

Mathematics for the Biological Sciences
MATH:1440:0AAA
University of Iowa
The College of Liberal Arts and Sciences
Spring 2024

Title of Course: MATH:1440 Mathematics for the Biological Sciences
Course meeting time and place: MWF 10:30 to 11:20 am in W290 CB
Department of Mathematics: [Webpage](#)

Course ICON site: To access the course site, log into [Iowa Courses Online \(ICON\)](#) <https://icon.uiowa.edu/index.shtml> using your Hawk ID and password. **Regardless of the lecture or discussion section you are enrolled in, you will be using the ICON course for MATH:1440:0AAA.** Assignments, handouts, announcements, and grades will be posted on ICON. It is important that you check ICON regularly.

Course Home: The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the add and drop deadlines, the “second-grade only” option (SGO), academic misconduct policies, and other undergraduate policies and procedures. Other UI colleges may have different policies.

Course Instructor: Dr. Cindy Farthing

Office: B1J MacLean Hall

Phone: 319-384-4348

Course Email: math-1440@uiowa.edu (Please use the course email for all course questions.)

Email: cynthia-farthing@uiowa.edu

Drop-in Office hours: Mondays 1:30 to 2:30 pm; Wednesdays 1:30 to 2:30 pm; Thursdays 11:30 am to 12:30 pm; other times by appointment.

Lecture Information

Each student is enrolled in the following lecture: **Lecture 0AAA:** MWF 10:30 to 11:20 am in W290 CB.

Discussion Section Information

Each student is also enrolled in one discussion section. These discussion sections are taught by graduate student instructors who are graduate students in the Department of Mathematics.

The meeting time, classroom information, and instructor information for each section follows. Instructor office hours and Math Lab hours will be posted on ICON.

Section 0A01: 9:30 – 10:20 am TTh, 210 MLH TA: Alisson Serracin Morales TA Email: alisson-serracinmorales@uiowa.edu	Section 0A02: 8:30 – 9:20 am TTh, 210 MLH TA: Mansimran Singh TA Email: mansimran-singh@uiowa.edu
Section 0A03: 11:00 – 11:50 am TTh, 214 MLH: TA: Liz Brass TA Email: elizabeth-brass@uiowa.edu	Section 0A04: 11:00 – 11:50 am TTh, 213MLH T A: Alisson Serracin Morales TA Email: alisson-serracinmorales@uiowa.edu

Section 0A05: 3:30 – 4:20 pm TTh, 210 MLH TA: Bhaktari Ahmed TA Email: bhaktari-ahmed@uiowa.edu	Section 0A11: 2:00 – 2:50 pm TTh, 113 MLH TA: Alperen Duyan TA Email: alperen-duyan@uiowa.edu
Section 0A13: 12:30 – 1:20 pm TTh, 205 MLH TA: Alperen Duyan TA Email: alperen-duyan@uiowa.edu	

DEO Contact Information: Ryan Kinser 14 MLH, ryan-kinser@uiowa.edu

Course E-mail: All course related email should be sent to: math-1440@uiowa.edu.

- If you need to reach only Dr. Farthing: cynthia-farthing@uiowa.edu
- You can find the contact info for your TA on ICON under “about your instructors” or in the chart above.

Description of Course: This course consists largely of precalculus topics, including relations, functions, coordinate systems, graphing, polynomials, trigonometric functions, and logarithmic and exponential functions. Examples and applications are chosen from across the biological sciences. Material from this course may be applied to fields including epidemiology, ecology, orthopedics or exercise science, seismology, audiology, physiology, biochemistry, genetics, cell and molecular biology.

Course Prerequisites: MATH:1005 with a minimum grade of C- or ALEKS math placement score of 55 or higher.

Learning Objectives: The primary objective of this course is for students to become familiar with the core concepts of precalculus level mathematics and to be able to use those concepts to solve problems arising in the biological sciences. Students will learn how to solve basic equations such as linear equations, quadratic equations, rational equations and equations involving radicals. Special emphasis will be given to biological applications and modeling with each equation type. Students will learn how to solve problems involving inequalities and absolute value equations and inequalities and apply these concepts to error bounds. Students will learn to use exponential and logarithmic functions in a variety of applications including biochemical, chemical, economic, and ecological problems. Students will be introduced to the use of trigonometric functions and certain trigonometric identities. Finally, students will learn to solve systems of linear equations.

