Essential Information

Instructors	Dr. Jill Faudree (001) & Mr. Ryan Bridges (003)
Website	https://uaf-math251.github.io
Prerequisite	MATH F151X and MATH F152X; or MATH F156X; or placement.
Required Text	*OpenStax Calculus Volume 1* by G. Strang & E. Herman, https://openstax.org/details/books/calculus-volume-1 (optional print copy)ISBN-13: 978-1938168024
Grades	(Canvas) https://www.uaf.edu/uaf/current/canvas.php
Dr. Faudree	(Webpage) https://jrfaudree.github.io/M251f2022/home.html Email: jrfaudree@alaska.edu Office: Chapman 306B
Mr. Bridges	Email: rlbridges@alaska.edu Office: Chapman 302

Description, Course Goals & Student Learning Outcomes

Calculus is one of mathematics' premiere computational tools. It has pervasive applications in all the sciences and is part of the UAF core curriculum. The two principal tools of calculus are differentiation and integration. Differentiation concerns how changes in one variable affect another. How does a population of bacteria change as time changes? How does the temperature of the ocean change as depth increases? Integration, on the other hand, is a kind of reverse process to differentiation.

Students completing the course will have the mathematical foundation to be successful in Calculus II and other courses requiring this background. Specifically, students will

- understand the role of limits in the definition of a derivative and be able to compute elementary derivatives from this definition,
- understand the definition of a continuous function and identify continuous/discontinuous functions,
- develop the skills to compute standard derivatives,
- be able to apply derivatives to common types of applied problems,
- understand the definition of the the definite integral,
- be able to appply the Fundamental Theorem of Calculus to compute definite integrals,
- be able to apply integration to common types of applied problems.

Class Time

There are four hours of class meetings with your primary instructor every week (MWThF). This time will be used to discuss new topics in Calculus and for a weekly quiz on Thursdays. The

last 30 minutes of the Thursday class will be spent with a teaching assistant (TA) going over the weekly quiz (Yes! We will go over the quiz immediately!) so all students can leave knowing what material on that quiz has been mastered, how to work each problem correctly, and what topics need additional study.

The Tuesday Recitation (MATH F251L) will initially be spent helping students get started on first-of-semester tasks. Starting on Week 3, the Tuesday class is explicitly devoted to bolstering the underlying non-Calculus skills that are nevertheless essential to success in Calculus such as: graphing, algebra, trigonometry, exponential and logarithmic functions, and inverse functions. It will also include additional strategic homework/quiz/test prep. As a concrete example, one of the things we will do in Recitation is go over the non-Calculus math skills needed to complete the up-coming homework so that students can focus on the Calculus instead of getting bogged down in algebra or trigonometry.

Tentative Schedule

The course website contains a schedule for the semester listing the topics to be covered each class, the dates each assignment is due, the topics of every quiz, and so forth. You should consult this schedule routinely. We may make minor adjustments to the schedule, which will be announced in advance.

Office Hours and Communication

Instructors and TA's will schedule formal office hours, which will be listed on web sites accessible from the main course webpage. Any office hours in the Math Tutoring Lab are open to **all** Calculus I students regardless of who is their instructor/TA of record. Students can also schedule meetings with their instructor outside of regular office hours.

We will use Canvas to send announcements. If we (your instructor/TA) need to contact you, we will first try to do this in class. Our second method will be to send an email to you via Canvas. Thus, you will want to make sure that the email address in Canvas is one that you check regularly. Note that in Canvas it is possible to set up text alerts. However, you must login to Canvas and adjust the setting for your account. Neither email nor text alerts are automatic.

Online Course Materials

All materials for this course are posted online. See Table 1.

Evaluation and Grades

Grades are determined as follows; each component of the grade is discussed subsequently in the syllabus.

Class Participation	7.5%
(Written) Homework	7.5%
Quizzes	15%
Midterm 1	15%
Derivative Proficiency	7.5%
Midterm 2	15%
Integral Proficiency	7.5%
Final Exam	25%
total	100%

Letter grades will be assigned according to the following scale. This scale is a guarantee; the instructors reserve the right to lower the thresholds.

A+	97–100%	C+	77–79%	F	$< 60\%$
A	93–96%	C	70–76%		
A-	90–92%	C-	not given		
B+	87–89%	D+	67–69%		
B	83–86%	D	63–66%		
B-	80-82%	D-	60–62%		

where to find it	what you are looking for
public Calculus I webpage https://uaf-math251.github.io/	syllabus and day-by-day schedule for the semester ALEKS logistics for Weeks 1 and 2 homework problem sets practice quizzes, proficiencies, midterms, final exams solutions to practice quizzes, proficiencies, midterms, final exam videos recitation worksheets with solutions textbook
Canvas	announcements and reminders link to Gradescope (to turn in homework) complete solutions to homework your grades textbook
see your instructor	in-class materials for your section

Table 1:

Weeks 1 & 2 Logistics

The first week of the course is devoted to prerequisite review. Consequently, the homework and quiz mechanics for the first two weeks are different from that of the remainder of the semester.

