MAC2312 Calculus 2

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Contents

1 Course Description

MAC 2312 is the second in the three-semester sequence MAC 2311, MAC 2312, MAC 2313 covering the basic calculus. Intended topics will include integration techniques, infinite sequences and series, polar coordinate and application of definite integrals. A minimum grade of C (not C-) in MAC 2312 satisfies four credits of the university General Education Math requirement.

1.1 Prerequisites

MAC2312 assumes that you have essential precalculus skills (both algebra and trigonometry) necessary to succeed in calculus as well as the basic fundamentals learned in the prior course MAC2311. Students should be able to do arithmetic without a calculator. To enroll in MAC2312, you must have earned a grade of C or better in MAC2311(or its equivalent), earned calculus credit through an exam or earlier coursework. MAC2312 begins with the integration chapter. You should already be competent in integrating simple functions such as power functions, exponential, sine and cosine functions, and the use of simple u-subs, etc.

We strongly recommend that students who are having difficulty with these core calculus concepts to consider reviewing MAC2311 (or take the course if you have not already done so). You may switch courses on ISIS during the drop-add period.

1.2 Course Materials

There are no required textbooks for this course. We will make use of a free online textbook available at `http://bit.ly/2vK7UTB`. Also, in this course we will pilot a new online homework system being developed at UF. This work is supported by the Office of the Provost and the College of Liberal Arts and Sciences. The platform is called Xronos and is accessible through the Canvas site. More details will be given in class.

1.3 Online Resources

E-learning Canvas, a UF course management system, is located at `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. Please note: Important course information is clearly communicated in this course guide, the MAC2312 homepage, links in Canvas, and announcements in lecture and discussion. Due to the volume of email received by the instructor, we cannot reply to each request for this well publicized information. If you cannot find your answer in the resources above, there is also a Discussion Forum available in Canvas. Please use this to post questions and to supply answers to your fellow students.

1.4 Calculators

A graphing calculator and Wolframalpha are useful as a study and learning tool when used appropriately, but they are not essential. I also recommend the online graphing calculator Desmos (`www.desmos.com`), and the app GeoGebra (`www.geogebra.org`) to help you as you learn the material, but calculus is a collection of ideas that are not mastered through calculator skills. No calculators are allowed on quizzes/assessments or on the exams.

1.5 Lectures

This class will take a different form than you may be used to. I will not lecture for the whole period, if at all. You will be responsible for watching pre-recorded lectures online at the course site in Canvas **BEFORE** coming to class. We will spend most of our class time working on problems and exploring the concepts of calculus. Come to class ready to participate.

1.6 Discussion Sections

We meet once a week on Tuesday. This time gives you a valuable opportunity for open discussion of the lecture material and assigned problems in a smaller class setting. Attendance in discussion is required as it is where assessment of your skills will take place. However, one period per week is generally not adequate to answer all questions. Be sure to take advantage of the opportunities outside of class for additional help. You must retain all returned papers in case of any discrepancy with your course grade. As mentioned above, you should check Canvas regularly and consult with your TA if you have any questions about recorded grades. All grade concerns must be taken care of within one week of receiving the score.

2 Course Assignments and Grading

2.1 Online Homework

In this course we will pilot a new online homework system being developed by the math department at UF. This new platform, called Xronos, is free of charge and will be explained during class. Online homework assignments will be posted regularly and must be completed in a timely fashion. These will count up to a maximum of 100 points, but the total number of points available is higher to offset credit lost due to technical difficulties or a missed assignment. **There are no makeups or drops for online homework since you have several days to complete each assignment. Do not try to complete an assignment in one sitting; start early instead of waiting until the due date to avoid missing the deadline.**

2.2 Class Participation / Attendance

Up to 50 points may be earned by attendance and completing problems in class with your group. More details will be available in class. **YOU MAY NOT TURN IN WORK FOR A STUDENT WHO IS NOT IN CLASS** (see honor code below). **There will be extra points available to account for an occasional absence.**
Following university policy, you may expect a penalty (additional lost points) for at-tending fewer than 75% of your classes. In addition, you will lose the opportunity to earn additional points (if available) at the end of the semester.

2.3 Final Exam

There will be a final exam on Saturday, December 9, 2017 from 5:30 to 7:30 p.m. In order to pass the course, you must score at least 60% on this test.

2.4 Standards-Based Grading

In this course, we will use Standards-Based Grading. You may have never heard of this. First, consider what it means to say a student scored an 87 on a test? You probably never thought about this carefully because you are so used to earning points on exams and in your courses. What it means is that the student managed to aggregate 87 points out of 100. What it does not mean is that the student understands things very well (necessarily). In fact, it might be that the student did not get any question on the test completely right, but merely managed to get most of the problems mostly right.

