Math 252X F81 - Calculus II

Summer 2020

Instructor Information

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Course Information

Credits	4 credits plus 1 recitation
Prerequisites	C- or better in MATH 251X
Lecture	MTWR 10:00-11:15, Chap 106
Recitation	MTWR 11:25-11:55, Chap 106

Course Reading Materials

- *Calculus: Early Transcendentals 8th Edition*, James Stewart, ISBN-13: 978-1285741550 and ISBN-10: 1285741552.
- Optional: *Student Solutions Manual for Stewart's Single Variable Calculus: Early Transcendentals, 8th Edition* ISBN-13: 978-1305272422 and ISBN-10: 1305272420. This book contains fully worked solutions to all of the odd-numbered exercises in your textbook. This is not available through the UAF bookstore, but is available on Amazon (and probably elsewhere) to rent and buy.
- *WebAssign Access Code.* You will be doing a significant portion of your homework online. To do this you must have a WebAssign access code. If you purchase your textbook from the UAF bookstore this code will come packaged with your text. If not, you can purchase one on www.webassign.net. If you have not yet purchased a code, don't fret! WebAssign grants you a two-week "trial" period where you can use the service without paying. You also have access to an eBook on WebAssign.

Course Description

From the UAF course catalog:

"Techniques and applications of integration. Integration of trigonometric functions, volumes including those using slicing, arc-length, integration by parts, trigonometric substitutions, partial fractions, hyperbolic functions, and improper integrals. Numeric integration including Simpson's rule, first order differential equations with applications to population dynamics and rates of decay, sequences, series, tests for convergence including comparison and alternating series tests, conditional convergence, power series, Taylor series, polar coordinates including tangent lines and areas, and conic sections."

Calculus II begins by picking up where Calculus I ended, integration. During the first two units we will discuss some more sophisticated techniques for integration (Chapter 7) as well as applications of integration to physics and engineering (Chapters 6 & 8). We will develop a variety of techniques to approximate definite integrals and discuss when an approximate value of a definite integral is an appropriate solution. After completing the first two units on integration, the next topic will be completely new for most students: sequences and series (Chapter 11). Sequences and series can be used to attack many problems including, but not limited to, approximation of functions and approximation of integrals. We end the course with a few new methods of representing curves (Chapter 10). Specifically, we will discuss how curves can be represented using parameterizations and discuss an

alternative system of graphing called the polar coordinate system. This topic functions as a preview to some of the crucial ideas which will be covered in Calculus III.

Course Goals

In this course students will be expected to master problem solving skills, learn to manipulate abstract symbols and develop deductive arguments in mathematics. Additionally, students will encounter a broad spectrum of mathematical applications including, but not limited to:

- Various techniques of integration,
- Integration of improper integrals,
- Applications of integration to areas, volumes, arc length, work, and centroids.
- Convergence and divergence of sequences and series,
- Power series and their applications,
- Parameterizations of curves and polar coordinates.

Instructional Methods

This course will be primarily lecture-based with daily work assigned on WebAssign, weekly written homework (called "take-home" quizzes), and weekly proctored quizzes. Instruction will be supplemented with frequent assessment so that the instructor (and you!) can monitor your learning. Quizzes will occur during the recitation of every Monday.

Students are required to attend all course sessions and recitations. Attendance will be taken daily. **Excessive absences could lead to a faculty-initiated withdrawal since you have not *participated substantially in the course.*** Successful, timely completion of this course depends on committing yourself early and maintaining your effort.

Blackboard will be used extensively in this class to communicate with students. All announcements, handouts, solutions, and grades will be posted in Blackboard. It is the responsibility of the student to check Blackboard regularly and report any issues to their instructor. Additionally, the student must check their `@alaska.edu` e-mail daily. If you prefer to use another e-mail it is best to set up your `@alaska.edu` account to forward to your preferred account.

Evaluation

In this course you will be evaluated based on your performance in homework, quizzes, exams and a final exam. Student grades will be dependent upon: WebAssign homework (5 %), recitation participation (5%), take-home quizzes (15%), proctored quizzes (10%), three midterm exams (40%), and the (cumulative) final exam (25%). More details on each of the categories can be found below.

The grading scale used will be the plus/minus letter grades (97-100%=**A+**, 93-96%=**A**, 90-92%= **A-**, 87-89%=**B+**, 83-86%= **B**, 80-82%= **B-**, 77-79%=**C+**, 70-76%=**C**, 67-69%=**D+**, 63-66%= **D**, 60-62%= **D-**, and below 60%=**F**). The instructor reserves the right to make the brackets of this scale wider. An incomplete will be given due to extreme circumstances beyond your control (you will need to provide verifiable proof). After the drop date, students who do not wish to continue with the course will be responsible for withdrawing themselves. If a student chooses to stop participating in the course after the withdrawal deadline, this will result in a grade of **F**. Grades of no basis will not be awarded for lack of attendance after the withdrawal deadline.

