

MAC 2233
FALL 2024

SYLLABUS

COURSE TITLE: Survey of Calculus 1

CATALOG DESCRIPTION: Geometric and heuristic approach to calculus; differentiation and integration of simple algebraic and exponential functions; applications to graphing, marginal analysis, optimization, areas and volumes.

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 precalculus topics: basics of functions and graphing and their applications as models (linear, quadratic, rational, exponential, and logarithmic), as well as calculus topics: limits, differentiation and applications of the derivative, introduction to integration and its applications including area (volume is not covered). This course does not cover trigonometry.

In FALL 2024, you are assigned to the following course meeting time:

MAC 2233 0110 (18923) SURVEY OF CALC 1 MWF 8 CAR 100

INSTRUCTOR: Dr. Larissa Williamson
Office: LIT 380
Office Hours: in-person: M6, W7, F6
or by Appointment (via Zoom or in-person)
E-mail: lwill@ufl.edu
Webpage: <https://people.clas.ufl.edu/lwill/>

TEACHING ASSISTANT: Rishabh Sarma
Office: LIT 403
Office Hours: in-person: F5
online (via Zoom): W5, R5
or by Appointment (via Zoom or in-person)
E-mail: rishabh.sarma@ufl.edu
Webpage: <https://people.clas.ufl.edu/rishabh-sarma/>

Request for an Office Hour by Appointment must be sent at least 48 hours in advance.

The Course Management System is E-Learning (Canvas): <https://elearning.ufl.edu/>

E-MAIL: The **instructor** will communicate with the students and reply to **all** email messages received from the students **ONLY** via Canvas **Inbox** tool.

PREREQUISITES: Any of the following minimal acceptable scores on the online mathematics placement exam, a minimum grade of C in a MAC course numbered 1140 or higher; AP credit on MAC 2311; IB credit for a MAC course numbered 1140 or higher.

MAC 2233 assumes that the students have essential precalculus skills necessary to succeed in calculus, so we will review the most important topics of precalculus at the beginning of the term - the students who are having difficulty with the precalculus material are strongly recommended to take MAC 1140, a 3-credit review of Precalculus Algebra, instead of MAC 2233.

Note: you may adjust your class schedule on ONE.UF only during the drop-add week.

General Education Credit

- **Mathematics**

This course accomplishes the [General Education](#) objectives of the subject area listed above. **A minimum grade of C is required for General Education credit.** Courses intended to satisfy General Education requirements cannot be taken S-U.

At the end of the course, the students are expected to have achieved the [General Education](#) Student Learning Outcomes (SLOs), which are listed on the last pages of this syllabus.

Delivering Content

TEXTBOOK & ACCESS CODE: We use the following textbook in this course:

Calculus with Applications, 12th edition,

by Margaret L. Lial, Raymond N. Greenwell, Nathan P. Ritchey*

Access code to **MyLab and Mastering** is required in the course. **Access code can be obtained through [UF All Access](#) program by authorizing charges to your student financials account and is provided at a reduced price.**** This option will become available starting one week prior to the beginning of the semester. If you do not wish to authorize charges to your student financials account, you may purchase access code at the Campus bookstore instead (<https://www.bkstr.com/floridastore>), which will be more expensive than opting-in.

* Registration with MyLab gives you access to an electronic version of the textbook. If you wish to have a printed text, you may purchase it at the bookstore.

****See Course Tools & Technology → Course Materials & Registration Instructions on E-Learning (Canvas) for the complete information on obtaining access code through UF All Access and registration with Pearson's MyLab and Mastering.**

LECTURE NOTES: Lectures in this course are delivered using Lecture Notes shells, which can be printed from each Module on Canvas or from the Canvas page Lecture Notes. The Lecture Notes shells make note taking easier and are recommended in the course. The whole set of Lecture Notes (Course Packet) will be available for purchase at the beginning of the term at Target Copy (1412 W University Ave, Gainesville, FL 32603, <http://target-copy.com/>).

The completed lecture notes are posted in Canvas Modules.

TEXTBOOK READINGS: Reading the textbook is a part of the learning process. The students are strongly recommended to read the corresponding sections of the textbook after (or before) viewing a lecture and before doing homework on MyLab (see LECTURES and ONLINE HOMEWORK in this Syllabus). The pages of the textbook that match the content of the lectures are listed in Canvas Modules.

Course materials are divided into **5 Units** with 36 conceptual Modules, M01-M36.

