

PHYSICS 2001 – Spring 2017 Syllabus – Introduction to Physics

Location: Walter Hall Room 245, Tuesdays & Thursdays

Section 101 (Class #4311): 10:30-11:50 am

Instructor: Dr. Zach Meisel, Office: 204 Edwards Accelerator Lab, (740)539-1973, meisel@ohio.edu

Section 201 (Class #4312): 1:30-2:50 pm

Instructor: Dr. Saw Hla, Office: 252C Clippinger Hall, (740)593-1727, hla@ohio.edu

Course Description: First course in physics; open to students from all areas. Students should have a background in algebra, trigonometry, and geometry, but no calculus required. Recommended for students in liberal arts, engineering management and technology, geological sciences, plant biology, and pre-medicine. Topics include the mechanics of solids and liquids, oscillations, heat, and thermodynamics. There can be no credit for PHYS2001 after PHYS2051.

Course Outcome Goals:

- Students will develop a broad knowledge of the physical principles that describe the universe around us.
- Students will learn how algebra, trigonometry, and geometry are used to represent the world mathematically and how they are used to solve the problems.
- Students will learn to understand and solve physics problems.

Prerequisite: MATH 1200 or Placement Level 2 or higher

Text: “College Physics” from OpenStax College (ISBN 1-938168-00-3). The book is available for free as a *pdf* file or *epub* file on the OpenStax website: <https://openstax.org/details/college-physics>. If desired, printed copies are available for purchase from OpenStax or the local bookstore. Other materials are available as ancillaries, but only the text is required.

Attendance: Students are responsible for being aware of schedule changes announced in class. There is a participation component of the grade which will be discussed below and could be affected by the lack of attendance.

Participation: While we will be using a lecture format for the material, *physics is learned by doing, not by listening*. We will be using an in-class personal response system to facilitate class participation and as a real-time diagnostic for the course instructor. Questions will be posed throughout the lecture and responses will be collected. Questions will be graded for 3 points for a correct response or 2 points for an incorrect response. Participation scores of 75% or higher at the end of the semester will be given full credit. Other in-class exercises may also be included in the participation portion of the grade. You will be assigned a transmitter (section 102) or a TopHat ID (section 101) which will uniquely identify your in-class responses. Those found responding for others in-class risk losing all or part of their participation grade. Excused absences are considered part of the 25% of the participation score that is discarded.

Pre-class Assignments: It is important to be prepared for class in order to get the most out of a lecture. Short online assignments will be posted (on LON-CAPA) and must be completed 15min prior to the start of each lecture for pre-class preparation. These assignments will make-up 5% of your grade. If your combined score for the assignments is above 90%, you will receive the full 5% for this portion of your final grade. If this score is below 90%, your score will be calculated considering 90% as full-credit.

Homework: Homework assignments will be assigned and submitted via the LON-CAPA system. Instructions for accessing LON-CAPA are at the end of the syllabus. Additional problems which you can use to test your understanding are found at the end of each chapter in the textbook. Assignments are usually due Friday at 11:59pm each week. Exact due dates are available online. Additional written assignments may be factored into the homework grade.

Exams: There will be two evening midterm exams and a comprehensive final exam. One 8½"x11" sheet of paper with handwritten notes can be used along with a calculator during the exams. No books or other notes are allowed. We will not provide any formulas on the exam, so your sheet should contain any formulas that you need. Be sure to bring it! Best practice would be to start preparing your sheet right from the start.

Electronic Devices during Exams: You are allowed a dedicated calculator during exams. All other electronic devices are forbidden. This includes music players, electronic dictionaries, tablets, and cell phones, or any device that is remotely similar. No earbuds can be used during the exams. Simple scientific calculators can be purchased for as little as \$10. It needs to handle scientific notation and trig functions, but a graphing calculator is not necessary.

Laboratory: The Physics 2001 Laboratory must be passed in order not to fail the entire course. A passing grade in the lab is better than 70%. Labs start the week of January 23rd. See the attached Lab schedule for more details.