In the first week, instead of the usual written homework, you will be working with a program called ALEKS to refresh precalculus skills, and the first quiz will be an ALEKS-based assessment. (See Week 1 Details for step-by-step instructions.)
During the first weeks you will:

- enroll in the UAF MATH 251 Spring 2022 Cohort of ALEKS PPL
  class code: **ERD3E-L6JKM**
- complete an initial placement test (approx 1-2 hours) by **Tuesday August 30** at 11:59pm (Note: We will start this in class on Tuesday. Most people will finish during class. Those who do not will just finish up later that day. Finishing the initial placement on time is worth 10 points added to Quiz 1, your proctored ALEKS score.),
- complete 90% of the ALEKS pie OR spend 5 hours in Learning Mode by Monday, September 5 at 11:59pm which will count as your first homework grade,
- sign-up by Monday, September 5 for a 2-hour Tuesday time-slot to take Quiz 1,
- complete an ALEKS assessment (approx 1-2 hours) on Tuesday, September 6 which will count as Quiz 1.

The standard Tuesday class on September 6 is cancelled and instead you will go to Rasmuson Library Room 301 to take your ALEKS assessment at whatever time slot you reserved.

Class Participation

Attendance and participation in class is an important part of mastering the material in Calculus (and all of your classes). Class attendance is one of the best predictors of overall course performance regardless of subject. For this reason, we want to incentivize this aspect of your education. A student is counted as having successfully participated in class if that student was in class on-time and was an active participant during the whole class. Being an active participant includes

engaging in classroom tasks such as individual or group worksheets, classroom discussions, and other classroom activities. Your class participation score will be calculated as the percent of classes in which you were an active participant.

Let your instructor know if you have missed class for an excused reason.

Homework

Homework assignments consist of a selection of problems at the end of each section of our textbook. Homework is written (on paper or tablet) and turned in via Gradescope which is accessed from Canvas. Help with scanning homework can be found under Technology Help on the course webpage. Assignments are due most Mondays and Wednesdays (by 11:59 PM) in advance of the Thursday quiz. Answers to most problems are provided in the back of the book (or linked from the online text). Complete worked solutions to all problems are provided in advance on Canvas. Thus, your homework will be graded based on **effort** and **completion**. Homework can be turned in up to a week late. All students should earn 100% of their homework points!

The list of homework problems and homework guidelines can be found at the Homework link on the course webpage.

Clearly, it is possible to short-circuit the homework by copying the solutions. It should also be clear that (a) this is a bad idea and (b) your instructor/TA will know you have done this. Our goal in providing answers and solutions is to foster the use of homework as a **learning experience**.

Quizzes

A quiz will be given on most Thursdays in the middle third of the class. The weekly quiz will cover the material taught in the classes held since the previous quiz; specific topics can be found in the schedule on the course website. Quizzes are equally weighted, and are given under testing conditions; books, notes, and calculators are not allowed unless otherwise stated. Your performance on the quizzes **prior to corrections** is the best indicator of how well you are learning the course material and much more accurate than your homework score.

Make-up Quizzes are possible provided there is a documented, excused absence. Always contact your instructor if you miss a quiz.

Students will be given the opportunity to correct their quizzes in the last third of the Thursday class and can earn points back on their quiz for doing so **accurately**.

Recitations

The Tuesday Recitation is taught by a teaching assistant (TA). These are graduate students from the Math Department who have experience teaching Calculus. Starting in Week 3, the Tuesday class is explicitly devoted to bolstering the underlying non-Calculus skills that are nevertheless essential to success in Calculus such as: graphing, algebra, trigonometry, exponential and logarithmic functions, and inverse functions. It will also include additional strategic homework/quiz/test prep. As a concrete example, one of the things we will do in Recitation is go over the non-Calculus math skills needed to complete the up-coming homework so that students can focus on the Calculus instead of getting bogged down in algebra or trigonometry.

For students who earn high scores (80% or higher without the added extra credit) on the Tuesday, September 6 ALEKS assessment **and** who have completed every assignment by the end of Week 2 at an 80% level or higher, the Recitation will be optional. If Recitation is optional, the Class Participation portion will be calculated in two ways – including the Recitation and not including

it. The higher of the two percentages will used. All students are allowed and encouraged to attend Recitation.

