Fall 2023 Syllabus

The University of Iowa
The College of Liberal Arts and Sciences
Department of Mathematics
14 MacLean Hall

MATH:1020:0331, Elementary Functions

Lectures: MWF in 22SH, T in 117MLH

Instructor: Miguel Barquinero
Office location: 225C MLH
Office hour: Fridays 4:30PM-5:20PM and by appointment
Math Lab hours: T 11:30AM-12:30PM, W 2:30PM-3:30PM, Th 12:30PM-1:30PM
Zoom link: https://uiowa.zoom.us/j/7788582608
Email: enrique-barquinero@uiowa.edu

Course Supervisor: Dr. Olga Sokratova
Office location: 225K MLH
Student drop-in hours: MW 2:30PM-3:20PM, F 9:30AM-10:20AM, and by appointment
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DEO Contact Information: Prof. Ryan Kinser, 14A MLH/25F MLH, email: ryan-kinser@uiowa.edu

Some of the policies relating to this course (such as the drop deadline) are governed by its administrative home, the College of Liberal Arts and Sciences, 120 Schaeffer Hall.

Approved GE: Quantitative or Formal Reasoning.

Prerequisites: MATH:1010 with a minimum grade of C- or MATH:1005 with a minimum grade of C- or MPT Level 3 score of 9 or higher or ALEKS score of 60 or higher or MATH:1340 with a minimum grade of C-.

Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course.

Catalog Description of Course: This is a fast paced one-semester college precalculus course. This course is roughly equivalent to MATH:1005 College Algebra and MATH:1010 Trigonometry compressed into one semester. Topics include functions, coordinate systems; properties and graphs of algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; and properties of lines, circles, and other conics. *This course is not intended for those learning graphing, logarithms, exponentials, or trigonometry for the first time.* After successfully

completing this course students are fully prepared for the trigonometry-based calculus courses MATH:1850, MATH:1460, or MATH:1550.

Goals and objectives: The main goal of this course is to prepare students for a trigonometry-based calculus course (MATH:1850, MATH:1460, or MATH:1550). The particular objectives are using functional notation, finding the domain of polynomial, rational, radical, exponential, and logarithmic functions, evaluating the sum, difference, product, quotient, and composition of two functions at a given value, finding the inverse of a function and its domain and range, interpret the graphs of functions, sketching the graphs linear, polynomial, rational, exponential, logarithmic functions and their transformations as well as piece-wise defined functions, solve polynomial and rational inequalities, using the factor and remainder theorems using polynomial long division to factor polynomials of degree three and higher, finding the vertex of a parabola by completing the square and using the vertex formula, finding the center and radius of a circle by completing the square, solving polynomial, rational, exponential (with like and unlike bases), logarithmic equations as well as equations involving radicals and rational exponent, using applications of linear functions, quadratic functions (including falling object problems and extremum problems), exponential and logarithmic functions (including exponential growth and decay, doubling time, and half-life problems. Finding the trigonometric function of any angle, proving trigonometric identities using definitions, solving trigonometric equations using identities, solving right, acute and obtuse triangles, solving problems using the law of sines and the law of cosines, graphing trigonometric functions and their inverses, and describing their behavior, including periodicity and amplitude; using polar coordinates and graphing polar curves, representing complex numbers in rectangular and polar form, and convert between rectangular and polar form, multiplying complex numbers in polar form and using DeMoivre's theorem to find roots of complex numbers, defining a curve parametrically and graphing parametric curves, writing equations of conic sections in standard form.

Tentative lecture schedule: (subject to change)

Week	Starting	Monday	Tuesday	Wednesday	Friday
Week 1	Aug 21	Syllabus, 0.1, 0.2	ALEKS intro	0.3, 04	0.5, 06
Week 2	Aug 28	0.6, Review	Quiz, Practice	1.1, 1.2, 1.3	1.4, 1.5
Week 3	Sep 04	1.5, Review	Quiz, Practice	1.6	1.7
Week 4	Sep 11	1.8, Review	**Review, Exam**	2.1, 2.2	2.3, 2.4
Week 5	Sep 18	2.5, 2.6, Review	Quiz, Practice	2.7	2.8
Week 6	Sep 25	2.9, Review	Quiz, Practice	3.1	3.2, 3.3
Week 7	Oct 02	3.4, Review	Quiz, Practice	3.5	3.6
Week 8	Oct 9	3.7, Review	**Review, Exam**	4.1,4.2	4.3, 4.4
Week 9	Oct 16	4.5, Review	Quiz, Practice	5.1, 5.2	5.3
Week 10	Oct 23	5.3, Review	Quiz, Practice	5.4	5.5
Week 10	Oct 30	5.6, Review	Quiz, Practice	6.1, 6.2	6,3, 6.4
Week 11	Nov 6	6.5, Review	**Review, Exam**	7.1	7.2, 7.3
Week 12	Nov 13	7.4, Review	Quiz, Practice	7.5	7.6
Week 13	Nov 20	*Thanksgiving Break*			
Week 14	Nov 27	Review	Quiz, Practice	7.7	8.1

Week 15	Dec 4	Review	Practice	Review	Review
Week 16	Dec 11	**Final exam**			

Course Format

There are three "blackboard" days and one "computer lab" day.

