

Syllabus for Physics 100 - Concepts of Physics Spring 2021

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Office Hours*: M 11:30 AM – 12:20 PM; T,Th 12-1 PM
T 4:30-5:30 PM; Th 4:30-5:50 PM
W 10:30-11:30 AM, and by appointment
Check the web page for the latest info.
Web Page: <http://mgoggin.sites.truman.edu/>

*Technically, all office hours are by appointment. These are times I will be available for a Zoom consultation. I will post a link in Blackboard. There will also be a password. But send me an email to let me know you want to meet. I do not plan to stare at an empty Zoom window for my entire office hours. If you prefer to meet face-to-face, you also need to send me an email so that I don't have a crowd outside my door. And by face-to-face I mean you would be in the doorway of my office and I would be across the room.

COVID-19 NOTICE: The Spring 2021 semester is taking place in the middle of a global pandemic. We have experienced our society turned upside down and inside out. In the Spring 2020 semester Truman (and everywhere else) shifted to online instruction due to the pandemic. During the Fall 2020 semester Truman managed to hold classes on campus and online in a variety of delivery formats including completely in person. We will try to do that again this semester. This class is scheduled to meet in person for the entire semester. There is a possibility that some of us will need to quarantine or isolate during the semester. I will contact you if that is the case for me. If I have to quarantine I will teach via Zoom during the quarantine. If I have to isolate it means I have the virus. What happens then depends on the severity of my reaction to it. I'll try to let you know what is going on in that case. Please let me know if you have to quarantine or isolate so I can arrange to broadcast the lecture on Zoom.

In terms of the number of cases and deaths, the US is worse off now than we were last spring. But we have learned a lot more about the virus. We have a better understanding of how it spreads and how to minimize that spread. You should already be aware of the special rules for holding classes that are in place. You will notice the sparse seating in the classroom. Please do not move the chairs to new locations. Also, please sit at the same location every day you are in class. That will help with contact tracing, should it be necessary. You will be required to wear a face covering that completely covers your nose and mouth. You will be expected to keep the covering on at all times while we are meeting. In the event you arrive to class without a face covering, I will ask you to leave until you are able to obtain one and return. Thank you for your help in containing this virus and helping to protect your peers.

Proctorio Online Proctoring

If we have to move to online instruction, exams and quizzes may be proctored using Proctorio. Therefore, students will be required to have a webcam (external or built-in) with a microphone when taking an exam or quiz. Students understand that this remote recording device is purchased and controlled by the student and that students should select private spaces for the testing. Students with concerns may discuss the location of an appropriate space for the recordings with their instructor or advisor.

There is a fee that will be charged to you the student at the time of the proctored exam. That fee may be up to \$10 per exam. (Discounts may occasionally be in effect and are not under the control of Truman). The number of times we will need to use the service will depend on when in the semester we move online, should that be necessary. If we have more than one exam left at that time, you are encouraged to choose the "course fee" model instead of the "individual test fee" model as you pay for the first exam. You will be charged a bundle price equal to two individual exams. Subsequent exams will then be conducted at no additional charge to you. If you choose the individual test fee option, you will be charged each time you take a proctored test.

Proctored exam information will be provided prior to any proctored exam. Be aware you must use Google Chrome to take the exam, install the Proctorio Chrome browser extension (from <https://getproctorio.com/>), and show an official photo identification (ID). You can use either a valid driver's license, passport, or school ID. For additional information about online proctoring, students may visit the Proctorio Support For Students website (<https://proctorio.com/support>).

There will be more about COVID-19 later in the syllabus.

Text: *Physics: Concepts and Connections, Fifth Edition* by Art Hobson (ISBN: 978-0321661135)
You do NOT need the Electronic Access Code.

From the Catalog: This course presents an overview of our understanding of the physical world, covering some main concepts, theories, and experimental techniques of physics. While the course focuses primarily on the conceptual understanding of physics, it also explores some of its historical, technological, philosophical, and aesthetic aspects, and its place in the history of ideas. The range of possible topics includes Newton's laws of motion, gravity, heat, sound, electricity, magnetism, light, relativity, quantum theory, elementary particles, and nuclear physics. Basic algebra skills are expected of the students. The course has a laboratory component that emphasizes quantitative measurements.

