Essential Information

Instructor	Dr. James Gossell (section 001)
Email	jegossell@alaska.edu
Office	Chapman 301D
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
Required Technology	• A scanner, smartphone, or camera with software or app for scanning documents and uploading them as PDFs • A printer or a tablet (e.g., iPad) where you can annotate documents • Reliable internet access
Course Materials	Canvas (https://www.uaf.edu/uaf/current/canvas.php) Calculus I Webpage (https://uaf-math251.github.io)

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.

Time Commitment

This is a 4-credit course, which means that a well-prepared student should expect to spend around 12 hours per week actually studying and doing work for this course. For students who may be missing substantial prerequisite content knowledge, the time commitment is greater. The best way to manage a time commitment of this magnitude is to schedule the hours into your day just as you would a paid job.

A Typical Week

All the materials for this course are available online, linked either from Canvas or from the public Calculus I webpage. The course is organized as weekly modules in Canvas. Although this is an online course, **it is not a self-paced course**. There are weekly deadlines and a grading scheme that rewards timely completion. Within each module, tasks are organized as daily chunks of work. The daily tasks are to be used as guides—you do not have to do any task on any particular day with the exception of the Midterms (2) and the Final Exam (1). However, there are regular deadlines, so you must complete tasks by specific days. Homework and quizzes may be completed in advance of the deadlines.

Typical workflow for this course is as follows:

- Read the weekly announcements and complete any check-in assignments.
- Complete a targeted recitation worksheet to practice specific algebra or calculus skills needed for the assignments for that week. This worksheet will be assessed on completion only.
- Read the book and/or watch videos for each section assigned that week.
- Work the homework problems for each section assigned that week and check your answers to test your understanding. After you have revised any errors in your homework, upload your homework assignment to Gradescope. The homework will be assessed on completion only (not on correctness).
- Review the topics of the week and take the weekly quiz.

Tentative Schedule

A day-to-day schedule is posted on Canvas and on the UAF Calculus I course website.

This schedule mirrors the tasks for the in-person course. A student is free to organize their time as they choose. The hard deadlines are in red in the row labelled Deadlines. These deadlines represent the **last** day to complete these tasks and still be considered on time. The daily schedule is set up so that you can stay well ahead of those deadlines. You should consult this schedule routinely. We may make minor adjustments to the schedule, which will be announced in advance.

Office Hours and Communication

The instructor will have weekly office hours on Zoom. Students can also schedule meetings with their instructor outside of regular office hours.

Online Course Materials

All course materials can be accessed via Canvas. In addition, you will find a wealth of useful material at the public webpage: https://uaf-math251.github.io/.

Participation

Beginning in Week 2, a weekly check-in is posted at the beginning of each week to ensure that everyone understands the tasks that need to be completed for that week. You will have unlimited attempts for these check-in activities and they will count toward your participation grade. Everyone can (and should) earn 100% of the points in this category.

Recitations

Math F251X comes with an attached Math F251L Recitation section. There is not a separate recitation Canvas class for the asynchronous class; rather, the recitation activities are built in to the class. For your recitation activity, you need to complete weekly recitation worksheets. Like the homework, the recitation worksheets are written (on paper or tablet) and turned in via Gradescope, which may be accessed from Canvas. The Recitation Worksheets are 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, and they provide targeted instruction on algebra skills that are needed to complete the weekly homework. They also include strategic homework, quiz, and test prep. These worksheets will be submitted on Gradescope starting in Week 3 and will count toward your participation grade.

Written 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 may be 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 weekly 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 three days late with no penalty but will not be accepted after that unless there are extenuating circumstances. 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. They are also listed in Canvas for each week.

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 and 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.

Weekly Quizzes

Each week that there is not a Midterm or Proficiency, there will be a written quiz in Gradescope that needs to be completed by Sunday. This quiz will test the calculus material that was learned for that week. With the exception of Quiz 1, each quiz should take you no more than 30 minutes, but you will have 45 minutes to download the quiz, complete it on paper or tablet, and then upload your work (as you do for the homework). (Quiz 1 is unusual because it is testing your current mastery of prerequisite material, and you will have 1 hour to do it, plus 15 minutes for technology.)

In addition, there are three special quizzes:

- The ALEKS quiz: this is a proctored version of the UAF Math Placement test, which also measures your initial prerequisite knowledge. It counts towards your total Quiz grade and must be completed within the first two weeks.
- Two **Proficiency Tests** (see below). There will not be a weekly quiz during the weeks there is a Proficiency.

Quiz Corrections

Beginning with Quiz 2, you can submit revisions for quiz problems you missed. There will be a separate Gradescope assignment, for example "Quiz 2 Corrections", which will contain a blank copy of the quiz. On the new copy, write new solutions to any problems that you missed points on, and you will have an opportunity to get points back for correct new solutions. Do not write up problems you got correct originally on the corrected version.

Proctored Assessments

There are a total of **4 proctored assessments** with dates and testing windows listed below. You will set up the proctoring arrangement through eCampus. If you live in the Fairbanks area, you can schedule your proctored assessments, by going the eCampus Exam Services site https://ecampus.uaf.edu/student-support/exam-info-students/ and click the yellow box labeled `Schedule a Testing Appointment` near the middle of the page. If you live outside the Fairbanks area, you should go to eCampus Exam Services site, https://ecampus.uaf.edu/student-support/exam-info-students/ and look for information on setting up a proctor.

assessment	range of dates	duration
ALEKS Quiz	Wednesday August 28 – Friday September 6	2 hours
Midterm I	Thursday September 26 or Friday September 27	1.5 hours
Midterm II	Thursday November 14 or Friday November 15	1.5 hours
Final Exam	Tuesday Dec 10 – Thursday December 12	2 hours

Midterms

There are two midterm exams this semester. 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).

The grading structure in this course prioritizes and rewards effort. Students are given the opportunity to retake each proficiency.

More 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.

Evaluation and Grading Rubric

Participation and Recitations	5%
Written Homework	10%
Weekly Quizzes	10%
Midterm 1	20%
Derivative Proficiency	5%
Midterm 2	20%
Integral Proficiency	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%		

Tutoring and Resources

- The NEW Student Success Center on the 6th Floor of the Rasmuson Library, offers drop-in in-person tutoring. 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/.
- Online tutoring. To make an appointment for online tutoring, go do 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.

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.

ASUAF advocacy statement:

The Associated Students of the University of Alaska Fairbanks, the student government of UAF, offers advocacy services to students who feel they are facing issues with staff, faculty, and/or other students specifically if these issues are hindering the ability of the student to succeed in their academics or go about their lives at the university. Students who wish to utilize these

services can contact the Student Advocacy Director by visiting the ASUAF office or emailing asuaf.office@alaska.edu.

Student Academic Support:

- Communication Center (907-474-5470, uaf-speakingcenter@alaska.edu, Gruening 507)
- Writing Center (907-474-5314, uaf-writing-center@alaska.edu, Gruening 801)
- Student Success Center (6th Floor Rassmusson building)
- Developmental Math Lab (Gruening 406, https://www.uaf.edu/deved/math/)
- 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/appointm Gruening 215)
- Office of Rights, Compliance and Accountability (907-474-7300, uaf-orca@alaska.edu, 3rd Floor, Constitution Hall)
- Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.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:

UAF Office of Rights, Compliance and Accountability
1692 Tok Lane, 3rd floor, Constitution Hall, Fairbanks, AK 99775
907-474-7300
uaf-deo@alaska.edu

syllabus version: August 27, 2024