

MATH 101-02 / 101A-04 Mathematical Thinking 4 Credits
Matthew Haner, Department of Math, CS, and DF
Fall 2024

Legal Notice

This isn't a legal notice! Seriously, this is a syllabus. Syllabi aren't legal documents. I have no plans to be deceptive, but I reserve the right make changes to this class as I see fit. If I deviate from this syllabus, I promise to be as fair as possible.

Prerequisites

A willingness to work and learn; basic algebra. Math placement test score high enough to gain entrance.

Catalog Description

Presents mathematical topics and applications in a context designed to promote quantitative reasoning and the use of mathematics in solving problems and making decisions. It is suitable for majors in humanities and education and for others seeking a broad view of mathematics.

The purpose of this course is not to gain skills to be used in a later course, but to help you develop an appreciation of mathematics as used in various different ways. Many of the math topics we will cover are quite different from most of the math you have probably seen before. We will not study any one topic in great depth, but instead we will become acquainted with a variety of different topics. In the process, all of you will learn to read, think, speak, and write more critically, clearly, logically, and correctly. I find this class to be quite entertaining and I hope you will too.

Professor Information

My name is Matthew Haner. My office is in Elliott Hall on the first floor, room 115-C. The surest and most preferred way to get in contact with me is through email, which I typically check many times a day. mhaner@mansfield.edu. My phone number is 4707, but I rarely answer it.

Office Hours

Officially posted online here: <http://faculty.mansfield.edu/mhaner/time.html>

Tentatively, they are Tuesday/Thursday 11:30-12:30 PM, Wednesday 2:30 PM - 4:30 PM, and Tuesday 2:50 PM - 3:50 PM. The Wednesday hours are on Zoom, so I may not be on campus for those. For my on-campus hours, we'll find an open classroom for office hours since my office is pretty small. If my times don't work for you, let me know and we can work something out.

Room/Time

Classes are Tue/Thurs from 9:30AM - 10:45AM in Elliott 123. Recitation is 11:00 AM - 11:30 AM in Elliott 110.

Class Cancellations

In addition to discussions which will take place in class and during office hours, I will communicate with you by email. In the unlikely event of cancellation of a class due to inclement weather, illness, or emergency, you will receive an email. Be sure to check your official university email often.

Webpage

<http://faculty.mansfield.edu/mhaner/index.html>. This is an official addition to this syllabus. I suggest you bookmark or add it to your favorites for the duration of this class. It contains the most up-to-date information about the class, including a day-by-day class schedule.

Texts

We'll be using *Math in Society* (2.4) by David Lippman. The book is free to download as a pdf, and paper copies may be purchased.

Grading

25% homework. 5% participation. 20% quizzes. 15% for each of two tests. 20% final exam.

Attendance/Late Policy

If you are behind for valid reasons, please let me know. There are no make-up quizzes or homework, and exams are excused when I receive the proper documentation in accordance with official university policy. Excused exam scores will be replaced with your final exam score or removed from your grade.

Tutoring

All students are encouraged to make use of the free tutoring services provided by the Learning Resources Center. More information can be found on my website. Furthermore, online help may be found at the Wolfram Math World site <http://mathworld.wolfram.com/> or on Wikipedia. Be wise in what you choose as a source of information online!

Learning Mathematics

I expect about 3 hours of outside work per hour of class time. To become proficient as a carpenter, dancer, or mechanic requires practice. Mathematics is no different and you will not learn it by watching alone. Do not take this class unless you are prepared to work and seek help when it is needed. If you do put in the proper amount of time and find help when you are stumped, you will learn the material. It is better for your learning process to spend regular intervals of time working on mathematics than it is to cram it in long sessions.

Incidentally, a college education is distinctly different from high-school in several regards. Here I am specifically addressing the traditional students that just completed secondary school: though I care about my students as much as any high school teacher does, I will not chase you around to make sure you're doing the appropriate work for this class. Being at the university level means that you are responsible for your actions. Also, there are an awful lot of syllabi that document acceptable behavior similar to a legal framework. Please, just be an adult about your actions. And for it, you will be treated as adults.

