

PHYS 101 001
How Things Work: Physics Concepts and Connections
Face to Face (F2F) class in real time
Fall semester 2022

Catalog Description:

A practical introduction to physics and science in everyday life—from concrete examples to basic physical principles.

Lecture Class: Jones Rm 201, Tuesday & Thursdays 1:15-2:30 pm

Recitation: Jones Rm 208, Fridays 1:10 -2:00 pm

Internet: <https://loncapa2.physics.sc.edu>

TA Contact Information: TBA

Calendar for Fall 2022

| | |
|------------|---------------------------------|
| Aug. 18 | 1 st day of classes. |
| Aug. 24 | Last day to drop (W). |
| Sept. 5 | Labor day |
| Oct. 10 | Mid-point of term. |
| Oct. 13-14 | Fall Break |
| Nov. 2 | Last day to drop (WF). |
| Nov. 8 | Election day |
| Nov. 23-27 | Thanksgiving |
| Dec. 2 | Last day of classes. |

Mid-term Tests (on loncapa): T#1 Thursday Sep 15; T#2 Thursday Oct 13; T#3 Thursday Nov 10. Each test will count up to 10% of total points.

Final Exam (on loncapa): Dec. 8'22, 12:30pm-3:pm [or by appointment @ USC testing center]. Consult Registrar's website for more information. Final Exam will count up to 20% of total points.

Text Book: " Physics Concepts and Connections" By Art Hobson, Addison-Wesley, ISBN 978-0-4321-66113-5
Topics: Mechanics through aspects of the cosmos and gravitation (Chs. 1-17) will be covered.

Prerequisites: None

Safety and pandemic: Please be careful about your safety be respectful of every one else in our class, and follow university guidelines for [COVID-19](#)

Learning Outcomes & goals: Physics education promotes logic, inquisitiveness, creativity, and a methodical reductinist (step-by-step) approach to quantitative problem solving After successfully completing Phys 101 the student will learn how to critically analyze the basic principles and compute numerical answers. The goal is to learn basic physical principals by studying the workings of nature and from man made technology. This course will help you to anticipate and shape your future progress and become an educated consumer & citizen.

Carolina Core Outcome:

Students will be able to apply the principles and language of the natural sciences and associated technologies to historical and contemporary issues.

Course Description: A practical introduction to physics and science in everyday life--from concrete examples to basic physical principles. As the popular saying goes - *Physics makes the world go around* - Indeed our world is filled with the fruits of physics. Most aspects of our lives happen as if by some magic. Each and every new technology is based on well understood logical principles. Physics of how things work is a beginner's course to understand the basic principles of science that gives us the marvelous technology of the modern life.

Lecture class/notes and Materials: Large parts of this course will be lectures from my personal notes.

- All course materials comply with copyright/fair use policies.
- Student will need minimal math competence at the level required for the textbook.
- Students will be expected to solve problems on their own from the textbook.
- Participation in class discussions and in questions & answers sessions will be required. Actions will be taken against disruptive behavior in class.
- Attendance may be taken at random; lack of participation and absences may cause loss of grade.
- When in video real-time class you are to put othe personal gadgets in 'airplane mode', unless have explicit permission to use such devices.
- Effort by student is expected but not graded.
- University policies regarding academic conduct, attendance and disabilities will be applicable.
- Students who have been authorized by the disabilities services to do so may choose to take tests with extra time.

In class work: Question & answers, working out examples and several pop quizzes; please bring in a calculator. In class work will count up to 20% of total points.

Take Home work: via LONCAPA- <https://loncapa2.physics.sc.edu/>

Home work will count up to 30% of total points and will involve qualitative & quantitative problems; requiring, computation, using charts, tables, graphs, figures,

Course Requirements

This course is being offered as a face-to-face (F2F) course. Learning in this course will occur asynchronously online in <https://loncapa2.physics.sc.edu> and synchronously during "F2F class hours recitations. Online activities and in-class activities are designed to build on each other. Active participation in the online activities and completion of all coursework is required in this class. Using Loncapa and Blackboard, you will interact with the course content, me and your classmates in a variety of online activities. I suggest setting aside days and times for completing the online course activities prior to the respective deadlines.