The course satisfies the Physical Science Mode of Inquiry of the Liberal Studies Program. According to the catalog, upon completion of the Physical Science Mode of Inquiry, students:

1. Have engaged in scientific experimentation, including the collection, analysis, and interpretation of data;
2. Understand how scientific theories are evaluated and applied;
3. Have learned and used symbolic language, made quantitative measurements, and applied the tools of mathematics to interpret these measurements and to solve quantitative problems; and,
4. Recognize some of the issues in the physical sciences that influence society, and have acquired familiarity with some of the technical language and basic theories of science that inform personal and public decision making.

General Information: This is an introductory course in physics designed for students with no intention of further study in physics and/or little previous exposure to physics. The course will cover some concepts from classical and modern physics. In addition, there will be some coverage of the scientific process and the interaction of physics and society. In the end it is hoped that the student will gain an appreciation of physics and its contribution to the development of our contemporary worldview.

The course will cover most of Chapters 1-9, and 12-13 plus some extra material on Rotational Dynamics and Chaos Theory that is not in the text. **You are expected to read the material in the book.** I will **not** explicitly cover everything in the text during lecture; this does not relieve you of learning the omitted material. **The lectures will contain additional information that is not in the book;** you are responsible for this information as well. To be clear, **you will be responsible for all course material: what is in the assigned reading from the text and what is covered in the lecture material.** Homework assignments for each chapter will be posted on the web. You must do the homework to succeed in this class. You will be expected to do more than just memorize and then reproduce the information on the tests. You will be expected to think critically about the material and synthesize different ideas.

You are expected to do your part in the learning process. I cannot *make* you learn physics; I can only *help* you learn it. You must expend the effort to study it. This includes reading the textbook, thinking about what you have read, asking questions when you do not understand something, coming to class prepared for the lecture, etc; in other words, being engaged in your education.

A word of warning: You will need to understand **everything** by the end of the course. Physics is structured in a linear fashion. At each stage of the class the material builds on what came before. **It will be very difficult to catch up if you fall behind.** You need to stay on top of the material over the course of the semester. "Cramming" for the exams is not very effective in this course. So avoid the crowds and start studying for the final exam today. To help you stay on top of the material, there will be weekly quizzes.

I also want to draw your attention to the following phrase from the catalog description: "it also explores some of its historical, technological, philosophical, and aesthetic aspects, and its place in the history of ideas." This means we will cover more than the mechanics of physics. We will also cover how the understanding of the laws of physics has impacted other fields and society. Much of this material will be covered in the textbook.

Office Hours: Office hours are ***not the only times*** I am available for help. My listed office hours just indicate the times I guarantee I will be in or near my office (MG 3172) or my research lab (MG 3147). I encourage you to ask questions when you need help. If you cannot make it during the regular office hours, then please schedule a time to meet with me. Please check the web for the latest version of my schedule.

Grades: I expect you to learn a certain amount of physics independent of the progress of your classmates. Therefore, your grade will be determined solely by your performance and not how well you do compared to your classmates. Consequently, your final grade will be based on a straight scale, as follows.

Grading Scale: 90-100% = A, 80-89.9% = B, 70-79.9% = C, 60-69.9% = D, and 0-59.9% = F. This means that it is possible for everyone to get an "A" in the course. It also means that it is possible for everyone to fail the course. I encourage you to try for the former rather than the latter.

Your course grade will be derived from the following components

Final Exam	25%
3 one-hour Tests	15% each, one of which is dropped
Quizzes	15%
Lab	15%
Class Participation	5%
Poster	10%

You will be allowed to drop one 1-hour test. You may not drop any of the other grades.

Tests: The three one-hour tests will be given on the dates specified in the schedule. The exams will consist of two parts. The first is "closed book" and is designed to test your conceptual understanding and memory. The second part is designed to test your critical-thinking and problem-solving ability. For the second part you may write (by hand) any notes you wish on a single 3 inch by 5 inch note card to use during the test. You may not use your note card until you turn in the first part of the exam. For the final exam you will be allowed to use two, handwritten, 3 inch by 5 inch note cards on the second part of the exam.

Quizzes: There will be a quiz each week over the material covered the previous week. The material to be covered by the quizzes will be announced in the class period immediately preceding the quiz. [**COVID-19 NOTE:** If we have to go online, the quizzes will be done through Blackboard.]

Makeup tests and quizzes: Makeup tests and quizzes will be given only for good reasons. I am the sole judge of what constitutes a good reason. Tip: Oversleeping is not a good reason for missing any class.

