MATH 1501 C (CRN 766)
Calculus I
Spring Semester 2020

Instructor: Allen G. Fuller
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Office location: Instructional Complex 240
Office hours:
Monday: 9:00-9:30; 12:30-2:00
Wednesday: 9:00-9:30; 12:30-2:00
Friday: 9:00-11:00; 1:00-3:00
And by appointment

Class Location: Instructional Complex 310
Class Times: 11:00-12:10 Monday, Wednesday, Friday

Course Description:
An analysis of functions, limits, continuity, the derivative, antidifferentiation, the definite integral, and applications.

Pre or Co-requisites: Grade of C or better in MATH 1113 or Math SAT score of 600 or Math ACT score of 26

Required materials:
- CALCULATOR: A graphing calculator is required.
- CLICKER: Students are required to own a clicker, which can be purchased at the Bookstore, for this course. The clicker should have the student's name clearly printed on it and must be registered before the second day of class.
- TEXT: Stewart, James. 2016. *Calculus*. 8th edition. Cengage Learning. ISBN: 978128574062 (hardback); or 9781305480513 (RedShelf e-text)

Area Requirements/Skills and Competencies:
This objective is directed toward the following general education expected outcome of the college:
> **Mathematical Skills:** Students will demonstrate a basic knowledge of the fundamentals of college-level mathematics.

Specific Learning Outcomes:
Upon completion of Calculus I, students should have an understanding of:
1. Limits of functions, limit properties, and continuity of functions.

2. Definition of the derivative, and differentiating all elementary functions using the definition of derivative and by using the sum, product, quotient, and chain rules.
3. Implicit differentiation.
4. Applications of the derivatives
5. Riemann sums; the definite and indefinite integrals and their properties.
6. The Fundamental Theorem of Calculus (Parts I & II).
7. Integration by substitution.
8. Applications of integration.

Grade Scale:

89.5% +	79.5 – 89.4%	69.5 – 79.4%	59.5 – 69.4%	Less than 59.5%
A	B	C	D	F

Grading Scheme:
The student's final grade will be computed as follows:

Participation	5%
Quizzes	15%
Tests	60%
Final Exam	20%
TOTAL	100%

Assessments:
A. Class participation based upon the daily "Clicker Questions." Students getting at least 1/3 of the clicker questions correct will earn the maximum of 1 participation point for the day. Students attempting but getting less than 1/3 of the questions correction will earn 0.3 participation points for the day. Students who do not respond to clicker questions will get a zero for participation for the day. ***In order for me to award participation points, you will need to e-mail me your clicker ID number!!***

B. There will be quizzes approximately every Monday. Quizzes will be at the end of class. ***There will be NO make-up quizzes***. However, I will drop your lowest three quiz grades.

C. There will be four (4) in-class tests given during the semester. The dates of the tests are: Friday, January 310; Friday, February 28; Monday, March 30; and Wednesday, April 29, 2020. **If a make-up test is required, there will be 20% penalty unless there is a documented medical excuse or documented death in the immediate family.** A make-up test **must** be taken within **48 hours** of your return to class or the last day of class (whichever comes first), after which you receive a grade of zero. *All test will be taken without references of any description*. Just having the correct answer to a test question will **NOT** earn you credit for the problem; you must use clear mathematical reasoning and clear mathematical writing to show me how you arrive at your solution.

D. There will also be a comprehensive Final Examination given on Friday, May 8, 2020 from 10:15 AM-12:15 PM. Gordon College policy states the Final Examinations must be taken at the scheduled time. Therefore, students are **not** permitted to take the Final Examination early. Please make your plans accordingly.

E. If your grade on the Final Exam is higher than your highest test score, then the grade on the Final Exam will replace your lowest test score.

Student Rights and Responsibilities:

A. **Title IX:** Gordon State College is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. All faculty members at Gordon State College are mandated reporters. Any student reporting any type of sexual harassment, sexual assault, dating violence, domestic violence or stalking must be made aware that any report made to a faculty member under the provisions of Title IX will be reported to the Title IX Coordinator or a Title IX Deputy Coordinator. If you wish to speak with someone confidentially, you must contact the Counseling and Accessibility Services office, Room 212, Student Life Center. The licensed counselors in the Counseling Office are able to provide confidential support. Gordon State College does not discriminate against any student on the basis of pregnancy, parenting or related conditions. Students seeking accommodations on the basis of pregnancy, parenting or related conditions should contact Counseling and Accessibility Services regarding the process of documenting pregnancy related issues and being approved for accommodations, including pregnancy related absences as defined under Title IX.