Math1440 satisfies the general education requirement for quantitative and formal reasoning (QFR). It is designed to help you to develop important analytic skills and methods including the ability to present and evaluate mathematical reasoning.

Textbook/Materials: All materials are available via ICON Direct.

- A) Textbook with MyLab for homework assignments.
 - Title: MyLab Math with PreCalculus, 7th edition.
ISBN 9780135925782

- Authors: Lial, Hornsby, Schneider, Daniels
 - Publisher: Pearson
 - See instructions on ICON
 - Your U-Bill will be charged automatically by the Iowa Hawk Shop after your course has started, unless you opt out prior to the last day for tuition and fee reduction course deadline. (If you want to opt-out of this program, you will need to do so before September 1, 2023. You will lose all access to the eText features in ICON. More information about opting out is available at the [ITS opt-out site](#).)
- B) TopHat license for in-class questions.
- You should have received an invitation via email.
You may also use join code 138073.
- C) Gradescope Account.
- Gradescope is a homework/test grading program that we will use. You will have access to this program through ICON, and it will be linked to your university ID.
 - There is no charge for you to use this program.

Additional Resources and Where to Get Help

- The **Math Tutorial Lab** in 125 MacLean Hall offers free, drop-in tutoring for students enrolled in this class. Schedule and information about the Math Tutorial Lab is available at <https://math.uiowa.edu/math-tutorial-lab>.
- The **Academic Resource Center (ARC)** provides **supplemental instruction (SI)** for MATH:1440. SI sessions are peer facilitated, group study sessions.

MATH:1440 Spring 2024 SI Info

SI Leader: Ella

SI Sessions: Sundays, 4 to 4:40 pm

Tuesdays, 5 to 5:50 pm

Wednesdays, 9:30 to 10:20 am

SI Meeting Room: ARC, lower level of the Iowa Memorial Union IMU

- **Math Platoon** is a place where Veterans and Military Connected students can drop in with math-related questions or just to say hello. Dr. Colleen Mitchell is the director of the Math Platoon. Dr. Mitchell and some math graduate students are available during the Math Platoon meeting times to help. Veterans and Military Connected students can drop in with math-related questions or just to say hello.

Math Platoon Spring 2024 Info

Meeting Times: Mondays, 1:30 to 3 pm

Thursdays, 2 to 3:30 pm

Location: 208 Calvin Hall

- There are a variety of other places on campus where you can go for help with this course. Visit <http://tutor.uiowa.edu> for more information.

Grading procedures

This course uses criterion-reference grading. This means that your grade is determined by how well you demonstrate that you have mastered the learning objectives of the course – not on how well you do in relation to your peers. With criterion-reference grading, it is possible for everyone to get an A in the course! The final grade will be based weekly homework, weekly quizzes, three exams, weekly discussion

section activities, Top Hat questions during lecture, and 3 metacognition journal assignments. Total possible points for each component are assigned as follows.

Category	Points
Homework – 12 total; 10 points each; lowest score dropped	110
Quizzes – 12 total; 10 points each; lowest score dropped	110
Exam 1, Wednesday 2/21	60
Exam 2, Wednesday 4/3	70
Exam 3, Exam Week	80
Discussion Section Activities – 15 total; 2 points each	30
In-Class Top Hat Questions	30
Metacognition Journals – 3 total	10
TOTAL	500

Grading Scale

The following grading scale will be used to determine grades. (Note that no A+ will be given in this course.)

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Minimum Percentage	93	90	87	83	80	77	73	70	67	63	60	0
Minimum Points	465	450	435	415	400	385	365	350	335	315	300	0

Date and Time of Midterm Exams:

Exam 1: Wednesday, February 21, 6:30 to 8:30 PM. Location to be announced.

