

MAC2233 - Survey of Calculus One

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Office Hours: See "Contact" page on Canvas. Current office hours are: Monday 1pm-2pm, Wednesday 3-4pm, Friday 1pm-2pm, and by Appointment

Please see Canvas Contact Page for most up-to-date details on TA's office hour times and contact information. Note that, since this is an online course, office hours are held via Zoom, not in person in the office. You can find the Zoom office hour link on the Canvas Homepage under "Contact".

Course Description

MAC 2233 is the first in the two semester sequence MAC 2233 and MAC 2234 surveying the important ideas of calculus but emphasizing its applications to business, economics, life and social sciences. The course covers important calculus topics such as: limits, differentiation, applications of the derivative, introduction to integration and its applications including area.

A minimum grade of C (not C-) in MAC 2233 satisfies three credits of the university General Education quantitative requirement.

Prerequisites

We assume a comprehensive background in precalculus for this course.

To enroll in MAC 2233, you must have earned a grade of C or better in MAC 1140, precalculus algebra, or MAC 1147, precalculus; earned calculus credit through an exam or earlier coursework; or have taken the ALEKS placement assessment and attained the required minimum score. You may take the ALEKS assessment through the ONE.UF homepage <https://one.uf.edu>; click on Placement under My Online Services. For more complete information, check the page <https://student.ufl.edu/>. Note the following paragraph:

“The Department of Mathematics encourages you to take the assessment even if you have met one of the prerequisites for MAC 2233. You may need to review your algebra skills and your placement assessment can provide information and specific areas for additional study.”

You can check with either an advisor in your college, the MAC 2233 course coordinator, or an advisor in the math department (the main office is Little 358) to be sure that you are eligible for MAC 2233.

There is a needs assessment in the first weeks of the course to give students a good idea if they have adequate precalculus background for the course, or if they should consider dropping back to a precalculus course prior to taking this course.

Course Content and Materials

Course Materials

There are no required materials for this course; specifically there is no required textbook, clicker, or online homework code that you must purchase for this course.

In this course we will utilize a free online homework system known as Xronos. This work is supported by the Office of the Provost and the College of Liberal Arts and Sciences. The platform is accessible through the Canvas site via the “assignments” tab or through the provided configuration link on Canvas. More details are available on Canvas.

Lecture Videos

There are a number of things to keep in mind while progressing through the course, and especially with regards to the lecture videos.

- This course assumes familiarity with precalculus. Although there are lots of recorded example videos provided, the algebraic working out is often done more quickly than in a precalculus course to reflect that students should be comfortable with this kind of algebraic manipulation.
- Example videos emphasize the calculus work and will often include extra algebraic steps for pedagogical reasons, to make the process clearer and easier to understand. This does not mean you need to show the exact same work in your own worked out solutions. If you have any questions or concerns about what is expected for work, please ask your instructor or TA for clarification.
- In this course we also aim to instill the basics of mathematical reasoning. This means teaching how to problem solve when presented with content that is otherwise unfamiliar. Importantly this means that *you should expect to be confronted with problems that you have not seen before*. If you have always had problems that are variations of problems that have been demonstrated for you already, then your teachers have done you a grave disservice.

- **Expect to have to reason and think on the fly during exams, quizzes, and homework.** You will almost certainly see questions on your assessments that are unfamiliar. Remember that part of the content for this course is teaching you **how to recognize aspects of a problem to see what techniques to use.**
- Finally, remember that math, by its nature, is cumulative. If an exam has listed content that will be tested, that means that the content is the *focus* of the exam, but *not the only skills necessary for the exam*. Clearly we will not list on every exam things like ‘addition’ or ‘multiplication’ as exam topics. Similarly, most of the content that we will cover in this class, by its nature, will be used in future content of this same course. Thus you should consider all exams as “cumulative” with the listed content for the exam being the primary *focus* of the exam.