Unit 1: Review of Algebra

Goal: Review of the most important topics in algebra.

M 01	Polynomials & Factoring (Sect. R1, R2)
M 02	Polynomial Division & Rational Expressions (Sect. R3)
M 03	Equations: Linear, Quadratic, and Rational (Sect. R4)
M 04	Inequalities: Linear, Quadratic, and Rational (Sect. R5)
M 05	Exponents & Radical (Sect. R6, R7)

Unit 2: Functions & Mathematical Models

Goal: Learn to work with the functions and mathematical models.

M 06	Slopes & Equations of Lines (Sect. 1.1)
M 07	Linear Functions & Applications; The Least Squares Line (Sect. 1.2, 1.3)
M 08	Properties of Functions (Sect. 2.1)
M 09	Transformations of Graphs & Quadratic Functions (Sect. 2.2)
M 10	Polynomial and Rational Functions (Sect. 2.3)
M 11	Exponential Functions (Sect. 2.4)
M 12	Logarithmic Functions (Sect. 2.5)
M 13	Applications: Growth & Decay; Math in Finance (Sect. 2.6)

Unit 3: Limits & Derivatives

Goal: Learn concepts of the Limit and Derivative and use them in applications.

M 14	Limits (Sect. 3.1)
M 15	Continuity (Sect. 3.2)
M 16	Rates of Change & Tangent Line (Sect. 3.3, 3.4)
M 17	Definition of the Derivative & Graphical Differentiation (Sect. 3.4, 3.5)
M 18	Techniques of Differentiation (Sect. 4.1)
M 19	Derivatives of Product and Quotient (Sect. 4.2)
M 20	The Chain Rule (Sect. 4.3)
M 21	Derivatives of Exponential Functions (Sect. 4.4)
M 22	Derivatives of Logarithmic Functions (Sect. 4.5)

Unit 4: Derivatives & Applications

Goal: Apply the Derivatives to investigating properties of functions

M 23	Increasing and Decreasing Functions (Sect. 5.1)
M 24	Relative Extrema (Sect. 5.2)
M 25	Higher Derivatives, Concavity, Second Derivative Test (Sect. 5.3)
M 26	Curve Sketching (Sect. 5.4)
M 27	Absolute Extrema & Applications (Sect. 6.1, 6.2)
M 28	Business Applications of Extrema (Sect. 6.2, 6.3)
M 29	Implicit Differentiation, Related Rates (Sect. 6.4, 6.5)
M 30	Differentials: Linear Approximation (Sect. 6.6)

Unit 5: Integration and Applications

Goal: Learn techniques of integration and use them in applications

M 31	Antiderivatives (Sect. 7.1)
M 32	Method of Substitution (Sect. 7.2)
M 33	Area & Definite Integral (Sect. 7.3)
M 34	The Fundamental Theorem of Calculus (Sect. 7.4)
M 35	The Area between Two Curves (Sect. 7.5)
M 36	Numerical Integration (Sect. 7.6)

Course Calendar

Fall 2024	Monday	Tuesday	Wednesday	Thursday	Friday
August	19	20	21	22	23 M1 L
	26 M2 L	27	28 M3 L	29	30 M4 L
September	2 Labor Day	3 HW M1-M3 due	4 M5 L	5 HW M4 due Bonus Project0 due	6 M6 L
	9 M7 L HW M5 due	10 Quiz-Unit1: M1-M5	11 M8 L	12 HW M6-M7 due	13 M9 L
	16 M10 L	17	18 M11 L	19 HW M8-M10 due	20 M12 L
	23 Review2 L	24 HW M11-12 due	25 M13 L Exam1: M6-M12	26	27 M14 L
October	30 M15 L	1	2 M16 L	3 HW M13-M15 due	4 M17 L
	7 M18 L	8	9 M19 L	10 HW M16-M18 due	11 M20 L
	14 M21 L	15	16 M22 L	17 HW M19-M21 due	18 Homecoming
	21 Review3 L	22 HW M22 due	23 M23 L Exam2:M13-M22	24	25 M24 L
November	28 M25 L	29	30 M26 L	31 HW M23-M25 due	1 M27 L
	4 M28 L	5	6 M29 L	7 HW M26-M28 due	8 M30 L
	11 Veterans Day	12 Review4 L (on Canvas)	13 M31 L HW M29-30 due	14 Exam3:M23-M30	15 M32 L
	18 M33 L	19	20 M34 L	21 HW M31-33 due Project1 due	22 M35 L
	25 Holiday	26 Holiday	27 Holiday	28 Holiday	29 Holiday
December	2 M36 L	3	4 Review5 L HW M34-36 due Quiz-Unit5: M31-M36	5 Reading Day	6 Reading Day