You need to be registered separately for the lab. The lecture and lab show up as different call numbers on your course schedule. Labs are in Clippinger Hall room 045.

Drop/Add: See Changing Class Schedule policy in the Ohio University Undergraduate Catalog. Makeup work may not be provided for past-due assignments when adding after the first day of class.

Academic Misconduct: Academic Misconduct is a Code A violation of the Ohio University Code of Student Conduct. If you are found to be involved in academic misconduct regarding this course, you will receive an F on the pertinent work and possible for the entire course and/or referral to the Office of Community Standards and Student Responsibility. University Judiciaries may impose additional sanctions. Procedures for judicial actions will be invoked as described in the Student and Faculty Handbooks. See the Ohio University Undergraduate Catalog.

Grading: Your course grade will be determined as follows:

Exam 1 (evening) _____	17%
Exam 2 (evening) _____	20%
Final Exam (comprehensive) _____	30%
Homework (lon-capa) _____	15%
Pre-class Assignments (lon-capa) _____	5%
Participation (in-class response) _____	3%
Laboratory _____	10%
<i>Total</i> _____	<i>100%</i>

Final grades for the course will be assigned to a letter-grade according to the following scale (we reserve the option of shifting the scale downward, i.e. lower % for a given letter, if we judge the exams to be particularly difficult, but we will never shift it upward).

A- to A: 90% or better
B- to B+: 80-89%
C- to C+: 70-79%
D- to D+: 60-69%
F: 59% and below

Contingency Plans: In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised academic calendar or other circumstances beyond the instructor's control. We will make sure this information is communicated via email and LON-CAPA.

Copyright: The lectures, classroom activities, and all materials developed by the instructors are copyrighted in the name of the individual instructors on this date, January 10 2016.

Accessibility Services: Any student who suspects they may need an accommodation based on the impact of a disability should contact the class instructor privately to discuss their specific needs and provide written documentation from the Office of Student Accessibility. If the student is not yet registered as a student with a disability, they should contact the Office of Student Accessibility Services.

Assistance Outside of Class: Available assistance outside of lecture for this course includes:

- Physics "Help Room" in Walter 245, staffed by the PHYS 2000 TAs and instructors. The tentative schedule is 6-9pm Wednesday and Thursday. Modified times may be announced in class.
- Instructor "Office Hours" (announced in class and by appointment) and email.
- "Supplemental Instruction" sessions administered by the Academic Advancement Center. The official schedule of sessions can be found at <http://www.oumobilesi.com/>.
- Tutors are available for hire through the Academic Advancement Center: <https://www.ohio.edu/uc/tutoring/>

Tentative Lecture Schedule: Dates are subject to changes announced in class. Chapters refer to sections of the course textbook, “College Physics” by OpenStax College, that should be read prior to class. A free pdf copy of the book is here: <https://openstax.org/details/college-physics>.

<u>Date(s)</u>	<u>Chapter(s)</u>	<u>Study Topic(s)</u>
1/10	1	Introduction, Units
1/12 & 1/17	2	1D Motion, Free-fall
1/19, 1/24, & 1/26	3	2D Kinematics, Vectors
1/31 & 2/2	4	Newton’s Laws, Forces
2/7	5	Applications of Forces
2/9	9	Torque, Static Equilibrium
2/13 (Monday Evening) Combined Sections, Exam 1, 7:15-9:15pm, Room(s) TBA		
2/14	9	Torque, Static Equilibrium
2/16	6	Circular Motion
2/21	7	Work, Energy
2/23 & 2/28	7	Conservation of Energy, Power
3/2	8	Momentum, Collisions
3/6-3/10 Spring Break, No Class		
3/14	10	Rotational Kinematics and Dynamics
3/16	10	Moment of Inertia, Angular Momentum
3/21 & 3/23	16	Hooke’s Law, Simple Harmonic Motion
3/27 (Monday Evening) Combined Sections, Exam 2, 7:15-9:15pm, Room(s) TBA		
3/28, 3/30, & 4/4	11,12	Fluids
4/6	13,14	Thermal Physics
4/11	13	Kinetic Theory of Gases
4/13 & 4/17	15	Laws of Thermodynamics
4/20	--	Review Problems
4/27 (Thursday Evening) Comprehensive Final Exam, 7:00pm-9:00pm, Room(s) TBA		