Exam 2: Wednesday, April 3, 6:30 to 8:30 PM. Location to be announced.

Midterm Exam Retakes: You will have the option to retake Exam 1 and Exam 2. The retake exams will include problems testing similar information.

Retakes for Exam 1 will be during the week of March 4.

Retakes for Exam 2 will be during the week of

To retest, you will need to complete an exam error analysis and register for a proctored exam retake session. Times and dates will be posted on ICON.

Date and Time of the Final Exam: The final examination date and time will be announced by the Registrar generally by the fifth week of classes and it will be announced on the course ICON site once it is known. **Do not plan your end of the semester travel plans until the final exam schedule is made public. It is your responsibility to know the date, time, and place of the final exam.** According to Registrar's final exam policy, students **have a maximum of two weeks after the announced final exam schedule** to request a change if an exam conflict exists or if a student has more than two exams in one day (see the [policy](#) here).

Other Important Dates

January 22	Last day to add courses or change existing registration through MyUI without authorization.
January 23	Registrations changes in MyUI require permission beginning today.
January 29	Last day for undergraduates to add courses without a dean's approval or drop courses without a "W". Last day for undergraduates to add or change P-N or audit status and late register
February 15	Attendance class lists due.
March 9 to 17	Spring Break – No Classes.
March 21	Midterm class lists due.
April 15	Last day for undergraduates to drop semester-length courses without dean's approval.
May 3	Close of classes.
May 6 to 10	Final Exam Week
May 15	Final Grades Due

Possible Changes to Course Policies or Structure Due to COVID-19 or Other Outside Forces

Depending on the state of the campus community's health, we may need to make changes to the course structure and instructional method. The instructors hope that you will be patient with them and as flexible as possible. In exchange, we will try to do the same.

Your Physical and Mental Health and Well-Being

The course policies outlined below have been made to provide you with incentive to engage fully in the class. We understand that you have a busy life beyond this class and that physical or mental stress, illness, and other circumstances can impact your work in this class. Please let your instructor know if you feel like your performance in the course is being affected by what is going on. We cannot provide help if we do not know there is a problem.

The health and safety of you and those around you is the most important. If you do not feel well, or if you are concerned that you have been exposed to the coronavirus (or any other contagious disease), please stay home. Please see the [Attendance](#) section below about who to contact if you will be missing an assignment that will need to be made up. We will work with you to alter deadlines or help you keep up with the course. Please keep in mind that because we drop some scores, we may not offer a make-up quiz or assignment; however, this will not affect your final grade in a negative way.

We also realize that you have other obligations (family, work, etc.) that may interfere with your course work. Learning to juggle these responsibilities will be important for you in school and in your future

career. At the same time, though, we are willing to work with you as long as you communicate with us when your participation in the course is affected.

Please be mindful of your mental health and seek help as a preventive measure or if you are feeling overwhelmed and/or are struggling to meet course expectations. Students are encouraged to talk to their instructor for assistance with specific class-related concerns. For additional support and counseling, students are encouraged to contact University Counseling Service (UCS). Information about UCS, including resources and how to schedule an appointment, can be found at counseling.uiowa.edu. Find out more about UI mental health services at mentalhealth.uiowa.edu.

[Student Care and Assistance](#) provides assistance to University of Iowa students who are experiencing a variety of crisis and emergency situations, including but not limited to medical issues, family emergencies, unexpected challenges, and sourcing basic needs such as food and shelter. More information on the resources related to basic needs can be found at basicneeds.uiowa.edu/resources/. Students are encouraged to contact Student Care & Assistance in the Office of the Dean of Students (Room 135 IMU, dos-assistance@uiowa.edu, or 319-335-1162) for support and assistance with resources.

Course Policies

Attendance

You are expected to attend class and a portion of the final grade is directly related to your attendance since you must attend lecture to receive credit for the In Class questions with TopHat and attend discussion to receive credit for the discussion activities.

For discussion absences, email your TA.

For all other absences, email math-1440@uiowa.edu.

