

PHY 2020 INTRODUCTION TO PRINCIPLES OF PHYSICS SPRING 2021

CLASS NUMBERS 17588, 17589, 17590. ONLINE ASYNCHRONOUS, 3 CREDIT HOURS

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OFFICE HOURS (ZOOM): Ingersent Tue and Fri 2:30-3:30 p.m., or by appointment
Tucker Mon and Tue 10-11 a.m., or by appointment

WEBSITE: Log in at <https://elearning.ufl.edu>

COMMUNICATIONS: Please post general question to Canvas Discussions. **Send private questions to both Kevin Ingersent and Alexandria Tucker using Canvas Conversations (not email).** You will normally receive a reply within one business day. Canvas Conversations are best used for relatively simple communications. If you have a complex or sensitive concern, it would probably be best to request a Zoom meeting.

OPTIONAL TEXTS: (1) Douglas Giancoli, *Physics: Principles with Applications*, published by Pearson. (2) Paul Hewitt, *Conceptual Physics*, published by Addison-Wesley. Use of one or other of these textbooks may be helpful, but is not required. Each book has several editions that are basically the same, and many used copies are available. \$20 should buy a decent copy. In general, Giancoli's book is more formal and quantitative. whereas Hewitt's book is more conceptual with words and pictures. Depending on your learning preferences, you may find one book or the other more useful.

TECHNOLOGY: In order to take exams under the supervision of Honorlock, you need access to a computer with a video camera, a microphone, and a good internet connection, located in a quiet room where you can take the exams in privacy. You must take your exam using the

Google Chrome browser after installing an Honorlock plugin. You are strongly advised to check your setup ahead of each exam using the link at <https://honorlock.com/support/>. Interruptions in the internet connection or entry of other persons into the room will be reported by Honorlock and investigated to ensure the academic integrity of the exam.

PREREQUISITE KNOWLEDGE AND SKILLS: Facility with high school math (basic algebra, geometry and trigonometry) is expected.

PURPOSE: This course exposes students to the foundations and principles of physics—the most fundamental of the experimental sciences—to give you a greater appreciation of the world around you and how it works. It assumes no previous background in physics, provides a one-semester overview of the subject, and meets the General Education Physical Science (“P”) requirement. It may be useful as preparation for courses such as PHY 2048 and PHY 2053.

INSTRUCTIONAL METHODS: This course runs in the Canvas e-Learning system, which can be accessed at <https://elearning.ufl.edu>. The course is organized into 16 modules, each focusing on a different topic. Students are expected to listen to and watch lecture videos (which are interspersed with demonstrations) to receive an introduction to physics principles and concepts. You are asked to build your understanding by solving practice problems and practice quizzes on your own before looking at the solutions. Online quizzes are given at the end of every module to help you stay on-track. Sample exams are available for a last stage of preparation for the three proctored exams. Assistance is available through public discussion forums and private electronic communications, as well as office hours.

GOALS AND OBJECTIVES: The short version is that by the end of this course, you will understand basic principles of physics and their applications. You will demonstrate this understanding by successfully solving physics problems. It is easy to remember “ $F = ma$ ”, but unless you learn when to use it and how to apply it, knowing it is of no use!

General Education credit: This course offers General Education credit in the Physical Sciences, for which program area the objective is as follows: “Physical science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. Courses focus on major scientific developments and their impacts on society, science and the environment and the relevant processes that govern physical systems. Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.”

To achieve these goals, students will be expected to:

- a) analyze particular physical situations, and thus identify the fundamental principles pertinent to the situations,
- b) apply principles to particular situations,
- c) solve any equations arising from the application of identified principles of physics,
- d) communicate results unambiguously.

General Education credit will be earned only for a grade of C or higher in the course.

Student Learning Outcomes: This course will also assess Student Learning Outcomes covering both content and skills:

Content: Students demonstrate competence in the terminology, concepts, theories and methodologies used within the discipline.