Online Resources

E-learning Canvas, a UF course management system, is located at <https://elearning.ufl.edu>. Use your Gatorlink username and password to login. All course information including your grade on assignments, course homepage, syllabus, Xronos content (which includes lecture videos and practice problems), office hours, exam information, mail tool, discussion forum, free help information, etc. can be accessed from this site. **You are responsible for verifying that your grades are accurate. There is no grade dispute at the end of the semester** (see below for specifics on [the grade dispute policy](#)). Note that the Canvas “course grade” is rarely accurate given Canvas’s limited ability to calculate grades. So, although you should verify your assignment grades are accurate, you should use the [grade calculator](#) (the link is also located in the orientation module) to determine your actual course grade. Make sure to carefully follow the directions to setup the calculator correctly (you should **not** need to request permission to access it). Canvas’s difficulty in correctly calculating final grades is also why the “show final grade” option is disabled in Canvas - that grade would likely be very misleading - so use the custom grade calculator.

Calculators

A graphing calculator and Wolframalpha are useful as study and learning tools when used appropriately, **but they are not essential**. I also recommend the online graphing calculator Desmos (<https://www.desmos.com>), and the app GeoGebra (<https://www.geogebra.org>) to help you as you learn the material. Keep in mind however, mathematics is a collection of ideas that are not mastered through calculator skills. **No calculators are allowed on quizzes or exams.**

Grading

See the tables below to see what will contribute to your grade, and what is necessary to attain a specific grade.

Assignment	Point Value	Total Points	Grade	Point Range	Grade	Point Range
Xronos (Combined)	50	50	A	405-450	C	315-329
Quizzes (10 of 13)	10	100	A–	390-404	C–	300-314
Exams (4 total)	50	200	B+	375-389	D+	285-299
Final	100	100	B	360-374	D	270-284
Total Points		450	B–	345-359	D–	255-269
			C+	330-344	E	0-254

Online Coursework

In this course we will utilize an in-house interactive online homework system developed by the math department at UF. This platform, called Xronos, is free of charge. The lecture videos are embedded, along with supplementary videos and interactive content spread throughout for asynchronous learning in the course. There is a single Xronos ‘assignment’ in Canvas **for each module** which is an interactive set of course notes that presents the material. It has numerous interactive features as well as examples and problems scattered throughout. Each assignment is due the day before the relevant module exam, but it may be worked on (no longer for credit after the due date) for the entire semester, in the event a student wants to do work for review in preparation of taking an exam or the final. I recommend you do not try to complete the entire assignment at the end of the module. First, there is simply too much to do all at once, and second it is intended as one of the primary sources of learning for the exams and

content. Your best bet is to be diligent and do them throughout the semester along the provided timeline located within each module to maximize learning and retention of the material.

There are some notes to keep in mind about how Xronos works:

- Canvas may (and almost certainly will, often) tell you that a grade has been submitted for the “Xronos assignment” when you first work on it (possibly whenever you work on it, depending on your Canvas settings). Rest assured that canvas really means that a grade **update** has been submitted, not a final grade. You can continue working on Xronos and accumulating points, right up until the Xronos assignment is due; there is no “final submission” of a grade prior to that, regardless of what canvas might try to tell you.
- In most of the tiles of the interactive texts are lecture videos. Completing watching these counts toward credit for completion for the tile, so you must watch the videos in order to get full credit for the tile (and thus the Xronos assignment).
- Throughout the text there are problems embedded in the text to monitor learning and give examples. These are counted as part of the grade, and you are required to complete these to get credit for the assignment. These are often static problems, ie each student will have the same problems with no randomization. You are free to work together on these problems, but keep in mind they are intended as practice, and as such **you are responsible for knowing the material covered in the homework**.
- There are special thin tiles that are practice tiles. These typically (but not always) include a video showing how to work through problems of this type. This video needs to be completed for full credit **but** you can skip to the end of the video to count it “completed” if you don’t wish to watch the entire video. These practice tiles are almost always procedurally generated problems that allow you to “try another” via the green button in the top right corner. This will generate another problem for you to try, allowing for nearly unlimited practice problems. Note that you need to make sure you have 100% completion of the tile before hitting the “try another” button to ensure you get full credit for the assignment, more on this can be found in the orientation video on Xronos.