Missed work will be accepted only for approved excused absences. (Official policies and link to absence form are available [here](#).) University regulations require that students be allowed to make up examinations which have been missed due to illness or other unavoidable circumstances. Students with mandatory religious obligations or UI authorized activities must discuss their absences with me as soon as possible. Religious obligations must be communicated within the first three weeks of classes.

Make-up Exams and Quizzes

Make-up exams and quizzes will only be given for excused absences. We request that you notify your instructor as soon as possible (and preferably before the quiz/exam) that you will not be able to complete the quiz or exam by the due date. You should arrange a time for completing the quiz or exam within 24 hours of the original due date in most circumstances.

Technology

You may use a scientific calculator from the list of approved calculators available on ICON on homework, quizzes, and exams. Cell phones and watches with wi-fi or cellular capabilities may not be used during quizzes or exams.

Collaboration

You are encouraged to work with others on homework and all in-class activities unless you are specifically instructed not to do so. You may also visit the Math Tutorial Lab or consult online resources.

Please be aware that to master the skills needed for this class, a lot of practice is required. To do well on quizzes and exams you will need to work many of these problems multiple times without help. Be sure to test your knowledge by doing much of the homework on your own.

No collaboration is permitted on quizzes or exams.

Accommodations for Students with Disabilities

The University and your instructors in this course are committed to providing an educational experience that is accessible to all. If a student has a diagnosed disability or other disabling condition that may impact the student's ability to complete the course requirements as stated in the syllabus, the student may seek accommodations through [Student Disability Services](#) (SDS). SDS is responsible for making Letters of Accommodation (LOA) available. The student must provide an LOA to the instructor as early in the semester as possible, but requests not made at least two weeks prior to the scheduled activity for which an accommodation is sought may not be accommodated. The LOA will specify what reasonable course accommodations the student is eligible for and those the instructor should provide. Additional information can be found on the [SDS website](#).

Please email your LOA to math-1440@uiowa.edu. We will work with you to help you do your best in the course. If we have forgotten to offer an accommodation, it is not on purpose, so please give us a friendly reminder of what you need.

Academic Honesty and Misconduct

We trust you to do your own work, and cheating on exams and quizzes will not be tolerated. Your grade should reflect your level of understanding of the material in this class. By asking others to do work for you, you are only cheating yourself of an opportunity to learn and receive feedback.

All students in CLAS courses are expected to abide by the [CLAS Code of Academic Honesty](#).

Undergraduate academic misconduct must be reported by instructors to CLAS according to [these procedures](#).

Student Complaints

Students with a complaint about a grade or a related matter should first discuss the situation with the instructor and/or the course supervisor (if applicable), and finally with the Director or Chair of the school, department, or program offering the course.

Undergraduate students should contact [CLAS Undergraduate Programs](#) for support when the matter is not resolved at the previous level. Graduate students should contact the CLAS [Associate Dean for Graduate Education and Outreach and Engagement](#) when additional support is needed.

Drop Deadline for this Course

You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the [drop deadline for this course](#) here. When you drop a course, a "W" will appear on your transcript. **The mark of "W" is a neutral mark that does not affect your GPA.** Directions for adding or dropping a course and other registration changes can be found on the [Registrar's website](#). Undergraduate students can find policies on dropping and withdrawing [here](#).

