

# MATH 150: CALCULUS I

Fall 2022: Sections 1 and 2

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<u>Instructor Information</u>		<u>Course Information</u>	
<b>Name:</b>	Dr. Christina Durón	<b>Time:</b>	MTRF 8:00AM – 8:50AM (Section 1) MTRF 9:00AM – 9:50AM (Section 2)
<b>Email:</b>	<a href="mailto:christina.duron@pepperdine.edu">christina.duron@pepperdine.edu</a>	<b>Location:</b>	RAC 175
<b>Office:</b>	RAC 105	<b>Module:</b>	In-person
<b>Office Phone:</b>	(310) 506 – 4832		

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## Course Pages:

1. Homepage: <https://cduron.info>
2. Courses: <https://courses.pepperdine.edu>
3. Gradescope: <https://www.gradescope.com>

**Office Hours:** Office Hours will be held regularly in RAC 105 on

- Mondays: 1:00PM – 2:00PM
- Tuesdays: 10:30AM – 11:30AM
- Thursdays: 10:30AM – 11:30AM
- Fridays: 1:00PM – 2:00PM
- By appointment

In addition, questions may be addressed through email between 8AM – 5PM (PST) during the academic week. Please allow up to 24 hours for a response, although the instructor will strive to reply promptly.

**Course Communications:** All course materials will be posted on Courses. Email, in-class announcements, and Courses announcements will be the primary methods to communicate course information. It is ultimately the student's responsibility to keep informed of any announcements, syllabus adjustments, or policy changes made during scheduled classes, by email, or through Courses.

**Course Prerequisites:** The enrollment requirement includes a Math Placement Test score of 22 or higher, or a C– or better in Math 103 and Math 104.

**Course Description:** Math 150 provides an introduction to first-semester calculus, from rates of change to integration, with an emphasis on understanding, problem solving, and modeling. Topics covered include key concepts of the derivative and definite integral, techniques of differentiation, and applications.

## Course Objectives:

1. Demonstrate an understanding of the skills and concepts central to differential and integral calculus in a single variable.
2. Demonstrate the ability to apply appropriate mathematical ideas from single variable calculus to both theoretical and practical contexts.
3. Demonstrate the ability to formulate logical arguments that make use of appropriate mathematical language and notation.

4. Demonstrate the ability to solve problems using the ideas of single variable calculus including the ability to translate problems into mathematical notation and interpret solutions appropriately.

**Student Learning Outcomes:** Upon completing this course, students should be able to:

1. Demonstrate an increased mastery of logic, algebra, geometry and trigonometry skills.
2. Understand how a sequence of approximations leads to a limiting process.
3. Analyze and interpret the concepts of calculus from graphical, numerical, symbolic and verbal perspectives.
4. Determine the limits of basic functions algebraically, numerically and graphically.
5. Understand the definition and concept of the derivative.
6. Use appropriate techniques to find the derivative of a function.
7. Understand what it means for a function to be continuous, and the relationship between continuity and differentiability.
8. Use the concept of the derivative in applied settings including linearization, related rates and optimization, and interpret the solutions within the context of the problem.
9. Analyze the graphical behavior of a function or a family of functions using the concepts of calculus (e.g., asymptotes, extreme values, monotonicity and concavity).
10. Find antiderivatives algebraically and graphically.
11. Approximate definite integrals using Riemann sums and understand the definite integral as a limit of Riemann sums.
12. Interpret integrals in terms of area or accumulated change.
13. Understand and use the Fundamental Theorem of Calculus.

These student learning outcomes fulfill the following learning outcome of the mathematics program:

- A student who completes a mathematics degree should be able to use appropriate mathematical ideas in applied or real-world contexts.

### **Required Course Materials:**

- *Textbook:* The course textbook (electronic or hardcover) is *Calculus: Concepts & Contexts*, 4th Edition by James Stewart. Reading assignments and homework problems will be given directly from the text.
- *Calculator:* A graphing calculator is a tool that will be used in this course. Any model in the TI-83 or TI-84 series is recommended. Models that can perform symbolic calculations (also known as CAS) are not allowed on exams and quizzes. CAS models include (but are not limited to) the TI-89, TI NSpire CAS and HP 50g. Students are not allowed to share calculators during quizzes and exams.
- *Software:* For this course, you will need daily access to a device with a reliable internet signal that can:
  - Access Courses
  - Access Gradescope
  - Scan and upload written work to Gradescope
  - View and download PDF documents

**University and College Mission:** This course supports the Mission of [Seaver College](#) and [Pepperdine University](#) because the study of mathematics in a science program is one of our high standards of academic excellence.