The second primary difference between this class and a high-school equivalent class is the level of difficulty. Although some with outstanding backgrounds will find this course easy, almost of you will struggle from time-to-time. There will be problems on exams that are tough. Regardless of what your path in life with become, it is nearly certain to contain tough challenges. I hope to do my part and prepare you for these challenges and that you take the challenge in stride, as it is much easier to work mathematics with a good dose of optimism. When you look back on your degree from Mansfield, I hope that you hold some pride that you endured the difficulties. Really it's not unlike playing a guitar, drawing a person, training to be a marine, or becoming an outstanding athlete.

Student Code of Conduct

Commonwealth University's Student Code of Conduct prohibits the violation of any University policy as well as local, state, or federal laws. Expressly included in this expectation are any federal, state, regional, or local emergency orders or declarations, mandatory policies, or mandatory health advisory requirements, including those made by the University President. Violations of the Student Code of Conduct will be reported to the Dean of Students Offices at <https://www.commonwealthu.edu/offices-directory/dean-students>.

Attendance Policy

Regular and punctual class attendance is expected and is the foundation for academic success. When class work is missed due to extenuating circumstances beyond the student's control, the student communicates the need for special arrangements as soon as the need is known. Official documentation is provided to verify the reason for the absence if requested by the instructor. Legitimate excuses may include illness, serious mitigating circumstances, official military service, or official university representation. In these cases, faculty members will permit students to make up all graded course components without penalty in a reasonable manner at a time agreeable to the instructor and student. Students must provide documentation before absences can be excused. All instructors are expected to make their class participation and attendance policies clear in the course syllabi. Policies stated in syllabi must be consistent with the university's attendance policy. Faculty will accept notification from the Dean of Students or Health Services offices as verification of excused absence for students who are unable to notify faculty through no fault of their own.

Students Requesting Academic and/or Access Accommodations

Commonwealth University at Bloomsburg, Lock Haven, and Mansfield is committed to providing equitable access to educational experiences, campus facilities, and university related opportunities for all students. Disability Services supports these requests for accommodations under the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act. If you have or believe that you have a disability, please contact the following offices based on home campus:

Bloomsburg: Warren Student Services Room 043, or call 570-389-4491

Lock Haven: 205 Ulmer Hall, or call 570-484-2665

Mansfield: 146 South Hall, or call 570-484-2665 or 570-389-4491

It is recommended that students contact Disability Services during the first two weeks of classes or immediately upon diagnosis to ensure accommodations are met in an efficient, appropriate, and timely manner for the best student learning outcome. Upon qualification, the disability professional will arrange to provide an accommodation letter to the professor for the identification of academic or accessibility adjustments. You must contact the Disability Services office to renew accommodation letters at the start of each semester.

Statement on Diversity, Equity, and Inclusion

Commonwealth University recognizes our responsibility to continuously support a living, learning, and working environment that values contributions from all members of our campus community. Diversity, equity, and inclusion enrich our campus community and are instrumental to our institutional success. Commonwealth University strives to cultivate a climate that allows all members to embrace diversity, equity, and inclusion as we achieve success in and out of the classroom, in our work responsibilities, and in our professional lives beyond the University. We uphold our commitment to diversity, equity, and inclusion throughout each campus community by:

- Actively supporting and promoting the intellectual and personal growth of our students inside and outside of the classroom.

- Providing workshops, trainings, and programs designed to broaden understanding of diversity, equity, and inclusion.
- Ensuring that all learning and living environments are welcoming and capable of serving all individuals.

Academic Integrity

Academic integrity means adhering to agreed-upon moral and ethical principles when engaging in academic and scholarly pursuits. Academic dishonesty involves fraud, deceit, or misrepresentation in attempting to obtain academic credit or influence the grading process by means unauthorized by the course instructor or inconsistent with University policy. A student breaches academic honesty by willfully giving or receiving unauthorized assistance in coursework, and/or intentionally failing to adhere to, or assisting others in failing to adhere to, the University policy on academic honesty. The University's Academic Integrity Policy is part of an effort to nurture a community where trust, honesty, and personal integrity guide all our dealings. Integrity is vital to the pursuit of education. Faculty are expected to instruct students in ways of avoiding academic dishonesty.

