

General Physics 1

Physics 211 | Fall 2026¹

Course Location Stolkin Auditorium, Physics Building
Meeting Times Tu & Th, 11:00 am - 12:20 pm



Welcome to the Course!²

Welcome to **General Physics 1**, the first semester of a two-course sequence introducing the fundamentals of physics. “*What is physics?*” you ask? Good question! I like to think of physics as the science of ***how things move***. From planets orbiting around stars to resonators transitioning between energy states in a quantum computer, physics uses the **language of mathematics** to quantitatively describe the **relationships** between *where things are* and *how they are changing* to predict *where they’ll go next*.

In this semester, we’ll focus on concepts of **physical motion** (the position, velocity, and acceleration of an object) and the **forces** that cause those to change. We’ll employ techniques from algebra, trigonometry, and calculus – including scalars, vectors, differentiation, and integration – to describe physical systems and how they behave. We’ll cover motion in one and two dimensions, the nature of a variety of common forces, Newton’s laws of motion under the influence of forces, momentum and energy conservation, and both linear and rotational dynamics.

Instructor Dr. Denver Whittington
Office 319 Physics Building
Email dwwhitti@syr.edu

*Availability*³ I am happy to meet with you! I love discussing physics and hearing your insights. Any time you face a challenge with the material is an opportunity for both of us to learn. I expect to be available regularly on Mondays and Wednesdays from 11:00 to 12:00 in my office, but you are also welcome to schedule a meeting outside of those hours by email.

Teaching Assistants Our team of graduate student teaching assistants will be organizing the recitation sections, but they are each also happy to help out if you need them.

<i>Name</i>	<i>Email</i>	<i>Availability</i>
TBD	TBD	TBD
TBD	TBD	TBD
TBD	TBD	TBD

¹ This is an extremely detailed syllabus. I will also produce a one-page “Welcome Sheet” that highlights the most important points and refers students to this document for details.

² In the interest of warming the language and fostering student interest, I changed the “Course Description” to a welcome message with some contextualization before outlining the major elements of the course. This is also an opportunity to outline the expected level of mathematics in the course.

³ I changed this from generic “Office Hours” to a full, welcoming sentence to encourage students to contact me. I also moved this content after the welcome message to better set a positive tone for the syllabus.

Course Objectives

Through the exercises we'll undertake this semester, we will practice connecting physics concepts together to describe scenarios and link those concepts with mathematical tools to arrive at quantitative answers about the relationships between them. By the end of the course, we want you to be able to:⁴

- state the most important physical principles at work in a system or scenario,
- describe how multiple physical principles interact or interrelate in a multi-part scenario,
- sketch a physical system and label all relevant scalar and vector quantities,
- solve for unknown physical quantities in a given scenario, and
- assess the accuracy of a description or of a solution to a physical scenario.

Effective Learning

There are also two more objectives of this course to help you become effective learners. A university education is more than just memorization of facts, it's a demonstration that you have become effective at self-directed learning. I feel this course is an excellent opportunity to strengthen study habits and to become comfortable identifying and discussing misconceptions and mistakes.

A physics class develops a different approach to problem solving than most other subjects. It can take time to develop the perspectives and problem-solving skills needed to analyze a physical scenario. Part of that process is improving study skills and habits, both in and outside of class. Through the semester, we will leverage this course to help build effective study habits that will benefit you in this course and so many others.⁵

- Whenever possible, take hand-written **notes** to become familiar with the mathematical notation that enables us to navigate physical scenarios.
- Take the **time** to thoroughly engage with the course materials and assignments outside of class.
- **Practice** bringing together the concepts with the mathematical execution by going through each assignment on your own from start to finish.

Mistakes happen, and are an important part of the learning process! Learning cannot happen without mistakes to learn from. ***I love to talk about mistakes.*** It gives me an insight into your thought process and helps me help you. You get to meet with me or the teaching assistants at least four times each week, so take advantage of our time together! Do not be afraid to ask your questions and offer your thoughts in class, but be sure to do this *early* and *well before due dates!* I guarantee there are *many* students who share a misunderstanding and will benefit from our discussion. **Our classroom is a safe space to ask a question or give a wrong answer.**⁶

⁴ Here are the learning objectives. Previously they were implied in the course description rather than specifically named. These are built by selecting verbs from five different categories of Bloom's Taxonomy of measurable verbs: Knowledge, Comprehension, Application, Analysis, and Evaluation, respectively.