**Attendance and Class Participation Policy:** Participating in the course and attending lectures and other course events are vital to the learning process. As a result, students are expected to attend each class meeting and to arrive on time and ready to participate in discussion or group work with their peers. Students are responsible for the material covered if they are late or absent. If you are unexpectedly absent for medical or personal reasons, please inform the instructor within 24 hours, if at all possible.

**Classroom Behavior Policy:** 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 webpage, making phone calls, web surfing). Students are asked to refrain from disruptive conversations during lecture. 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 Divisional Dean.

### Assignments and Examinations:

- *Weekly quizzes* will be distributed electronically (on Gradescope) on Friday, with the exception of examination weeks. Each quiz will be made available at 12AM (PST) and close at 11:59PM (PST) that same day. When a quiz is started, there will only be 20 minutes to complete it. If you are required to submit work for free-response questions, then an additional 5 minutes is allotted (for a total of 25 minutes) to upload all necessary work to Gradescope. Each quiz may vary in total points. Students may use the textbook, class notes, and a graphing calculator on all quizzes, but peer collaboration and the use of unapproved sources (e.g., the internet, cell phone) of any kind are not allowed.
  - Building rapport with students is important to me. Consequently, if you are available and interested in joining me for lunch (12:00PM – 12:45PM, PST) at Rockwell Dining Center, please sign up through [Google Calendar](#); should a conflict arise, lunch will be rescheduled to a date convenient for both parties. Any student who meets with me between August 29 – December 9 will have their lowest quiz score replaced with 100% at the end of the semester.
- *Weekly homework* will be distributed electronically (on Courses and Gradescope), based on the problems from the textbook. Students are responsible for uploading properly scanned work to Gradescope by 11:59PM (PST) on the indicated due date. A subset of the assigned problems (2 – 4 problems per section; 5 points each) will be graded on completeness, correctness, and the clarity of explanation, while the remaining problems will be graded on completeness (1 point each); graded work will be returned through Gradescope. Consequently, each homework assignment will vary in total points. Students must show all work in a legible, neat and organized manner to receive credit. No credit will be given if the solution is not justified, or if the work is illegible.
- *Four midterms* will be taken during the class period. Please refer to the calendar for the dates of these exams. Each exam will be written to be completed within 45 minutes. An additional 5 minutes will be provided to allow work to be submitted to Gradescope. See the cover page on each exam for specific instructions about the use of notes and technology.
- The *Gateway Exam* will be administered during the semester to test your basic skills in differentiation. The test will contain 8 – 10 problems and all but one must be answered correctly in order to receive a passing grade. You may retake this test up to four times in order to pass. A passing grade on the exam is worth 7% of your grade. This policy is to ensure you have mastered the basic material in this course.
- The *Final Exam* will take place on Monday, December 12, 2022, at 7:30AM – 10:00AM (**Section 2**) and Thursday, December 15, 2022, at 7:30AM – 10:00AM (**Section 1**) in our regular classroom. Within the 2.5 hours, students are expected to submit their work to Gradescope. The grading policy for the midterm exams will be observed for the final exam. Please visit [Final Exams and Schedule of Classes](#) for more information.

- All students enrolled in the course must take the final exam at the scheduled time. Exceptions are only granted if a student has two exams scheduled at the same time, or three exams scheduled on the same day. Students in these situations are expected to notify the instructor at least three weeks in advance.

**Gradescope:** All written work (including homework and exams) will be uploaded and submitted to Gradescope. Students are expected to create an account with Gradescope, linked to your @pepperdine.edu address. If you already have a Gradescope account linked to your @pepperdine.edu address, then you do not need to create another account. Students are expected to read the [guide for submitting work](#) to Gradescope. To upload your work, log into your Gradescope account, find the course Gradescope page, select the correct assignment, and upload your scanned work as a single PDF. If you cannot find the course Gradescope page, then you may need a course entry code (provided on Courses under Resources).

