Essential Information

Instructor	Stefano Fochesatto
Email	gsfochesatto@alaska.edu
Office	Chapman 308
Phone	907-888-3950 (cell). *Do not call/text before 8:30 AM or after 9:00 PM AKT.*
Class Discord	https://nookbot.uaf.edu/

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,
- apply derivatives to common types of applied problems,
- understand the definition of the the definite integral,
- apply the Fundamental Theorem of Calculus to compute definite integrals,
- apply integration to common types of applied problems.

Time Commitment

This is a 4-credit course, which means that a well-prepared student would expect to spend around

12 hours per week actually studying and doing work for this course. (That is, the 12 hours do not include dealing with technical issues or transportation to a proctoring site.) 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 is 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**. In order to help students stay on track and not get too far behind, 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 Proficiencies (2), Midterms (2) and the Final Exam (1). However, there are regular deadlines, so you must complete tasks by specific days. Typical workflow for this course is as follows:

- Read the weekly announcements and complete the weekly check-in.
- Spend 1.5 hours working in the ALEKS learning modules, unless you have completed at least 80% of your ALEKS pie. Optionally, complete a targeted recitation worksheet to practice specific algebra skills needed for the homework assignments for that week.
- Read the book and/or watch videos (short or long) 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.
- Review the topics of the week (ideally including taking a sample quiz) and take the weekly quiz.

The First Week

The beginning of the course is devoted to prerequisite review. Consequently, the first homework and first quiz of the semester will feel different from the rest. The **first homework** consists of problems from Precalculus and can be found on the public webpage here. It is turned in using Gradescope which is accessed from Canvas and is due on **Monday January 23**. The **first quiz** is an assessment in ALEKS. This assessment must be proctored. Information about this assessment can be found at the ALEKS info link on the public webpage here.

Tentative Schedule

A day-to-day schedule is posted on the course website on the sidebar listed as Schedule (asynchronous section). This schedule mirrors the tasks for a typical 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

Instructors and TAs will schedule formal office hours, which will be listed on Canvas. 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 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 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/.

Weekly check-ins

A weekly check-in will be 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. Everyone can (and should) earn 100% of the points in this category.

Recitations

Math F251X comes with an attached Math F251L Recitation section. For your recitation activities in the asynchronous class, you are expected to spend that time (1.5 hours) working in ALEKS Learning Mode, unless you have completed 80% of your ALEKS pie.

In addition, you are encouraged to work on/complete weekly recitation worksheets. These 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 not be collected.

Homework

Homework assignments consist of a selection of problems at the end of each section of our textbook. Homework is carefully 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 Friday 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. The expectation is that students will work the homework problems, check their answers against the solutions, fix any errors, and upload the revised homework. Thus, your homework will be graded based on **effort** and **completion**. 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 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**.

End of Week Quizzes

Beginning week 3, there will be a quiz in Gradescope to be completed by the end of the week. This quiz will test the calculus material that was learned for that week. 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. You will be given the opportunity to submit corrections for incorrect problems.

Proctored Assessments

There are a total of **seven proctored assessments** with dates and testing windows listed below, although you can do them with **six** proctoring times. 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/exam-services/ 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/exam-services/, and scroll down to the menu of `Popular Exams` where you will find a yellow bar labeled `UAF eCampus Courses`. Read this section until you see two options in blue lettering: "I am in Alaska (but not in Fairbanks)" and "I am outside of Alaska." Because we are aware that proctoring costs money for students outside of Fairbanks, students can choose to schedule the Quiz 11/ALEKS PPL Round 2 to be taken during the same proctoring session as the Integral Proficiency Test.

Assessment	Range of Dates	Duration
Quiz 1 (proctored ALEKS)	by Fri 27 January	2 hours
Midterm I	Thurs Feb 16 or Fri Feb 17	1.5 hours
Derivative Proficiency	Thurs March 9 or Fri March 10	30 minutes
Midterm II	Thurs April 13 or Fri April 14	1.5 hours
Integral Proficiency	Thurs April 27 or Fri April 28	30 minutes
Final Exam	May 3-5	2 hours

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).

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

Check-in activities	2.5%
Recitation work	5%
(Written) Homework	7.5%
End of Week Quizzes	10%
Midterm 1	15%
Derivative Proficiency	10%
Midterm 2	15%
Integral Proficiency	10%
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 Math and Stat Lab, Chapman Building Room 305, 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 to https://fairbanks.go-redrock.com.
- 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

General Education

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:

UAF Department of Equity and Compliance
1760 Tanana Loop, 355 Duckering Building, Fairbanks, AK 99775
907-474-7300
uaf-deo@alaska.edu

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