⁵ I wanted to take an opportunity to acknowledge that this is a difficult subject and be clear that an element of the course (and an advantage) is developing study skills and habits.

⁶ I want to make it clear to students up front and repeatedly through the semester that it's safe to ask a question and safe to give a wrong answer. Hopefully this will establish the benefits of engagement in their minds early on.

Audience and Corequisites⁷

This is a **three-credit, calculus-based, university physics course**. The course is designed toward students pursuing an introduction to physics and seeking to develop the type of problem-solving mindset that it instills. (That's you!)

We will be relying on concepts and skills from **algebra**, **trigonometry**, and **calculus**. We will assume familiarity with techniques from algebra (including manipulation of linear and quadratic equations) and trigonometry (including relationships among the elements of the circle and right triangle).⁸ The course has a math corequisite of introductory calculus (MAT 285, MAT 295, or equivalent). We will leverage concepts and techniques from calculus (vectors, derivatives, and integrals) to better understand and describe physical systems, but we will not assume proficiency and will introduce or review them at a level appropriate to our needs.⁹ I recognize that our class is composed of students from a variety of backgrounds with different levels of preparation, so please do reach out early if you find you need support with the math fundamentals. There are many resources available!

This course is also designed to be accompanied by a laboratory experience, typically satisfied by simultaneously enrolling in PHY 221, the general physics laboratory course concentrating on principles of mechanics. The laboratory course provides hands-on intuition about general physics covered in this course while developing practical laboratory skills. The laboratory course is separate from this course, so please reach out to the PHY 221 course instructor and/or your lab section's teaching assistant for any questions about the labs.

See the course catalogue for specific examples that satisfy the course corequisites, and reach out to the Physics Department's Academic Coordinator (phyacademics@syr.edu) if you have any questions about corequisites and enrollment.

Course Expectations¹⁰

There are a few expectations you need to commit to meeting in order to get the most value out of our time together. You will be responsible for pre-lecture assignments, regular attendance and participation in the lecture section, regular attendance and participation in the recitation sections, and timely completion of problem sets. Meeting these expectations will go a long way toward preparing you to succeed in the quiz and exam assessments of your progress toward the learning objectives.

⁷ I have expanded the brief audience and corequisite blurbs with a clear explanation of their roles.

⁸ I've added specific examples of what I hope I can assume students will be reasonably familiar with already.

⁹ Similarly, I've added examples of concepts from calculus that we will use but not assume proficiency in.

¹⁰ I've removed "requirements" from the "Course Requirements and Expectations" of the SU syllabus template, letting it be implicit and using this as an outline of the primary elements of the course. I've heavily softened/warmed the language throughout, aiming to outline the advantages of each course element.

Format

Pre-Lecture¹¹ In order to best use our in-class time, I will provide short videos, pre-recorded lecture content, and selected sections of the textbook for you to review before each lecture class. This will enable us to spend more of our face-to-face time addressing your thoughts and questions about the material. It's much better to talk *with* you than to talk *to* you. In order to help you make the most of this pre-lecture content, you will answer questions during videos and complete a short pre-lecture assignment about the reading. You will also be responsible for solving one physics problem that we will discuss in class.

Lecture In this course, the entire class will meet together twice weekly in Stolkin Auditorium. This is an opportunity to engage with me, the instructor, and to benefit from the topics and questions other students bring up. We will review assigned content, practice problem-solving skills together, and examine physical phenomena through demonstrations. Your attendance and participation is incredibly important! I get to share my insights that I hope will guide you, you help me steer the course in the directions you need, and you support your classmates with your questions and insights.

Recitation We also have a team of skilled graduate teaching assistants who have been through a full sequence of physics courses and are ready to assist you on your journey. You will meet twice weekly with your recitation section, an important opportunity for a small-class setting to foster closer engagement with your TA and your peers through small-group activities. These recitation sections are perhaps the most important student-instructor element of this class. It is in recitation that you will do the challenging and crucial work of practicing the skills you learn in this course. Working in small groups, you get valuable insights from your peers, strengthen your understanding by helping them, and get to ask questions in a more relaxed setting. Keep in mind that recitation is not a supplement to the lecture hall. Our time in lecture is intended to prepare you for the *practice* you'll get in your recitation group.