The Laboratory Section: We will meet in MG 1006 for the laboratory section associated with the class. Experiment is an integral part of physics. Without experiment, physics is no different from philosophy. (Nothing against philosophy, it is just not physics.) Therefore, your **attendance at the laboratory section is mandatory**; there are no exceptions. The laboratory grade is 15% of the course grade. [**COVID-19 NOTES:** I understand that attendance may be complicated by COVID-19. I will handle that on a case-by-case basis. But, I am relaxing my usual lab attendance policy. If we have to go online, you may need to perform simple experiments at home using relatively common items. You may need to spend about \$25 on supplies and/or install a physics app on your phone.]

The labs will be available on my web page (see above) as a PDF file. **You will be responsible for reading and each lab before you come to your lab section.** I assume you have the capability to read PDF files. The labs will be available by the Sunday evening preceding the class during which you will perform the lab, if not sooner.

THERE IS NO LAB THE FIRST WEEK OF CLASS.

Homework: Homework assignments for each chapter will be posted on the course website. There are four types of problems at the back of each chapter: "Review Exercises", "Conceptual Exercises", and "Problems". You should try to answer **all** of the **Review Exercises**. These are designed to test your reading comprehension – the answers are within the text of the chapter. I will assign questions from the Conceptual Exercises and Problems. These are designed to test your ability to extend the chapter material to new systems/situations. Hobson's answers to the odd-numbered Conceptual Exercises are given at the back of the text. The homework will not be graded but it will be the basis for the quizzes. I strongly urge you to do all of the assigned homework. If you do not understand the answer to a homework problem please ask me.

Class Participation: The class will be somewhat interactive in a Socratic way. I expect everyone to participate. I have included a class participation grade to reward attendance and participation. Being attentive while in class is considered participation. Being disruptive or inattentive, e.g. playing with your phone, will reduce your participation grade.

Poster: You will make a (virtual) poster presentation of a topic involving physics. You will work on the poster in groups which I will assign. The topic will be your choice but must be related to physics and must be approved by me. Some sources of ideas beyond the internet are the magazines *Scientific American* and *Physics Today*, both of which are in the library. More details will be given in class.

Inclement Weather (e.g. “Snow Days”): We will have class regardless of the weather. The only exception is if the University cancels classes, which almost never happens. Apparently Truman will not be cancelling classes during the Spring 2021 semester. If the weather is such that getting to class is difficult, I will have a Zoom session available. Assume I will be in class unless I tell you otherwise.

The Web Page: On my web page (mgoggin.sites.truman.edu) there will be a link to a page for this class. Under that page will be pages for homework assignments, labs, etc. Also on the webpage is a link to my weekly schedule. If, for some reason I have to change office hours during the semester, the new hours will be posted on the web. There are also links to other sites that you may find amusing/educational.

Attendance: I expect you to come to each class if you are able. You should sit in the same seat each class period for the entire semester so that contact tracing can be done should someone test positive for COVID. I will keep a record of attendance for contact tracing purposes. After the first day or two, I will not be calling roll at the beginning of class. I will know if you are there or not. Attendance is implicitly part of the participation grade (see above) since you must be in class to participate. [**COVID-19 Note:** Normally attendance is part of the Class Participation grade. That connection will not be in effect this semester to accommodate for COVID related absences. You will be graded on how you conduct yourself when in class.] And you are, of course, responsible for all material covered in lecture as well as the text. See also the appropriate section under Standard University Policies for more information.

Students with Disabilities: I am committed to working with students with disabilities in conjunction with Truman’s Office of Disability Services to fulfill any needs of those students, in alignment with the American’s with Disabilities Act (ADA) of 1990. Please let me know early if you have special needs. See also the appropriate section under Standard University Policies for more information.

Academic Honesty: Students are expected to do their own work. Students are expected to work alone on exams and quizzes without the use of any outside resources except the note card outlined below. Students may not use tests from previous semesters when preparing for exams; the use of previous exams encourages memorizing unconnected facts without any understanding. Students are expected to be honest in their dealings with the professor. A student found to have not upheld these expectations is subject to failing this course and being reported to the Dean of Student Affairs and the Vice President for Academic Affairs. See also the appropriate section under Standard University Policies for more information.

Tips for Success:

Do the homework! I cannot emphasize this enough. You can't learn physics without thinking about it. Writing down your answers to the questions will help you clarify your ideas and study for the exams.