The typical educational format will consist of learning and assignment materials, which include:

- Lectures with constant discussions and oral exchanges with the class. Video lectures and demonstrations
- Readings 'at home'
- Online discussions
- Working out physics word and numerical probelms

- In class exercises and recitations.
- In class question and answers
- Tests and Final exam

Course Communication

I will be communicating with you regarding grades and assignments. If you need to get in touch with me, the best method is via email. You may also post questions pertaining to the course on LONCAPA message service. These questions will typically be answered within 48 hours and generally will provide feedback on assignments within 72 hours..

If you are having trouble with this class or its material, you should contact me via email to set up Blackboard video appointment (Tues – class time) to discuss the issues.

Announcements will be posted to this course whenever necessary. If there is any other information I think is important, I will send it to your email address you have in Blackboard. It is your responsibility to ensure that your email account works properly in order to receive email.

Below is how you check our class information and material:

- Access <https://loncapa2.physics.sc.edu>
- Enter your credentials
- Follow directions on this webpage.
- In case of additional help email LONCAPA/message board

If you are unsure of your preferred email, [check your account \(myaccount.sc.edu\)](https://myaccount.sc.edu). For more information on setting your preferred university email, please see the [How To Change Your Primary University Email Address \(https://scprod.service-now.com/sp?id=kb_article_view&sysparm_article=KB0011464\)](https://scprod.service-now.com/sp?id=kb_article_view&sysparm_article=KB0011464) Knowledge Base article.

Exam and Tests: There will be one final exam and three mid-term tests. Questions will be based on materials from the lectures, worked out problems and homework assignments; they will consist of word problems, true/false, multiple choice questions will be selected from substantial test banks. Tests/exams & quizzes will be secured and automatically evaluated, you will have access to your scores on LONCAPA.

NB: Be prepared to complete ~15 problems in each test and ~25 problems in the final exam. (All testing and exams will have to be completed in fixed time windows of the testing/exam period also there will be no 'retakes'. Appropriate accommodations will be given to students who provided disability documentation (student should contact the SDRC for said certification). Each midterm test will count up to 10% of total points
Total maximum Points –apportioned to tests & exam = 30+20 = 50% of total score

Course Assignments and Grading

- Most assey or testingwork (assignments, Tests/quizzes/exam, etc.) will be on LONCAPA secured in with username and password.
- All assignments are due on the day and time indicated on LONCAPA (pay attention to the 24 hour computer clock).
- All online work are in LONCAPA.

Evaluation and Grading Scale

All grades will be posted on LONCAPA. You are strongly encouraged to check you scores regularly. A final letter grade will be assigned at the end of the term and will be based on the percentages earned by the individual student in question.

| Assignment Weights | Percent |
|----------------------------|---------|
| In Class work | 20% |
| Homework | 30% |
| Midterm test 1 | 10% |
| Midterm test-2 | 10% |
| Midterm test-3 | 10% |
| Final Exam (comprehensive) | 20% |
| Total maximum in course | 100% |

Grading Scale

| | |
|---------------|------|
| 89.5% - 100% | = A |
| 84.5% - 89.4% | = B+ |
| 79.5% - 84.4% | = B |
| 74.5% - 79.4% | = C+ |
| 69.5% - 74.4% | = C |
| 64.5% - 69.4% | = D+ |
| 59.5% - 64.4% | = D |
| 0% - 59.4% | = F |

Technology Requirements

You will need a calculator. The bulk of our class material will be available to all students enrolled in PHYS 101 001 class via <https://loncapa2.physics.sc.edu> Therefore, you must have access to the Internet to view/hear lectures. No special software is required.