Quizzes

Quizzes will be administered in Canvas. These will be twenty-five minute assessments to keep you up to date on the content as we progress through the course. There are thirteen quizzes offered, but we will count the top ten grades (meaning the three lowest grade quizzes will be dropped automatically when grades are calculated). Keep in mind, with the way the course is structured, assessments will get progressively harder as we go through the semester. This means if you skip a quiz early on and decide it will be a “drop” quiz, that you will be trading a much easier quiz for a much harder one later on.

Quizzes have a listed due date in Canvas to reflect when they should be taken as you go through each module - assuming you are going *at the recommended pace*. That being said, since this is an asynchronous course, I understand that some students may have schedules that make regular quiz due dates difficult. For this reason, every quiz has an automatic makeup period that allows you to take the quiz on any day up until **the day before the module exam**. Please keep in mind, since the quizzes have this automatic makeup period, there are **no further extensions** for quizzes.* In particular, if you wait until the day before the exam, and then you can’t do the quizzes for some reason (internet stops working, computer crashes, whatever) then you will end up getting a zero for all the quizzes... so make sure you try and get all the quizzes done at least a few days before the module exam, so you have a buffer in case something goes wrong.

Exams

Exams in this course will be proctored using a proctoring service called Honorlock. Information on how to sign up for Honorlock will be posted to canvas. The exams will be open all day on the assigned day, so you should be able to schedule your time around any other responsibilities that day, but if you have concerns please contact your instructor. Also ensure that you are in an area with a stable internet connection, and that you have ensured

*There is one exception - if you have an excused absence period that starts on/before the quiz due date, and extends until the module exam - thus enveloping all of the default makeup period, you should contact me and let me know so we can determine a time for you to make up the quizzes that will be missed as a result of that excused absence

Honorlock works (I would recommend taking the Honorlock test quiz, which is not worth any points but should verify the technology works on your setup).

There are four exams during the semester, with a final at the end (for a total of five tests). The specific date for each exam can be found in Canvas; but the content is as follows:

Exam	Content
Exam 1	Module 2: Limits
Exam 2	Module 3: Theory of Differentiation
Exam 3	Module 4: Applications of Differentiation
Exam 4	Module 5: Integration
Final	Cumulative

Note that, since this is an entirely online course, there are no previous exam pdfs to provide - however, there are practice exams available through Xronos that provide unlimited practice content via the "Try Another" button in the top right corner. You can find links to the practice exams in Canvas, as well as [here](#).

An Important Note About Exam Design

The exams are *not* written with the intention that the problems are ones that you have already seen with different numbers. One of the primary purposes of this course is to teach you how to use mathematical tools to solve mathematical problems, which requires knowledge, understanding, and creativity to figure out which tool to use, when to use it, and how to use it correctly. We aren't trying to teach you to (only) follow a preset list of instructions. We are trying to teach you to be a problem solver; one who can utilize their knowledge and skills to unravel a completely new problem when they are confronted with one.

Unfortunately, this exam design philosophy is probably unlike most (perhaps all) of your previous math course experiences. This is important to note because this means that the study methods you have used up to this point to excel in your classes, are likely not going to be nearly as effective in getting you the grades you are use to at UF. To be clear, this isn't an issue of scale - it isn't about "just studying more", it is about *studying differently*. In particular, you should try and actively evaluate your study methods and goals, and determine what changes you may need to make to better align your study goals to the assessment goals of your class. As a place to start, [I have written a primer on studying techniques that are supported by scientific evidence](#). There is a "TLDR" section that just has a list of techniques and how useful they likely are, but there is also a section with detailed explanation of the science that you can use to better tailor your study methods to try and develop study techniques that work well for you personally - to get the kind of outcomes that you are after.

