

University of New Hampshire at Manchester
Department: Mathematics and Statistics
Math 418: Analysis and Applications of Functions
CRN: 51929 Credits: 4

Adjunct Instructor: Lesley Fallu
Email: Lesley.Fallu@unh.edu
Spring 2025: 1/22/25 – 5/7/25
M/W; 3:10 – 5:00; Room 102

This syllabus contains the following:

- Pages 1-3: Course Expectations and Grading Information
- Pages 4-5: Tentative Course Schedule (Assignments and Assessments)
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Course Overview: This course provides the necessary background for you to be successful in Calculus I. Concepts from Algebra and Geometry will be combined in the study of functions. It is hoped that you will discover the power of mathematics as you study the properties and graphs of polynomial, rational, exponential, logarithmic, and trigonometric functions. This course is intended for students planning to take MATH 425 Calculus I. This course is not offered for credit if credit is received for MATH 425 Calculus I or MATH 426 Calculus II.

Office Hours: I will be available from 1:30 – 3:00 on M/W, room 115. You do not need an appointment to stop by during these hours. If these times are not convenient, please email to schedule a different time. I am only on campus on Mondays and Wednesdays. Room 115 is not available on Wednesday 2/5, Wednesday 4/2, or Monday 5/5. I will announce a different location for those dates.

Textbook: *Precalculus 2e*; Jay Abramson; OpenStax Rice University 2021; ISBN-13: 978-1-711494-00-5. This textbook is embedded into MyCourses (canvas), section by section. However, it can be downloaded at no cost and is available in web view or pdf format. The pdf version is better for doing assigned problems. The printed version of the book is available on Amazon. Use the link provided at Openstax.org.

Course Structure: MyCourses (canvas) is the learning management tool we use for this course. The course includes modules for each week outlining sections to be covered as well as videos to support your learning. MyOpenMath assignments are embedded within canvas and available under the “Assignments” tab.

Assignments: Most homework assignments are done using the online platform, MyOpenMath, which is embedded in MyCourses (Canvas). You do not need to go to a different website. You can access the homework assignments for each class immediately following the lecture. Although your answers are posted online, you must have a notebook containing all of your work. This notebook will be checked periodically. All homework assignments have a due date which is approximately 4 days after the open date. There are two late passes for MyOpenMath assignments which you can access if necessary. The late passes will give you an extra 2 days on the assignment. If you start an assignment but leave it unfinished for a while, MyOpenMath may shut you out of that assignment, unless you use a late pass.

There are several other classwork or homework assignments, Written Assignments, either on handouts or from the textbook. These will be collected at the beginning of the class on the due date. Late passes cannot be used on these assignments. Late work on these assignments will receive an automatic 50% reduction in the grade. Additional practice problems may be recommended but not required. To be successful in this course, you should do as many different types of problems as possible and stay current with all assignments.

Calculators: Most of the time, we will not be using calculators. However, at times, we will use graphing or scientific calculators to enhance learning. For graphing calculators, TI-83 and TI-84, or the equivalent, are acceptable, but not the TI-89 or TI-92. Calculators will be used for some of the trigonometry as well as for the exponential and logarithmic applications. Some of the homework and assessments require a calculator. Note: A cell phone **may not** be used in place of a calculator.

Temporary Academic Supports for Extended Absences with Letter: If you are dealing with an unexpected, extenuating circumstance that will keep you out of class or affect your performance for more than a day or two, reach out to Lisa Enright, Assistant Dean of Student Success, at lisa.enright@unh.edu to request a letter be sent to all your faculty.

Note: If you are asked to quarantine or isolate due to COVID-19 by Health & Wellness, a letter will automatically be sent to your faculty. If you are required to miss significant class time (e.g., due to required isolation or quarantine), you will be provided temporary academic supports so that you can continue to make satisfactory progress in this course. Please contact me to discuss the specific types of supports that will be implemented during your absence. Most lessons are accompanied by an annotated PowerPoint which is accessible immediately after the lesson. Assessment dates will be modified as is necessary. Handouts will be sent by email.

Assessments: Most quizzes will be given at the **end** of the class on selected days. Quiz problems are based on those in the homework assignments, classroom problems, and lecture material. The lowest quiz grade will be dropped if all quizzes have been taken. If you are absent for a quiz, you might receive a zero for the missed quiz. No quizzes, tests, exams can be scheduled during the last five days of the semester.