Communication: Students communicate knowledge, ideas and reasoning clearly effectively in written and oral forms appropriate to the discipline.

Critical Thinking: Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems.

The Student Learning Outcomes will be assessed through 16 graded quizzes (one per course module) plus three graded and proctored examinations. Quiz and exam questions will cover all subjects listed in the syllabus. Typical questions will require students to complete successfully all four steps outlined in the area objectives above. Obtaining the correct result to the question posed in the form requested in the question will be taken as evidence that all four of the steps have been correctly and successfully completed. In some questions students will be expected to choose between a series of possible explanations of physical outcomes; such explanations may be presented as graphs, numerically or in words. Although knowledge of the fundamental principles of physics is necessary for success in the course, the stress is on understanding how to apply the principles to a variety of situations; rote memorization is minimal.

EVALUATION: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>

COURSE POLICIES

ATTENDANCE: Since the course is online, you can work at your own pace provided that you complete all quizzes and exams by the deadlines set in the course schedule below. You have access to all instructional materials from the first day of the course. Generally, you can work ahead on all quizzes leading up to the next exam.

QUIZZES: Quizzes may be taken online at any time between the opening of the quiz and 11:59 p.m. on the day before the next exam is scheduled. However, quizzes submitted late (after 11:59 p.m. on the quiz due date) will receive only a fraction of the credit that the same answers would have received for an on-time submission. Submissions that are up to 24 hours late will receive credit for 75% of the raw score, while submissions that are more than 24 hours late will receive credit for 50% of the raw score. **It is in your best interest to submit all quizzes on time.**

EXAMS: Exams are taken online under the supervision of Honorlock during a window specified in the course schedule below. You do not need to schedule a particular start time in advance, but you must meet all Honorlock technical and administrative requirements and submit each exam before the end of the prescribed window. Details are in the introductory material. **It is your responsibility to make sure that you take each exam within the prescribed window.**

MAKE-UPS: Please make sure from the beginning of the course that you are available to take each of the three exams on its scheduled date. Make-ups are rare but will be considered on a case-by-case basis, consistent with university policies that can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. Please contact the course professor.

EXTRA CREDIT: The only extra credit planned is for a mid-course survey. Individual extra credit assignments will not be allowed out of fairness to other students.

SCORES: All scores and grades in the course will be communicated to students via the Canvas Gradebook ("Grades" in the left margin of the Canvas page). Scores on each quiz and exam will appear automatically in the gradebook so students can estimate their projected grade:

- "Quizzes" = (points earned on quizzes) / (points available on quizzes attempted) x 100%
- "Exams" = (points earned on exams) / (points available on exams attempted) x 100%
- "Total" = 0.1 x (Quizzes %) + 0.9 x (Exams %) + 0.02 x (Extra Credit %)

Note: Late penalties on quizzes will be applied only after each quiz has closed. Assignments not attempted will be given a score of zero in the gradebook only after Exam 3 has passed.

GRADES: Information on current UF grading policies for assigning grade points can be found in the Undergraduate Catalog; see

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> .

Grades in the course are awarded based on an overall score made up as follows:

Assignment	Percentage of course total
16 quizzes	10% combined
3 exams	90% (30% for each exam)
1 course survey	2%

GRADING SCALE:

76%	A
71%	A-
66%	B+
61%	B
56%	B-
51%	C+
46%	C
42%	C-
38%	D+
34%	D
31%	D-

This grading scale, which may seem generous, takes account of the fact that scores on "fill-in-the-blank" tests are typically lower than scores on multiple-choice tests.

