

For students

This is a template syllabus. This file contains course specific information, such as catalog description, goals and objectives, which does not change. The parts highlighted in red are to be determined by the individual instructors. The official syllabus for each section will be provided by the instructor in the beginning of the semester.

SYLLABUS Fall 20xx

The University of Iowa

The College of Liberal Arts and Sciences

Department of Mathematics

Engineering Math I: Single Variable Calculus, MATH:1550:0xxx

Time and Place

Prerequisites: (MATH:1010 with a minimum grade of C- and MATH:1005 with a minimum grade of C-) or MPT Level 3 score of 9 or higher or ALEKS score of 75 or higher or (MATH:1380 with a minimum grade of C- and MATH:1010 with a minimum grade of C-) or MATH:1020 with a minimum grade of C- or MATH:1460 with a minimum grade of C- or (MATH:1010 with a minimum grade of C- and ALEKS score of 55 or higher) or (MATH:1340 with a minimum grade of C- and MATH:1010 with a minimum grade of C-)

Approved GE: Quantitative or Formal Reasoning.

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.

Instructor:

Office location and hours:

Phone:

E-mail:

Website address:

TA:

Supervisor: For this course, see the DEO.

DEO Contact Information: Professor ..., 14 MLH, 319-335-0714, ...@uiowa.edu

Catalog Description of the Course:

This is the first semester of a five-semester mathematics sequence for engineering students, but not restricted to engineering students. This course is a redesigned version of a traditional first-semester calculus course with a little more emphasis on techniques of integration. The course is taught by a faculty member in a lecture of about 120 students meeting three times a week and with two one-hour discussion sections taught by a TA. Students are encouraged to use the Math Tutorial Laboratory for additional help.

This course covers the basics of single variable differential and integral calculus. Mastery of this material is essential for the study of Engineering Math. The content of the course was crafted by the College of Engineering and the Department of Mathematics.

When you finish this course, you will have a very good idea of how functions behave, understand what it means to find slopes of their tangent lines and areas beneath curves. These ideas are important:

the slope of a tangent line is “velocity” and the area beneath a curve is the integral of a function. You will be able to perform the computations common to calculus: finding derivatives and anti-derivatives (integrals). Especially useful functions, in particular exponential, polynomial, and trigonometric functions will be in our focus.

Engineering Math I course satisfies the General Education Requirement in Quantitative or Formal Reasoning. The course develops the analytical powers and skills of the student.

Objectives and goals of the course:

Students completing this course will understand limits, derivatives and integrals, and will be able to apply these concepts to real life problems, which often arise in natural sciences. The course will prepare you for the other course that use these basic concepts.

Required text: (Check the current textbook from Department Webpage)
<https://math.uiowa.edu/undergraduate-program/course-information/book-list>

For Fall 2019 “Thomas' Calculus Early Transcendentals”, 14th Edition *with MyMathLab*.

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.

Material to be covered:

We will discuss the material of all sections from the following chapters.

Chapter 1: Basic properties of a list of functions studied in the course including exponential, logarithmic and inverse functions;

Chapter 2: Limits, one-side limits, infinite limits and limits to infinity; vertical and horizontal asymptotes; precise definition of limits and continuous function; using Intermediate Value Theorem to approximate roots; tangent lines and derivatives;

Chapter 3: Differentiation; product, quotient and chain rules; implicit differentiation; linear approximation; related rates and exponential growth;

Chapter 4: Extreme values; monotonicity, concavity and graphing of functions; Mean Value Theorem and L'Hospital's Rule; optimization and Newton's method; antiderivatives;

Chapter 5: Riemann integrals and approximations of integrals by midpoint rule etc; Fundamental Theorem of Calculus and substitution rule; indefinite integrals;

Chapter 6: Areas and volumes of revolution;

Chapter 8: Techniques of integration.

Grading:

For each course, the instructor chooses a grading strategy appropriate to departmental and college guidelines, and the related discipline. Some of the recommended options include (but not limited to) the following:

With **criterion-reference grading**, students receive grades based on the quality of their work in relation to the criteria defined by the instructor and by the rubrics or models specifying the qualities of each grade. Some instructors may choose to adjust the scale (criteria) if a need arises.

Norm-based grading is used in the course which is based on how others in the class perform. This method is generally used in large lecture courses or coordinated multi-section courses. The distribution of grades may be based on CLAS recommendations.

Grading System: Plus/minus grading will be used.

