MAC1140 - Precalculus Algebra

Instructor: Dr. Jason Nowell - jnowell@ufl.edu

Office: LIT316   **Phone:** (352) 294-2350

Office Hours: Zoom: M: 11:00-Noon, W:3:00-4:00

TA(s):

NAME email	NAME email
TBD	

TA Office Hours: Please see the Canvas Home Page.

Syllabus

Course Description

This is MAC1140 - "Precalculus Algebra". This course will cover all standard aspects of precalculus except for trigonometry. This includes; terminology, variables, general functions, basic modeling of real world examples, translations, transformations, polynomials, radical functions, exponential functions, logarithmic functions, piecewise functions, and rational functions.

A minimum grade of C (not C-) in MAC1140 satisfies three credits of the university General Education Math requirement. See more about this in the General Education Information below.

Prerequisites

MAC1140 does not require any prerequisites, but it does assume basic numerical literacy. Students should be able to do basic arithmetic without a calculator. If the pace or level of course material appears to be beyond your experience I highly suggest you look into taking MAC1105 "College Algebra" instead. You may switch courses at https://student.ufl.edu/ during the drop-add period.

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. More details are available on Canvas.

Note that any Recommended/Required reading assignments will be listed in Canvas, either on the pages for each week of the course or in a Recommended progression table. In addition, announcements and/or emails will be sent out to supplement the list of required/recommended reading as needed.

Course Goals:

This is MAC1140 "Precalculus Algebra". The goal of this course is to provide the mechanical and conceptual tools necessary to continue on to either; Business Calculus' (MAC2233), or 'Calculus One' (MAC2311) except for trigonometry, which can be taken separately by taking MAC1114 "Trigonometry". Alternatively one can take the accelerate combined Precalculus algebra and trigonometry class MAC1147 instead of taking MAC1140 and MAC1114.

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, course homepage, syllabus, lecture videos, office hours, test locations, 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 the One Week Policy).

Instructional Design

The vast majority of instructional content for this course will take place via the Xronos system. This is an interactive site that will contain both the homework/practice content, as well as embedded lecture videos which will provide the instructional content as well. Keep in mind that, as much as I try to make the lecture videos as ideal and engaging as possible, this is only one step in the process. You should view the lecture videos as a starting point, and take the opportunity to email the instructor or the TA(s), or attend any of their office hours, to ask any followup questions you have. If you never interact with the instructor or TA outside of the required meetings, it is unlikely that you will get a good grade in the course; and more importantly you are passing up an invaluable resource in the form of personalized one on one instruction from an expert in the field to help you with whatever questions you have, big or small. We want to help, but we can't if you don't ask us questions... we aren't mind readers and can't know what you need help with without some help from you first!

When it comes to the lecture videos there are a few things to keep in mind as you watch them. Please read below to understand why some parts of the videos might be boring, while some might seem way too hard.

- First and foremost this course is intended to get students prepared for one of the UF calculus sequences. The calculus sequence is *considerably* more rigorous and difficult than high school or advanced placement (AP) type courses, and the precalculus courses are similarly much more difficult in preparation for this. In particular, even students that routinely have gotten A's in their math courses in high school will likely find this course quite challenging.

- This course also aims to get everyone on the same mathematical level in terms of notation, communication, and terminology before students move forward. As such there will inevitably be times when you will find the content boring or otherwise elementary. This is because not everyone will be familiar with any given aspect, which means we must cover everything to some extent. However, due to the quantity of material that we need to cover from this, each of these excursions will be only a brief overview.

- 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 it's 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 it's 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.

One Week Policy

Please be aware of the **One Week Policy**: Once you receive a graded paper back, you have **one week** to contest the grade and initiate any grade disputes. Once this one week passes, **there are no further disputes**. In particular, once the end of the semester nears, you *cannot* start disputing, say, grades from the first week or two.

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.**

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. If you meet the criteria you must see the instructor before the beginning of finals week to be considered for an I. A grade of I only allows you to make up your incomplete work. You cannot redo any previously completed work.