Assignments¹² The best way to master the material and meet our course objectives is through *practice*. In this course, this takes the form of physics problems in which a scenario is outlined (e.g. something experiences a force and undergoes some interesting motion) and you are tasked with describing the outcome of the scenario. This entails identifying the primary physics principles that govern the motion, outlining the known and unknown quantities, connecting their mathematical relationships together, and then leveraging techniques from algebra, trigonometry, and calculus to derive a relationship between the known and unknown quantities. Mistakes will happen, but improvement comes through reflecting on those mistakes. Throughout the semester, you will be assigned problems to work through outside of class. These will be submitted and assessed for completion. You are welcome to seek support from me, your teaching assistant, our undergraduate

¹¹ This seemed to work very well last time I taught this course. In a free-response "ask any question" extra credit opportunity, most students submitted a response that was overwhelmingly directly relevant to the assigned reading/video materials. Students seemed to be engaging with the material on their own and appeared to come better prepared.

¹² I want to take this opportunity to outline how problem-solving will look for the major assignments, and to remind them of the value of attempting them on their own, seeking help when needed, and accepting and reflecting on mistakes.

coaches, and your peers when you find yourself stuck at a point in an assignment, but you will learn the most from an authentic effort to tackle each problem on your own to the greatest extent possible.

Resources and Support

Course Text We will be using **OpenStax University Physics Vol 1**. This is a free, online textbook. It is available at <https://openstax.org/details/books/university-physics-volume-1>. You can view the textbook online, download a PDF copy, or read it through several different ebook apps. Details are on the landing page at the URL above.

Calculator¹³ You are advised to purchase a *scientific calculator* for this course. These handle advanced mathematical functions (trigonometry, exponents, and fractions) but cannot plot graphs or store complex programs. Exams and quizzes will require this type of calculator. Graphing calculators will not be allowed during exams.

Blackboard This class will use the Blackboard Learning Management to house the syllabus, course content, links to external course materials, assignments, feedback, and grades. Due dates and times in Blackboard are stored in Coordinated Universal Time (UTC) and displayed for each user based on the time zone setting of their computer and data from their internet browser. The system will always display the time zone being used. If an instructor sets a due date of 11pm Eastern time, a student in the Pacific time zone will see a due date of 8pm.

Information about Blackboard is available on Answers Blackboard; alternatively, you can contact Information Technology Services by sending an email to help@syr.edu, calling 315.443.2677, or in-person at the ITS Service Center, located at 1-227 CST in the Life Sciences Complex. Business hours for the Service Center can be found on the ITS Website at http://its.syr.edu/its_service_center/

Physics Clinic The Physics Clinic is a help center and study lounge located on the east side of the ground floor in the Physics Building. It is staffed by graduate student teaching assistants and is available throughout the academic year. All of the department members (graduate students, physics majors, etc.) who you might find there are happy to help an inquisitive student! I strongly encourage you to use the Clinic for consultations on topics covered in this course, help getting started with a sticky problem, or just as a quiet space to work on assignments.

Center for Learning and Student Success (CLASS) The Center for Student Excellence hosts resources for academic coaching, group tutoring, and individual tutoring for a variety of courses, including PHY 211. Some of our physics majors have hosted weekly group tutoring and help sessions in previous semesters. I encourage you to take advantage of this resource, especially if you find yourself in need of additional out-of-class support early in the semester with either the physics concepts or the mathematical techniques we see in class. Contact CLASS at 315-443-2005 or class@syr.edu for additional information about any of their services or to inquire about additional support options.

¹³ I'm going to be more strict this semester during exams and only allow scientific calculators. I hope to have the department purchase scientific calculators that the students will use on the exam rather than checking each individually, but at the least graphing calculators will not be allowed.

Office Hours At the top of this syllabus, you can find your instructor's and TAs' contact details and availability. Please do not hesitate to reach out to any of us! We as a team are a resource in support of your academic success, not just a structure for assigning grades. We are here to help support your efforts toward achieving the learning objectives of this course

There might be points in the semester where I reach out to you to schedule a one-on-one meeting.¹⁴ This could be an opportunity to discuss outstanding performance, excellent engagement, a concern about an assignment, a conversation about the overall grade, etc. If so, *do not panic!* I want you to succeed and pledge to work with you in a constructive manner to support you and the class as a whole!

Course Fee This course has an accompanying course fee that helps pay for recitation handouts and supplies, maintenance and small pieces of equipment for lecture demonstrations, and undergraduate coaches - neer-peer students assisting you during recitations.