Faculty Initiated Withdrawal

Attendance will be taken daily. Students who miss more than 3 days of class (including recitations) may be withdrawn from the course.

WebAssign Homework

Daily homework will be assigned using WebAssign. You will learn best if you practice the material that has been discussed in class immediately after learning it. Homework will be due the following (class) day after a lesson is taught at midnight. For example, if a lesson is taught on Monday, the WebAssign problems for that lesson would be due on Tuesday by 11:59 PM. Starting early ensures that the instructor will have adequate time to respond to any questions. Alternatively, utilize the resources in the Mathlab to get more immediate help!

You will usually have 5 chances to get a problem correct. The point of these problems is to practice and learn from your mistakes. Use the multiple chances to do so! **Late WebAssign homework will be accepted for 1/2 credit within one week of the original due date.** The late penalty is only assessed on the problems which are incomplete or incorrect. For example, if you have a 60% on an assignment and the due date passes, you can work on the remaining 40% and earn a maximum grade of 80%.

We are going to access WebAssign directly from Blackboard. To do so your browser must be configured to accept third-party cookies. If you are having technical troubles contact OIT (`https://www.alaska.edu/oit/`) or WebAssign directly (`https://webassign.com/support/student-support/`).

Here are the steps to access WebAssign from Blackboard.

- Log in to Blackboard.
- Click on the **Courses** tab.
- Click on our course, Math 252X.
- In the course menu, click Tools.
- Click Access WebAssign.

The first time you access WebAssign from Blackboard, a new linked WebAssign account is automatically created for you. If you already have an account you may have to contact WebAssign's student tech support to link your accounts. If you are having trouble with WebAssign, please let your instructor know **and** contact WebAssign's student tech support. (`https://webassign.com/support/student-support/`)

WebAssign gives you free access for two week after the start of class. To continue using WebAssign after that either enter an access code or purchase access online. Failure to purchase a WebAssign code in a timely fashion is not a reason for a full credit extension on your homework. Buy your codes right away!

Take-Home Quizzes

Take-home quizzes give you a chance to tackle more challenging and interesting problems and practice writing up nice solutions. Take-home quizzes will be due on Thursday at 4 PM (to the box of **Gazi Alam** in Chapman 101). You may find it easier to submit your take-home quizzes during recitations.

All take-home quizzes are open book, open notes, and you may use a calculator. You must show all relevant work, and at the discretion of the grader, points will be deducted if steps are skipped. (For example, if you work a problem in a mannar that was not discussed in class, but appears when you select "show work" on Wolfram Alpha, no credit will be given!)

Your solutions should be *nice, neat* solutions. The quiz that you submit should be your **final** draft! It is best to first work the problems on scratch paper and then rewrite the solution onto the handout.

Proctored Quizzes

Quizzes will be given during the recitation of every **Monday**. Quizzes will cover the material taught in the classes held since the previous quiz. These quizzes give you a chance to practice doing typical problems in a testing situation. Quizzes cannot be made up and no scores will be dropped! All quizzes will be closed notes, closed book, and no calculator.

Recitations

Participating in recitation activities will be counted for a grade. Full credit will be awarded to students who arrive on time and stay on task. Students who are not working will have points deducted.

Exams

We will have three midterm exams and a final in this course. The final exam is cumulative and is worth 25% of your overall grade. All exams in this course will be closed notes, closed book, and no calculator, with the exception of the final exam. On the final exam you will be allowed a 4 by 6 inch note card with handwritten notes on both sides. Other than this note card, the final exam is closed notes, closed book, and no calculator.

Quiz and Exam Make-Up Policy

Proctored quizzes and exams cannot be made up unless you provide a convincing reason and let your instructor know at least two class days in advance. If you have an unplanned emergency (such as a car accident or emergency medical situation) you must let your instructor know immediately. It is the Departments of Mathematics and Statistics policy that final exams cannot be given early or late. If you know you will be absent for a quiz or an exam due to an athletic trip or important medical appointment, please let the instructor know in advance and an alternative testing situation can (most likely) be arranged.

