| 270-299 | 45-49 | D |
| 240-269 | 40-44 | D- |
| 0-239 | 0-39 | F |

**ADDITIONAL RESOURCES:** Additional help and support for this course is available in the *Physics Resource Center*, in room 172 Physics Building. This will open a few weeks after the beginning of the semester. In addition, both your quiz instructor and I will have regular office hours where we will be available to discuss any difficulties you may have with the course material.

**WITHDRAWAL DEADLINE:** The deadline to withdraw from the course is Sunday, July 17, 2016. Any course withdrawal request on Pipeline after this date will be automatically denied.

**ACADEMIC INTEGRITY:** All forms of academic dishonesty are forbidden in this class. Specific examples of academic dishonesty include cheating during exams as well as changing test answers for re-grading. Continuing to write after the exam time is up will result in a score of 0 for that exam. All forms of academic dishonesty will be prosecuted to the fullest extent as outlined in the Student Due Process Policy of the University.

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Selected excerpts from the Student Due Process Policy regarding disruptive behavior are presented below. These policies will be enforced during all academic activities relating to PHY 2130. Students who are disruptive during lectures, exams, or quiz sections will lose points from their final score for the course. Repeat offenders may fail the course or be brought before the Dean of his or her College for further action.

**Wayne State University – STUDENT DUE PROCESS POLICY**

1.0 PREAMBLE

1. As provided by the Board of Governors in WSUCA 2.31.01, "Student Rights and Responsibilities," and as mandated by academic tradition, the students of Wayne State University possess specific rights and responsibilities. Students are expected to conduct themselves in a manner conducive to an environment, which encourages the free exchange of ideas and information. Students, as integral members of the academic community, have the right to the assurance that their rights are protected from arbitrary and capricious acts on the part of any other member of the academic community. This Student Due Process Policy is designed to assure that students who are alleged to have engaged in unacceptable conduct receive fair and impartial consideration as specified in this policy.

4.0 PROHIBITED CONDUCT

The following conduct is subject to disciplinary action when it occurs on University premises, or in connection with a University course or University documents, or at a University-sponsored activity:

4.1 All forms of academic dishonesty.

4.3 Physical abuse of another person, or conduct which threatens or endangers another, or verbal or physical threats which cause reasonable apprehension of harm.

4.6 Disorderly behavior that interferes with activities authorized, sponsored, or permitted by th University such as teaching, research, administration, and including disorderly behavior interferes with the freedom of expression of others.

5.0 DISCIPLINARY SANCTIONS

Students found to have committed an act, or acts of misconduct may be subject to one or more of the following sanctions, which shall take effect immediately upon imposition, unless otherwise stated in writing, except as provided in this policy.

5.1 Disciplinary Reprimand. Notification that the student has committed an act of misconduct, and warning that another offense may result in the imposition of a more serious sanction.

5.2 Disciplinary Probation. A disciplinary status which does not interfere with the student's right to enroll in and attend classes, but which includes specified requirements or restrictions (as, for example, restrictions upon the student's representing the University in any extracurricular activity, or running for or holding office in any student group or organization) for a specific period of time as determined in the particular case.

5.3 Suspension. A denial of the privilege of continuing or enrolling as a student anywhere within the University, and denial of any and all rights and privileges conferred by student status, for a specified period of time. At the termination of the suspension the student will be entitled to resume his/her education without meeting any special academic entrance requirements.

5.4 Expulsion.

5.5 Restitution.

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10.0 PRELIMINARY PROCEDURE

10.1 When a faculty member is persuaded that academic dishonesty has occurred, the faculty member may, without using the mechanism of filing a charge, adjust the grade downward (including downgrading to a failing grade) for the test, paper, or other course-related activity in question, or for the entire course.

**CLASS SCHEDULE:** The following schedule will serve as a general guide to content coverage, pace, exams schedule, etc. Any changes to the class schedule will be discussed in class and posted on Blackboard. The asterisk * indicates those weeks in which quizzes will be given in quiz section. Note that a diagnostic math test, not a part of one's grade, will be given in the first week of quiz classes.

| Week | Date | Day | Lecture Topic | Reading Assignment |
|---|---|---|---|---|
| 1 | May 9 | M | Introduction, scientific notation, significant figures, units, Graphs;<br>Displacement | 1.1-1.4<br>1.4-1.9;<br>2.1 |
| | May 11 | W | velocity, acceleration, motion diagram<br>Motion along a line, constant acceleration, free fall | 2.2-2.6 |
| 2* | May 16 | M | Vectors and its component in 2 dimensions, displacement, velocity, acceleration and motion in two dimensions, relative velocity | 3.1-3.5 |
| | May 18 | W | Force and Newton's Laws of Motion<br>Gravity, friction force, contact forces and free body diagram | 4.1-4.6 |
| 3* | May 23 | M | Work, energy, power and conservation of energy | 5.1-5.6 |
| | May 25 | W | Momentum, impulse, conservation of momentum, collision | 6.1-6.3; |