### Important Dates:

Last day of Add/Drop period .....	September 2, 2022
Withdraw period begins .....	September 3, 2022
Last day to change Cr/NC status .....	September 12, 2022
<b>Midterm #1</b> .....	<b>September 15, 2022</b> ( <i>tentative</i> )
<b>Midterm #2</b> .....	<b>October 4, 2022</b> ( <i>tentative</i> )
<b>Gateway Exam</b> .....	<b>October 24, 2022</b> ( <i>tentative</i> )
Last day to withdraw (with W) .....	October 24, 2022
<b>Midterm #3</b> .....	<b>November 4, 2022</b> ( <i>tentative</i> )
<b>Midterm #4</b> .....	<b>November 29, 2022</b> ( <i>tentative</i> )
Last day to withdraw (with WP/WF) .....	December 2, 2022 (by 5PM)
Last day to submit Change of Final Exam form .....	December 2, 2022
<b>Final Exam</b> (Section 2) .....	<b>December 12, 2022</b>
<b>Final Exam</b> (Section 1) .....	<b>December 15, 2022</b>

**Make-up Exams and Homework Extensions:** In general, there will be no make-up exams. However, in unusual circumstances beyond your control, a make-up exam may be given on a case-by-case basis. This may require providing a detailed account of the situation and, if applicable, supporting documents. Approval in these cases is at the sole discretion of the instructor and/or the Divisional Dean.

Homework assignments not turned in by the due date will receive an automatic zero. Extensions may be granted on a case by case basis, either with prior permission of the instructor (a valid reason must be given) or with the instructor's agreement in cases of emergency. In the latter case, the student must contact the instructor within 24 hours, if possible.

**Dispute of Grade Policy:** Any questions regarding the grading of any assignment, quiz or exam need to be cleared up within one week after the graded item has been returned.

**Grading Scale and Policies:** Your work in this course will be weighted as follows:

- Quizzes (3%)
- Homework (10%)
- Midterm Exams (52%, 13% each)
- Gateway Exam (7%)
- Final Exam (28%)

The weighted percentages below correspond to your final letter grade:

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A: 93 – 100%	B+: 87 – 89%	C+: 77 – 79%	D+: 67 – 69%	F: 0 – 59%
A–: 90 – 92%	B: 83 – 86%	C: 73 – 76%	D: 63 – 66%	
	B–: 80 – 82%	C–: 70 – 72%	D–: 60 – 62%	

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**Note:** No extra credit or bonus points are offered in this course.

**Assistance:** I will be available in my office for questions during the posted Office Hours or whenever the door is open. If you need to reach me outside of those hours, please email me to make an appointment. There will be peer tutoring available in the Student Success Center most evenings. See <https://seaver.pepperdine.edu/academics/academic-support/student-success-center/departmental-tutoring.htm> for details.

**Class Expectations:** It is my goal to teach you all the material necessary to be successful in this course. In return, I expect that you will show up to class on time and ready to work. We will use calculators for mathematical applications, but I expect that you will refrain from the use of cell phones, tablets or laptops unless instructed otherwise.

In order to make the class more interesting, I will alternate between lectures and group activities. We can only cover all of the material successfully in this way if you make an effort to stay on task. Working in groups is an excellent opportunity to learn from each other. You will know that you have mastered a subject when you can successfully teach that topic to a fellow student.

It is my expectation that you will spend at least two hours outside of class for every hour you spend in class studying and working on homework. If you put in eight hours a week, then you should be able to complete your assignments and study for your exams. If you do this for each class, then a 16 – 18 unit load will give you a 48 – 54 hour work week, which is not unreasonable in many professions.

As students at Pepperdine University, you are expected to approach this class with a Christian attitude. You should be willing to help your fellow classmates understand the material while working in groups or outside of class. Our classroom is a place to ask questions without feeling ashamed or looking foolish. Since your peers are entering this course with a broad spectrum of mathematical backgrounds, you should be patient with others asking questions and encourage one another in love.

As a professor at Pepperdine University, I will approach this class with a Christian attitude, viewing my role as that of a servant, being concerned first for your personal, especially intellectual, development. One of my goals is to build a community that is understanding and encourages one another. I commit to reporting grades that accurately and honestly reflect the level of work done in the class, as described in the paragraphs above.

**Student Accessibility:** Any student with a documented disability (chronic medical, physical, learning, psychological, or temporary) needing academic accommodations should contact the Office of Student Accessibility (Student Assistance Center, SAC – 105, Phone: (310) 506 – 6500) as early in the semester as possible. All discussions will remain confidential. For additional information, please visit <http://www.pepperdine.edu/student-accessibility/>.