COURSE SCHEDULE:

Sunday	January 10	COURSE OPENS	
Friday	January 15	Quiz 1 due	Introduction to Physics
Wednesday	January 20	Quiz 2 due	Vectors and Geometry
Wednesday	January 27	Quiz 3 due	Description of Motion and Falling Bodies
Wednesday	February 3	Quiz 4 due	Newton's Laws
Tuesday	February 9	Quiz 5 due	Circular Motion and Newtonian Gravity

Monday	February 15	Quiz 6 due	Work and Energy
Wednesday	February 17	Quizzes 1-6 close	
Thursday	February 18	EXAM 1	Covers Modules 1-6 A two-hour slot starting from 8 a.m. and ending by 11:59 p.m.
Tuesday	February 23	Quiz 7 due	Momentum
Wednesday	March 2	Quiz 8 due	Rotational Motion and Equilibrium
Tuesday	March 9	Quiz 9 due	Structure of Matter
Monday	March 15	Quiz 10 due	Fluids and Archimedes' Principle
Wednesday	March 17	Quizzes 7-10 close	
Thursday	March 18	EXAM 2	Covers Modules 7-10 A two-hour slot starting from 8 a.m. and ending by 11:59 p.m.
Tuesday	March 23	Quiz 11 due	Temperature and Heat
Tuesday	March 30	Quiz 12 due	Waves and Sound
Tuesday	April 6	Quiz 13 due	Electrostatics
Tuesday	April 13	Quiz 14 due	Electric Currents
Monday	April 19	Quiz 15 due	Magnets and Magnetism
Wednesday	April 21	Quiz 16 due	Light Rays
Wednesday	April 28	Quizzes 11-16 close	
Thursday	April 29	EXAM 3	Covers Modules 1-16 A two-hour slot starting from 8 a.m. and ending by 11:59 p.m.

All times are U.S. Eastern time. All quiz deadlines are at 11:59 p.m.

UF POLICIES

ACCOMMODATING STUDENTS WITH DISABILITIES: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center at <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with the course professor and discuss their access needs as early as possible in the semester because accommodations are not retroactive.

HONOR CODE: UF students are bound by The Honor Pledge: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

The Honor Code at <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/> specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the course instructors.

NETIQUETTE – COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy in all emails, conversations, discussions, and chats. See <https://teach.ufl.edu/wp-content/uploads/2020/04/NetiquetteGuideforOnlineCourses.docx> .

STUDENT COMPLAINTS PROCESS: Please discuss any concern about the course with the course professor. If this doesn't lead to a satisfactory resolution, residential students should contact the Office of the Ombuds (<https://www.ombuds.ufl.edu/>) while distance learning students should see <https://distance.ufl.edu/getting-help/student-complaint-process/> .

GETTING HELP

ACADEMIC SUPPORT: See <https://studentsuccess.ufl.edu/> for:

- advice about how to get the most from remote learning
- information about Knack tutoring

See <https://www.advising.ufl.edu/resources/improve-academic-success/> for:

- why UF courses may be more challenging
- what you can do to improve your academic/grade success
- free resources including the Tutoring Center

TECHNICAL ISSUES: For difficulties with e-Learning in Canvas, contact the UF Help Desk at:

- helpdesk@ufl.edu
- (352) 392-HELP - select option 2
- <https://helpdesk.ufl.edu/>

Any requests for make-ups due to technical issues *must* be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You *must* contact the course professor via email or Canvas Conversations within 24 hours of the technical difficulty if you wish to request a make-up.

OTHER RESOURCES: *U Matter, We Care:* If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit <https://umatter.ufl.edu/> to refer or report a concern; a team member will reach out to the student in distress.

Counseling and Wellness Center: For information on crisis services as well as non-crisis services visit <https://counseling.ufl.edu/> or call 352-392-1575.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit <https://shcc.ufl.edu/>.

University Police Department: For emergencies call 911. For other matters, visit <https://police.ufl.edu/> or call 352-392-1111.

UF Health Shands Emergency Room / Trauma Center: For emergencies call 911. For other immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; see <https://ufhealth.org/emergency-room-trauma-center>.

DISCLAIMER

This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change. Such changes, communicated clearly, are not unusual and should be expected.