Community Building¹⁵

We want to foster a safe and effective learning environment, both inside and outside the classroom. In every part of this course, we must show respect for our students and ensure we can use our time together effectively. Everyone will make a mistake or reveal a misunderstanding, but those are the key opportunities to learn. I want everyone to feel comfortable and confident to ask a question at any time during class, knowing that, right or wrong, their contribution will be of value to them, the instructor, and the rest of the class.

Please help us maintain a constructive learning environment free of distractions. Plan adequate time to arrive on time and stay for the entire lecture and recitation. Please silence and stow away your cell phones as you join the classroom. Please remove headphones and earbuds. If using a laptop or other screen device, ensure that any apps or tabs unrelated to the course are minimized or closed. Many of these tools are optimized for distracting you; don't let them hinder your or your classmates' learning during the time we have together!

Class Roles¹⁶

The lecture hall is a space that can be difficult to navigate when looking to engage in a discussion or get a question answered. It can be comforting to fade into the anonymity of the crowd, but this also leads to disengagement from the course. To help you feel engaged, I will seek volunteers to play the following roles at different times during the semester.

¹⁴ This is here to help alert students that I could call them out for a concern in the semester but establish a tone of constructive collaboration to support their success.

¹⁵ I'm changing "Course Conduct" to "Community Building." Here, I'm warming the language on behavior expectations and calling out class roles that I hope students will step into.

¹⁶ This is something new I'm adding to bolster engagement and give students a sense of agency and collaboration with the class organization. I may not implement all of these roles, but I wanted to have them defined and articulated here.

Student Ambassador¹⁷ I pledge to do my best to cultivate an air of approachability, but some students will still feel uncomfortable raising a concern about the class or its organization. I would like to have two to three students who are available to reach out to the instructor on behalf of others. Any member of our class can contact these student ambassadors, who can then relay their thoughts.

Supporter of the Peers¹⁸ Many of you bring unique skills to our course community. Maybe you know where to find the best coffee. Maybe you're an expert at on-campus printing. Maybe you just frequently find yourself at a specific place and are happy to be available to chat about class. Sign up with a service you can offer to anyone in need of it.

Asker of the Question¹⁹ With all of the language in this syllabus about encouraging questions, I hope you're coming to appreciate how valuable they are to your learning experience. Nonetheless, maybe a student has a quiet voice or experiences anxiety about public speaking. The Asker of the Question is there to ask a question on behalf of others. We need one or more students who can relay a question messaged to them by a member of the class.

The Second to Join Getting a discussion going requires more than just the first question. We need someone ready to ask a follow up question and show everyone that it's okay to talk. Perhaps even more integral to fostering a real discussion is The Second to Join, holding the door open for even more students to join in. We need a few students who can pledge to step up when needed.

Study Group Leaders Are you a natural organizer? Study groups often emerge organically among members of the class, but we don't want anyone to get left out. I would like to have a few volunteers to whom our students can reach out to get help starting or joining small study groups outside of lecture and recitation.

Assessment

Throughout the course, you should be assessing your progress toward understanding the material and meeting the learning objectives.²⁰ Look carefully over the feedback you receive on your assignments and quizzes. Take advantage of the time in lecture and recitation to ask questions about the assignments. Check to see whether you understand your mistakes and reach out for help when needed. Follow carefully the discussions about problem-solving techniques in lecture and in recitation, comparing them with your own work.

¹⁷ I don't know if this is necessary given that we have TAs and near-peer undergraduate coaches who can serve this role, but I wanted to test it out here.

¹⁸ This is more of a getting-to-know-you activity for early in the semester, but there's no reason not to keep it up and revisit it periodically. I need to explore simple methods of doing this within Blackboard, but I also don't want to overwhelm students with Blackboard content.

¹⁹ I want to implement this, but I'm not sure how best to do so logistically. I'm hesitant to rely on the Blackboard student-to-student messaging capabilities, but I also don't want students to feel they need to give out their contact info. I'm also hesitant to impose an external service on them like Discord, as other faculty have had a wide mix of experience doing so.

²⁰ I wanted to soften this section by starting it with a reminder that students should be using feedback on assignments to self-assess along the way.

