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|---|---|
| **COURSE DESCRIPTION** | Fundamental concepts of analytic geometry and calculus; functions, graphs, limits, derivatives and integrals. |
| **COURSE FORMAT** | In-Person, CEB 254 (Note the classroom change) <br> MoWeFr 11:00am–12:20pm <br><br> *Mondays and Wednesdays are discussion days.* <br> *Fridays are reserved for quizzes and "hands-on" activities.* |
| **INSTRUCTOR INFORMATION** | Sungju Moon, PhD <br><br> **Primary Contact:** Use the Inbox tool within Canvas <br> **Office Location:** Dawson 223 <br> **Phone:** (702) 992-2725 <br> **Email:** sungju.moon @ nevadastate.edu <br><br> Instructors use the Canvas Inbox and announcements to communicate about course-specific topics. All other official University communication is conducted using Nevada State University-issued e-mail addresses (e.g., @ students.nevadastate.edu) in order to comply with the Family Educational Rights and Privacy Act (FERPA). If you need assistance accessing your NS e-mail account, contact the NS Support Center at (702) 992-2400, menu option 3, or online at NS Support Center. For more about this, see the Student Responsibilities page. |
| **OFFICE HOURS** | MoWeFr 4:00–4:50pm or whenever my office door is open <br> Online meetings by appointment |
| **E-MAIL RESPONSE TIME** | You can generally expect a response to emails within 24-48 hours (or slightly longer over weekends or holidays). Feedback for completed discussions, quizzes, and assignments depends on the length and complexity of the activity and could take up to 10 days. For questions on the status of a completed assignment, discussion, or test please contact me. |
| **REQUIRED TEXT(S)** | Boelkins, M., Austin, D., Schlicker, S., *Active Calculus*, 2018 Updated ed. <br><br> This is a free online textbook available at URL: <br> https://activecalculus.org/single/book-1.html |
| **LEARNING OUTCOMES** | After finishing this course, you will be able to: <br> • Evaluate limits using graphical, numeric, and algebraic methods. <br> • Calculate derivatives using graphical, numeric, and algebraic methods. <br> • Solve optimization problems using calculus ideas and techniques. <br> • Use the Fundamental Theorem of Calculus to evaluate definite integrals. |
| **CLASS SCHEDULE** | See Page 8 of the course syllabus for the tentative course calendar. <br> All dates are subject to change. |

ASSIGNMENT
DESCRIPTION
& DUE DATES

**Homework Assignments (35%):** Homework assignments will be assigned on a weekly basis and will consist of *exercise* and *challenge* problems. Exercise problems generally involve routine calculations and straightforward applications of the ideas discussed in class. Challenge problems will require some additional thinking.

After working on the homework problems, students are asked to rewrite their solutions by filling out the *solution form* specifically designed for each homework assignment for submission. Answers (but not the complete solutions) to the exercise problems will be provided when the assignment is posted. There will be incentives for finding errors in the provided answers. You must check your answer against the posted answers and the Solution Form will ask whether they match. If they do not match, you are asked to provide your thoughts on why things might have gone wrong (write N/A if they do match). Exercise problems will be graded based on completion only. The answers to challenge problems will not be provided in advance, but these problems will be tackled in groups during the Friday "hands-on" sessions (more on that on Page 7). Challenge problems will be graded based on completion, accuracy, and exposition. Solutions to the homework problems will be provided after individual grades are posted.

Working together on homework problems is strongly encouraged with the following limitations: (1) each student must submit their own Solution Form and disclose the people who you worked with on a problem-by-problem basis. (2) Students are *not* allowed to divide up the work and pool together the solutions (the "divide and conquer" approach). (3) Students cannot work with people who are not currently taking this course including tutors, family members, or strangers online; however, getting help on problems that are similar to homework problems is allowed.