If you are absent on the night of an exam, you may be able to schedule a make-up exam. This is at my discretion, based on the reason for the absence. There is no obligation to provide such exams. If you have a valid reason to miss class on the night of an exam, please inform me as soon as possible before the exam. We all realize that emergencies do occur, but make-ups will only be allowed for genuine emergencies.

Participation and Attendance: This part of your grade is based on your attendance and effort in this class. These will be judged on your willingness to complete all of your work, to participate in class, to be on time and present for every class, and to comply with UNH and classroom policies, including the electronic device policy. Although subjective, this should be an easy way for you to improve your overall grade and to help ensure that we all have a positive learning environment.

- Students are expected to attend all classes in person. Attendance is crucial to your success. If possible, notify me in advance if you know you will miss a class.
- All students are entitled to a positive learning environment without distractions. If you are late to class, please be considerate of others, and quietly take a seat. There is no scheduled break between 3:10 and 5:00. Please do not make a habit of leaving the classroom during the class. **Cell phones are not to be used during class.**
- In the case of inclement weather causing the closure of the building, we will meet by Zoom. An announcement will be posted in canvas with the link. Revised due dates will be announced in Canvas. PowerPoints including class notations will be posted in Canvas after most classes.
- The best way to prepare for class is to read the assigned sections prior to the class. Hopefully, the lecture and class activities will reinforce the reading. It is best to complete the assignments as soon as possible after the lecture. Any questions that you have can be addressed at the beginning of the class, or in a help session.

Grading Procedures: Grades will be posted in MyCourses (Canvas). Your grade will be determined as follows:

Attendance/Participation	5%	
Quizzes	20%	*The lowest quiz grade will be dropped if all quizzes have been taken.
MyOpenMath HW	10%	*For MyOpenMath assignments only, if you earn 82% or better on a homework assignment, that grade will be counted as 100%.
Written Assignments	5%	*Late passes not accepted. Late work reduced to 50% of your score.
Exam 1, 2	20%	*for each exam
Final Exam	20%	*5/7/25

Letter grade equivalences are given below.

A	92.5-100
A-	90 -92.4
B+	87.5-89.9
B	82.5-87.4

B-	80-82.4
C+	77.5-79.9
C	72.5-77.4
C-	70 -72.4

D+	67.5-69.9
D	62.5-67.4
D-	60 -62.4
F	below 60

The Tentative Course Schedule is continued on the next page.

Date	Sections	Topics	Assignments MyOpenMath unless otherwise noted	Due Dates
Wed. 1/22/25	1.1	Syllabus Overview; Introduction to MyOpenMath; Introduction to MyCourses; Intro to Functions	1.0 Intro to MyOpenMath 1.1 Functions, Function Notation	1/26/25
Mon. 1/27/25	1.2	Domain and Range	1.2	1/31/25
Wed. 1/29/25	1.2, 1.5	Toolkit Functions; Transformations of Functions	1.2, 1.5	2/2/25
Mon. 2/3/25	1.4	Composition of Functions QUIZ 1 (Sections 1.1, 1.2)	1.4	2/7/25
Wed. 2/5/25	1.7	Inverse Functions	1.7 and Written Assignment	2/9/25 2/10/25
Mon. 2/10/25	3.1	Complex Numbers QUIZ 2 (Sections 1.4, 1.5)	3.1	2/14/25
Wed. 2/12/25	3.2	Quadratic Functions	3.2	2/16/25
Mon. 2/17/25	3.3, 3.4	Power Functions and Polynomial Functions; Graphs of Polynomial Functions	3.3, 3.4	2/21/25
Wed. 2/19/25	3.5, 3.6	Dividing Polynomials; Zeros of Polynomial Functions Review for Exam 1	3.5, 3.6	2/23/25
Mon. 2/24/25	3.7	Rational Functions Review for Exam 1	3.7	3/2/25
Wed. 2/26/25		EXAM 1 (Ch. 1 and most of Ch. 3)		
Mon. 3/3/25	4.1, 4.2	Exponential Functions; Graphs of Exponential Functions	4.1, 4.2	3/7/25
Wed. 3/5/25	4.3, 4.4	Logarithmic Functions; Graphs of Logarithmic Functions QUIZ 3 (Section 3.7)	4.3, 4.4	3/9/25
Mon. 3/10/25	4.5	Logarithmic Properties	4.5	3/14/25
Wed. 3/12/25	4.6	Exponential and Logarithmic Equations	4.6	3/16/25
3/17/25 & 3/19/25		No Classes – Spring Recess		
Mon. 3/24/25	4.7	Applications of Logarithmic Functions	4.7 Written Assignment	3/28/25 3/31/25
Wed. 3/26/25	5.1	Angles QUIZ 4 (Sections 4.1 – 4.5)	5.1	3/30/25