The lecture presentations, links to articles, assignments, quizzes, and rubrics are located on "Loncapa". To participate in learning activities and complete assignments, you will need:

- Access to a working computer that has a current operating system with updates installed, plus speakers or headphones to hear lecture presentations;

- Reliable Internet access and a UofSC email account;
- A current Internet browser that is compatible with Google Chrome is the recommended browser
- A scientific calculator
- Microsoft Word as your word processing program; and
- Reliable data storage for your work, such as a USB drive or Office365 OneDrive cloud storage.

If your computer does not have Microsoft Word, Office 365 ProPlus package is available to you free of charge and allows you to install Word, Excel, PowerPoint, Outlook, OneNote, Publisher, and Access on up to 5 PCs or Macs and Office apps on other mobile devices including tablets. Office 365 also includes unlimited cloud storage on OneDrive. To download Office 365 ProPlus, log into your student (University) email through a web browser, choose Settings (top right corner), and select software. If you have further questions or need help with the software, please contact the [Service Desk \(https://www.sc.edu/about/offices_and_divisions/university_technology_services/support/servicedesk.php\)](https://www.sc.edu/about/offices_and_divisions/university_technology_services/support/servicedesk.php).

Minimal Technical Skills Needed

Minimal technical skills are needed in this course. Most course work will be completed and submitted in Loncapa. Therefore, you must have consistent and reliable access to a computer and the Internet. The minimal technical skills you have include the ability to:

- Organize and save electronic files;
- Use UofSC email and attached files;
- Check email daily;
- Download and upload documents;
- Locate information with a browser; and
- Use Loncapa.

Technical Support

If you have problems with your computer, technology, IT-related questions, support, please contact the Division of Information Technology (DoIT) Service Desk at (803) 777-1800 or submit an online request through the [Self-Service Portal \(https://scprod.service-now.com/sp\)](https://scprod.service-now.com/sp) or visit the [Carolina Tech Zone \(https://www.sc.edu/about/offices_and_divisions/university_technology_services/support/ctz.php\)](https://www.sc.edu/about/offices_and_divisions/university_technology_services/support/ctz.php). The Service Desk is open Monday – Friday from 8:00 AM – 6:00 PM (Eastern Daylight Time). If you are located in the Columbia, SC area, the Thomas Cooper Library at UofSC has computers for you to use in case you encounter computer

issues/problems. If you are not located in the Columbia, SC area, most regional campuses and public libraries have computers for public use.

Academic Success

Successful learners:

1. Do not procrastinate;
2. Are open to sharing professional experiences online;
3. Enhance online discussions;
4. Have good written communication skills;
5. Use proactive communication;
6. Are self-motivated and self-disciplined;
7. Have a commitment to learning;
8. Have critical thinking and decision-making skills;
9. Believe quality learning can take place in an online environment; and
10. Have good time management skills.

Academic Integrity

You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of your failing the assignment, and will result in additional disciplinary measures. This includes improper citation of sources, using another student's work, and any other form of academic misrepresentation.

Disability Services

[Student Disability Resource Center \(http://www.sa.sc.edu/sds/\)](http://www.sa.sc.edu/sds/): The Student Disability Resource Center (SDRC) empowers students to manage challenges and limitations imposed by disabilities. Students with disabilities are encouraged to contact SDRC and me to discuss the logistics of any accommodations needed to fulfill course requirements (within the first week of the semester). In order to receive reasonable accommodations from me, you must be registered with the Student Disability Resource Center (1523 Greene Street, LeConte Room 112A, Columbia, SC 29208, 803-777-6142). Any student with a documented disability should contact the SDRC to make arrangements for appropriate accommodations.

Student Success Center

In partnership with UofSC faculty, the Student Success Center (SSC) offers a number of programs to assist you in better understanding your course material and to aid you on your path to success. SSC programs are facilitated by professional staff, graduate students, and trained undergraduate peer leaders who have previously excelled in their courses. Resources available to you in this course may include:

- **Peer Tutoring:** You can make a one-on-one appointment with a [Peer Tutor](http://www.sc.edu/success) (www.sc.edu/success). Drop-in Tutoring and Online Tutoring may also be

available for this course. Visit their website for a full schedule of times, locations, and courses.