**Ethics:** Academic Integrity is the expression of intellectual virtue in human beings as a result of their creation in God's image. It represents the convergence of the best of the human spirit and God's spirit, which requires personal, private and community virtue. As a Christian institution, Pepperdine University arms that integrity begins in our very created being and is lived out in our academic work. In order for the code to be effective, the community must maintain its health and vitality. This requires a genuine sense of maturity, responsibility, and sensitivity on the part of every member. Each member of the Seaver College community is expected to pursue their academic work with honesty and integrity.

Academic integrity is violated when one of the following events occurs:

- Plagiarism
- Cheating
- Fabrication, or
- Facilitating Academic Dishonesty

For a more detailed description of these violations, see <http://seaver.pepperdine.edu/academicintegrity/policies/violations.htm>. All violations will be reported and handled according to the Academic Integrity Committee Procedures. In particular, any instance of cheating or plagiarism on an assignment or exam will be reported and result in no credit.

**Course Evaluations:** Online course evaluations are conducted for all Seaver College courses and are part of Pepperdine University's commitment to excellence in teaching and learning. The evaluations provide useful feedback that faculty and schools use to improve the quality of instruction. Each instructor receives a compilation of the anonymous responses and comments to use in evaluating their own teaching and planning future courses. Faculty do not have access to course evaluation data until all course grades are posted. The course evaluation period opens at 5PM on the WP/WF deadline day (Friday, December 2) and closes before final exams begin (3AM on Monday, December 12). To access the online course evaluation system, you may log on directly at <https://courseeval.pepperdine.edu/>.

**Intellectual Property:** Course materials prepared by the instructor, together with the content of all lectures and review sessions presented by the instructor, are the property of the instructor. Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited. Unless explicit permission is obtained from the instructor, recordings of lectures and review sessions may not be modified and must not be transferred or transmitted to any other person. Electronic devices other than laptops (e.g., cell phones, PDAs, calculators, recording devices) are not to be used during lectures or exams without prior permission of the instructor.

All class lectures and materials herein, including but not limited to, pre-recorded and live lectures, live discussions and discussion boards (and recordings thereof), posted course materials, visual materials that accompany lectures/discussions, and virtual whiteboard notes (collectively "Course Intellectual Property") remain the intellectual property of the faculty member or other third-parties. No individual may record, reproduce, screenshot, photograph, or distribute any Course Intellectual Property in partial or full-format without the permission of the professor. Any violation of this policy may subject the individual to disciplinary and/or legal action.

**Subject to Change Statement:** Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

**Tentative Schedule:**

MONDAY	TUESDAY	THURSDAY	FRIDAY
<b>Aug 29th</b> 1 Models and Functions (Section 1.1)	<b>30th</b> 2 Linear Models (Section 1.2)	<b>Sep 1st</b> 3 Algebra Review	<b>2nd</b> 4 Trigonometry Review  Quiz #1 Due