Online Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://gatorevals.aa.ufl.edu/. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.

Advising and Help

- The Canvas homepage has a "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 at:

  - Website: https://helpdesk.ufl.edu
  - Phone: (352) 392-HELP (4357)
  - Walk-in: HUB 132

  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. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

- For all concerns with MAC1140, please talk to your TA or Instructor! Office hours will be posted 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:

  - The Teaching Center Math Lab, located at SE Broward Hall, offers free informal tutoring. You may want to attend different hours to find the tutors with whom you feel most comfortable. Also the Little 215 Tutoring Center provides free tutoring for courses up to Calculus 1. Go to https://www.teachingcenter.ufl.edu to find their hours. You can also request free one-on-one tutoring.
  - A list of qualified tutors for hire is available at https://www.math.ufl.eduhttps://www.math.ufl.edu.
  - Other resources are available at https://www.distance.ufl.edu/getting-help for:
    * Counseling and Wellness resources
    * Disability resources
    * Resources for handling student concerns and complaints
    * Library Help Desk support

- Should you have any complaints with your experience in this course please visit https://www.distance.ufl.edu/student-complaints to submit a complaint.

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:
http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf

Honor Code

All students are required to abide by the Academic Honesty Guidelines which have been accepted by the University. The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust and respect. Students are expected to pursue knowledge with integrity.

Violations of the Academic Honesty Guidelines shall result in judicial action and a student being subject to the sanctions in paragraph XIV of the Student Code of Conduct. The conduct set forth hereinafter constitutes a violation of the Academic Honesty Guidelines (University of Florida Rule 6C1-4.017). You may find the Student Honor Code and read more about student rights and responsibilities concerning academic honesty at the link https://www.dso.ufl.edu/sccr/.

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. If a student does not supply the appropriate documentation in a timely fashion, the instructor may not be able to accommodate the student in a timely manner.

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. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute bu?on activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

General Education Information

General Education Objective (Mathematics)

Courses in mathematics provide instruction in computational strategies in fundamental mathematics including at least one of the following: solving equations and inequalities, logic, statistics, algebra, trigonometry, inductive and deductive reasoning. These courses include reasoning in abstract mathematical systems, formulating mathematical models and arguments, using mathematical models to solve problems and applying mathematical concepts effectively to real-world situations.

In this course, this objective will be met by . . .

This course provides the fundamentals in solving equations, inequalities, and manipulating various functional types using primarily deductive logic techniques. It also covers the basics of mathematical modeling and how to apply mathematical concepts to real-world situations.

General Education Student Learning Outcomes (SLOs)

Content: Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.

Communication: Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.

Critical Thinking: Students analyze information carefully and logically from multiple perspectives, using discipline specific methods and develop reasoned solutions to the problems.

In this course, these SLOs will be met by . . .

Content: Students will learn critical terminology, concepts, methods, and theories during lecture. This will include terminology used within the discipline to communicate mathematical ideas efficiently and accurately. They will also learn the concepts and methodologies used to solve algebraic systems modeled by a variety of function types, as well as some core theorems appropriate to the course level. Students will demonstrate their competencies via interactive online coursework, quizzes, and exams.

Communication: Students will be required to interpret various levels of data, from premodeled systems, to real-world descriptions that require mathematical modeling, then solving for the desired information. This will then be recorded and graded in real time by the Xronos learning platform.

Critical Thinking: Students are required to develop and manipulate their own models from descriptions of real world events or problem statements, which may include extraneous information or even incomplete information (forcing students to propose what information would be necessary to complete the model and/or solve for the desired information). Problems routinely require critical thinking, as described in the Instructional Design and Exam Design sections.