Quantitative assessments will take the form of online pre-lecture assignments, in-class quizzes during recitation, and in-class exams during lecture.²¹ These will be opportunities for you to synthesize the skills you have been practicing and demonstrate your progress toward achieving the learning objectives of this course. An overall assessment will be presented as a course grade according to the following scheme.²²

You will notice that a demonstration of 65% or better proficiency with the learning objectives through the assessments will earn a grade of C- at minimum. This threshold is highly attainable if you attend classes and put forth a genuine effort on the assignments. I reserve the right to adjust this grading scale, but I will not be raising the thresholds.

Grade	Range	Grade	Range
A	> 93%	C+	73% – 77%
A-	89% – 93%	C	69% – 73%
B+	85% – 89%	C-	65% – 69%
B	81% – 85%	D	50% – 65%
B-	77% – 81%	F	< 50%

Throughout the semester, you will be responsible for completing the following assessments. Each is weighted as indicated when determining the overall grade.

Pre-Lecture Assignments²³ (10%) Prior to each lecture you will be assigned a video to view and sections from the textbook with an accompanying set of questions to work on and submit before the start of class. These questions will be assigned through blackboard so that you can complete them on your own time and at your own pace. Your pre-lecture assignments will be graded for correctness. To accommodate unanticipated life events, the two lowest pre-lecture scores will be excluded.

“Ask a Physicist” Extra Credit Opportunity While you work on your pre-lecture assignments you will have the opportunity to submit a physics question. This can be something related to the reading, something about the course in general, or anything else that piques your interest. I will choose a few questions from the submissions and discuss them during class if time permits.

²¹ Each of these assessments should help divide the student population into groups that would benefit from different early interventions. As an example, students who have high disparity between their scores on recitation problems (assessed for completion) and exam score may be undercutting their learning by relying on peers or generative AI to complete assignments.

²² The grading scale is chosen so that students can meet the passing threshold by demonstrating sincere engagement. A student who attends all classes and submits genuine attempts for all assignments and assessments is more than likely to earn greater than 50% and learn something of value along the way. A satisfactory effort would be reflected by demonstrating around 75% proficiency with the learning objectives.

²³ When the “Ask a Physicist” free-response extra credit opportunity (below) was combined with the pre-lecture assessments in a previous semester, the majority of the free-response entries were very relevant to the pre-lecture materials. This seemed to indicate that pre-lecture assignments were encouraging effective engagement with the material before lecture. This is a pair of assessment elements I intend to continue.

Submitting a question awards you an extra 10% of the score you earned on that pre-lecture assignment. (Recycling questions does not award extra credit!)

Problem Sets (10%) In recitation sections, you will be assigned a set of questions and problems that will exercise the core skills of the course. There will be time in recitation to work in small groups on these problems, but you will likely need to complete them on your own time outside of class. Your hand-written solutions to the problem sets will be due at the beginning of your Thursday or Friday recitation section. These questions will be marked by your TA for correctness but graded for completeness.

Part of the grade will also be assessed through a reflection assignment.²⁴ This will be a set of questions to guide you through evaluating your solutions to each problem. The reflection will be available through Blackboard and will be due before your Thursday or Friday recitation section.

To accommodate unexpected life events, we will drop the two lowest problem set scores.

Recitation Quizzes (40%)²⁵ During some recitation meetings, you will be asked to complete one of the recently assigned problems, randomly chosen for each student, in-person at the beginning of the meeting. This must be completed on your own during the recitation quiz time and will be graded for correctness. To accommodate unexpected life events, we will drop the lowest quiz score.

Midterm Exams (40%)²⁶ There will be four midterm exams through the course of the semester, corresponding to the four major units of course topics in the schedule. Although each exam will focus primarily on the content of that unit, the problems we are able to tackle build on the skills established in prior units and some content will be revisited. There will be no makeup opportunities for missing a midterm, although exceptions may be granted for documented health reasons and other extenuating circumstances at the discretion of the instructor.

Final Exam (optional, 10%) The final exam will be held on Monday, **December 14th**, from **10:15 am to 12:15 pm**. The final exam will be comprehensive in content coverage, drawing material from each of the four topic units. Your score on the final exam will replace your lowest midterm exam score. As such, the final exam represents an opportunity to improve on a one-off exam experience or to make up for a missed midterm exam. (Do not use this as an excuse to skip a midterm!)

²⁴ I'm hoping that this will be an opportunity to help students learn what to look for in their problem solving techniques by providing them questions that guide their reflection.