MONDAY	TUESDAY	THURSDAY	FRIDAY
<b>5th</b> <b>5</b> <b>NO CLASS</b> <i>Labor Day Holiday</i>	<b>6th</b> <b>6</b> New Functions from Old (Section 1.3) <b>HW #1 Due</b>	<b>8th</b> <b>7</b> Exponential Functions (Section 1.5)	<b>9th</b> <b>8</b> Inverse Functions and Logarithms (Section 1.6) <b>Quiz #2 Due</b>
<b>12th</b> <b>9</b> Inverse Functions and Logarithms (Section 1.6) <b>HW #2 Due</b>	<b>13th</b> <b>10</b> Midterm #1 Review	<b>15th</b> <b>11</b> <b>Midterm #1</b>	<b>16th</b> <b>12</b> Inst. Rate of Change (Section 2.1)
<b>19th</b> <b>13</b> Exploring Limits (Section 2.2) <b>HW #3 Due</b>	<b>20th</b> <b>14</b> Calculating Limits (Section 2.3)	<b>22nd</b> <b>15</b> Continuity (Section 2.4)	<b>23rd</b> <b>16</b> Derivatives and Slope (Section 2.6) <b>Quiz #3 Due</b>
<b>26th</b> <b>17</b> The Derivative Function (Section 2.7) <b>HW #4 Due</b>	<b>27th</b> <b>18</b> Second Derivative (Section 2.8)	<b>29th</b> <b>19</b> Deriv. of Polynomials (Section 3.1)	<b>30th</b> <b>20</b> Deriv. of Polynomials (Section 3.1) <b>Quiz #4 Due</b>
<b>Oct 3rd</b> <b>21</b> Midterm #2 Review <b>HW #5 Due</b>	<b>4th</b> <b>22</b> <b>Midterm #2</b>	<b>6th</b> <b>23</b> Prod. & Quot. Rules (Section 3.2)	<b>7th</b> <b>24</b> <b>NO CLASS</b> <i>Faculty Conference</i>
<b>10th</b> <b>25</b> Trigonometric Functions (Section 3.3) <b>HW #6 Due</b>	<b>11th</b> <b>26</b> Chain Rule (Section 3.4)	<b>13th</b> <b>27</b> Implicit Differentiation (Section 3.5)	<b>14th</b> <b>28</b> Inverse Functions (Section 3.6) <b>Quiz #5 Due</b>
<b>17th</b> <b>29</b> Logarithms (Section 3.7) <b>HW #7 Due</b>	<b>18th</b> <b>30</b> Linear Approximation (Section 3.9)	<b>20th</b> <b>31</b> Related Rates (Section 4.1)	<b>21st</b> <b>32</b> Gateway Exam Review <b>Quiz #6 Due</b>
<b>24th</b> <b>33</b> <b>Gateway Exam</b> <b>HW #8 Due</b>	<b>25th</b> <b>34</b> Maxima and Minima (Section 4.2)	<b>27th</b> <b>35</b> Shapes of Curves (Section 4.3)	<b>28th</b> <b>36</b> Shapes of Curves (Section 4.3)



MONDAY	TUESDAY	THURSDAY	FRIDAY
<b>31st</b> <b>37</b> Optimization (Section 4.6) <b>HW #9 Due</b>	<div>Nov 1st</div> <b>38</b> Optimization (Section 4.6)	<b>3rd</b> <b>39</b> Midterm #3 Review	<b>4th</b> <b>40</b> <b>Midterm #3</b>
<b>7th</b> <b>41</b> Antiderivatives (Section 4.8) <b>HW #10 Due</b>	<b>8th</b> <b>42</b> Antiderivatives (Section 4.8)	<b>10th</b> <b>43</b> Areas and Distances (Section 5.1)	<b>11th</b> <b>44</b> Areas and Distances (Section 5.1) <b>Quiz #7 Due</b>
<b>14th</b> <b>45</b> Definite Integral (Section 5.2) <b>HW #11 Due</b>	<b>15th</b> <b>46</b> Definite Integral (Section 5.2)	<b>17th</b> <b>47</b> Evaluating Integrals (Section 5.3)	<b>18th</b> <b>48</b> Evaluating Integrals (Section 5.3) <b>Quiz #8 Due</b>
<b>21st</b> <b>49</b> Fund. Thm. of Calculus (Section 5.4) <b>HW #12 Due</b>	<b>22nd</b> <b>50</b> Fund. Thm. of Calculus (Section 5.4)	<b>24th</b> <b>51</b> <b>NO CLASS</b> <i>Thanksgiving Holiday</i>	<b>25th</b> <b>52</b> <b>NO CLASS</b> <i>Thanksgiving Holiday</i>
<b>28th</b> <b>53</b> Midterm #4 Review <b>HW #13 Due</b>	<b>29th</b> <b>54</b> <b>Midterm #4</b>	<div>Dec 1st</div> <b>55</b> Limits Involving Infinity (Section 2.5)	<b>2nd</b> <b>56</b> Limits Involving Infinity (Section 2.5)
<b>5th</b> <b>57</b> L'Hopital's Rule (Section 4.5) <b>HW #14 Due</b>	<b>6th</b> <b>58</b> L'Hopital's Rule (Section 4.5)	<b>8th</b> <b>59</b> <b>Final Exam Review</b> <b>HW #15 Due</b>	<b>9th</b> <b>60</b> <b>Final Exam Review</b> <b>Quiz #9 Due</b>
<b>12th</b> <b>61</b> <u>Section 2:</u> <b>Final Exam</b> 7:30AM – 10:00AM	<b>13th</b> <b>62</b>	<b>15th</b> <b>63</b> <u>Section 1:</u> <b>Final Exam</b> 7:30AM – 10:00AM	<b>16th</b> <b>64</b>

**Note:** This calendar is tentative. For up-to-date information, see the course page on Courses.