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
Xronos (Combined)	100	100
Quizzes (10 of 13)	10	100
Exams (3 total)	50	150
Final	100	100
Total Points		450

Grade	Point Range	Grade	Point Range
A	405-450	C	315-329
A−	390-404	C−	300-314
B+	375-389	D+	285-299
B	360-374	D	270-284
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 asyncronous learning in the course. There is a single Xronos 'assignment' in Canvas which is an interactive set of course notes that follows our course. It has numerous interactive features as well as examples and problems scattered throughout. The entire assignment is due after the final exam, but I will be posting regular updates about where you should be, and what sections you should cover, in preparation for each exam. I recommend you do not try to complete the entire assignment at the end. 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 (the calendar at the end of this syllabus and/or posted in Canvas) to maximize learning and retention of the material.

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

- You **MUST** access Xronos via Canvas **every single time you do your homework.** Do not bookmark the page, do not save the page, do not access Xronos directly via a link – you **MUST** go through Canvas **EVERY TIME**. If you do not – you will not receive credit for the problems you solve. This cannot be stressed enough.

- Canvas may (and almost certainly will, often) tell you that a grade has been submitted for the "Xronos assignment" whenever you work it. 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.

- 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 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**.

- Also 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).

Quizzes

Quizzes will be administered in Canvas. These will be twenty to 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 you get to drop three quizzes). 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.

Since we are dropping three quizzes, we will **not be offering makeup quizzes**. Keep this in mind when you are considering your scheduling for the semester.

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 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 three exams during the semester, with a final at the end (for a total of four tests). The time and (goal/tentative content) for each exam are as follows:

Exam	Date	Content
Exam 1	See Canvas	Topics: Module 2
Exam 2	See Canvas	Topics: Module 3
Exam 3	See Canvas	Topics: Module 4
Final	See Canvas	Cumulative: All Content

An Important Note About Exam Design

Another remark about the exams is necessary. Typically, for most math courses, the class mean average exam score is in the $63\% - 68\%$ range. This often comes as a (rather unpleasant) shock to students, especially those that are newer to UF and are use to getting consistently excellent grades. The instructor and TA(s) will provide all the help they can, and there is unlimited practice offered as well (see 'On-line homework' above), but ultimately you are on your own for exams, and they are exceptionally challenging. 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.

Final

There will be a final exam on TBD. Your final 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). The exact format of the final will be announced as we get closer to the date. 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). This will be done automatically, **You do not need to request this**.

Makeup Policies

Requirements for class attendance in this course is consistent with university policies. See below for class policies for makeup content (by type of content).

- **Xronos**: There are no make-ups for Xronos.

- **Class Participation**: There are no make-ups for class participation.

- **Discussion Quizzes:** Due to the extra quizzes, there are no makeups for discussion quizzes.

- **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 half-final-grade option mentioned above. Only one makeup will be offered, and *it will be held at the end of the semester*. Thus if you missed Exam 1 and have a valid (and documented) reason that warrants a makeup, it will still not be held until the end of the semester. Since there is only one makeup time, **only one makeup exam will be offered**. Even if you miss more than one exam, you may only make up **at most** one exam.

You can find the UF guidelines on grading here: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

Calendar

Week 1: Module 1: Review and Needs Assessment for Course

Week 2: Start Module 2: Introduction to Mathematical Reasoning, Applying Mathematical Reasoning to Numeric Models. Introduction to Functions; Domains, Range, CoDomains, Notation, and Composition. Introduction to Graphing.

Week 3: Continue Introduction to Graphing, Library of Functions.

Week 4: Translations and Transformations of functions.

Week 5: Points of Interest; Zeroes, Intercepts. Algebraic Manipulation of Functions, Inverse Functions.

Week 6: Start Module 3: Polynomials; Introduction and definitions.

Week 7: Polynomials: Factoring Methods.

Week 8: Polynomials: Synthetic and Long Division, Complex Numbers.

Week 9: Radical Functions.

Week 10: Inequalities.

Week 11: Start Module 4: Exponential Functions.

Week 12: Logarithmic Functions.

Week 13: Piecewise Functions.

Week 14: Absolute Value Functions.

Week 15: Rational Functions.

The above is a general week by week outline of intended content coverage, but for the most updated dates and timeline, please see the Canvas "Recommended Xronos Progression Table" on Canvas.