²⁵ The faculty who taught the partner course, PHY 212, found this to be an effective approach to more frequent lower-stakes assessments. This is one method of encouraging attendance in recitation, providing assessment and feedback at an approximately weekly frequency, and adding an additional quantitative assessment to the curriculum for variety. Furthermore, even if a student memorizes AI-generated solutions to all 6-8 questions in order to reproduce any one of them in class, they've likely learned something from that substantial effort.

²⁶ In-person proctored exams seem to be the best approach to assessment we have at the moment as generative AI tools continue to improve in their ability to present accurate and level-appropriate solutions to novel problems. As such, this is a substantial portion of the overall grade. I've tried to strike a balance on the stakes by continuing to offer four exams with an optional final to replace one.

Course Schedule

Week (Important Dates)	Lecture (Tuesday)	Recitation (Tuesday/Wednesday)	Lecture (Thursday)	Recitation (Thursday/Friday)
Aug 24 - 28	Introduction	Introduction <i>Math Skills Survey</i>	Equations of Motion	<i>Problem Set 1A</i>
Aug 31 - Sep 4 Add Deadline 8/31	Motion in 1 Dimension	Discuss 1A <i>Problem Set 1B</i>	Vectors	Quiz 1 <i>Problem Set 2A</i>
Sep 7 - 11 Labor Day 9/7	Motion in 2 Dimensions	Discuss 2A <i>Problem Set 2B</i>	Review	Quiz 2 Exam Practice
Sep 14 - 18 Drop Deadline (9/14)	Exam 1	Hands-On Activity	Forces and Motion	<i>Problem Set 3A</i>
Sep 21 - 25	Friction	Discuss 3A <i>Problem Set 3B</i>	Circular Motion	Quiz 3 <i>Problem Set 4A</i>
Sep 28 - Oct 2	Gravity	Discuss 4A <i>Problem Set 4B</i>	Review	Quiz 4 Exam Practice
Oct 5 - 9	Exam 2	Hands-On Activity	Momentum	<i>Problem Set 5A</i>
Oct 12 - 16 Fall Break (10/12-13)	no classes	no recitation	Impulse and Collisions	Quiz 5 <i>Problem Set 6A</i>
Oct 19 - 23	Energy	Discuss 6A <i>Problem Set 6B</i>	Energy Conservation	Quiz 6 <i>Problem Set 7A</i>
Oct 26 - 30	Rotation	Discuss 7A <i>Problem Set 7B</i>	Review	Quiz 7 Exam Practice
Nov 2 - 6	Exam 3	Hands-On Activity	Forces and Torques (Static)	<i>Problem Set 8A</i>
Nov 9 - 13	Rotational Motion	Discuss 8A <i>Problem Set 8B</i>	Torque (Dynamics)	Quiz 8 <i>Problem Set 9A</i>
Nov 16 - 20 WD Deadline (11/16)	Linear and Rotational Motion	Discuss 9A <i>Problem Set 9B</i>	Gyroscopes	Quiz 9 <i>Problem Set 10A</i>
Nov 23 - 27 Thanksgiving Break	no classes			
Nov 30 - Dec 4	Review	Discuss 10A <i>Problem Set 10B</i>	Review	Quiz 10 Exam Practice
Dec 7 - 8 Last Week of Classes	Exam 4	Final Exam Review (optional)	no classes	

The **Final Exam** will be held on Monday, **December 14th** from **10:15 am to 12:15 pm**. Make your end-of-semester plans accordingly!

You can consult the full SU [Academic Year Calendar](#) for other important dates.

Course and University Policies

Attendance

Attendance in classes is expected in all courses at Syracuse University. It is a federal requirement that faculty promptly notify the university of students who do not attend or cease to attend any class. Faculty will use Early-Semester Progress Reports and Mid-Semester Progress Reports in Orange SUccess to alert the Registrar and Financial Aid Office on non-attendance.

Not only is your attendance expected, your attendance is **valuable**. The best use of our time together takes the form of questions and discussion, but that can't happen without you! I need to hear from you where your confusion or misunderstanding lies so that you can help me direct the discussion to best help you and your classmates.²⁷

Attendance will be tracked in the recitation sections and contribute to the overall recitation grade. Attendance is difficult to record in Stolkin Auditorium, so we will employ different methods through the semester to estimate it on a student-by-student basis. This may take the form of spontaneous (low-stakes) in-class quizzes and surveys or sign-up sheets to be called upon for discussion.²⁸

If you find yourself feeling under the weather, please still make an effort to attend but *make sure* to wear a mask to lecture or recitation if you have been sick with *any* respiratory illness.²⁹ If you have a more severe illness or injury that interferes with your ability to do work in our class, talk to me! The Center for Disability Resources helps students with short-term injuries and illnesses – concussions, broken bones, etc. If you are sick or hurt, I will work with you and with CDR to do whatever we can to accommodate your condition.

