

Mathematics 252X: Calculus II  
Section FXA, Fall 2020

**Catalog Description:** Further topics in single-variable calculus, including techniques of integration; applications of integration; convergence of sequences and series; parameterized curves; and polar coordinates.

**Instructor:** John Rhodes, [j.rhodes@alaska.edu](mailto:j.rhodes@alaska.edu), 208B Chapman, 474-5445

**Teaching Assistant:** Wesley Voley, [wrvoley@alaska.edu](mailto:wrvoley@alaska.edu)

**Instructor Office Hours:** M,W 10:30-11:30, F 8:00-9:00, and by appointment; via Zoom (e-mail to start)

**Electronic Access:** All access to on line course materials and internet tools (Zoom, WebAssign, and Gradescope) is through UAF Blackboard. Zoom lectures will be recorded, and available only to class members. You will need to be able to produce pdfs of quizzes and homework for uploading to Gradescope.

**Prerequisites:** Math 251 Calculus I, with a grade of C- or better

**Credit Hours:** 4.0

**Required Materials:**

Text: Calculus, Early Transcendentals 8th ed., by James Stewart

On-line homework system: WebAssign, license bundled with text through UAF bookstore, or may be bought independently.

**Class Meetings:** MWF 9:15-10:15, Th 9:45-10:45, via Zoom

**Midterm Exams:** Monday Sept. 21, Monday Oct. 19, and Wednesday Nov. 18. Midterms are planned to be in-person, **in the evening**, at times to be announced. Accommodations will be made for those with health or employment issues.

**Final Exam:** 2:30 - 5:30, Tuesday, Dec. 8

**UAF Math & Statistics Lab:** For free tutoring or occasional help, see <https://www.uaf.edu/dms/mathlab/math-and-stat-lab/>

**Course overview and learning outcomes:** This course continues the development of calculus of functions of a single variable begun in Calculus I courses at virtually any US university. You will first learn more techniques for calculating integrals (Chapter 7 of the text), and how to apply integration to solve various problems in mathematics, the sciences, and economics (Chapters 5 and 8). The course next develops the idea of an infinite sum, called a *series* (Chapter 11).

This is likely to be almost entirely new to you, and for most students is the most challenging conceptual part of the course. Series play an important role in solving differential equations (Math 302) which many engineering and science majors will be required to learn more about in a few semesters. Finally, we end with a brief exposure (Chapter 12) to using calculus to understand paths of objects in a plane, and the use of polar coordinates. Both of these topics are important preludes to Math 253 Calculus III, which develops calculus tools for understanding motion, forces, volumes, and other concepts in 2- and 3-dimensional space.

The parts of the course outlined in the last paragraph are distinct enough that they could be taught in any order (almost). This may be good or bad for you: You have several opportunities to “restart” on new topics, but when reviewing for the cumulative final exam you will need to look over everything, as later topics will not effectively reinforce earlier ones in your learning.

**Mechanics of the course:**

Due to the COVID-19 pandemic, this course is being taught via Zoom instead of in-person. However, it will preserve the flow and interaction of an in-person lecture class as much as possible. This includes regular class meetings 4 days a week, a weekly recitation taught by a teaching assistant, and due dates/times for assignments closely tied to the lecture. While attendance at the live Zoom lectures is not required (and you can watch recordings if you miss an occasional one), it is assumed.

If you would prefer a course without live lectures, or have difficulty attending them at the scheduled times, you should instead enroll in the asynchronous delivery on-line section UX1 offered through UAF eCampus.

**Homework:** Three distinct types of homework will be assigned:

- Basic assignments are done through the on-line WebAssign system, and are intended to take about 1 hour per lecture. This is the primary way you practice the material to learn it. Problems are multiple choice or fill-in-the-blank, and are instantly computer graded. Due dates/times are at the start of the 2nd lecture after the assignment became live. You will be able to make at most 5 attempts on each problem. After the due date/time you may request an automatic 2-calendar-day extension within WebAssign, with a 50% penalty on any new problems completed.
- Written problems from the text will be assigned at a rate of about 2 per lecture. You are to write complete solutions to these on paper, and then upload those assigned for a consecutive W,Th,F,M lecture sequence to Gradescope by **midnight Wednesday**. The teaching assistant will grade these. You are encouraged to work with others on the written homework, but you must *write up solutions independently*. The best approach for effective learning is 1) make a first attempt at all problems alone, 2) work with a classmate on any difficulties, 3) write up complete solutions alone.
- Unproctored 30 minute quizzes of a few problems will be made available on certain lecture days marked on the class schedule (usually Monday).

You should take these either on your own paper or a printout of the quiz pdf, without using any reference materials, computer, calculator, smart phone, or human help. Solutions must be uploaded to Gradescope by **midnight Monday**. The teaching assistant will grade these in detail, but any “mostly correct” solution will get full credit. Please honestly follow the rules on these, as cheating will not increase your grade substantially and it will help the teaching assistant see where to focus attention in recitations.