**Categorized Summary Notes (5%):** Students are asked to accumulate and maintain categorized entries of summary notes throughout the semester. The suggested categories are the following:

- Definitions
- Theorems
- Ideas & Insights
- Notation
- Examples

A "snapshot" of your growing list of note entries is to be uploaded online on a regular basis (tentatively scheduled for every Friday). Students are encouraged to type up their notes for clarity and editability, although handwritten flashcards (scanned or photographed) will also be accepted. For those who are not familiar with LaTeX, a basic introduction to a 'gateway' platform called LyX (https://www.lyx.org/) will be offered in class.

**Mini-Projects (2 projects, 10% each):** Mini-projects are group activities. Each group will draft an expository paper on a given topic. Details will be announced in class.

**In-Class Participation (15%):** Students must submit a good-faith effort to complete the activities in class. These include in-class problem solving (handouts), Exit Tickets and the Friday "hands-on" sessions.

*Exit Tickets*: You will be asked to fill out Exit Tickets to summarize what we have discussed at the end of each class session on Mondays and Wednesdays. Students are also encouraged to use this space to ask questions or provide feedback. The Exit Tickets can be anonymous but you may write down your name if you want a personalized response from the instructor.

The Friday sessions will look a little different. See Page 7 for more information.

**Quizzes (10%):** There will be weekly quizzes held at the beginning of class on Fridays. Typically, there will be two parts to a quiz. The first part will ask you to state a definition or theorem and the second part will involve an example involving the definition or theorem. These problems will be discussed in groups immediately following each quiz as part of the Friday session activities.

EXAM
DESCRIPTION

**Exams (3 exams, 5% each):** There will be three exams. See the course calendar on Page 8 for the tentative exam dates. Students may use a calculator. Students are allowed to use their Categorized Summary Notes for the designated "open-notes" portion of the exam.

LATE
POLICY

When students miss work for medical and/or personal reasons, they should access the Student Absence Notification System.

Late homework assignments will be accepted until the next exam date; however, homework assignments that are submitted after the solutions are posted will receive at most 50% of the total points available.

Homework assignments can be resubmitted for live-grading for up to full credit provided the following conditions are met:

1. The assignment was submitted on time.
2. The initial grade on the assignment was 50% or higher.

Live-grading means that students will initiate the resubmission process by presenting their reworked solutions accompanied by verbal explanations so that the instructor can provide feedback on the spot. The resubmission process of a homework problem can be initiated during the week that the particular assignment is returned and will cost 1 personal ★ per problem. Once initiated, resubmissions on that particular problem can be attempted as many times as needed until the next exam date.

To make-up for any missed Friday "hands-on" activities, you must meet with your group outside of class (online or in-person) and submit a summary report of the meeting. The summary report must include the names of at least two participating members, who will each earn an additional ★ (except for the initially missing member).

The following assignments may *not* be turned in late for credit without explicit permission from the instructor:

- In-Class Participation
- Categorized Summary Notes
- Quizzes
- Mini-Projects
- Exams

*You cannot receive a passing grade for the course without completing all major assessments.*

EXAM DEBRIEF

There may be opportunities for exam corrections. Schedule an individual meeting with the instructor to pick up your graded exam and discuss how the class is going.

GRADING CRITERIA

Your grade will be determined by the following rubric:
(Course Point Totals)—100%

- Homework Assignments (35%)
- Mini-Projects (20%; 10% each)
- In-Class Participation (15%)
- Summary Notes (5%)
- Quizzes (10%)
- Exams (15%; 5% each)

**Grading Scale (Letter Grade and Point Range):**

| | | | |
|---|---|---|---|
| A | 93% or higher | C | 73%–76.99% |
| A- | 90%–92.99% | C- | 70%–72.99% |
| B+ | 87%–89.99% | D+ | 67%–69.99% |
| B | 83%–86.99% | D | 63%–66.99% |
| B- | 80%–82.99% | D- | 60%–62.99% |
| C+ | 77%–79.99% | F | less than 60% |

**Accessing Grades and instructor feedback**

To access your grades and find all of the instructor's feedback, click on Grades in the course navigation menu. Scroll through the list until you find the new graded assignment (indicated by the blue dot to the left of the assignment name). Then click on the assignment name. You will see your grade. Below it you can click on Show Rubric to see the marked up rubric. Click on the paper title if you want to download the original document. (The instructor's marks or comments will not appear on the downloaded document.) Click on the box to the right of the paper title to see the Turnitin report. Click on View Feedback to see the paper marked up with the instructor's comments/corrections in DocViewer. The instructor's feedback is on the right. Accessing Grades will take you step-by-step through how to find all instructor feedback and see the marked-up paper and rubric.