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| 4 | May 30 | M | **HOLIDAY** | |
| | June 01 | W | **EXAM 1 (Ch. 1 - 4)** | |
| 5* | June 06 | M | circular motion, angular speed, angular acceleration, rotational dynamics | 7.1-7.3 |
| | June 08 | W | centripetal acceleration, apparent weight torque and equilibrium | 7.4-7.5<br>8.1-8.4 |
| 6* | June 13 | M | Torque and angular momentum, rotational kinetic energy | 8.5-8.7 |
| | June 15 | W | Fluids, pressure, Density and pressure, Pascal's principle Fluid pressure, buoyancy, | 9.1-9.6 |
| 7 | June 20 | M | fluid flow, surface tension, capillary action | 9.7-9.9 |
| | June 22 | W | Temperature and scales, Thermal Expansion Gases, Absolute Temperature, Ideal Gas Law , Kinetic theory | 10.1-10.5 |
| 8 | June 27 | M | **EXAM 2 (Ch. 5 - 8)** | |
| | June 29 | W | Internal Energy, Heat, Specific Heat, calorimetry | 11.1-11.3 |
| 9* | July 04 | M | **Holiday** | |
| | July 06 | W | Phase Transitions, Latent Heat, Heat Transfer, Conduction and Radiation | 11.4-11.5 |
| 10* | July 11 | M | Work, first law of thermodynamics, thermal processes | 12.1-12.3 |
| | July 13 | W | Second law of thermodynamics and entropy | 12.4-12.5 |
| 11 | July 18 | M | **EXAM 3 (Ch. 9 - 12)** | |

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|---|---|---|---|---|
| | July 20 | W | Hook's law, elastic potential energy, harmonic motion | |
| 12* | July 25 | M | Waves, frequency, amplitude, wavelength speed, periodic waves, interference and reflection of waves | 13.7-13.11 |
| | July 27 | W | Superposition, Reflection, Standing Waves; Sound<br><br>Sound Waves, Pipes, Doppler Effect | 14.1-14.10 |
| | July 30 | | Study Day | |

**FINAL EXAM: Monday, August 1st at 1:00 PM (Cumulative) in class. Details will be provided. The Final Exam schedule is determined by the University. NO change can be made.**

**TIPS FOR SUCCEEDING IN AN INTRODUCTORY PHYSICS COURSE:**

There are a number of best-practices that are strongly correlated with achieving a high grade in introductory physics courses. These include:

1. **Get the book**. Read it. Use it. There are LOTS of very good hints and ideas in the Preface. Most students do not read the Preface, but in it the authors have given you their best advice on how to use the text successfully.
2. Actually **read the text** (with a highlighter if you prefer). This is should be done before the class lecture, and if possible, afterward as well. Make sure you read the "Master the Concepts" section at the end of each chapter – it is critical to summarizing what you've learned.
3. **Put in the time**. The textbook recommends (and we agree) that you should be spending at least 2 hours outside of the class for every hour of lecture. This is at least 6 hours per week.

4. **Practice, practice, practice**. Do any quiz section assignments (before class); work both credit and non-credit web assign problems; try not to wait until the last minute to work on the for-credit web assign problems; work on any other suggested problems. In general, you must put in the practice.
5. **Strive for understanding**. Many students feel if they just "get the answer" from a

TA or help center person, they have accomplished the task. This is incorrect. You have accomplished your task when you truly understand the problem, how to set it up, how to solve it, and what it is asking. Just completing the problem to get some random answer is not enough.

6. **If needed, attend your instructor's and/or quiz instructor's office hours**. This will be most effective if you bring your book and your homework problems and ask him/her to help you identify and work through your "sticking points."
7. **Do a self-evaluation (and be honest).** If you really want to know how you will do on the exam, give yourself an honest evaluation. Pick a few problems randomly from the text that you haven't done before. A friend or family member can help with this. If you can solve it without any other help, you are ready. If you have no idea how to do it, you are not ready.
8. **Memorizing previously worked problems is NOT studying.** Many students feel exam preparation should consist of just "looking over" old problems and old exams. That is incorrect. An exam will generally consist of new, unseen problems. While completely understanding the assigned problems is a good idea, your best strategy is to try to work as many new problems as possible (this is accomplished by practicing, see tip 4).

**NOTE:** If you need a certain letter grade in this class to get into/stay in a program, please keep track of your grade throughout the semester to make sure that you are above the required level. . Requests such as "I need grade X to get into/stay in program Y", cannot be considered.

**STUDENT DISABILITY SERVICES:** If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.