Midterms

There are two midterm exams this semester, to be held on the dates in the schedule on the course website. Note that the course webpage contains all previous Midterms (with solutions) so a student can know in advance what these are like and has lots of opportunity for practice. The midterms are the same for all sections; they are prepared and approved by all instructors teaching the course.

Make-up midterms will be given only for documented excused absences.

Proficiencies

A proficiency is an assessment covering a routine mechanical skill. In this course we have two of these, one for derivatives and one for integrals, on the dates listed in the online schedule. Note that the course webpage contains all previous proficiencies (with solutions) so a student can know in advance what these are like and has lots of opportunity for practice. Proficiencies will be graded on a binary scale for each problem (no partial credit).

We have designed the grading structure in this course to prioritize and reward effort. Thus, you will have the opportunity to retake each proficiency. Details will be announced prior to each proficiency.

Final Exam

The cumulative final exam will be held at the day/time listed in the online schedule. Note that the course webpage contains all previous final exams (with solutions) so a student can know in advance what these are like and has lots of opportunity for practice. A make-up final exam will be given only in extenuating circumstances, for documented and excused reasons at the discretion of the instructors.

Tutoring and Resources

- The Math and Stat Lab, Chapman Building Room 305, offers tutors. See https://www.uaf.edu/dms/mathlab/ for schedules and availability.
- One-on-one (or small group) tutoring is available in Chapman Building Room 201. You must schedule an appointment; see https://www.uaf.edu/dms/mathlab/.
- Student Support Services offers free tutoring in many subjects to students who qualify for their program.
- ASUAF offers private tutoring for a small fee (based on student income).

Rules and Policies

This course is listed as a General Education Math Course. As such this course is expected to meet the 4 general learning outcomes.

1. Build knowledge of human institutions, sociocultural processes, and the physical and natural works through the study of mathematics. Competence will be demonstrated for the foundational information in each subject area, its context and significance, and the methods used in advancing each.

2. Develop intellectual and practical skills across the curriculum, including inquiry and analysis, critical and creative thinking, problem solving, written and oral communication, information literacy, technological competence, and collaborative learning. Proficiency will be

demonstrated across the curriculum through critical analysis of proffered information, well-reasoned solutions to problems or inferences drawn from evidence, effective written and oral communication, and satisfactory outcomes of group projects.

3. Acquire tools for effective civic engagement in local through global contexts, including ethical reasoning, intercultural competence, and knowledge of Alaska and Alaska issues. Facility will be demonstrated through analyses of issues including dimensions of ethics, human and cultural diversity, conflicts and interdependencies, globalization, and sustainability.

4. Integrate and apply learning, including synthesis and advanced accomplishment across general and specialized studies, adapting them to new settings, questions and responsibilities, and forming a foundation for lifelong learning. Preparation will be demonstrated though production of a a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation and reflection.

Incomplete Grade

Incomplete (I) will only be given in DMS 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.

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.

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.

Academic Dishonesty

Academic dishonesty, including cheating and plagiarism, will not be tolerated. It is a violation of the Student Code of Conduct and will be punished according to UAF procedures.

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?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.

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/.

Disability services statement: I will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities.

Student Academic Support:

- Speaking Center (907-474-5470, uaf-speakingcenter@alaska.edu, Gruening 507)
- Writing Center (907-474-5314, uaf-writing-center@alaska.edu, Gruening 8th floor)
- UAF Math Services, uafmathstatlab@gmail.com, Chapman Building (for math fee paying students only)
- Developmental Math Lab, Gruening 406
- The Debbie Moses Learning Center at CTC (907-455-2860, 604 Barnette St, Room 120, https://www.ctc.uaf.edu/student-services/student-success-center/)
- For more information and resources, please see the Academic Advising Resource List (https://www.uaf.edu/advising/lr/SKM_364e19011717281.pdf)

Student Resources:

- Disability Services (907-474-5655, uaf-disability-services@alaska.edu, Whitaker 208)
- Student Health & Counseling [6 free counseling sessions] (907-474-7043, https://www.uaf.edu/chc/appointments.php, Whitaker 203)
- Center for Student Rights and Responsibilities (907-474-7317, uaf-studentrights@alaska.edu, Eielson 110)
- Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.office@alaska.eduasuaf.office@alaska.edu, Wood Center 119)

Nondiscrimination statement: The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination. For more information, contact:

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1760 Tanana Loop, 355 Duckering Building, Fairbanks, AK 99775
907-474-7300
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