MAT 191 – Calculus I  
Section 04  
Fall 2017

Professor:  Sharon Lanaghan  
Office Hours: In LIB C121 (TLC): Monday 1-2, Wednesday 1-2; in Office:  Friday 11:30-12:30 or by appointment  
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Email: slanaghan@csudh.edu  
Class Meeting Time/Place:  MWF 8:30 AM, SCC 1304

Required Text:  
A free electronic version of the text can be found at https://openstax.org/details/calculus-volume-1. You can also optionally purchase a printed copy. Details can be found at the above URL.

Prerequisites:  Satisfy any of the following: 
• MAT 153 or equivalent with a grade of "C" or better.  
• Passed Calculus placement test

Course Description:  A study of functions, limits, continuity, differentiation, applications of the derivative, the definite and indefinite integral, and applications of integration.

Student Learning Outcomes:  Upon completion of this course, students should be able to do the following: 

• Demonstrate understanding of the four basic concepts of one-variable calculus; the limit, the concept of continuity, the derivative and the integral of a function of one variable  
• Use the rules of differentiation to compute derivatives of algebraic and trigonometric functions  
• Use derivatives to solve problems involving rates of change, tangent lines, velocity (speed), acceleration, optimization, and related rates.  
• Investigate the graph of a function with the aid of its first and second derivatives: asymptotes, continuity, tangency, monotonicity, concavity, extrema, inflection points, etc.  
• Demonstrate understanding of the meanings of the indefinite integral and the definite integral of a function of one variable, and their relationship to the derivative of a function via the Fundamental Theorem of Calculus  
• Use rules of integration including the Substitution Rule to evaluate indefinite and definite integrals  
• Differentiate Exponential, Logarithmic, and Inverse Trigonometric Functions  
• Use l’Hospital’s Rule

Grades:  This course will use a grading system called standards based grading. The course is broken down into the following 27 learning goals:

1L  Be able to determine limits from a graph or table.  
2L  Be able to determine limits analytically using limit laws and algebraic transformations.  
3L  Be able to determine intervals where a function is continuous or discontinuous from a graph or function equation.  
4L  Be able to find conditions that make a function continuous.  
5L  Be able to determine limits using L’Hospital’s Rule.  
6D  Be able to interpret the derivative as the slope of the line tangent to a graph of a function.  
7D  Be able to interpret the first derivative as instantaneous velocity and the second derivative as instantaneous acceleration.  
8D  Be able to determine the derivative of a function using the definition of derivative.  
9D  Be able to compute derivatives using basic differentiation rules and derivatives of common functions.  
10D  Be able to use the product rule to compute derivatives of functions.  
11D  Be able to use the quotient rule to compute derivatives of functions.  
12D  Be able to use the chain rule to compute derivatives of functions.  
13D  Be able to use implicit and logarithmic differentiation to compute derivatives of functions.  
14D  Be able to use the product, quotient and chain rule in combination to compute the derivatives of functions.  
15A  Be able to use the Extreme Value Theorem to find extrema on a closed interval.
| 16A | Be able to find a value in a given interval that satisfies the Mean Value Theorem. |
| 17A | Be able to determine intervals of increase and decrease of a function. |
| 18A | Be able to determine inflection points and intervals where a function is concave up or concave down. |
| 19A | Be able to sketch the graph of a function using appropriate tests for increase/decrease and concavity (without technology). |
| 20A | Be able to solve problems involving related rates. |
| 21A | Be able to solve problems involving optimization. |
| 22I | Be able to compute indefinite integrals of common functions. |
| 23I | Be able to evaluate definite integrals involving common functions. |
| 24I | Be able to determine the constant to find a specific antiderivative. |
| 25I | Be able to approximate a definite integral using a Riemann Sum or in terms of area. |
| 26I | Be able to apply the Fundamental Theorem of Calculus, Part 1. |
| 27I | Be able to evaluate definite and indefinite integrals using u-substitution. |

You will have multiple opportunities to show that you have mastered each goal by completing items on quizzes and tests. In order to receive a ‘C’ in the course, you must demonstrate mastery of all essential goals by completing each shaded box in the student goal tracker.

Your grade will be composed of your progress toward showing mastery of the goals (75%), homework, classwork and other assignments (10%), and a comprehensive final exam (15%). The final exam is MANDATORY, and a passing grade will not be earned if the final exam is not taken.

Your final grade will then be calculated using the following scale: A: 93%-100%; A-: 90%-92%; B+: 87%-89%; B: 83%-86%; B-: 80%-82%; C+: 77%-79%; C: 73%-76%; C-: 70%-72%; D+: 67%-69%; D: 60%-66%; F: Less than 60%.

**Assessments:** Quizzes will generally be given weekly, on Friday, and will be announced in class. There will be 4 tests and a comprehensive final exam. A list of the test dates is given below. This list is preliminary and subject to change; at least one week advanced notice of any change in test dates will be given.