- **Supplemental Instruction (SI):** SI Leaders are assigned to specific sections of courses and hold three weekly study sessions. Sessions focus on the most difficult content being covered in class. The SI Session schedule is posted through the SSC website each week and will also be communicated in class by the SI Leader.
- **Peer Writing:** Improve your college-level writing skills by bringing writing assignments from any of your classes to a Peer Writing Tutor. Similar to Tutoring, you can visit the website to make an appointment, and to view the full schedule of available drop-in hours and locations.
- **Success Consultations:** In Success Consultations, SSC staff assist you in developing study skills, setting goals, and connecting to a variety of campus resources. Throughout the semester, I may communicate with the SSC via Success Connect, an online referral system, regarding your progress in the course. If contacted by the SSC, please schedule a Success Consultation. Success Connect referrals are not punitive and any information shared by me is confidential and subject to FERPA regulations.

SSC services are offered to all UofSC undergraduates at no additional cost. You are invited to call the Student Success Hotline at (803) 777-1000, visit the [SSC website \(www.sc.edu/success\)](http://www.sc.edu/success), or stop by the SSC in the Thomas Cooper Library on the Mezzanine Level to check schedules and make appointments.

University Library Resources

[University Libraries Resources \(sc.edu/libraries\)](http://www.sc.edu/libraries)

- University Libraries has access to books, articles, subject specific resources, citation help, and more. If you are not sure where to start, please [Ask a Librarian!](http://www.sc.edu/libraries/ask) [Assistance is available at sc.edu/libraries/ask](http://www.sc.edu/libraries/ask).
- Remember that if you use anything that is not your own writing or media (quotes from books, articles, interviews, websites, movies – everything) you must cite the source in MLA (or other appropriate and approved) format.

Technology

[Blackboard and Technology](https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/)

[\(https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/\)](https://sc.edu/about/offices_and_divisions/division_of_information_technology/end_user_services/available_technology_resources/)

As a student in this course, you have access to support from the Division of Information Technology (DoIT) for Blackboard and computer issues. The service desk can be reached at 803-777-1800.

Counseling Services

[Counseling Services](#)

https://sc.edu/about/offices_and_divisions/student_health_services/medical-services/counseling-and-psychiatry/index.php: The University offers counseling and crisis services as well as outreach services, self-help, and frequently asked questions.

Course Policies and Procedures

Attendance Policy

Success in this course is dependent on your active participation throughout the course. Remember, when you miss class, you miss important information. If you are absent, you are still responsible for learning material covered in class. If you miss more than 10% of the classes, whether excused or unexcused, your grade will be dropped one letter grade.

You are expected to log into Loncapa and Blackboard (as appropriate for the relevant activity) as many times a week as you need to complete course assignments. Even if your work is completed, you still need to login to ensure that you have seen all announcements, etc. It is your responsibility to check updates related to the course.

Plagiarism

Using the words, ideas, drawings, calculations or any other works/contributions of another as if they were one's own is a serious form of academic dishonesty. If another person's complete sentence, syntax, key words, or the specific or unique ideas and information are used, one must give that person credit through proper citation.

The first tenet of the Carolinian Creed is, "I will practice personal and academic integrity."