- XX% X midterms (dates)
- XX% Final exam (date, time and place to be announced)
- XX% X Quizzes, about every other week (dates)
- XX% Homework, assigned weekly, and usually due the following week
- XX% Attendance and class participation (optional)

All exams are comprehensive, unless specified otherwise.

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 the classes. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. 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.

Engineering Tutoring

Engineering Tutoring provides group tutoring and review support to students taking foundational and core courses in the Engineering curriculum. Tutoring is available **Sunday – Thursday, 6:00pm – 9:00pm, in 3612 SC**. It is a free, walk-in service, so students do not need to schedule an appointment; they show up, sign-in, and receive the assistance they need.

For more information, please contact Director of Tutoring and Academic Advisor, 319-335-5763

Course Policies: For Fall 20xx

Students are expected to attend all lectures, and do all of the homework regularly. Students are responsible for everything covered in the lectures, textbook and the prerequisites. Important announcements about changes (if necessary) to the syllabus, homework, exams, etc. will be done in the lectures or they will be e-mailed to your UI e-mail address.

There may be quizzes, depending on the section (excluding the weeks of the exams), consisting of problems similar to those assigned as homework. Taking all quizzes and the exams (midterms and final) is mandatory. In the exams, you are expected to show all of your work in an organized and coherent fashion. In the long problems, all work must be shown, and giving only a final solution obtained by guessing or using a calculator may not earn full credit. Make-ups may be given for the exams missed due to unavoidable circumstances and compelling reasons which are documented in writing. If you have a conflict or a medical reason, discuss your situation with your lecturer as soon as possible.

You are strongly encouraged to go to your lecturer's office hours. Make an appointment, if you have a conflict with the listed office hours.

Cell phones must be turned off during the lectures and exams. If you have to read or text a message during the lecture, please do it outside the classroom. During the exams, the cell phones are required to be put (far) away, preferably at the bottom of your backpack. During the exams, you cannot hold them in your hand, not keep them on your desk, chair, or anywhere easily accessible, and you cannot use it as a calculator.

Make-up policy: As stated in CLAS webpage:

[https://clas.uiowa.edu/faculty/student-attendance-and-absences:](https://clas.uiowa.edu/faculty/student-attendance-and-absences)

University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, authorized UI 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 UI activity is sent a statement generally by email from the UI 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 UI authorized activities.

Student Collaboration: Student collaboration is NOT permitted on exams. Any attempt to collaborate during exams will result in a 0 score on that test. **The instructors will specify if collaboration is allowed on assignments and, if so, the expectations for a student's individual performance.**

Resources for Students:

Students will find the Writing Center and the Speaking Center very useful for this course:

Writing Center: <http://www.uiowa.edu/~writingc/>

Speaking Center: <http://clas.uiowa.edu/rhetoric/for-students/speaking-center>

Math Tutorial Lab: 125 MLH <http://www.math.uiowa.edu/math-tutorial-lab>

Notes to the Students:

1. All students in the College have specific rights and responsibilities. You have the right to adjudication of any complaints you have about classroom activities or instructor actions. Information on these procedures and your responsibilities is available in the Schedule of Courses and on-line in the College's Student Academic Handbook, (<https://clas.uiowa.edu/students/handbook>) In summary, first see the person you wish to complain about, and then see his/her immediate supervisor. The chain is: graduate or undergraduate assistants, then **Prof. XX**, then the Chairman of the Department of Mathematics **Prof. YY**, and then an appropriate Dean. The Department of Mathematics has offices in 14 MLH (MacLean Hall). To make an appointment to talk to the chairman of the department call 335-0714 or contact the departmental secretary in 14 MLH.
2. We would like to hear from anyone who has a disability which may require some modification of seating, testing, or other class requirements so that appropriate arrangements may be made. Please contact your lecturer during his office hours, in the beginning of the semester and far in advance of the exams. You should notify the Office of Student Disability Services, SDS and obtain the form(s) needed. The necessary modifications will be made available to you after the SDS processes and approves your request.
3. We are planning to use ICON for posting grades and other course material. Also, some announcements may be e-mailed through ICON to your UI e-mail. Check ICON and your UI e-mail regularly, and make sure that UI has your correct e-mail address.
4. This course plan may be modified during the semester. All changes will be announced in class in advance. It is solely the student's responsibility to be informed of such announced changes.

CLAS Teaching Policies & Resources — Syllabus Insert

<https://clas.uiowa.edu/faculty/teaching-policies-resources-syllabus-insert>