STUDENT RESPONSI- BILITIES

Students are responsible for reading, understanding, and abiding by the policies listed on the Student Responsibilities page and LASB-specific policies, including, but not limited to:

- Americans with Disabilities Act (ADA) Accommodations
- Student Email Policy
- Diversity and Inclusion Statement
- Appropriate Online and Video-Conferencing Behavior
- Video- or Audio-Recording Lectures
- Withdrawing from a Course
- Academic Resources
- Student Absence Notification
- Enrollment Cancellation for Non-Attendance
- Technical Support and Minimum Technical Requirements
- Military and Veteran Students
- LASB Academic Conduct Policy

**Plagiarism, cheating, and copyright infringement**

*Plagiarism* can involve directly quoting, summarizing, or paraphrasing the work of others without specifically citing sources, or handing in work that is not your own. For more on this see the Copyright, Plagiarism, and Citing Sources page.

*Cheating* can involve deception about your own work or about the work of someone else, and can include unauthorized giving or receiving of information in exams or other exercises or assessments. The use of books, notes, mobile devices, or other reference materials and/or collaboration with other students is strictly prohibited on all quizzes and exams unless specific permissions have been given by the professor. Violating this rule is considered cheating. All assignments, quizzes, and exams, for both in-person and online classes, are to be completed by each student individually, unless otherwise documented by the instructor.

*Copyright infringement* includes sharing or posting course materials on external websites or other locations; NS instructors' course materials are their intellectual property and are protected under copyright.

Detailed explanations and examples of plagiarism, cheating, and other forms of academic misconduct can be found in the LASB Academic Conduct Policy and in the Academic Standards section of the NS Student Code of Conduct. *You are responsible for reading, understanding, and abiding by these policies.*

The grade of 0 or F may be assigned for any assignment, quiz, or exam in which plagiarism or cheating is discovered; depending on the severity of the incident (including whether the student has previous incidents), a grade of F may be assigned in the course and a Student Conduct charge may be filed. Evidence of such dishonesty will be kept on file, and will not be returned to the student. Instructors have the responsibility to report such incidents to the Dean and the NS Conduct Office. Serious penalties may be imposed, depending on the nature of the incident.

**Turnitin**

By taking this course, you agree that all required assignments may be submitted to Turnitin for detecting plagiarism. All submitted papers will be included as source documents in the Turnitin reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin service is subject to the Turnitin End-User License Agreement posted on the Turnitin site. If you do not agree, contact your instructor immediately.

**Artificial Intelligence**

*Use Only With Permission.* Students are allowed to use advanced automated tools (artificial intelligence or machine learning tools such as ChatGPT or Bard) on assignments in this course if instructor permission is obtained in advance. Unless given permission to use those tools, each student is expected to complete each assignment without substantive assistance from others, including automated tools. Students are responsible for ensuring the accuracy of any information provided by an AI tool.

Source: Adapted from the University of Delaware:
https://ctal.udel.edu/advanced-automated-tools/

STUDENT
SUCCESS
RESOURCES

At some point in the semester, you may require assistance for a variety of issues. Here is a brief list of helpful resources:

- Academic Advising Center
- Academic Success Center
- Writing Center

- Student CARE Team
- Financial Aid Office
- Mental Health Counseling

The Academic Resources page has various academic resources including the academic calendar; disability accommodations; library guides; plagiarism, copyright, and citation information; and veteran concerns.