Final

There will be a final exam (see Canvas for the date) which will be cumulative, thus any content covered this semester is "fair game" for the final (including any content covered after the last exam prior to the Final). Since the final is cumulative, I will replace your lowest exam score with half the points you earn on the final (only if it helps. Notice that the final is worth twice the points of a standard exam, thus half the points on the Final will be equivalent to the number of points on a single exam. In other words - the percent you get on your final exam will replace the percent on your lowest exam score if it helps). This will be done automatically, **You do not need to request this**. Moreover, this grade substitution is done *only* in the calculation process, the actual exam grades themselves won't change in Canvas (for academic record reasons).

Course Attendance and Interaction

This course is provided online and asynchronously. This means that there are **no** regular meeting times of the entire class, or even smaller subsections (e.g. sections for discussion courses) as part of the base structure. This clearly means that attendance is not tracked or mandatory - since there is no regular meeting to attend. Moreover, due to the course design, the makeup policy is intended to be more forgiving for those with complex schedules (see below). Nonetheless, keep in mind that the attendance policy adheres to [UF's attendance and makeup policy](#).

This is intended to allow a more flexible scheduling of content, especially for those that have irregular schedules - like full time work or considerable travel or other responsibilities outside of coursework. The intent is that the content is broken up in such a way that you can do larger chunks in advance - to account for times when you might not be able to do regular course work throughout a week as is typical in a more standard course.

Unfortunately, this also means that it is very easy to lose track of content and fall behind and due to a lack of forced meeting times, it can also feel isolating. I encourage you to regularly post in the discussion board, email, and/or attend office hours to help keep a regular schedule - whatever that means in relation to your own non-academic schedule.

Student Grade Calculator

Due to the fact that Canvas is incapable of computing grades in a way that is compatible with the outlined grade policy above, I have written a grade calculator that you can use to compute your current standing in the course whenever you want. Note that it requires configuration for the given semester/course that you are using it for, so you must read in the included instructions carefully and completely before using it. This tool is provided for students to copy and use on their own, to avoid any issues with student records and/or FERPA issues - meaning that you will be required to copy the tool to your own account rather than use it on the page provided (which is hosted in a public domain). [Here is the link to the student grade calculator.](#)

Grade Dispute Policy

Please be aware that there is a policy that any grade disputes **must** be brought up *before* the date of the final exam. Also keep in mind, it is not uncommon for lots of students to ask about grades right before the final (as well as actual math questions regarding the final exam, Xronos, quiz drops, etc) meaning that the email volume is rather high around that time period. I mention this so you are aware that you should try your best to bring any grade issues to my attention (by emailing me directly or messaging me on Canvas) as soon as you can, rather than waiting until the last moment, when a lot of other people are emailing me and I am getting swarmed by emails - causing much higher reply lag. A good rule of thumb is to try and make sure that you contact me within a week of getting your grade back, if you have any questions or concerns about the grade - to make sure we have plenty of time to resolve any issues before the final exam date.

UF (Universal) Syllabus Policy Content

This course complies with all UF academic policies. For information on those policies and for resources for students, please see this link: <https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/>

In the event anything in this syllabus contradicts anything in the resources provided by the above url, please note that the resources from the url take precedence. You should immediately contact your instructor to verify the discrepancy - both to verify that there is a discrepancy (i.e. that you didn't misread or misinterpret something in this syllabus and/or in the resources provided at the previous url) and so that the instructor can make any necessary edits to clarify the syllabus and/or bring the syllabus in line with the university policies addressed in the above url.

See below for a quick overview of the content covered in the syllabus policy and any special notes about this course.

Incomplete Policy

A grade of I (incomplete) will be considered only if you meet the Math Department criteria which is found at <https://www.math.ufl.edu>.

Online Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals.

Advising and Help

- The Orientation has an "FAQ" with links and answers to the **vast majority** of questions students encounter in a given semester; from problems with Xronos, to who to contact with a question, comment, or concern. I would highly recommend using the FAQ as a first point of reference when you have a question!