Standards-based grading aims to remedy this situation by testing students on specific concepts that they should master and grading the papers as pass or fail. There is no partial credit and there are no points. It's either correct or not. Students then receive grades based on how many concepts they have mastered. You may be concerned that it doesn't seem fair. What if a student had a bad day and just blew a quiz? The remedy for that is that you get to retake the assessments up to four times until you prove mastery. Also, once you've proved that you know a concept, no one can take that away from you; it's in the bank. So, if you master the number of concepts required to earn a B in the course, no future assessment can damage that. This is in stark contrast to the traditional points system in which each test is high pressure - any one of them can really hurt your grade. Another advantage is that there is no quibbling about points. Your assessments are either correct or not and we can therefore talk about the mathematics instead of arguing about a point or two. Mastery of enough concepts will earn you a passing grade, but to get a higher grade in the class you will need to master some more advanced concepts.

Another benefit of this system is that you can prepare at your own pace. Instead of having to study a bunch of concepts for a specific test, you can prepare for one concept being tested before having to move on to the next. That being said, we do have limited time in the semester, and it is very easy to let some

assessments fall to the wayside. For this reason, there will be 2-3 cut-offs throughout the semester, by which you need to have attempted all available assessments, otherwise you may risk being caught at the end of the semester. I will announce these times in advance in class.

Here are the core and advanced standards.

2.4.1 Core Standards

1. Integration by parts
2. Trig substitution
3. Volumes of solids of revolution
4. Areas between curves
5. Calculus of Parametric curves
6. Geometric Series
7. Comparison Tests
8. Ratio Test
9. Alternating Series
10. Taylor Series

2.4.2 Advanced Standards

1. Trig Integrals
2. Partial Fractions
3. Volumes by slicing
4. Areas of polar regions
5. Arc length of polar curves
6. Alternating Series Error Estimation
7. Taylor Series Error Estimation
8. Improper Integrals
9. Integral Test
10. Root Test
11. Convergence of Sequences
12. Summing Infinite Series
13. Absolute and Conditional Convergence

Provided you score the necessary 60% on the final exam, your grade will be determined using the following chart.

A	demonstrate mastery of each core standard master 10 advanced standards; to get a full A these must include Volumes by Slicing and Improper Integrals have a class participation score of at least 80% have a homework grade of at least 90%
B	master each core standard master 8 advanced standards have a class participation score of at least 70% have a homework grade of at least 80%
C	master each core standard master 6 advanced standards have a class participation score of at least 60% have a homework grade of at least 70%
D	master each core standard have a class participation score of at least 50% have a homework grade of at least 65%
E	does not fit in the categories above

Plusses/minuses will be given for slightly exceeding/falling just short of each grade threshold. The percentages on class participation and homework are non-negotiable for these purposes (that is, you must achieve the required percentages to get a grade in that range). For example, mastery of 11 advanced concepts can earn either an Aor B+, depending on which concepts are mastered. The point, though, is that there is no quibbling about the letter grade; these standards are absolute.

These standards will be assessed via short quizzes during your discussion section and at other times during the semester. If you do not achieve mastery on a particular concept, then you may reassess later. This will happen during discussion every few weeks. We will also have assessment opportunities during evening exam periods. The point is that you will have ample opportunity to demonstrate your skills. However, remember that you need to be **actively** attempting these assessments. I want you to be prepared, but I do not want you to procrastinate. You may monitor your progress toward mastery in the Learning Mastery gradebook in Canvas.

2.5 Makeup Policies

- For during-term exam conflicts, please refer to university policy `catalog.ufl.edu/ugrad/current/regulations/info/exams.aspx`. The upshot being that if MAC2312 is the lower course number, please contact me ASAP (and no later than one week prior to the exam) so that accommodations can be made.
- Since we will be using standards based grading, and you are allowed to take assessments effectively on your timetable, there are no "make-ups" for standards assessments.
- There are no make-ups for Xronos HW.
- There are no make-ups for class participation.

2.6 Incomplete Policy

A grade of I (incomplete) will be considered only if you meet the Math Department criteria which is found at `http://www.math.ufl.edu`. If you meet the criteria you must see the class coordinator 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.

3 Online Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at `https://evaluations.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. Summary results of these assessments are available to students at `https://evaluations.ufl.edu/results/`.

4 Advising and Help

For all concerns with MAC2312 Calculus 2, your TA (also me) is your first resource. 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 me 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 `http://www.teachingcenter.ufl.edu` to find their hours. You can also request free one-on-one tutoring.
- Textbooks and solution manuals are located at the reserve desks at Marston Science Library.
- The Counseling Center has some information on developing math confidence. Go to `http://www.counseling.ufl.edu/cwc/Developing-Math-Confidence.aspx` for information on math confidence and joining the Academic Confidence Group.
- A list of qualified tutors for hire is available at `http://www.math.ufl.edu`.

5 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 `www.dso.ufl.edu/sccr/`.

6 Students with Disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office `www.dso.ufl.edu/drc/`. The DOS will provide documentation to the student who must then provide this documentation to the course instructor, Jeramiah Hocutt in Little 475, when requesting accommodation. Any accomodations for exams must be submitted no later than two weeks **before** the first exam/assessment. 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.