Below are some websites for you to visit to learn more about University policies:

[Carolinian Creed \(http://www.sa.sc.edu/creed\)](http://www.sa.sc.edu/creed)

[Academic Responsibility \(http://www.sc.edu/policies/staf625.pdf\)](http://www.sc.edu/policies/staf625.pdf)

[Office of Student Conduct and Academic Integrity](https://www.sa.sc.edu/academicintegrity/)

[\(https://www.sa.sc.edu/academicintegrity/\)](https://www.sa.sc.edu/academicintegrity/)

[Information Security Policy and Standards](#)

[\(https://sc.edu/about/offices_and_divisions/division_of_information_technology/security/policy/universitypolicy/\)](https://sc.edu/about/offices_and_divisions/division_of_information_technology/security/policy/universitypolicy/)

Class Conduct/Netiquette

Professionalism will be expected at all times. Because the university classroom is a place designed for the free exchange of ideas, we must show respect for one another in all circumstances. We will show respect for one another by exhibiting patience and courtesy in our exchanges. Appropriate language and restraint from verbal attacks upon those whose perspectives differ from your own is a minimum requirement. Courtesy and kindness is the norm for those who participate in my class.

The 'LONCAPA' discussion board is a way for you to share your ideas and learning with your colleagues in this class. We do this as colleagues in learning, and the Discussion Board is meant to be a safe and respectful environment for us to conduct these discussions.

Some Netiquette Rules:

- Treat one another with respect. It will be expected that we will not attack one another personally for holding different opinions.
- Do not use all CAPITAL LETTERS in emails or discussion board postings. This is considered "shouting" and is seen as impolite or aggressive.
- Begin emails with a proper salutation (Examples: Dr. Name; Ms. Name; Hello Professor Name; Good afternoon Mr. Name). Starting an email without a salutation or a simple "Hey" is not appropriate.
- When sending an email, please include a detailed subject line. Additionally, make sure you reference the course number (Ex. PHYS 201) in the message and sign the mail with your name.
- Use proper grammar, spelling, punctuation, and capitalization. Text messaging language is not acceptable.
- Use good taste when communicating. Profanity should be avoided.
- Re-Read, think, and edit your message before you click "Send/Submit/Post."

Please remember when posting to be respectful and courteous to your colleagues, and limit your posts to discussions of this course and its assignments.

Laptop/Smartphone Policy

The use of laptops and smartphones is allowed only when it is required for course assignments. Please place your laptop under your seat during class. Cellphones should be placed on silent and should be put away in your pocket or bag. If there is a serious need to leave your phone on vibrate (such as a family emergency), please let me know. If you happen to leave the class to accept a phone call, I will have advanced knowledge of the potential emergency.

Late Work/Make-up Policy

No late or make-up work is accepted. All assignments, quizzes, and exams are due by the deadline as posted on the course schedule.

Please plan accordingly, and complete these assignments in advance of their deadlines to ensure any unanticipated circumstances do not result in a missed assignment. User error does not qualify you for any kind of makeup or retake opportunity.

Completing and submitting the assignments or quizzes responses by the due date is the sole responsibility of you. If you receive an incomplete score because of failure to submit the assignment or test by the due date, then your score for that assignment will be recorded as "zero."

You will be allowed to access the assignments an unlimited number of times until the due date/time, and test/quizzes/exam one time each on or before the due date/time as indicated on the 'LONCAPA'. If you are concerned about missing a deadline, you may want to do any of the following:

- Post your assignment the day before the deadline; or
- Begin tests/quizzes/exam as soon as they are made available online.

Late assignments will be accepted if the following two requirements are met:

1. You must contact me in advance of the assignment deadline to make arrangements for its completion.
2. You must complete the assignment within the agreed upon due date.

Late assignments will be subject to the following penalty: 10% will be deducted from your grade for the first day late, and an additional 5% will be deducted on each subsequent day.

Be Careful: The clock on your computer may be different than the clock in LONCAPA. If the clock is different by one second, you will be locked out of the assignment or quiz. Plan accordingly. I recommend that you submit your assignments, quizzes, and exams well before deadline.

Incomplete Grades

Incompletes will be granted only in accordance with university policy. A grade of 'I' (Incomplete) may be assigned if you are unable to complete some portion of the assigned course work because of an unanticipated illness, accident, work-related responsibility, family hardship or verified learning disability. An incomplete grade is not intended to give you additional time to complete course assignments or extra credit unless there is indication that the specified circumstances prevented you from completing course assignments on time.