The Final Exam will be given on Monday, December 9, from 5:30 pm – 7:00 pm

LECTURES: The students are required to attend live lectures (MWF period 8 at CAR 100) on the dates indicated on the Calendar as “M# L” or “Review# L”, and the lecture participation will be taken during the class time (see section LECTURE PARTICIPATION below).

If you are missing a live lecture, you can watch it from the corresponding Module on Canvas.

MODULES & DUE DATES: It is advisable to start working on a Module no later than on the date indicated on the Calendar as “M# L” or “Review# L”, when the corresponding lecture is delivered, so that you can stay on track and avoid having too many Modules to complete by a due date. Working on Modules requires watching Lectures and completing MyLab assignments, which can include Online Homework (HW) and in-class Learning Catalytics quizzes (LC). Working on a Review Module, which is the last one in each Unit, will help you to prepare for an Exam or a Unit Quiz – there is no HW for a Review module. (For more details, please see sections ONLINE HOMEWORK and LECTURE PARTICIPATION below.)

TEXTBOOK HOMEWORK: Textbook homework problems are assigned after each lecture. **They will not be graded** but should be considered as an additional tool for mastering the material. Lists of recommended Textbook Homework problems are posted in Canvas Modules.

Assessments

ONLINE HOMEWORK: Each online **Homework Assignment (HW)** is a set of problems assigned on MyLab and numbered according to the Module covered. A HW assignment will give you the necessary practice for mastering the material delivered in lecture. Each homework assignment is due at 11:59 pm on the due date – the due dates are listed on Course Calendar, on Canvas, and on MyLab and Mastering. **A HW will be closed after the deadline and cannot be re-opened without a legitimate reason.** Credit for a HW will be given according to the percent value of the correct work completed. Review of a completed HW after the deadline will become available via MyLab gradebook – a non-attempted HW cannot be reviewed. There will be a total of 36 HW assignments offered, and the **2 lowest scores will be dropped** at the end of the term.

LECTURE PARTICIPATION: Starting with **M5 L**, lecture participation quizzes will be given in the lecture hall during each lecture. The students are required to register with MyLab & Mastering to use Pearson’s **Learning Catalytics (LC)** software and get points for participation. They will access LC from Canvas through the link **Access Pearson** on the left-hand navigation panel. A link to the active session will be shown on MyLab Homepage in the upper right corner. LC allows the student to use their smartphone, tablet, or laptop to respond to the questions in class, and their responses will be graded and recorded in the gradebook. A total of 35 sessions will be graded. There will be 2 questions per session. Each question is in a “multiple-choice” format and worth 1 point. The grade will be assigned as 75% for participation and 25% for correctness. The student will receive the full credit of 1.75 points by answering both questions and one of them correctly. If the student answers both questions correctly, they will receive 2 points for the session, which includes 0.25 bonus. **The 3 lowest scores on the LC quizzes will be dropped at the end of the term** to compensate for occasional absences, device failures, etc. **Lecture Participation cannot be “excused” but can be made-up** (see [Makeup Policy](#) in this syllabus).

All issues with in-class LC quizzes must be reported in-person in the lecture hall immediately after the lecture – late requests or requests sent via email will not be considered.

EXAMS & UNIT QUIZZES: There will be three midterm Exams, two Unit Quizzes, and the Final Exam offered during the term.

All midterm Exams and the Final are assembly exams: the midterm Exams will be given from 8:20 pm to 9:50 pm and the Final - from 5:30 pm to 7:00 pm on the dates indicated on the Calendar. The room assignments will be announced later. While taking an exam, the students will only be permitted to have pencils, pens, erasers, and a valid UF picture ID. Scratch paper and scantrons will be provided. Each midterm Exam and the Final contains 22 questions at 4 points each. The grade on each exam will be calculated out of 80 points (2 questions are for bonus). The time allowed is 90 minutes.