Study daily. Stay on top of the material for the course. The later material depends on the previous material. If you fall behind the later material will be even harder to understand.

Read ahead and ask questions. Read the material to be covered in the next lecture and be prepared to ask questions about the parts that do not make sense.

Come to class. The purpose of lecture is to clarify and expand upon material in the text. Often there is material presented in lecture that is not in the text, e.g. a demonstration or a different example of some idea.

Be engaged in your education. You only get out of an education what you put into it. Make sure you get something out of this class.

Standard University Policies

Disability Services:

To obtain disability-related academic accommodations students with documented disabilities must contact the course instructor and the Office of Student Access and Disability Services (OSA) as soon as possible. Truman complies with ADA requirements. For additional information, refer to the Office of Student Access and Disability Services website at <http://disabilityservices.truman.edu/> You may also contact OSA by phone at (660) 785-4478 or email studentaccess@truman.edu

Emergency Procedures:



In each classroom on campus, there is a poster of emergency procedures explaining best practices in the event of an active shooter/hostile intruder, fire, severe weather, bomb threat, power outage, and medical emergency. This poster is also available as a PDF at this link: <http://police.truman.edu/files/2015/12/Emergency-Procedures.pdf> .

Students should be aware of the classroom environment and note the exits for the room and building. For more detailed information about emergency procedures, please consult the Emergency Guide for Academic Buildings: <http://police.truman.edu/emergency-procedures/academic-buildings/>

This six-minute video provides some basic information on how to react in the event there is an active shooter in your location: <http://police.truman.edu/emergency-procedures/active-shooter/active-shooter-preparedness-video/>

Truman students, faculty, and staff can sign up for the TruAlert emergency text messaging service via TruView. TruAlert sends a text message to all enrolled cell phones in the event of an emergency at the University. To register, sign in to TruView and click on the "Truman" tab. Click on the registration link in the lower right of the page under the "Update and View My Personal Information" channel on the "Emergency Text Messaging" or "Update Emergency Text Messaging Information" link. During a campus emergency, information will also be posted on the TruAlert website <http://trualert.truman.edu/>.

Title IX:

Truman State University, in compliance with applicable laws and recognizing its deeper commitment to equity, diversity and inclusion which enhances accessibility and promotes excellence in all aspects of the Truman Experience, does not discriminate on the basis of age, color, disability, national origin, race, religion, retaliation, sex (including pregnancy), sexual orientation, or protected veteran status in its programs and activities, including employment, admissions, and educational programs and activities. Faculty and staff are considered "mandated reporters" and therefore are required to report potential violations of the University's Anti-Discrimination Policies to the Institutional Compliance Officer.

Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. Truman State University encourages individuals who believe they may have been impacted by sexual or gender-based discrimination to consult with the Title IX Coordinator who is available to speak in depth about the resources and options. Faculty and staff are considered "mandated reporters" and therefore are required to report potential incidents of sexual misconduct that they become aware of to the Title IX Coordinator.

For more information on discrimination or Title IX, or to file a complaint contact:

Dr. Lauri Millot, Institutional Compliance Officer, Title IX and Section 504 Coordinator
Office of Institutional Compliance
Violette Hall, Room 1308
100 E. Normal Ave
Kirksville, MO 63501
Phone: (660) 785-4354
titleix@truman.edu

The institution's complaint procedure can be viewed at <https://wp-internal.truman.edu/provost/files/2020/11/Truman-State-University-Complaint-Reporting-and->

[Resolution-Procedure9.2020.pdf](#) and the complaint form is accessible at <http://titleix.truman.edu/make-a-report/>.

Academic Dishonesty:

The General Catalog states:

Students are expected to do their own academic work. Any student involved in cheating on a paper, an examination or in any other form of academic dishonesty is subject to disciplinary action, including suspension or expulsion from the class, the student's academic program, or the University.

Serious cases of academic dishonesty are reported by the faculty member to his or her Department Chair and to his or her Dean, who may take additional disciplinary action against the dishonest student, including suspension or expulsion from classes in the School. The Dean reports the dishonesty to the Vice President for Academic Affairs, who may also report it to the Vice President for Student Affairs. The Dean may also report the dishonesty to the School in which the dishonest student is enrolled as a major; the Dean of this School may suspend or expel the student from the academic program in the major. The Dean of Students may also suspend or expel the student from the University as outlined in the Student Conduct Code for incidents of academic dishonesty.