If life circumstances are making it difficult for you to succeed, please reach out to me and let me know. I am willing to work with you to devise a plan for success or make recommendations for other support services on campus. For example, I may connect you with an Academic Advisor who can develop a personalized success strategy that will keep you on track to graduate and discuss any impacts to your financial aid. You can also contact Academic Advising directly at (702) 992-2160 or at studentsuccess@nevadastate.edu.

**Emergency CARE Services**

Emergency CARE Services—If you are struggling with hunger, unstable housing, safety, mental health worries or any other concerns, contact case manager, Cassandra Crevling. Together, we can help meet those needs. E-mail: studentwellness@nevadastate.edu | Call: (702) 992-2514 | Website: 🌍 https://nevadastate.edu/studentwellness/

Updated February 11, 2024

## Guide to the Friday "Hands-On" Sessions

**Stage 1**: You Take a Quiz & Debrief with Your Group

On most Fridays, there will be a short quiz at the beginning of class (5–7 minutes). Immediately following the quiz, you will gather in groups and discuss the quiz problems with your fellow group members (5–10 minutes). Once everyone is in agreement about the quiz solution, you can notify the instructor. Upon confirmation, your group will receive a ★ and move on to the next stage.

**Stage 2**: Your Group Works on the Challenge Problems (one at a time)

Set up a workstation for your group (preferably around a whiteboard or post-it board). You are now tasked with a set of *challenge problems*. Work on one problem at a time starting with the first problem on the assignment worksheet. Once your group has reached a consensus on a working solution to a problem, designate one person from your group as the "compiler". The compiler's job is to finalize the group's solution.

If everyone is in agreement after the compiler presents their solution to the group, designate another person from your group (cannot be the same as the compiler) as the "presenter". The presenter will summon the instructor and present the group's solution to the instructor. If the solution is acceptable, your group will receive a ★. If the solution is not acceptable, you will get to try again next time when the instructor comes around until time runs out for the problem. Once you earn a ★, move on to the next challenge problem and repeat the process above. Collect as many ★s as you can!

*How to get unstuck.* There will be times when you get stuck on a problem. Here are some ways to resolve it:
1. Ask for hints and/or clarifications from the instructor.
2. Send out a *spy* to take a peek at how other groups are dealing with the problem.

*Group roles.* It may be helpful to designate roles when you start working on a problem. These roles can include the compiler, the presenter, and the spy. One person can also serve as the secretary who will keep track of the number of ★s earned by your group. Make sure that no one person is dominating a particular role (especially watch out for "compiler hogging").

**Stage 3**: Whole Class Gets Together to Discuss the Challenge Problem

Occasionally, the instructor will ask for everyone's attention to discuss one of the challenge problems. We will use *hand raising* to signal this break. If your group has not earned a ★ for the particular challenge problem by this point, you will be asked to move on to the next challenge problem and your group will no longer be eligible for a ★ from the problem.

**Stage 4**: Write Up Your Own Solutions (the "Solution Form")

The challenge problems are part of the homework assignment for the week, which also includes exercise problems in addition to the challenge problems. It is highly recommended that you work out a solution on a separate piece of paper and then fill out the Solution Form, that is, the Solution Form should at least be your second draft. As you write up your solutions, you can continue communicating with your peers; however, the written work that you turn in must be your own. The ★s earned by your group will be transferred to your *personal star wallet* by the end of the day.

