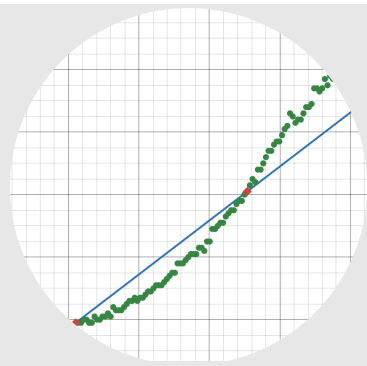




Intro to the Mathematical Sciences

Math 110, Fall 2026

Instructor Info —



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Course Info —



Monday, Wednesday, Friday



9:30–10:25, 10:30–11:25, 11:30–12:25

About —

Students will study various topics in the Mathematical Sciences, working with *data*, studying *models* of real world processes, and using the precise *language and logic* of mathematics. At the end of the course, students will be prepared for further coursework in Mathematics, Statistics, and other disciplines.

Overview and Course Goals Math 110 is a course designed to engage you with topics across the mathematical and statistical landscape. It will prepare you for further courses in mathematics and/or statistics, as well as in other disciplines. The course is rich in data, in modeling real-world processes, and in the precise use of language and logic that is the hallmark of mathematical thinking.

Understanding Mathematical Content You will gain understanding of foundational ideas and tools of...

- **Statistics:** exploratory data analysis and visualization
- **Applied Mathematics and Calculus:** dynamical modeling using the derivative
- **Pure Mathematics:** studying symmetry from a mathematical point of view

Throughout the course you will also broaden your understanding of the idea of a *function*.

Broader Goals You will ...

- Become comfortable with math being less about “getting an answer” and more about marshaling a variety of types of evidence to formulate a convincing argument supporting a particular conclusion.
- Improve your ability to communicate your mathematical findings both orally and in writing with precision, clarity, and a sense of your audience.
- Contribute to a classroom environment that is lively and collaborative.
- Help one another understand the material in the class, through discussions that respect everyone’s voice and perspective on the class material.
- Build mathematical persistence, not expecting the answer to arise immediately every time, but rather being prepared to revisit questions more than once, and to seek out available resources when you need help.

Growth, not Ability There is a widespread belief that you are either “good” or “bad” at math, and if you are “bad” at it, then you will always be bad at it no matter how hard you try. This is **false**. In reality, mathematics is just like any other discipline or skill: you can improve more and more with attentive practice.

We are all capable of growth in mathematics. You should measure your success in this class by how much your understanding of the concepts have improved over the course of the semester. You should expect to struggle with the material! When you struggle — and practice, and persevere — you are learning and growing.

Equity and Inclusion You are *all* welcome and belong here. We will always work to make our classroom a space for everyone to contribute, learn, and grow no matter their identity, background, or circumstances. We expect that the class will be a place where all of us respect one another and support each other’s learning. To that end, we ask you to remember that not all students are coming to this class with the same privileges, resources, and background knowledge. It’s not equally easy for all of us to speak up in a group, and the voices of historically underserved/marginalized students are most easily drowned out in group work; please keep this in mind when working together. **We are open to feedback from you when it comes to making the course more accessible and inclusive to students.**

Academic Integrity Our community thrives on relationships between students and faculty that are based on trust and respect. It is a student’s responsibility under the Honor Code to understand professors’ expectations and what it means to do academic work with integrity. In particular, please read the *Collaboration and Technology Policy* for this course that is posted on Moodle. If anything is unclear, please ask!

Class Materials Materials for this course, including course announcements, assignments, readings and deadlines, will be posted on the Moodle website.

Class Meetings Class time will alternate between short interactive lectures and work in small groups. The group work will ask you to discover and engage more deeply with the material. We will post lecture notes and solutions to the class activities after class.

FAQs

? Is attendance in class required?

! Yes! Much of your learning will take place in the class sessions, during both lecture time and group work.

? What if I can't attend?

! Occasional absences are OK, but please give us a heads up. If you will need to miss several classes, e.g., for illness, contact us! We will discuss the best course of action.

? Where can I find day-to-day information for the course?

! Moodle! The course Moodle page will be kept up to date

? Where can I find up-to-date info about Student Hours?

! Moodle! Check early and often.

? Help! Where can I go if I'm feeling overwhelmed or I'm having trouble keeping up with class work?

! Talk to us in Student Hours, and also consider the following additional resources:

- [the Office of Academic Resources](#),
- [Access and Disability Services](#),
- [Counseling & Psych Services](#).

? Where can I read the Collaboration & Tech Policy for this course?

! Moodle! Please read the policy and ask questions if it is not clear.

Between Classes Between classes, you should think back on the previous class by reviewing notes, the activities and their solutions, and the readings. You will also preview the next class by doing the assigned readings and online exercises.

Resources

Student Hours Please stop by to see us (any of us!) during student hours! We have set aside this time specifically to help you learn and be successful in the course. Student hours will come in two flavors this semester:

Appointment Slots Sign up on our calendars for one-on-one or small-group meetings.