Lab Schedule:

<u>Week of</u>	<u>Experiment #</u>	<u>Experiment Title</u>
January 9	No Labs This Week	
January 16	No Labs This Week	
January 23	2	Simple Measurements and Density
January 30	3	Addition of Forces
February 6	8	Acceleration Using the Air Track
February 13	7	Atwood's Machine
February 20	4	Equilibrium and Center of Gravity
February 27	5	Parallel Forces
March 6	No Labs This Week (Spring Break)	
March 13	12	Ballistic Pendulum
March 20	11	Conservation of Momentum
March 27	No Labs This Week	
April 3	19b	Simple Harmonic Motion & Hooke's Law
April 10	16	Coefficient of Linear Expansion
April 17	18	Heat of Fusion & Vaporization of Water

A passing grade (70% or better) in the Laboratory is required to pass the entire course.

All laboratories will be graded on the basis of 10 points in each of two separate areas:

1. Lab technique and participation: Graded from observation of student's in-lab performance, punctuality, cooperation, and quizzes.
2. Lab report: Numerical and graphical analysis and conclusions.

Under normal circumstances the data and the analysis of each laboratory is expected to be completed within the two-hour period and the report turned in to the laboratory instructor.

If a student misses more than 2 labs and/or lab reports that are not made-up, **with or without** a valid University excuse, the student will receive a failing grade for the lab and the entire course. A missed laboratory may not be made-up unless the student has a valid University excuse.

Read the make-up policy posted on the door of the laboratory; you are responsible for this information. Your TA cannot authorize a make-up lab. Any make-up lab must be scheduled with Candi Spaulding (office: Clippinger Hall room 046) or Stephen Goss (office: Clippinger Hall room 042), either before the miss (e.g. in the case of University scheduled events) or as soon as the student has returned. If, with authorization, you can arrange to come to another lab during the same experiment that was missed, you may be able to make-up an excused missed lab with full credit. For some labs data may be provided so that the report may be completed outside of the usual laboratory time. For such "dry labs" the maximum score on the make-up will be 80%. This means you may lose points even for an excused absence.

***No food (including gum) or drink (including water) or open-toed shoes are allowed in lab.**

***Bring your calculator, graph paper, and ruler/protractor to lab.**

Department of Physics & Astronomy Make-up Policy:

1. All make-up labs are to be scheduled through the Clippinger 046 office (Candi Spaulding). Your instructor or TA cannot make these arrangements. You may also contact Ms. Spaulding at 740-593-1689 or via email at spauldic@ohio.edu.
2. Any student who will miss a lab for a mandatory scheduled University activity (e.g. track meet for a member of the track team) must provide a written excuse explaining their absence. This student should make up the lab in another regular section of the lab during the week of the missed experiment. Emergency excused make-ups must be rescheduled within one week of the missed lab.
Note: If your lab falls late in the week, you may have to do your make-up lab before your regularly scheduled lab time.
3. All labs will be graded such that each lab counts towards the final course grade.
4. Missed labs without a valid (University Sanctioned) excuse will count as zero (0%) and the student will not be allowed to make-up this missed lab.
5. If more than three (3) labs are missed with or without valid excuses and are not made-up (Only University Sanctioned misses may be made-up), the student will fail the entire course (lecture & lab).
6. Schedule all medical appointments at times other than your lab time. Make-up exams and labs in other courses do not take precedence, nor do advisor or resident director (RD) meetings. Flight time also does not take precedence over regularly scheduled classes. University procedures require that regularly scheduled classes and laboratories take precedence over such activities.
7. Students waiting until the last weeks of the semester to do make-ups missed during the first part of the semester will be denied make-up privileges even if the original excuse for missing the lab was valid.
8. Missed scheduled make-ups will be counted as zero (0%) and will not be scheduled unless there are exceptional circumstances.
9. All make-up labs must be completed by the last lab of the semester in the course in which the lab was missed.
10. All make-up labs must be accompanied by a blue half-sheet for both the performance part and in order for that lab to be graded by the regular instructor. If this sheet is not presented to the make-up lab instructor, the student will be denied the make-up. If the sheet is not attached to the make-up report, the lab will not be graded by the lab instructor. All completed lab material must be turned into the student's lab instructor, either in the instructor's mailbox in the Physics & Astronomy office (Clippinger Hall room 251) or in the green 2050 box in the Clippinger Hall basement within 24 hours of the make-up.