On the "blackboard" days, you will spend most of the time listening to the lecture and working on worksheets from the course workbook. Spending time in class actively working on problems – instead of taking notes from a lecture – will help you learn the course material better. It may very well make learning the material more fun too. It is important that you come to class each day prepared and ready to participate.

On the ``computer lab" days, you will typically take a quiz in ALEKS and then continue working on ALEKS modules. Use this time to get help from your instructor with the topics you had questions on.

Required Texts

The ICON Direct program will be used to provide required course materials via your ICON course site. 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.

1. ALEKS Access. ALEKS is an online, adaptive learning system that will provide problems and assessments for you to work on throughout the semester. You will be billed for one semester of access to ALEKS through the ICON Direct program.
2. Course Workbook. The workbook is available for you on ICON. **It is strongly recommended that you come to class with a printed copy of that day worksheet or that you work with an electronic copy.**

Tech Support:

ALEKS Support: https://mhedu.force.com/aleks/s/alekscontactsupport
Go to ICON Help for more information on finding help with ICON.
University of Iowa Help Desk: 319-384-HELP (4357), phone; its-helpdesk@uiowa.edu

Grading procedures: The final grade will be based on participation, group projects, weekly progress, quizzes, midterm tests, final pie chart, and final examination as follows:

Participation /Icon Quizzes	5%
Quizzes	15%
Aleks Weekly Progress	20%
Midterm Exam I	10%
Midterm Exam II	10%
Midterm Exam III	10%

Final Pie Chart   5%
Final Exam   25%

Grades will be assigned on a curve, which will be determined after the final examination. Minimum cutoffs for each course letter grade are listed below. You should not view this as a fixed, predetermined grade scale for determining final grades, but rather as a guaranteed minimum scale. Cutoffs may be lowered at the discretion of the instructor.

93-100%	90-92.9%	87-89.9%	83-86.9%	80-82.9%	77-79.9%	73-76.9%	70-72.9%	67-69.9%	63-66.9%	60-62.9%	less than 60%
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Note that A+ will be given only for *exceptional work.*

Participation will be tracked via ICON Quizzes. On Monday, Wednesday, and Fridays you will have a short ICON quiz on current material. You are welcome to work in groups on these quizzes.

ALEKS Weekly Progress: Even though there is a certain degree of self-pacing you must make steady progress in the course. This will be monitored by the instructor in ALEKS. There will be a set of topics ("module") given for each week. Each weekly module is due on Tuesday by 11:59 pm. It is strongly recommended that you finish your module <u>before</u> you take your Tuesday's quiz in class.

Quizzes: You will have to complete a quiz weekly on Tuesdays, in class, starting in the second week of classes. The quizzes will be based on problems from the past module and are completed on ALEKS. The two lowest quiz scores will be dropped at the end of the semester.

Practice Quizzes and Exams: You will be given practice quizzes and exams prior to regular quizzes and exams. You may retake the practice quiz as many times as you need. 5% of your practice exam score will be added to your corresponding exam score. Note that your exam score will not exceed 100%. 5% of your practice quiz scores will be added to the Quiz category at the end of the semester.

Examinations:
There will be three 90-minute midterm exams and a cumulative final exam.

Midterm 1: Tuesday, September 12, 8:45-10:15. Coverage: Module 1-3.
Midterm 2: Tuesday, October 10, 8:45-10:15. Coverage: Module 4-7.
Midterm 3: Tuesday, November 7, 8:45-10:15. Coverage: Module 8-11.

Alternate Midterm Exams: If a student fails a midterm exam (the exact passing score will be determined after each midterm), he or she will be given an opportunity to take an alternate

exam. The highest possible grade for an alternate exam is C.

Final Exam:
Date: TBA Coverage: comprehensive
Classroom: Online

A Word about the Date and Time of the Final Exam:
The date and time of every final examination is announced by the Registrar generally by the fifth week of classes. All students should plan on being at the UI through the final examination period, which is December 11-15, 2023. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of the final exam.

ALEKS

When you first log on to ALEKS, you will be given a brief tutorial explaining how to use ALEKS answer input tools. After that you will complete the initial knowledge check, which will determine what you already know and what you need to learn. It is very important that you complete the initial knowledge check on your own. After that you will work on your pie chart topics in the learning mode. Each week you will work on topics from the current module. If you finish the module before the deadline, all other topics will be open, and you may work on any topic from a past or a future module.