The Unit Quizzes, Quiz-Unit1 and Quiz-Unit5, are mandatory, but not proctored – they are “open note” quizzes. The Unit Quizzes must be taken from within MyLab and Mastering on the dates indicated on the Calendar: each Quiz opens at 12 am and closes at 11:59 pm on the same day. The time allowed is 75 minutes. A Unit Quiz contains 20 multiple-choice questions at 2 points each and will be graded out of 40 points (no bonus). Review of a completed Quiz will become available after the deadline and can be accessed from MyLab gradebook.

The mandatory Final Exam is accumulative: it covers Units 1-5. The Final Exam’s grade will be put in the category Final Exam, which weight is 13.38% of the total grade. The Final Exam will also work as a make-up (for details, see MAKEUP POLICY ON EXAMS in this syllabus).

For more information on Exams and Unit Quizzes, please visit the link Exam Information on the Canvas course main page.

Software Policy

Scientific calculators are required in the course. A graphing calculator is needed for some homework problems, but it can be replaced with suitable software, such as MATLAB, which is available via UF Apps. **Calculators are not allowed on Exams!**

We will be using MATLAB for some homework problems and Projects. The instructions on how to access MATLAB and work in the Live Script are located in Project 0. The students **are not required** to write MATLAB codes themselves - they will be using the basic codes given in Lectures and Projects to run them in MATLAB.

Projects

There will be two Projects offered in the course: **Project 0** and **Project 1**.

MATLAB Project 0 is a **bonus project** which will allow the students to start learning MATLAB programming environment in relation to the topics covered in the course. The students can use Project 0 as a reference when working on some exercises in Project 1 and on some HW problems. The bonus Project 0 is offered at the beginning of the term and is worth 10 points. The score earned on Project 0 will be added to the top of the score earned on Project 1.

Project 1 is mandatory and is worth 40 points - the students will be working throughout the term on its 5 Exercises (at 8 points each) using MATLAB and other applications, such as Word.

For more information on the Projects, please visit the link Projects on Canvas.

Makeup Policy

MAKEUP POLICY ON ONLINE HOMEWORK AND QUIZZES: If you are missing a deadline for a **HW** on a **legitimate reason** (being sick, being away on the UF business, family emergency, religious holidays), you can send an email to Dr. Williamson via **Canvas Inbox** tool no later than **three (3) days after the deadline** and **request** an extension on the **specified** HW assignments.

A lecture, missed on a legitimate reason, cannot be “excused”, but can be made-up: to make-up a lecture with a **LC quiz**, the student **must send an email** to the Instructor **no later than on the date of the lecture** with a **request to make-up the specific lecture**, and the instructor will email the student an ID of a make-up LC session, which will be due on the following day at 11:59 pm. **If you miss a Unit Quiz**, you need to send a request for a make-up **no later than within three (3) days** after the deadline - missing a Quiz **without a legitimate reason** results in a 5-point penalty.

MAKEUP POLICY ON EXAMS: It may be necessary to miss a midterm Exam, or you may not be satisfied with your grade earned on Exams. For these reasons, the score for the **Final Exam** will appear in the Gradebook second time in the category **Exams** as **MakeUp**, and **the one lowest score on Exams 1-3 and MakeUp** will be dropped in the category **Exams** at the end of the term.

If you are missing a midterm Exam on a legitimate reason (being sick, being away on the UF business, family emergency, religious holidays, conflict with an assembly exam of a **higher number course**), you **can** request an **Early make-up** and save the make-up option of the Final.

The **Early make-up** will be given once, after Exam 3, from 8:20 pm to 9:50 pm. A request for the Early make-up must be sent to Dr. Williamson **via Canvas e-mail** either **prior to the regular exam** or **within one (1) day** after the exam. Upon verifying a student’s eligibility for the Early make-up, the instructor will communicate with the student and send them the information on the date and location. There will be different versions of the **Early make-up**, each one will match the material covered on the corresponding midterm exam.

If you miss the Final Exam, you must send a request for a make-up **no later than within one (1) day** after the Final Exam. Missing the **Final Exam** **without a legitimate reason** will result in a 10-point penalty. The **make-up** for the Final will be given during the Final Exams week – the date, time, and location will be announced later.

A **legitimate reason** for requesting extension/make-up on the **specified assignments** must be **clearly stated** in the student’s email, and **the instructor may ask for documentation**, which must be presented in a timely manner. Providing only the documentation, **without sending a timely request specifying the assignments**, **will not result automatically in giving the student an extension or a make-up.** **Late requests and late documentation will not be accepted!**

Our assembly exams have precedence over the classes, non-assembly exams, and assembly exams of the **lower number courses**.