More information can be found in the General Catalog (http://catalog.truman.edu/content.php?catoid=19&navoid=1063#Academic_Dishonesty) and the Student Conduct Code Section 8.050.1 (<http://policies.truman.edu/policylibrary/student-conduct-code/>).

Attendance Policy:

The General Catalog states:

The university expects students to attend all classes, yet recognizes co-curricular opportunities could lead to class absences. Faculty, students, and staff have the responsibility to support an environment that upholds the integrity of a Truman education and students' ability to experience a diversity of educational experiences. Truman adheres to Federal law regarding accommodations. Absences related to disability accommodations will be handled in coordination with the Disability Services Office. Absences related to Title IX will be handled in coordination with the Institutional Compliance Office.

No student having a sanctioned absence shall be penalized for such absence on account solely of being absent. Nothing in this policy is intended to excuse a student from the responsibility to make up missed work within a reasonable length of time. No faculty member will require documentation in support of a health-related absence. Nevertheless, students are strongly encouraged to attend required in-person or synchronous online class meetings when they can (i.e., they show no signs of illness and have no other sanctioned reason to be absent). Courses for which interactions are necessary to achieve the learning outcomes of the course (such as courses with a significant laboratory or performance component) may require attendance at some of those course elements not to exceed 50%. In extreme COVID-related circumstances where a student cannot meet even this expectation, the faculty member is advised to issue a grade of incomplete and require the student to fulfill the unmet requirement in a future semester.

A list of sanctioned absences can be found in the General Catalog (see link below). Sanctioned absences include serving as a representative of the University at intercollegiate athletic events, professional conferences, academic competitions, and field trips for courses, interviews for graduate school or careers, health-related absences (with documentation), and absences covered by Truman's non-discrimination policy. If the absence is unexpected, the student should arrange to make up the missed work as soon as possible. An appeal of a faculty member's attendance policy can be made through the University Grade Appeals process (see the General Catalog for details).

The complete Attendance Policy can be found in the General Catalog:
http://catalog.truman.edu/content.php?catoid=19&navoid=1063#Attendance_Policy

Special updates for Spring 2021 only- A special attendance policy for Spring 2021 was approved by Faculty Senate
(<https://docs.google.com/document/d/1YV4VhH7qthjIU93p7PX0e7WjJDshjB0PvdcR26ivCVI/edit>)

- No student having a sanctioned absence shall be penalized for such absence on account solely of being absent. Nothing in this policy is intended to excuse a student from the responsibility to make up missed work within a reasonable length of time.

- No faculty member will require documentation in support of a health-related absence.
- Nevertheless, students are strongly encouraged to attend required in-person or synchronous online class meetings when they can (i.e., they show no signs of illness and have no other sanctioned reason to be absent). Professors are encouraged to provide a clear mechanism for making up missed classes. The mechanism should work to achieve similar learning outcomes to those intended by class attendance, using activities that could involve make-up sessions, watching a recorded video of the class session, or other alternative assignments, according to the format of the course, the length of the absence and the resources available to the student and faculty member.
- In general, no part of a student's final semester grade should be calculated based on attendance. Courses for which interactions are necessary to achieve the learning outcomes of the course (such as courses with a significant laboratory or performance component) may require attendance at some of those course elements not to exceed 50%. In extreme COVID-related circumstances where a student cannot meet even this expectation, the faculty member is advised to issue a grade of incomplete and require the student to fulfill the unmet requirement in a future semester.
- The course's policy must be in the syllabus and communicated with students by the first day of class.
- Courses with field or clinical placements may defer to the attendance policy of the cooperating agencies.

Final Exam Schedule:

If this course has a final exam, it will be held at the time indicated in the schedule posted at <http://www.truman.edu/registrar/schedules-and-calendars/>

FERPA

Education records are protected by the Family Education Right to Privacy Act (FERPA). As a result, course grades, assignments, advising records, etc. cannot be released to third parties without your permission. There are, however, several exceptions about which you should be aware. For example, education records can be disclosed to employees or offices at Truman who have an "educational need to know". These employees and offices may include your academic advisor, the Institutional Compliance Officer, the Registrar's Office, or Student Affairs depending on the type of information. For more information about FERPA, see <http://www.truman.edu/registrar/ferpa/>.

Disruptive behavior

"Behavior that persistently or flagrantly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be asked to leave class pending discussion and resolution of the