

Instructor: Christina Durón

Teaching Assistant: TBD

Email: durocn@math.arizona.edu

Office Hours: Monday – Wednesday from 1:00-2:00 PM in MATH 319

Wednesday from 2:30 – 3:30 in Think Tank

Appointments can be scheduled via email

Office: MATH 319

Phone: (520) 621 – 6870

Website: <https://cduron.info>

Class Meeting Time and Location: Section 8 Mondays through Fridays 11:00 – 11:50 AM in ILC 119

Online Course Management System:

My course homepage <https://cduron.info> will be used to disseminate information such as course policies and procedures, homework assignments, and all announcements. Please check this site regularly, as it is critical for your success in this course.

Course Description: Math 122B is an introduction to first-semester calculus for engineering, science and math students, from rates of change to integration, with an emphasis on understanding, problem solving, and modeling. Topics covered include key concepts of derivative and definite integral, techniques of differentiation, and applications, using algebraic and transcendental functions. A graphing calculator is required for this course.

Course Prerequisites: A grade of C or better in Math 122A. For more information see

<https://www.math.arizona.edu/academics/placement/courses>

Course Structure: Math 122B is a four-credit course which meets in person for either five days or four days per week depending on the scheduled start time of the class. This section will meet for 50 minutes, five days a week.

Course Goals and Objectives:

- To help students understand the calculus concepts of differentiation and the definite integral.
- To help students apply prerequisite skills in addition to calculus formulas and rules in order to compute derivatives and antiderivatives.
- To help students construct well-written solutions to mathematical problems and to provide practical interpretations of answers.
- To promote problem solving and critical thinking skills through the application of calculus concepts.
- To promote, utilize, and understand the connections between the representations of functions: concepts are explored numerically, graphically, algebraically, and in the context of applications.

Learning Outcomes: Upon successful completion of this course, students should be able to

- Use derivatives and limits to analyze and graph algebraic and transcendental functions.
- Select and apply models and differentiation techniques to applications involving, but not limited to, optimization and related rates.
- Apply the fundamental Theorem of Calculus to evaluate integrals.
- Use estimation techniques to approximate rates of change, area, and total change.

Course Webpages: <https://d2l.arizona.edu> for access to homework, quizzes, exams, and course grades

<https://cduron.info> for access to course content information and materials

<https://calculus.math.arizona.edu> for access to general information and additional resources

Textbook: The course materials include the textbook (*Calculus Single Variable*, Sixth Edition by Hughes-Hallett et al.; published by Wiley) and access to the online homework system (WebAssign).

Course Materials: Course materials are being delivered digitally via D2L through the Inclusive Access program. Please access the material through D2L the first day of classes to make sure there are no issues in the delivery, and if you are having a problem or question, it can be addressed quickly. You automatically have access to the course materials FREE

through September 8. But you must take action (even if you have not accessed the materials) to opt-out if you do not wish to pay for the materials, and choose to source the content independently. The deadline to opt-out for this course is 9:00pm MST, September 8. If you do not opt-out and choose to retain your access, the cost of the digital course materials will appear on your October Bursar's account. For more information, visit the FAQs page at <https://shop.arizona.edu/textbooks/Inclusive.asp>.

Calculators: A graphing calculator is an important tool that will be used in this course. We recommend models in the TI-83 or TI-84 series. Models that can perform symbolic calculations (also known as CAS) are NOT allowed on exams, including the final exam. CAS models include (but are not limited to) the TI-89, TI NSpire CAS, HP 50g, and Casio Classpad 330. Students are not allowed to share calculators during exams

Communication with Students: Announcements and important course information may be sent out via my course homepage <https://cduron.info>, your official UA email, through D2L, or through the WebAssign email feature. It is the student's responsibility to check for announcements and messages regularly, though I will try to only post announcements on my course homepage or through your official UA email. If you need to communicate with me, please use email. I check email frequently during the day but sporadically on weeknights and weekends. You can expect a response from me, in general, within 24 hours of sending the email during the week, but on weekends, you should expect a slower response.

Absence and Class Participation: Attending lectures and participating in this course are vital to the learning process. As a result, daily attendance is expected from every student. Students who miss the first class meeting may be administratively dropped unless they have made other arrangements. If you have three or more unexcused absences, you may be administratively dropped from the course. Please note the following:

- All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion,
- Absences pre-approved by the UA Dean of Students (or Dean's designee) will be honored.

It is the student's responsibility to notify the instructor in advance of an absence related to religious observation or an activity for which a Dean's excuse has been granted, and to arrange for how any missed work will be handled.

In addition, the University's policies regarding attendance, participation, and administrative drops are listed below.

- The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>.
- The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.
- Absences for groups of more than three students that are pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <http://policy.arizona.edu/employmenthuman-resources/attendance>.

Expected Classroom Behavior: To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.). Students should turn off all electronic devices during class unless the device is deemed necessary for the class by the instructor. This includes, but is not limited to, cell phones and laptops. If you have a disability-related accommodation that involves the use of a computer during class, please discuss this with your instructor in advance. In addition, students are asked to refrain from disruptive conversations with people sitting around them during lecture (unless the conversation is directed by the instructor, i.e. group work). Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students. See <https://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting>.

Accessibility and Accommodations: At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu/>) to establish reasonable accommodations. Please be aware that the accessible table and chairs in our room should remain available for students who find that standard classroom seating is not usable.

Homework: (100 points) Homework will be submitted in multiple formats throughout the semester: written homework, quizzes, and WebAssign assignments.