Phones and Other Electronic Devices³⁰

In order to minimize distractions in the lecture hall and the recitation classroom, please silence and stow away your cell phones and remove headphones and earbuds as you join. If you are using a laptop or other screen device to better enable your note-taking, be sure that any apps or tabs unrelated to the course are minimized or closed. Many of these tools, apps, and websites are optimized for holding your attention, but that means you and those around you will struggle to focus on the course. Don't let them hinder your or your classmates' learning during the time we have together!

²⁷ This is to reiterate the motivations for attending class and warm the boilerplate language in the preceding paragraph a bit.

²⁸ I haven't finalized the plan yet, but I wanted to put these down as options. Last semester we used low-stakes random in-class quizzes to gauge attendance. I have an idea for students to register to be called on to answer questions in class, but I need to think carefully about the logistics, implementation, and equity of that approach. I don't want to explicitly call out attendance as a contribution to the overall grade, but I might do so at the level of 5-10% as I continue refining this syllabus.

²⁹ I'm moving away from the pandemic-era attitude of "stay home if you're sick" as the relative risks to student health and academics of using illness as an excuse for skipping class continues to evolve.

³⁰ I'm adding this for the first time in the hopes that it will help build good engagement habits early and be a policy I can point to in order to revisit and reinforce those habits through the semester.

Health and Wellness Considerations

Well-being and mental health are significant predictors of academic success. It is critical to take care of yourself physically and emotionally and to effectively navigate stress, anxiety, and depression. Please familiarize yourself with the range of resources the Barnes Center provides (<https://ese.syr.edu/bewell/>) and seek out support for mental health concerns as needed. Counseling services are available 24/7, 365 days, at 315.443.8000.

Discrimination or Harassment

Everyone in this class is an equally-valued member of this university and our community. We as a department expect you to treat your classmates as honored colleagues in the collective endeavor we are all involved in: to understand the natural world and use that understanding to improve our society.

In particular, harassment or discrimination related to any protected category including creed, ethnicity, citizenship, sexual orientation, national origin, sex, gender, pregnancy, reproductive health decisions, disability, marital status, political or social affiliation, age, race, color, veteran status, military status, religion, sexual orientation, domestic violence status, genetic information, gender identity, gender expression or perceived gender will not be tolerated. If you are the target of this sort of bias or if you witness it, please contact me to discuss it and/or reach out to Equal Opportunity, Inclusion, and Resolution Services at 315-443-4018 or equalopp@syr.edu.

Accommodations

Syracuse University values access and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to contact me to discuss strategies and/or accommodations (academic adjustments) that may be necessary to ensure equitable access and to collaborate with the Center for Disability Resources (CDR) in this process.

If you would like to discuss disability-related accommodations or register with CDR, please visit the Center for Disability Resources at <https://disabilityresources.syr.edu/>. Call 315.443.4498 or email CDRspecialist@syr.edu for more detailed information.

CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations are generally not provided retroactively, please contact CDR as soon as possible to initiate this process.

Faith Tradition Observances

Syracuse University's Religious Observances Policy recognizes the diversity of faiths represented in the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their traditions. Under the university's policy, students are given an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance, provided they notify their instructors no later than the *academic drop deadline*. For

observances occurring before the drop deadline, notification is required at least two academic days in advance. Students may enter their observances in MySlice under *Student Services / Enrollment / My Religious Observances / Add a Notification*.

Academic Integrity

While you are encouraged to discuss your course assignments with your peers and collaborate with them on understanding the material, all work you submit must reflect ***your own understanding*** and be a product of ***your own effort***. Submitting any work that you do not understand and cannot explain, or that is a result of wholesale copying, will be considered academic dishonesty. Please don't let this discourage you from conferring with your peers when studying and working through practice materials through the semester. That is exactly what you *should* do! But *copying someone's work* is different than *working together with them*.³¹

As a pre-eminent and inclusive student-focused research institution, Syracuse University considers academic integrity at the forefront of learning, serving as a core value and guiding pillar of education. Syracuse University's Academic Integrity Policy provides students with the necessary guidelines to complete academic work with integrity throughout their studies. Students are required to uphold both course-specific and university-wide academic integrity expectations such as crediting your sources, doing your own work, communicating honestly, and supporting academic integrity. The full Syracuse University Academic Integrity Policy can be found by visiting teachingexcellence.syr.edu/academic-integrity and selecting, "Expectations and Policy."