- For issues with technical difficulties for Canvas, please contact the UF Help Desk (contact information provided at the url above).
Note: Any requests for make-ups due to technical issues **MUST** be accompanied by the ticket number received from the Help Desk when the problem was reported to them.
- For any concerns with MAC2233, please talk to your TA or Instructor! Office hours will be posted in the contact page of Canvas and are regular times when they are available to answer questions, discuss grades, advise students on future classes, or help students in any available way. You do **not** need an appointment to visit during office hours. If you need to meet **outside** of office hours, please contact your TA or Instructor for an appointment.
- In addition, there are several other free resources available to you. For an up to date list and links/details, see the university policies url above.

Class Demeanor or Netiquette

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. A guide to online etiquette is available at the above mentioned url.

Honor Code

UF students are bound by The Honor Pledge. You can find details in the policies url.

Students with Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. Details are available at the policy url.

Online Privacy

ONLINE PRIVACY: Our class sessions *may* be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. See the policy url for more details.

Makeup Policies

Requirements for class attendance - and the makeup policy - in this course is consistent with university policies, as outlined in the url link above. See below for additional notes on class policies by type of content.

- **Attendance:** This is an online only asynchronous course, so attendance is **not** taken or required - however it should be noted that those that regularly attend office hours always perform dramatically better than their peers on average.
- **Xronos:** There are no make-ups for Xronos since it is due at the end of the semester.
- **Quizzes:** Each quiz has a due date assigned in Canvas that follows the recommended timeline of completion of the course. I realize many students take online asynchronous courses due to busy schedules outside of courses; and with this in mind quizzes are granted an automatic makeup period that lasts until **the day before** the exam on that material. This grace period imposes no penalty. Keep in mind that if you wait until the day before the exam to do the quizzes for any reason (including as a study aid) and then something goes wrong (getting sick, technology malfunction, etc) **there are no additional extensions or makeups offered[†]** - since the grace period already extends a penalty-free makeup period of days or even weeks.
- **Exams:** In order to get a makeup exam you must have a documented (and valid) reason to miss the exam. Otherwise you must rely on the **Exam replacement by Final Exam option mentioned above.**

[†]With one exception, see the footnote on the **Quizzes** section for details

Content Progression

Included below is an outline of the *typical* weekly progression of content for the semester. **However** this list should be considered a generic outline, and specific dates or weekly content may change slightly in any given semester (for example, due to holidays or start or end dates corresponding to partial academic weeks). For this reason **you** should check the Canvas shell for exact dates and recommended progression timelines.

Module I: Precalculus Review and Assessment:

Duration: 2 Weeks

Description/Outline: The first one to two weeks is a self-driven review of precalculus concepts necessary for the Survey of Calculus course. This culminates in the needs assessment, which is an exam on precalculus concepts and mechanics that students must pass before continuing on to the rest of the course.

Module II: Limits:

Duration: 3 Weeks

Description/Outline: We spend three weeks on limits, which underpin all of calculus. Generally topics covered are: Geometric and analytic views of limits, one sided limits, limit laws, continuity, the intermediate value theorem, indeterminate forms, limits at infinity, and asymptotes. We finish the segment with a few applications of limits, including instantaneous velocity.

Module III: Theory of Derivatives:

Duration: 4 Weeks

Description/Outline: We spend four weeks developing the theory of derivatives, which covers how to take derivatives of functions quickly and easily, as well as some general techniques to tackle harder functions. Generally topics covered include: Analytic and geometric view of derivatives, derivatives as functions, decomposing a derivative using which includes the product rule, quotient rule, chain rule, and implicit differentiation, and logarithmic differentiation.

Module IV: Applications of Derivatives:

Duration: 3 Weeks

Description/Outline: We spend three weeks on applications of derivatives, which covers a number of classic and useful applications, particularly in business and industry. Generally topics covered include: Finding extrema of functions, finding points of inflection and curvature, the extreme value theorem, and a number of practical applications which include Newtonian mechanics, graphing, linear approximation, related rates, and optimization.

Module V: Integration:

Duration: 3 Weeks

Description/Outline: We conclude the semester with three weeks on integration. Generally topics include: Antiderivative of core functions, area under the curve, Riemann Approximation, indefinite and definite integrals, the fundamental theorem of calculus, and u-substitution.