Drop-in hours No appointment needed: drop in to work with your peers on problem sets, with one of the instructors available to answer questions.

See Moodle for times and locations.

Calculus Resource Center The CRC is a drop-in learning space specifically for Math 110 students where you can collaborate with your classmates and/or ask questions of the teaching assistants. The CRC is open on Wednesdays and Thursdays; please see Moodle for time and place.

Math Question Center The MQC is a drop-in learning space for *all* math students; like the CRC, you can collaborate with you classmates in the MQC and ask questions of upperclass student tutors. The MQC is open Sunday through Thursday evenings, 7-9pm, in KINSC H011.

Peer Tutoring Free peer tutoring is available through the Office for Academic Resources; see <https://www.haverford.edu/academic-resources/peer-tutoring>.

Assessments

Online exercises Before each class you will *try* a set of online questions to help you master fundamentals. We strongly encourage you to make a first pass through the exercises without using any notes or other resources. A first pass without notes will give you important feedback about how well you are learning the course material. You may repeat each online questions as many times as you like without penalty, up until the time it is due, so after the first pass you can look at the course materials, talk to your peers, ask questions, etc., and then make further attempts. In order to give you enough time to work through the online assignment and master the concepts, all the online questions for a given week of class will be due on the *Friday of the following week*. To reduce stress over getting every last problem correct, 90% and above on the online exercises will count as full credit. *Expect to spend 15–30 minutes on each online assignment. If you are regularly spending more, please come talk to us!*

Problem Sets Weekly, written problem sets will be due on Fridays at 4pm. These questions will help you deepen your understanding of the material. They will be graded for correctness and clarity of solution. See the “Writing Clear Solutions” document (on Moodle!) for a description of how to write up your findings. We will accept *two* late problem sets *without penalty, no questions asked* so long as you inform us in advance of the due time. These late assignments are due at 4pm on the Tuesday after the original due date.

Mastery Quizzes After units one and two, you will complete a short quiz to assess your understanding of the fundamental ideas and processes introduced in that unit. The quiz questions will be on roughly the same level as the online exercises.

Projects Instead of exams, you will complete three written projects, which are your golden opportunity to think about how to express and justify your mathematical and statistical reasoning clearly and precisely. You will work in small groups for the first project, on your own for the second project, and you will have a choice of working in a group or on your own for the third. In each, you will investigate a mathematical or statistical question, and then write a short paper explaining and justifying your findings.

Grading Your grade for the course will be determined according to the following weighting:

Academic engagement 5%

Online exercises 5%

Weekly problem sets 15%

Mastery quizzes 10%

Projects 65% (one group for 20%, one individual for 25%, one choice for 20%)

Academic engagement includes effort observed throughout the course, contributing to a positive learning environment by asking questions and collaborating during in-class problem solving, answering questions, completing surveys when assigned, attending class, etc. You should aim to be doing many of these activities “most of the time” or “all of the time” as opposed to “some of the time” or “none of the time.”

In case of systemic disruptions, we may also compute an alternate grade with different weights; in that case you will receive the higher of the two grades. Note that you must turn in three projects that are a good-faith effort in order to pass the class.

When Life Happens Your health and well-being are important! The no-questions-asked extensions for the problem sets are built into the course to give you flexibility for those times when “life happens”. Beyond the no-questions-asked extensions, please be in touch with us (and your dean!) as early as possible in case of significant illness, a family emergency, or a religious obligation. We will work with you to find an optimal path forward. **In general, please do not hesitate to come talk to us about additional extension requests. Do not presume to know our minds — ask!**

More generally, if academic challenges arise for you, we are happy to discuss them with you so that we can find solutions together. If you are experiencing such challenges (e.g, related to emotional health, finances, physical health, relationships, learning strategies or differences), then please consider reaching out to the many resources available on campus, e.g., CAPS, the OAR, the OMA, Health Services, the Professional Health Advocate, the Office of Religious and Spiritual Life, the GRASE Center, and the Dean’s Office. Additional information can be found at <https://www.haverford.edu/health-and-wellness-resources>.

Equal Access

ADS: Haverford College is committed to creating a learning environment that meets the needs of its entire student body and provides equitable access to students with disabilities. If you have (or think you may have) a disability related to mental health, chronic health, neurological state, and/or physical condition, please contact the Office of Access and Disability Services (ADS) at hc-ads@haverford.edu. It is never too late to request ADA accommodations – our bodies and circumstances are continuously changing. Please know that all inquiries and health-related information is handled in a sensitive and confidential manner.

Students who have already been approved to receive academic ADA accommodations and want to use these in this course should share their accommodation letter and make arrangements to meet with us as soon as possible to discuss how their accommodations will be implemented in this course. Please note that accommodations are not retroactive and require advance notice in order to successfully implement.

Title IX: See <https://www.haverford.edu/title-ix> for information about Haverford’s Title IX policies that aim to ensure that all members of the College community have a learning and working environment that is free from sex discrimination and sex-based harassment.