Other Student Expectations

- **Workload:** Expect to spend *at least* 8 to 10 hours weekly outside of the classroom working on homework and understanding the material from the workbook. More time may be needed to prepare for exams.
- **Classroom Behavior:** We expect that you will treat the others in the class and your instructors with respect.
- **Participation and Preparation:** Please come prepared for class and ready to participate each day. If you must miss a class, it is your responsibility to determine what you missed and what you need to make up. Students learn in different ways, so it is natural that you may feel like you benefit from certain parts of the course more than others. However, it is expected that you participate in activities inside and outside of the classroom equally. The course is designed so that these components complement – not duplicate – each other.
- **Personal Devices:** We understand that using personal devices in class may make sense in order to access class materials. You will get the most out of lecture and discussion section if you give it your full attention. It is your choice how you want to divide your attention between classroom activities and devices. However, please avoid using these devices with sounds, and refrain from using them in a way that might distract other students. (i.e. watching videos or looking at webpages not related to the course in the line of sight of other students).
- **Communication:** This class is designed to prepare you for your future career, and for many of you, taking classes is either a part-time or full-time “job” at this point. Therefore, you should begin practicing professional communication with your instructors.
 - In person communication: Address your instructors with an official title (Dr. or Prof.) unless they have given permission otherwise. Many TAs do not have titles yet, so be sure to ask them how they would like to be addressed.
 - Email: Use a meaningful subject (example: MATH:1440 quiz question), and a proper greeting in the email (example: Dear Dr. Farthing). Include as much information as you can. If you are requesting a meeting outside of usual office hours, please provide a few time slots that will work to meet with your schedule. This will help to set up the meeting more efficiently. Instructors will do their best to respond within 24 hours.
- **Technical Difficulties:** You are responsible for starting problems far enough in advance in order to complete the assignment by the due date. Computer problems and other technical difficulties are not a valid excuse for missing a due date.

Changes to the Syllabus

We reserve the right to make slight adjustments to the syllabus. Any changes will be announced in class and posted on ICON.

Course Calendar

A detailed calendar is posted on ICON. The instructors will make adjustments to this schedule as necessary. Any changes will be announced in class and posted on ICON. Detailed instructions and deadlines for all assignments are found on ICON.

DATE	SECTIONS	TOPIC
Week 1 1/15-1/19	1.1 1.2	Linear Equations Applications
Week 2 1/22-1/26	1.4 1.5 1.6 1.7	Quadratic Equations Applications Other Types of Equations Inequalities
Week 3 1/29-2/2	1.8 2.1 2.4	Absolute Value Graphs Linear Functions
Week 4 2/5-2/9	2.5 2.7 2.8	Linear Models Graphing Techniques Function Operations
Week 5 2/12-2/16	4.1	Chapter 1-2 wrap up Intro to Exponents and Logs Inverse Functions
Week 6 2/19-2/23	Review Exam 1 4.2 4.3	Review for Exam 1 Exam 1 (Chapters 1 and 2) Wednesday, 2/21 6:30PM Exponential Functions Logarithmic Functions
Week 7 2/26-3/1	4.4 4.5 4.6	Evaluating Logarithms Exponential and Logarithmic Equations Applications
Week 8 3/4-3/8	5.1 5.2	Semi Log Plots Chapter 4 Wrap up Angles Trigonometric Functions
Week 9 3/18-3/22	5.3 5.4	Special Angles Applications Chapter 5 Wrap Up
Week 10 3/25-3/29	6.1 6.2	Radian Measure Unit circle
Week 11 4/1-4/5	Review Exam 2 6.3 6.4	Review for Exam 2 Exam 2 (Chapter 4 and 5) Wednesday, 4/3, 6:30 PM Graphs of Sine and Cosine Translations of Sine and Cosine
Week 12 4/8-4/12	7.1 7.3 7.4 7.5	Fundamental Identities Sum and Difference Double and Half Angle Inverse Trig Functions
Week 13 4/15-4/19	8.3 8.4	Vectors and Applications Dot Product

Week 14 4/22-4/26	9.1 9.2	Systems of Linear Equations Matrix Solutions
Week 15 4/29-5/3		Wrap up Chapter 7-9 Review
Exam Week 5/6-5/10	Final Exam	Final Exam (time announced in week 5)

College of Liberal Arts and Sciences (CLAS) Course Policies

[Attendance and Absences](#)

[Exam Policies](#)

Communication: UI Email

Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community.

University Policies

[Accommodations for Students with Disabilities](#)

[Basic Needs and Support for Students](#)

[Classroom Expectations](#)

[Exam Make-up Owing to Absence](#)

[Free Speech and Expression](#)

[Mental Health](#)

[Military Service Obligations](#)

[Non-discrimination](#)

[Religious Holy Days](#)

[Sexual Harassment/Misconduct and Supportive Measures](#)

[Sharing of Class Recordings](#)