Mon. 3/31/25	5.2	The Unit Circle: Sine and Cosine Functions QUIZ 5 (Sections 4.5, 4.6)	5.2	4/4/25
Wed. 4/2/25	5.3	The Other Trig Functions	5.3	4/6/24
Mon. 4/7/25	5.4	Right Triangle Trigonometry Review for Exam 2	5.4 and Written Assignment	4/13/25 4/14/25
Wed. 4/9/25		EXAM 2 (Ch. 4 and Ch. 5 – not 5.4)		
Mon. 4/14/25	6.1	Graphs of the Sine and Cosine Functions	6.1	4/18/25
Wed. 4/16/25	6.2	Graphs of the Other Trigonometric Functions QUIZ 6 (Sections 5.4)	6.2	4/20/25
Mon. 4/21/25	6.3	Inverse Trigonometric Functions	6.3	4/25/25
Wed. 4/23/25	7.1	Solving Trigonometric Equations with Identities	7.1 and Written Assignment	4/27/25 4/28/25
Mon. 4/28/25	7.5	Solving Trigonometric Equations QUIZ 6 (Sections 6.1, 6.2)	7.5	5/2/25
Wed. 4/30/25	7.2, 7.3	Sum and Difference Identities; Double Angle Identities	7.2, 7.3	5/4/25
Mon. 5/5/25		Review for Final Exam		
Wed. 5/7/25		Final Exam		

UNH policies and important information are continued on the next page.

UNH Expectations

- **Course Workload and Credit Hour:** The University is in compliance with the federal definition of credit hour. For each credit hour, the University requires, at a minimum, the equivalent of three hours of student academic work each week assuming a 15-week semester, approximately 45 hours of work per credit per term.
- **Academic Integrity and AI:** Please familiarize yourself with all UNHM policies and procedures, particularly those regarding plagiarism and cheating. Neither one is tolerated. Information is available at these websites: [University Academic Honesty Policy](#) and [Tutorial on Plagiarism](#). Unless otherwise specified, the use of Automated Writing Tools, including ChatGPT and similar artificial intelligence (AI) tools is strictly prohibited in this course, even when properly attributed. The use of such tools is considered plagiarism (as defined by UNH's Academic Integrity Policy) and will be handled in accordance with the existing policy.
- **Academic Alerts:** The University is invested in your academic success. If a faculty member is concerned about your academic behavior or performance, they may submit an academic alert. Academic alerts are not punitive. The goal is to provide you with support and resources to support your success. They act as an important check-in point and, if you receive an academic alert, you will receive an email to your UNH email address. It is strongly recommended that you meet with a professional advisor and connect with your instructor to discuss the reason for the alert.
- **Classroom Environment:** In order to provide a positive learning environment, we are all expected to be respectful of each other at all times. Open and respectful questioning is central to learning. Diverse opinions enrich the educational environment. If you have any concerns about the classroom environment, please let me know immediately.
- **Behavioral Expectations:** To ensure a climate of learning for all, disruptive or inappropriate behavior may result in removal from this class. As a reminder, cell phone use, including texting, videotaping and recording is not permitted in this class by Faculty Senate rules unless by instructor permission.
- **Religious or Cultural Holidays:** If you need an accommodation for a religious or cultural holiday/observance, you are encouraged to make the request as early as possible in the semester.

UNH Referral Resources

- **Emotional and Mental Health Support:** Please go to <https://www.mhcgmm.org/> for information from The Mental Health Center of Greater Manchester. Services include:
 - Free confidential screening & consultation with a licensed mental health therapist.
 - Referrals to mental health or substance misuse treatment. And assistance in understanding how to afford additional treatment (with or without insurance!) or find free services.