**Examinations:** Midterm examinations are planned to be on-campus, in-person, socially distanced, in the evening (if health considerations allow this). There will be no lectures meeting on exams days. The final exam will be given similarly, at the time scheduled by UAF. If due to your work schedule or health concerns you would prefer other arrangements, make sure you let me know at least **two weeks in advance**. If you are required to quarantine, let me know as soon as possible.

**Missed examinations or assignments** that are not approved in advance will result in a zero grade on that exam or assignment. No make-ups will be allowed except in unforeseeable circumstances (e.g., documented illness, quarantine, family emergencies, etc.). Notifying me by email or a note that you will miss an exam or due date is not sufficient for advance approval; you must speak with me via Zoom if you believe you have a valid excuse.

**Calculators** or similarly capabilities on smart phones or computers may be used on any homework, but not on quizzes or exams.

**Auditing** of this course will only be allowed for those who agree to participate fully, as evidenced by completion of homework, midterm exam, and class participation.

**Grades:** Your course performance will be evaluated based on 5% WebAssign, 10% Written homework, 5% Unproctored quizzes, 55% midterm exams (18.33% each), 25% final exam. Course grades will be determined according to the following cutoffs:

$$A: \geq 90\%, B: \geq 80\%, C: \geq 70\%, D: \geq 60\%.$$

The extreme 3 points of each grade range will receive a ‘+’ or ‘-’.

Cutoff points may be moved downward if particular assignments or exams turn out to be unexpectedly difficult. Note that you are not in competition with your peers; everyone in the class may get an A+, or everyone may get an F.

**University and Department Policies:** Your work in this course is governed by the UAF Honor Code. The Department of Mathematics and Statistics has specific policies on incompletes, late withdrawals, and early final exams:

<http://www.dms.uaf.edu/dms/Policies.html>.

**Student disabilities statement:** Your instructor will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities.

**Student protections statement:** UAF embraces and grows a culture of respect, diversity, inclusion, and caring. Students at this university are protected

against sexual harassment and discrimination (Title IX). Faculty members are designated as responsible employees which means they are required to report sexual misconduct. Graduate teaching assistants do not share the same reporting obligations. For more information on your rights as a student and the resources available to you to resolve problems, please go to the following site:

<https://catalog.uaf.edu/academics-regulations/students-rights-responsibilities/>.

**COVID-19 statement:** Students should keep up-to-date on the university's policies, practices, and mandates related to COVID-19 by regularly checking this website:

<https://sites.google.com/alaska.edu/coronavirus/uaf/uaf-students?authuser=0>

Further, students are expected to adhere to the university's policies, practices, and mandates and are subject to disciplinary actions if they do not comply.

	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>8/24-28</b>	Intro & Review -- Derivatives, Integrals, FTC <b>Quiz</b>	Recitation	Review -- Chain rule, Integration by substitution	§7.1	§7.2
<b>8/31-9/4</b>	§7.3 <b>Quiz</b>	Recitation	§7.3	§7.4	§7.4 <b>Quiz</b>
<b>9/7-11</b>	<b>NO CLASS</b> <b>Labor Day</b>	Recitation	§7.5	§7.7	§7.7
<b>9/14-18</b>	Review of limits; §7.8 <b>Quiz</b>	Recitation	§7.8	Review	§6.1
<b>9/21-25</b>	<b>Exam 1</b> <b>(Chapter 7)</b>	Recitation	§6.2	§6.2/6.3	§6.3
<b>9/28-10/2</b>	§6.4 <b>Quiz</b>	Recitation	§6.5	§8.1	§8.2
<b>10/5-9</b>	§8.3 <b>Quiz</b>	Recitation	§8.3	§8.4	§8.4/8.5
<b>10/12-16</b>	§8.5 <b>Quiz</b>	Recitation	Review	§11.1	§11.1/11.2
<b>10/19-23</b>	<b>Exam 2</b> <b>(Chapters 6, 8)</b>	Recitation	§ 11.2	§ 11.3	§11.3/11.4
<b>10/26-30</b>	§11.4 <b>Quiz</b>	Recitation	§11.5	§ 11.6	§11.6
<b>11/2-6</b>	§11.7 <b>Quiz</b>	Recitation	§11.8	§ 11.9	§11.9
<b>11/9-13</b>	§11.10 <b>Quiz</b>	Recitation	§11.10	§11.11	§11.11
<b>11/16-20</b>	Review <b>Quiz</b>	Recitation	<b>Exam 3</b> <b>(Chapter 11)</b>	§10.1	§10.2
<b>11/23-27</b>	§10.3 <b>Quiz</b>	Recitation	<b>NO CLASS</b> <b>Thanksgiving</b>	<b>NO CLASS</b> <b>Thanksgiving</b>	<b>NO CLASS</b> <b>Thanksgiving</b>
<b>11/30-12/4</b>	§10.4	Recitation	§10.5	Review	Review
<b>Exam Week</b> <b>12/7-11</b>		Final Exam 2:30-5:30			

Quizzes are taken outside of class, unproctored, 30 minutes long. They are available by the end of the day's lecture, and completed work must be uploaded to Gradescope by midnight.

Exams will be in the evening, on-campus, proctored, at times to be announced. You must bring a photo ID.