**Test 1:** Friday, September 15th  
**Test 2:** Friday, October 13th  
**Test 3:** Friday, November 3rd  
**Test 4:** Friday, December 1st  
**Final:** Wednesday, December 13th, 8:30 AM – 10:30 AM

**Instructor Policies:**

**Surveys:** In order to facilitate continuous improvement and course redesign, there may be periodic surveys posted to the class by both the CSU Office of the Chancellor and Prof. Lanaghan. Ongoing course surveys will receive CPA credit, and surveys given by the CSU Office of the Chancellor will receive extra credit.

**Attendance:** Attendance is mandatory. In addition to traditional instruction, class meetings will consist of activities that will be completed in groups. Although many of these activities will be posted on Blackboard, there is no substitute for coming to class and working with other students to complete them.

If you must be absent, check with another student and on Blackboard to see what you missed.

**Class Preparation Assignments (CPAs):** Prior to each class meeting you will be given a Class Preparation Assignment on WebWork. Each of these assignments offers you a chance to review a critical skill or concept that will be needed to complete the day’s lesson. The material covered in these assignments is considered pre-requisite knowledge, and will generally not be covered in class. You will sometimes be provided with videos and online resources to help you review these concepts, but you should also be prepared to go to tutoring or office hours if there are concepts covered in these assignments that you are not familiar with.

**Homework and Other Assignments:** Homework assignments are a chance for you to develop your skills. No late homework assignments will be accepted. In class, we will do activities to help guide your understanding of the material. Some of these will be collected. You must be present in class to complete and turn in in-class work.
**Quiz and Exam Make-ups:** Make-ups for documented absences that are required as part of a CSUDH obligation (e.g. athletes participating in an event, participating in a debate contest, etc.) or for religious observation will be granted. For all make-ups of this type, prior notification of at least one week and documentation are required. Other make-ups are granted only in extreme cases and at the sole discretion of the instructor.

**Technology:** The following technology will play an important role in our class. You should plan to bring a laptop or tablet to class daily. A limited number of tablets will be available to be checked out for use during class.

- **Blackboard:** All class assignments and resources will be posted on Blackboard. You should check Blackboard daily for updates.
- **CSUDH E-mail:** All correspondence for this course will be to your official CSUDH Toromail E-mail Account. Make sure you can access this account as I will not use any other e-mail account to correspond with you. If you cannot log-in to your CSUDH E-mail account, you can use the online password reset tool: [https://dhnet.csudh.edu/](https://dhnet.csudh.edu/) or visit the CSUDH helpdesk to change your password.
- **Desmos:** Desmos will regularly be used in class and on homework to explore new concepts. Desmos can be downloaded free for iOS and Android, and can be accessed via any web browser at [http://desmos.com](http://desmos.com).
- **Calculators:** In class you are welcome to use any calculator you have and know how to use, but on quizzes and tests, only scientific calculators can be used.

**My Role:** I want you to succeed in this class! This class will challenge you but it is also my hope that it will be interesting and even fun! For my part, I am here to help you learn. I have designed the structure of the course to help you. I will do what I think is best to help you understand the material in the course. I hold office hours to provide you the opportunity to get additional help, and I check and respond to email frequently.

**Student’s Role:** These guidelines are meant to benefit you and the entire class, and to ensure that everyone has the opportunity to contribute and to learn.

- You are responsible for making sense of the concepts and processes in this course. Success in mathematics is less about ability and more about willingness to think and to WORK HARD to make sense of things.
- Attend every class meeting, participate, and work on the assignments outside of class.
- Respect the ideas and opinions of others.
- Raise your hand before speaking.
- Bring your assignments with you, ready to turn in on the day they are due.
- In class, when we discuss homework problems, you are to do all writing in colored pen (different from the color you use to write your homework). This lets me know what work you completed on your own time.
- If you are having trouble, please come to office hours or make an appointment to visit me.
- Cell phones should be off or set to vibrate. Do not place a call or send a text during class, and do not answer a phone call without first leaving the room.

**Accommodations for Students with Disabilities:** Cal State Dominguez Hills adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Disabled Student Services (DSS) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. Please note: no accommodation may be made until you register with the DSS in WH B250. For information call (310) 243-3660 or to use telecommunications Device for the Deaf, call (310) 243-2028.

**Academic Integrity:** The mathematics department does not tolerate cheating. Students who have questions or concerns about academic integrity should ask their professors or the counselors in the Student Development Office, or refer to the University Catalog for more information. (Look in the index under "academic integrity").
We will be following the schedule below this semester. Please see the more detailed schedule posted on Blackboard for more information about specific assignments.

Note: This schedule is subject to change. See Blackboard for current class assignments.

Final examination: Wednesday, December 13, 8:30 AM – 10:30 AM.