Tutoring

There are many resources available on campus to help you be successful in this course. If you have questions you can meet with instructor during office hours. If the instructor is unavailable, there is a **free** tutoring center on campus called the Mathlab (Chapman 305). For more information about the Math lab (hours, tutor availability) visit their web page: `http://www.uaf.edu/dms/mathlab/`. If the large-group setting of the Mathlab is not for you, there is also **FREE** one-on-one (or small group) tutoring available in room 210 in the Chapman Building. For one-on-one tutoring you must schedule an appointment. See `http://www.uaf.edu/dms/mathlab/` for a calendar listing tutor availability and to schedule an appointment.

Important Dates to Remember

See `http://https://catalog.uaf.edu/calendar/` for a more detailed description of these dates.

First Day of Instruction	Monday, May 18
Memorial Day (no classes, most offices closed)	Monday, May 25
Deadline to register for full session; attendance required	Tuesday, May 26
Deadline for refund of tuition and fees for full session	Tuesday, May 26
Late payment fees begin for full session	Wednesday, May 27
Deadline for student and faculty-initiated withdrawals	Wednesday, June 10
Last day of instruction	Tuesday, Aug. 4
Final Exam	Thursday, Aug. 6
Deadline for faculty to post grades, noon	Wednesday, Aug. 12

Course Calendar

Here is a tentative schedule of the topics we will cover during the semester. If necessary, changes to this schedule will be announced via Blackboard.

Week	Dates	Sections	Topics
1	5/18	Review	Calculus 1
	5/19	7.1	Integration by Parts
	5/20	7.2	Trigonometric Integrals
	5/21	7.3	Trigonometric Substitution
2	5/25	No Class	Memorial Day
	5/26	7.4	Partial Fraction
	5/27	7.5	Integration Strategy
	5/28	7.7	Approximate Integration
3	6/1	7.8	Improper Integrals
	6/2	Review	Chapter 7
	6/3	**Mid Term 1**	**Chapter 7**
	6/4	6.1	Area Between Curves
4	6/8	6.2	Volumes-Disc Method
	6/9	6.3	The Shell Method
	6/10	6.4	Work
	6/11	6.5	Average Value
5	6/15	Review	Chapter 6
	6/16	8.1	Arc Length
	6/17	8.2	Surface Area
	6/18	8.3	Centoids
6	6/22	Review	Chapter 8
	6/23	**Mid Term 2**	**Chapter 6 & 8**
	6/24	11.1	Sequences
	6/25	11.2	Series and Convergence
7	6/29	11.3	The Integral Test
	6/30	11.4	Comparison Test
	7/1	11.5	Alternating Series
	7/2	No Class	Independence Day
8	7/6	11.6	The Ratio and Root Test
	7/7	11.7	Strategy for testing Seires
	7/8	11.8	Power Series
	7/9	11.9	Functions and Power Series
9	7/13	11.10	Taylor Series and Maclaurin Series
	7/14	11.11	Applications of Series
	7/15	Review	Chapter 11
	7/16	**Mid Term 3**	**Chapter 11**
10	7/20	10.1	Parametric Equations
	7/21	10.2	Calculus with Paramentric
	7/22	10.3	Polar Cordinates
	7/23	10.4	Arc Length
11	7/27	10.5	Conic Section
	7/28	Review	Chapter 10
	7/29	Chapter 7 Final Review	
	7/30	Chapter 6 & 8 Final Review	
12	8/3	Chapter 11 Final Review	
	8/4	Chapter 10 Final Review	
	8/5	No Class (Preparation for Final)	
	8/6	**Final Exam (10:00AM-12:00PM)**	

Disability Services

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials. I will work with the Office of Disability Services (208 Whitaker, 474-5655) to provide reasonable accommodations to students with disabilities.

DMS Academic Policies

1. *Incomplete Grade* Incomplete (I) will only be given in Computer Science, Mathematics or Statistics courses in cases where the student has completed the majority (normally all but the last three weeks) of a course with a grade of C or better, but for personal reasons beyond his/her control has been unable to complete the course during the regular term. Negligence or indifference are not acceptable reasons for the granting of an incomplete grade.
2. *Late Withdrawals* A withdrawal after the deadline (currently 9 weeks into the semester) from a DMS course will normally be granted only in cases where the student is performing satisfactorily (i.e., C or better) in a course, but has exceptional reasons, beyond his/her control, for being unable to complete the course. These exceptional reasons should be detailed in writing to the instructor, department head and dean.
3. *No Early Final Examinations* Final examinations for DMS courses shall not be held earlier than the date and time published in the official term schedule. Normally, a student will not be allowed to take a final exam early. Exceptions can be made by individual instructors, but should only be allowed in exceptional circumstances and in a manner which doesn't endanger the security of the exam.