Hand-written homework will be assigned weekly and collected every Monday at the beginning of class. These assignments will be graded within two days after the due date. The list of problems for each written assignment is available on my website. All written homework must include work, use proper notation, and the assignments need to be stapled. Refer to the “Written Homework Guidelines” before submitting your first assignment, as I have included more detailed expectations. I will accept at most two late assignments, but they must be handed in within two days from the original due date or you will receive a 0. Solutions will be posted for all the assignments two days after the original due date. No late homework will be accepted after the solutions are posted. There will also be some worksheets and a quiz every Friday, unless I say otherwise. There will be no makeup opportunities on quizzes.

A computer grading program will be used for problems assigned online. The deadlines for each online assignment will be posted on WebAssign, as well on the course calendar listed on my homepage.

As the end of the semester, your score on the written homework, quizzes, and WebAssign assignments will be averaged, and a final grade out of a possible 100 points will be assigned.

In-Class Exams: (400 points) Four exams will be given in sections meeting Monday through Friday. The tentative schedule of each exam is listed on the course calendar on my homepage. Each exam will be worth 100 points. All electronic devices that transmit wireless signals must be turned off during all exams. There is no calculator swapping during exams. If you forget to bring your calculator to an exam, you will have to complete the exam without one. In general, there will be no make-up exams in the course. However, in complex and unusual circumstances which are beyond your control, a make-up exam may be given on a case-by-case basis. This will require providing a detailed account of the situation and supporting documents. Approval in these cases is at the sole discretion of the instructor and/or the dean of students. Dean’s excuses for university related activities and religious holidays recognized by the university will be honored.

Final Exam: (200 points) The final exam is a comprehensive common exam given to all sections of Math 122B and 125. It is scheduled for Tuesday, December 17 from 1:00 – 3:00 pm. Additional information and a study guide can be found at <https://calculus.math.arizona.edu>. The location of the final exam will also be posted later in the semester. The University’s Exam regulations will be strictly followed <https://www.registrar.arizona.edu/courses/final-examination-schedule-fall-2019>

Calculation of Course Grades: Your final course grade will be determined by a percentage of the 700 total possible points in the course. There are no extra credit or bonus points earned in this course.

You are guaranteed a grade of:

Homework	100 points	A if you earn at least 630 points (90%)
In-class exams	400 points	B if you earn at least 560 points (80%)
<u>Final Exam</u>	<u>200 points</u>	C if you earn at least 490 points (70%)
Total possible points	700 points	D if you earn at least 420 points (60%)

Note: A grade of C or better in Math 122B or 125 is a necessary prerequisite for Math 129 (Calculus II). Students who receive a D in Math 122B or 125 will receive credit for the course towards graduation requirements, and will be able to use their course for the general education math requirement, but will not be automatically qualified to register for Math 129.

Withdrawing from the Course: Withdrawals must be made in accordance with University policy <https://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal>. You may drop the class without a W through September 28 using UAccess. The class will appear on your UAccess record, but will not appear on your transcript. You may withdraw with a W through November 10 using UAccess. The University allows withdrawals after November 10, but only with the Dean’s approval. Late withdrawals are dealt with on a case by case basis, and requests for late withdraw without a valid reason may or may not be honored.

Incompletes: Incompletes must be made in accordance with University policy <https://catalog.arizona.edu/policy/grades-and-grading-system#incomplete>.

Code of Academic Integrity: Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA

General Catalog. See: <http://deanofstudents.arizona.edu/codeofacademicintegrity> and <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

Nondiscrimination and Anti-harassment Policy: The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>.

Threatening Behavior Policy: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See. <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>

Crisis resources: Campus Health offers counseling services and resources for students covering a wide range of issues regarding mental health; see <https://health.arizona.edu/crisis-resources-and-hotlines>

Tentative Schedule: A course calendar containing class topics, written and WebAssign homework deadlines, and quiz and exam dates may be found on my homepage <https://cduron.info>. The calendar is tentative and may be changed at my discretion, and therefore, you should frequently check the calendar for any updates or changes.

Changes to the Course Syllabus: The information contained in the instructor's course syllabus, other than the grade and absence policies, as deemed appropriate by the instructor, are subject to change with reasonable advance notice. In particular, the dates of midterm exams, the number of exams, and the order in which topics are covered may differ from the dates and arrangement in the tentative weekly schedule.

NOTE – TENTATIVE AND MAY BE CHANGED

<i>Week</i>	<i>Start Date</i>	<i>Topics to be Covered</i>	<i>Written Assignment Sections</i>
1	Sept 18	Measuring speed, the derivative at a point	2.1, 2.2
2	Sept 23	Derivative of a function, interpretations of the derivative, the second derivative	2.3, 2.4, 2.5
3	Sept 30	Differentiability, powers and polynomials, the exponential function, review	2.6, 3.1, 3.2
4	Oct 7	EXAM 1, the product and quotient rules, the chain rule	3.3, 3.4
5	Oct 14	The trigonometric functions, the chain rule and inverse functions, implicit functions	3.5, 3.6, 3.7
6	Oct 21	Linear approximations, using first and second derivatives, review, EXAM 2	3.9, 4.1
7	Oct 28	Optimization, optimization and modeling, families of functions and modeling	4.2, 4.3, 4.4
8	Nov 4	Rates and related rates, L'Hopital's rule, growth and dominance	4.6, 4.7
9	Nov 11	Review, EXAM 3, measuring distance, the definite integral	5.1, 5.2
10	Nov 18	The Fundamental Theorem and interpretations, theorems about definite integrals, antiderivatives graphically and numerically	5.3, 5.4, 6.1
11	Nov 25	Constructing antiderivatives analytically, differential equations and motion	6.2, 6.3
12	Dec 2	Second Fundamental Theorem of Calculus, review, EXAM 4, integration by substitution	6.4, 7.1
13	Dec 9	Review	None
14	Dec 14	Final Exam on Dec 17 from 1:00 – 3:00 PM	