Copyright

Commonwealth University fully supports and adheres to the Copyright laws of the United States and other nations. Respect for intellectual labor and creativity is vital to academic discourse and enterprise. This principle applies to any original work in any tangible medium of expression. Images displayable on computer screens, computer software, music, books, magazines, journals, photographs, and articles are among items subject to copyright. A work need not be explicitly labeled with a copyright notice to be afforded copyright protection. For more information on Copyright please consult <https://www.commonwealthu.edu/offices-directory/information-technology/copyrighted-materials>.

Student Consumer Rights and Responsibilities

The Higher Education Opportunity Act (HEOA) was enacted in 2008 and reauthorized the amended Higher Education Act of 1965. HEOA requires postsecondary educational institutions to distribute or make publicly available a broad range of information collectively known as Student Consumer Information. Topics covered under HEOA include student financial aid, campus health and safety, student outcomes, and general institutional information.

Commonwealth University Consumer Information website:
<https://www.commonwealthu.edu/about/consumer-information>

Title IX and Protection of Minors Legislation: Reporting Obligations

Commonwealth University and its faculty are committed to assuring a safe and productive educational environment for all students.

Sexual Discrimination or Misconduct and Title IX Requirements

In order to meet this commitment and to comply with Title IX of the Educational Amendments of 1972, all University officials, volunteers and employees (including student employees) are obligated to report incidents of sexual misconduct of which they become aware to the Title IX Coordinator/designee, unless: 1) they serve in a role that makes such reports privileged or are recognized as providing a confidential resource; or 2) they are a faculty member and learn of the report from a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. These reporting exceptions do not apply to report of sexual misconduct involving an individual who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred. When a report involved suspected abuse of a child (an individual under the age of 18 at the time of the incident(s) as reported), all University employees, officials and volunteers are required to notify the University police and the Child Line run by the Pennsylvania Department of Human Services.

Reports regarding Title IX and sexual misconduct should be directed to Title IX Coordinator titleixcoord@commonwealthu.edu or by completing an online form on the Title IX webpage. Additional information regarding the reporting of sexual violence and the resources that are available to victims of sexual assault and/or harassment can be found here: <https://www.commonwealthu.edu/offices-directory/title-ix>

Protection of Minors Requirements

Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred. Mandated reporters must immediately make an oral report of suspected child abuse to the Department of Human Services (DHS) by calling 800-932-0313. Immediately following the report to DHS, the mandated reporter must notify Officer in Charge at Bloomsburg by calling 570-389-2211 or 570-389-4168, as designated in the University's protection of minor's policy. No exceptions apply to this reporting obligation. Detailed information is available at:

Commonwealth University Protection of Minors: <https://www.commonwealthu.edu/about/university-senate-governance/policies-and-procedures/prp-2410-background-screening-protection-minors-volunteerism>

All student-facing policies can be found at <https://www.commonwealthu.edu/student-handbook>

Student Learning Objectives and Outcomes

This course counts for the quantitative reasoning block of the Commonwealth general education program.

SLObjective1: Interpretation. The student explains information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, and words).

SLOutcome1: Students will find winners of elections using various methods and use criteria to critique them. Voting Theory Quiz.

SLObjective2: Analysis. The student performs calculations and draw appropriate conclusions based on them.

SLOutcome2: Students will utilized the cheapest link algorithm to solve a TSP. Cheapest Link Quiz.

SLObjective3: Communication. The student expresses quantitative evidence in support of an argument (considering what evidence is used, and how evidence is formatted, presented, and contextualized).

SLOutcome3: Students will perform vaious methods to divide rational goods in a fair and equitable manner. Fair Share Quiz.