To ensure that topics learned are retained in long term memory, ALEKS periodically reassesses students, using the results to adjust your pie chart. <u>Take this weekly assessment seriously, do not skip questions, otherwise you will have to redo all your topics again.</u> It is normal to lose 1-5 topics after each assessment. If you routinely loose more, talk to your instructor. The best time to make up for the lost topics is before the deadline of the module.

It is important that you start working on a new ALEKS module as soon as possible. Do not wait until the deadline. You may work ahead of time.

Course Policies

Attendance

Absences will only be excused for medical or family emergency reasons, a university-sanctioned field trip or the observance of a religious holiday. If you miss a class due to illness, you should submit the absence form through the Registrar website. If you have an excused absence you will be allowed to take the participation ICON quiz.

Make-up options for quizzes and exams

As stated in [CLAS webpage](), university policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, authorized University of Iowa activities, or unavoidable circumstances. An unavoidable circumstance is defined as an event beyond the student's control and often involves a serious and unexpected hospitalization, a family tragedy, or a related incident. Such circumstances do not include attendance at a wedding, a family vacation, obligations related to work or other such matters.

The instructor of a student participating in an authorized University of Iowa activity is sent a statement generally by email from the University of Iowa official in charge of the event before the absence occurs. This statement will include the specific date and time that the student will miss class. Activities related to employment, fraternities or sororities, or volunteer activities are not University of Iowa authorized activities that are considered for make-ups. Make-ups must be arranged as soon as possible and must be generally completed within one week of the missed quiz or exam.

Calculators

For certain problems ALEKS activates a build-in calculator. Non-ALEKS calculators are not allowed in class and their use at home is discouraged.

No calculators or other hand-held electronic devices are allowed on exams. Exams are written in such a way that a calculator is not necessary.

Timely completion of assignments: Late assignments are not accepted.

Academic Integrity

You are expected to work on your assignment without getting help from outside sources. The points will be taken off for any unjustified answer on an assignment. If your instructor suspect cheating during a quiz or an exam, an oral examination may be given.

https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code).

Expected classroom behaviors

It is expected that you will behave with respect to other students in the class and to your instructor. In particular this means turning off (or silencing) your cell phone. You should not be sending text messages, browsing Internet, playing games, or listening to musing during class.

Expectations for assignments and examinations

The homework for this course is designed to help you master your knowledge related to the topics covered during lecture. As such, you may work on the homework problems with others or use online resources. However, please be aware that to master the skills needed for this course, practice is required and that to do well on the final exam 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.

The University of Iowa Academic Calendar

Visit the [University of Iowa Academic Calendar](#) for the important dates such as last drop date, registration dates for the semester.
in advance. It is solely the student's responsibility to be informed of such announced changes.

How to Succeed in MATH:1020

- Expect to spend at least 8 hours weekly outside of the classroom during the assignments. More time may be needed to prepare for exams.
- Ask questions in class or present problems using the white board when offered.
- Check your UI email regularly.
- Log into the course ICON page daily.
- Communicate with your instructor and visit during office hours.
- Visit Math Tutorial Lab (125 MLH, https://math.uiowa.edu/math-tutorial-lab).
- Create a study schedule so that you don't fall behind.
- Work on ALEKS several days a week. Do not wait until the module deadline to start working.
- Complete practice quizzes and exams.

Campus Resources for Students
Math Tutorial Lab: The Math Lab offers free tutorial services for the course material. Participation is optional, but strongly recommended. It is located in 125 MLH and it is staffed by teaching assistants from the Department of Mathematics. This semester Math Tutorial lab offers both in person and virtual help.

ICON for Students at UI

Getting Started

1. Be sure to have your UI HawkID and password available. If you do not, please visit ITS HawkID Tools for assistance (hawkid.uiowa.edu).
2. Login to [ICON](#) with your UI HawkID and password and look for your course for this semester.

Basic Troubleshooting (if ICON is not working)

- Username/Password not working?
  - The login information (username and password) for ICON is the same as for your UI email account.
  - For help with Username and Password, please visit [ITS HawkID Tools](#) or contact the ITS Help Desk at 319-384-4357 or its-helpdesk@uiowa.edu.
- If you get an error message, check for Browser and Java Issues on your computer.

- If you are unable to access course content or activities (e.g., Tests, Discussions, Assignments, etc.), contact your instructor.
- Check general [Technology Support for Students](#)

Mental Health Resources and Student Support

Students are encouraged to be mindful of their mental health and seek help as a preventive measure or if feeling overwhelmed and/or 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.

University Policies

Accommodations for Students with Disabilities
The University is 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](#).

Free Speech and Expression
Absences for Religious Holy Days
Classroom Expectations
Non-discrimination
Sexual Harassment/Misconduct and Supportive Measures