Updated February 11, 2024

## Course Schedule[†]
### ALL DATES ARE SUBJECT TO CHANGE

| Date | Agenda | Assignment | Due |
|------|--------|------------|-----|
| Wed, Jan 17 | Introduction, Discussion: rate of change (1.1) | | |
| Fri, Jan 19 | Quiz 0, Challenge: functions and notation | HW1 | Notes 0 |
| Mon, Jan 22 | Discussion: limits and infinity (1.2) | | |
| Wed, Jan 24 | Discussion: continuity (1.7) | | HW1 |
| Fri, Jan 26 | Quiz 1, Challenge: limits and continuity | HW2 | Notes 1 |
| Mon, Jan 29 | Discussion: derivatives I (1.3, 1.4, 1.6) | | |
| Wed, Jan 31 | Discussion: derivatives II (1.3, 1.4, 1.6) | | HW2 |
| Fri, Feb 2 | Quiz 2, Challenge: interpreting derivatives | HW3 | Notes 2 |
| Mon, Feb 5 | Discussion: basic derivative rules (2.1, 2.2) | | |
| Wed, Feb 7 | Discussion: more derivative rules (2.3, 2.4) | | HW3 |
| Fri, Feb 9 | Quiz 3, Challenge: visualizing derivative rules | HW4 | Notes 3 |
| Mon, Feb 12 | Discussion: derivative practice | | |
| Wed, Feb 14 | Discussion: approximations (1.5, 1.8) | Exam 1 Rev. | HW4 |
| Fri, Feb 16 | Quiz 4, Exam 1 Review | Mini 1 | Notes 4 |
| Mon, Feb 19 | President's Day Observed | | |
| Wed, Feb 21 | Exam 1 | | |
| Fri, Feb 23 | Challenge: approximations, Mini-Project 1 | HW5 | Mini 1 Indiv. |
| Mon, Feb 26 | Discussion: chain rule (2.5) | | |
| Wed, Feb 28 | Discussion: inverse functions (2.6) | | HW5 |
| Fri, Mar 1 | Quiz 5, Challenge: chain rule and inverse functions | HW6 | Mini 1 Draft, N5 |
| Mon, Mar 4 | Discussion: implicit differentiation (2.7) | | |
| Wed, Mar 6 | Discussion: L'Hôpital's rule (2.8) | | HW6 |
| Fri, Mar 8 | Quiz 6, Challenge: evaluating limits | HW7 | Mini 1 Final, N6 |
| Mar 11–15 | Spring Break | | |
| Mon, Mar 18 | Discussion: chain rule review, related rates (3.5) | | |
| Wed, Mar 20 | Discussion: extreme values (3.1, 3.2) | | HW7 |
| Fri, Mar 22 | (Group Phase 2) Quiz 7, Challenge: related rates | HW8 | Notes 7 |
| Mon, Mar 25 | Discussion: optimization I (3.3, 3.4) | Exam 2 Rev. | |
| Wed, Mar 27 | Discussion: optimization II (3.3, 3.4) | HW9 | HW8 |
| Fri, Mar 29 | Quiz 8, Challenge: optimization problems | Mini 2 | Notes 8 |
| Mon, Apr 1 | Exam 2 Review | | |
| Wed, Apr 3 | Exam 2 | | |
| Fri, Apr 5 | Group Work on Mini-Project 2 | | Mini 2 Indiv. |

| Date | Agenda | Assignment | Due |
|------|--------|------------|-----|
| Mon, Apr 8 | Discussion: ideas behind integration (4.1) | | |
| Wed, Apr 10 | Discussion: antiderivatives and Riemann sum (4.2) | | |
| Fri, Apr 12 | Quiz 9, Challenge: antiderivatives | HW10 | Mini 2 Draft, N9 |
| Mon, Apr 15 | Discussion: definite integrals (4.3) | | |
| Wed, Apr 17 | Discussion: fundamental theorem of calculus (4.4) | | |
| Fri, Apr 19 | Quiz 10, Challenge: illustrating FTC | HW11 | Mini 2 Final, N10 |
| Mon, Apr 22 | Discussion: 2nd FTC (5.2) | Exam 3 Rev. | |
| Wed, Apr 24 | Discussion: integration by substitution (5.3) | | HW11 |
| Fri, Apr 26 | Quiz 11, Challenge: evaluating integrals | | |
| Mon, Apr 29 | Exam 3 Review | | |
| Wed, May 1 | Exam 3 | | |

†Major assessments are highlighted in red.