You can discuss with your Instructor a midterm Exam, Unit Quiz, HW, LC quiz, Project **within three (3) days**, and the Final Exam – **within one (1) day** upon receiving the grades if there is a grading error or **any other problem.** **Late requests will not be accepted!**

All issues with Canvas, HW & Quizzes in MyLab and Mastering, UF Apps/MATLAB **must be reported immediately and documented** when sending a request for an extension or a retake.

Grades

COURSE GRADE: The course grade is assigned based on the student's performance on the following weighted categories:

32	Lecture Participation	@ 1.75 points	56 points	9.36 %
34	Online Homework	@ 3 points	102 points	17.06 %
2	Unit Quizzes	@ 40 points	80 points	13.38 %
3	Exams	@ 80 points	240 points	40.13 %
1	Final Exam	@ 80 points	80 points	13.38 %
1	Project 1	@ 40 points	40 points	6.69 %
Total:			598 points	100 %

The course grade is the grade satisfying the conditions below and **will be adhered** to:

	Minimum %		Minimum %
A	90 %	C	66 %
A-	86 %	C-	62 %
B+	82 %	D+	58 %
B	78 %	D	54 %
B-	74 %	D-	50 %
C+	70 %	E	0 %

Note: We have a 0.5% round-up margin towards a higher letter grade.

GRADE POSTING: All grades will be posted in a timing manner on E-Learning (Canvas) at <https://elearning.ufl.edu/>. We strongly recommend verifying your grades regularly. **You should immediately report any problem with your grade to your instructor.**

Miscellaneous

Grades: Grading will be in accordance with the UF policy stated at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Help: In addition to visiting your instructor's and teaching assistant's office hours, the Little Hall Math Lab, located at Little Hall 215, offers free drop-in assistance with math homework Monday – Friday from 10:30 am - 4:00 pm. There are some other resources available that can be found under Office of Academic Support link: <https://oas.a.ufl.edu/students/tutoring/>
For help with the course websites, please visit **Resources & Help** on Canvas.

Honor Code: “UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The [Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.”

Class Attendance: “Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> “

Accommodations for Students with Disabilities: “Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/> It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.”

Online Evaluations: “Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.”

Contact information for the Counseling and Wellness Center: <https://counseling.ufl.edu/> 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Student Learning Outcomes (SLOs)

At the end of this course, students will be expected to have achieved the [General Education](#) learning outcomes as follows:

- **Content:** Students demonstrate competence in the terminology, concepts, theories, and methodologies used within the discipline. After completing this course, students will be able to employ strategies in solving problems in limits, differentiation, and integration. (Critical Thinking for Gen Ed Math, assessed through homework, lectures, quizzes, exams.)
- **Communication:** Students communicate knowledge, ideas, and reasoning clearly and effectively in written and oral forms appropriate to the discipline. Throughout this course students will formulate and solve mathematical models using algebraic, exponential, and logarithmic functions, differentiation and integration, and will communicate mathematical solutions clearly and effectively. (Communication for Gen Ed Math, assessed through homework, lectures, quizzes, exams.)
- **Critical Thinking:** Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems. In this course, students will reason in abstract mathematical systems, and they will apply mathematical models to business, economics, life, and social sciences using algebraic, trigonometric, exponential, and logarithmic functions, differentiation and integration, calculation of exact areas between curves, applications of rates of change, identifying the limits of algebraic and transcendental functions, using the derivative as a

tool for approximation through differentials and linear approximation, solving optimization problems, among other applications of calculus to solving problems. They will also develop and solve mathematical models of real-world word problems. (Critical Thinking for Gen Ed Math, assessed through homework, lectures, quizzes, exams.)

Assignment Category	Short Description	General Education Mathematics SLOs Met	% of Grade
Lecture Participation	Learning Catalytics Quizzes on MyLab	Communication, Content, Critical Thinking	9.36 %
Online Homework	Sets of Problems on MyLab	Communication, Content, Critical Thinking	17.06 %
Unit Quizzes	Quizzes on MyLab	Communication, Content, Critical Thinking	13.38 %
Exams	Evening Midterm Exams	Communication, Content, Critical Thinking	40.13 %
Final Exam	End-of-Term Exam	Communication, Content, Critical Thinking	13.38 %
Project 1	Project on Applications	Communication, Content, Critical Thinking	6.69 %