Instructional Methods

The course will be taught using multiple instructional methods. These methods will include in class question and answer sessions, online lecture videos, working out solutions to physics problems (you will need a scientific calculator) and discussions. Typically, course topics will be introduced via a 2-3 lecture format incorporating interpretive discussions. Directly following the lecture presentation, you will review your notes additional supplemental information that may be available on LONCAPA and the relevant parts of our open-stax free textbook, that either illustrates the topic under study or explore related additional concepts.

Diversity and Inclusion

The university is committed to a campus environment that is inclusive, safe, and respectful for all persons, and one that fully embraces the Carolinian Creed. To that end, all course activities will be conducted in an atmosphere of friendly participation and interaction among colleagues, recognizing and appreciating the unique experiences, background, and point of view each student brings. You are expected at all times to apply the highest academic standards to this course and to treat others with dignity and respect.

Accessibility, Disability, and Triggers

I am committed to ensuring course **accessibility** for all students. If you have a documented **disability** and expect reasonable accommodation to complete course requirements, *please notify me at least one week before accommodation is needed.* While providing documentation to [SDRC](https://sc.edu/about/offices_and_divisions/student_disability_resource_center/) requesting accommodation (https://sc.edu/about/offices_and_divisions/student_disability_resource_center/). please let me know about your needs.

Furthermore, if you are aware of cognitive or emotional **triggers** that could disrupt your intellectual or mental health, please let me know so that I can be aware in terms of course content.

Diversity, Ethics, and the Carolinian Creed

This course works to foster a climate free of harassment and discrimination, and it values the contributions of all forms of **diversity**. The decision to enter university and pursue advanced study is a choice that entails commitment to personal **ethics** expressed in the [Carolinian Creed \(www.sa.sc.edu/creed\)](http://www.sa.sc.edu/creed/): “I will discourage bigotry, while striving to learn from differences in people, ideas and opinions.” Likewise, the Student Code of Conduct ([STAF 6.26 \(http://www.sc.edu/policies/ppm/staf626.pdf\)](http://www.sc.edu/policies/ppm/staf626.pdf)) stresses, “The University of South Carolina strives to maintain an educational community that fosters the development of students who are ethical, civil and responsible persons.”

Title IX and Gendered Pronouns

This course affirms equality and respect for all gendered identities and expressions. Please don't hesitate to correct me regarding your preferred gender pronoun and/or name if different from what is indicated on the official class roster. Likewise, I am committed to nurturing an environment free from discrimination and harassment. Consistent with Title IX policy, please be aware that I as a responsible employee am obligated to report information that you provide to me about a situation involving sexual harassment or assault.

Values

Two core values, inquiry and civility, govern our class. **Inquiry** demands that we all cultivate an open forum for exchange and substantiation of ideas. Strive to be creative, to take risks, and to challenge our conventional wisdom when you see the opportunity. **Civility** supports our inquiry by demanding ultimate respect for the voice, rights, and safety of others. Threatening or disruptive conduct may result in course and/or university dismissal. Civility also presumes basic *courtesy*: please be well rested, on time, and prepared for class, which includes time for a restroom stop *before* (not during) class and silencing all personal devices.

My perspective is that we never cease being students of this world, so I believe that attentive, reflective people always have something to learn from others. Good discussions can be energetic and passionate but are neither abusive nor offensive. Vibrant, vigorous inquiry derives from discussions that:

- challenge, defend, and apply different ideas, theories, perspectives, and skills,
- extend a body of knowledge into different arenas and applications, and

result in a synergy that compels us to seek resolution to these discussions.

Expectations of the Instructor

I am expected to facilitate learning, answer questions appropriately, be fair and objective in grading, provide timely and useful feedback on assignments and treat you as I would like to be treated.

Copyright/Fair Use Statement

I will cite and/or reference any materials that I use in this course that I do not create. You, as students, are expected to not distribute any of these materials, resources, quizzes, tests, homework assignments, etc. (whether graded or ungraded).