Instructions for Using LON-CAPA:

We will use the LON-CAPA system for homework and pre-class assignments and to distribute general course materials. The following contains information you will need.

- **Access:**

The system is accessed via a web browser. Go to the URL <https://loncapa.phy.ohio.edu>. If you bookmark the address, use the address <https://loncapa.phy.ohio.edu>, not the individual servers. Your username is your 8-character Ohio ID (e.g. ml931098). The username is case sensitive; make sure the first two letters are lowercase. Your password is the same as for your Ohio ID. (See “Activate Your Ohio ID” and “Change Your Password” under <https://www.ohio.edu/oit/services/ohioid/> to change your password, if necessary.)

Your browser will need to have “cookies” and Javascript enabled. Pop-up windows should not be blocked from *phy.ohiou.edu.

Finding Materials: Upon log-in, select the “Student” role for your course. You will be presented with the first item in the course. This may be a homepage or the course contents page. Click on Course Contents.

The Course Contents page allows you to view all “resources” (pre-class assignments, homework, lecture notes, etc.) in the course. It is a good place to check the status (open-dates, due-dates, dates the answers are provided) of various problems. To help with clutter, folders can be opened and closed by clicking on the + or – in front of the folder icon. When expanded, the status of individual problems in an assignment will be displayed.

To go to a problem, click on the title. Enter the answers in the boxes provided (or via pull-down menus). Press submit answer to finalize your answer. Feedback will be provided. If you are correct, you will be provided a receipt number; record this so that you will have proof you completed your assignment in the event of a technical problem. Without the receipt number, we will not investigate any issues regarding claims of lost points. You are typically allowed multiple attempts at a problem. The number of attempts is displayed below the problem and on the Course Contents page. The system may be inaccessible due to large load near assignment due times. Do not wait until the last minute to submit your answers.

- **Printing an Assignment:**

To obtain a print-out of an assignment, go to one of the problems in the assignment. Select the Print icon from the menu in the top-right of the screen. Select “Selected resources in folder ...” and press Next. Press Next again. The system will create a pdf file which can be read using Adobe Acrobat (or most other pdf-viewers).

- **Checking Scores:**

Go to the Main Menu (link on the top-left of the screen) and click “View current problem status and grading information” to get an overview of the point totals for each folder. Check due dates & times carefully under the Course Contents page. If you think the time isn’t correct, contact your instructor before the due date listed. Note that the time on the computer is set to National Standard Time (www.time.gov); this is not necessarily the same as the time on your computer, phone, and/or watch.

- **Tips for Submitting Answers to Problems:**

- Scientific notation is entered in the form $6.02e23$, not 6.02×10^{23} . For negative exponents, it is like $1.0e-3$.
- Problems may or may not require units; the computer will let you know. If units are requested, place a space between the number and the units. An example of a complex unit is acceleration, meter per second per second, input as m/s^2 or $m/s/s$ or $m/(s*s)$.
- Read the computer feedback carefully. If the feedback is a complaint about units for significant figures, it has not checked the numerical part of your answer.
- If you are having technical difficulties, please click on the Help link on the log-in page or the Help link on the top-right of the screen if you're already logged-in. Other help items are scattered throughout the LON-CAPA webpages (identified by the blue question marks). If you are still having difficulties, please visit the page longcapa.phy.ohiou.edu/help, as further instructions can be found there.