Upholding Academic Integrity includes the protection of faculty's intellectual property. Students should not upload, distribute, or share instructors' course materials, including presentations, assignments, exams, or other evaluative materials without permission. Using websites that charge fees or require uploading of course material (e.g., Chegg, Course Hero) to obtain exam solutions or assignments completed by others, which are then presented as your own violates academic integrity expectations in this course and may be classified as a Level 3 violation. All academic integrity expectations that apply to in-person assignments, quizzes, and exams also apply online.

Students found in violation of the policy are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered. Students may not drop or withdraw from courses in which they face a suspected violation. Any established violation in this course may result in course failure regardless of violation level.

If I have a concern about an assignment that you have submitted, I will first reach out by email to schedule an in-person meeting to discuss the concern and will hold off on recording the grade. This will be an opportunity for us to discuss your work where you can demonstrate your understanding of the material covered by the assessment. In the event that the meeting results in concerns about an academic integrity violation, we will discuss the best course of action.³²

³¹ This is the primary mode that concerns me for students undermining their own learning, intentionally or not. I added this to both warm the policy language and situate it specifically in this course.

³² I want to include language in the syllabus to make it clear how this process will begin in this class. My understanding is that it's on the instructor to decide whether to pursue a case with the academic integrity office. Given the policy of dropping the lowest two quiz scores and replacing the lowest exam score with the optional

On the first such occasion for concern, you might accept a zero on the assignment or exam, accommodated by the corresponding policy described under “Assessment.” Should you prefer to open an academic integrity case to dispute the concern, we will contact the academic integrity office to bring in a neutral third party. If the concern is not the first such occasion, I will proceed directly to open an academic integrity case. Details about the process can be found at <https://teachingexcellence.syr.edu/academic-integrity/expectations-and-policy/>.

Generative Artificial Intelligence

Using and exploring artificial intelligence is an important aspect of understanding, exploring, and evaluating emerging technologies. The creators of generative artificial intelligence tools, including “large language models” (LLMs) are working toward developing “artificial general intelligence” – computer programs that can converse much like a human would. They are not there yet; although these tools often provide correct responses, those responses can be opaque, irrelevant, or misleading to a user without a strong foundational understanding of the topic. Within this course, this can lead to confidently incorrect answers and a tendency to undermine your own learning. Developing problem solving skills in this course requires practice and persistence. Generative AI offers a tempting route for cognitive offloading of the challenges presented by the course material, especially in times of stress and looming deadlines, but relying on it will lead to failure to build those foundational problem solving skills.³³

For purposes of academic integrity in this class, we are treating these programs just like we are treating a real human you might ask for help.³⁴ This means that if you ask ChatGPT, Claude, Gemini, or even the Google search bar a question so you can better understand the material, this is perfectly fine; I encourage you to work with your classmates in this course! However, if you ask such a tool to solve a problem or complete your assignment for you – **thus substituting its understanding for your own** – this constitutes **academic dishonesty** in the same way that asking someone else to provide you the answers to your homework or exam would.

Based on the specific learning outcomes and assignments in this course, artificial intelligence is permitted only as a consultation tool during your independent study. See each assignment, quiz, or exam instructions for more information about what artificial intelligence tools are permitted and to what extent, as well as citation requirements. If no instructions are provided for a specific assignment, then no use of any artificial intelligence tool is permitted. Any AI use beyond that which is detailed in course assignments is explicitly prohibited except when documented permission is granted.

final exam, there is a natural opportunity to address a cheating concern through an informal in-person assessment and a natural consequence that still offers the opportunity to address the behavior before bringing a formal case.

³³ It’s important to me to acknowledge the existence of these tools, their effectiveness, and the temptation to use them. I hope that drawing students’ attention to this temptation will help them recognize it when they need to.

³⁴ This is based on language from one of my department colleagues. None of the three statement options in the syllabus guidance is quite right here. Generative AI can be a valuable study aid, but it needs to be treated the same way as asking another student to provide the answers.

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