You may email: unhm.wellness@unh.edu to make an appointment to meet with a counselor. If you would like to connect to counseling services directly, you may do so by contacting The Greater Manchester Mental Health Center at (603) 668 - 4111. The National Suicide Prevention Lifeline provides 24/7, free and confidential support via phone or chat for people in distress, resources for you or your loved ones, and best practices for professionals. Call (800) 273-TALK (8255).

- **Confidentiality and Mandatory Reporting of Sexual Violence or Harassment:** The University of New Hampshire and its community are committed to assuring a safe and productive educational environment for all students. Title IX makes it clear that violence, harassment, and discrimination based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin and ability.

If you or someone you know has experienced sexual or relationship violence, and/or stalking and harassment, the following resources are available:

Reporting on Campus:

- Title IX Coordinator: Bo Zarycky; 603-862-2930/1527 TTY or bo.zarycky@unh.edu
- Deputy Title IX Coordinator: Lisa Enright; 603-641-4336; lisa.enright@unh.edu, room 439
- UNH Manchester Security: 603-641-4124. Security is located in the second floor foyer.

Reporting Off Campus:

- Manchester Police Department: 603-668-8711. The Police Department is located at 405 Valley Street or
- Call your local police department

For emergencies dial 911.

Confidential Support Resources:

- YWCA, NH – 603-668-2299(24hour), 72 Concord St. Manchester, NH
- Sexual Harassment and Rape Prevention Program (SHARPP):
 - 603-862-7233(24hour) or 800-735-2964; 8 Ballard Street, Wolff House, Durham NH 03824 or,
 - Caroline Young, SHARRP Center Advocacy Expanded Services Coordinator for UNH Manchester, caroline.young@unh.edu; room 417; available in person Mondays 9:00 – 4:00 and by appointment.
 - The *uSafeUS* app is also available for students to keep reporting options and resources easily accessible.
- If you have observed or experienced an incident of bias, discrimination or harassment, please report to the Civil Rights and Equity Office at unh.civilrights.unh.edu; 603-862-2930
- The Mental Health Center of Greater Manchester
- 24 Hour NH Sexual Violence Hotline: 1-800-277-5570
- 24 Hour NH Domestic Violence Hotline: 1-866-644-3574

- **Student Accessibility Services (SAS):** According to the Americans with Disabilities Act (as amended in 2008), each student with a disability has a right to request services from UNH to accommodate his/her/their disability. If you are in need of such services, please contact Student Accessibility Services in Room 417. Accommodation letters are created by SAS with the student. Please follow-up with your instructor as soon as possible.
- **Center for Academic Enrichment (CAE):** Attending class may not be enough to ensure success. You must stay up-to-date with assignments. If you are having difficulty with assignments, see me or make an appointment with the tutor in the Center for Academic Enrichment (CAE) which is in the back corner of the library. The Center for Academic Enrichment (CAE) professionals and peers are available to support all UNH Manchester students in maximizing their learning potential through individual in-person and online tutoring, in-class workshops, and study groups in math, writing, course content, study skills, time management, and personal statements. All students registered for UNH Manchester courses are entitled to one hour of individual tutoring, per course, per week. Appointments are available at <https://caetutor.unh.edu>; for more information, contact the CAE at (603) 641-4113, or unhm.cae@unh.edu.

Library: The UNH Manchester Library has a website: <https://cps.unh.edu/library>. The UNH Manchester librarians are available to assist you with the research process. You can contact the library at 603-641-4173 or at unhm.library@unh.edu. The links below guide you to useful online library resources:

- Make a **Research Appointment** with a librarian: <https://libraryguides.unh.edu/remotearchive/researchhelp>
- Use the **Library Search Box** to find information: https://libraryguides.unh.edu/librarysearchbox_unhmanchester
- Reserve a **Study Room**: <https://cps.unh.edu/library/support-services>
- Discover resources for **Citing Sources**: <https://libraryguides.unh.edu/unhmcitingsources>
- Learn strategies for **Evaluating Sources**: <https://libraryguides.unh.edu/ENGL401UNHManchester/evaluatingsources>.
- **Food Pantry:** The UNH Manchester Food Pantry, located in room 437 is open Monday through Friday from 8:00 a.m. - 9:30 p.m. Any UNH Manchester community member can take what they need. If you have any questions, please email UNHM.Foodpantry@unh.edu.