B. **ADA and 504:** If you have a documented disability as described by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504, you may be eligible to receive accommodations to assist in programmatic and/or physical accessibility. The Counseling and Accessibility Services office located in the Student Center, Room 212 can assist you in formulating a reasonable accommodation plan and in providing support in developing appropriate accommodations to ensure equal access to all GSC programs and facilities. Course requirements will not be waived, but accommodations may assist you in meeting the requirements. For documentation requirements and for additional information, contact Counseling and Accessibility Services at 678-359-5585.

C. **House Bill 280:** For information regarding House Bill 280, see the University System of Georgia at the following link: http://www.usg.edu/hb280.

E. **Religious Holidays:** Gordon State College acknowledges that the academic calendar can sometimes conflict with major holidays from among our diverse religious traditions. If a

student must miss class due to the observance of a religious holiday, that absence may be excused. To be excused, the student must inform his/her instructors before the absence and make alternate arrangements for any work due at the time of the absence. An excused absence for the observance of a religious holiday does not excuse student from responsibility for required course work.

F. **Hightower Collaborative Learning Center & Library:** The Hightower Collaborative Learning Center & Library offers Gordon State students specialized library research assistance. Students can meet with their personal librarians for one-on-one help in each discipline, major, or course to search and evaluate information sources effectively. Go to schedule an appointment by clicking the **Personal Librarian** tab or click on the **Presentation Practice Room** tab to make a reservation. For immediate help, call **678-359-5076** or stop by the Circulation/Check-Out Desk. You can also Ask a Librarian or drop by the Circulation/Check-Out Desk. Check the library's for website, hours, electronic resources, and LibGuides (subject- or class-specific research guides).

Additional Information:

A. **Attendance:** Attendance at class is important. I will take attendance by passing an Attendance Sheet for you to sign. If your signature is not beside your name for a particular day, you are considered absent. It is your responsibility to make sure you sign the Attendance Sheet. Students are responsible for every instruction, every change in the syllabus, and all material covered in class whether or not they are present. Students who enroll in the course late are responsible for material covered before they enrolled.

B. **Tardiness:** Tardiness to class is NOT tolerated. I will give you a grace period of approximately five minutes to come into the classroom. During that time the door to the classroom will be left open. After that time, I will close the door to the classroom. If the door of the classroom is closed, you may not enter. DO NOT ENTER THE CLASSROOM AFTER THE DOOR HAS BEEN CLOSED.

C. **Attire:** As in all professional environments, appropriate dress is required in the classroom. I reserve the right to refuse you admittance to class if I deem your attire to be inappropriate and/or distracting. Please dress appropriately.

D. **Working Problems:** Most students will benefit by working many, many problems for practice. On the Tentative Course Outline is a list of suggested "Practice Problems" for each section covered. These are intended to give the student practice in specific concepts that are taught in class. The problems will not be graded. However, I strongly encourage you to work them to better prepare for the tests. I will use approximately the first ten minutes of class to answer any questions about the homework problems. Math is not a spectator sport!

E. **Group Work:** I encourage students to work together on homework.

F. **Academic Honesty:** Each student must do his or her own work on exams without any assistance from any outside source not specifically authorized by me. The student handbook details school policies on academic honesty.

G. **Calculator Policy:** A graphing calculator is required. The TI-83 or TI-84 is recommended. I will not provide calculators for your use. However, graphing calculators can be checked out at the Library. Also, sharing calculators during a test will be considered cheating.

H. **Electronic Devices Policy:**
   1. **Cell Phone Use:** Studies show that use of a cell phone or similar device during lecture strongly impairs a student's ability to take notes and remember information later, and that students significantly underestimate how much cell phone use impairs their ability to learn (Sana et al [2]). In class texting has been linked to an average drop of half a letter grade in a course (Kamenetz [1]). Furthermore, use of electronic media by students reduces the ability of other students near them to take notes by 17% (Sana et al [2]).

      Use of cell phones or other electronic communication devices during lecture is prohibited, except where explicitly allowed by the instructor. Unauthorized use can result in a loss of some or all of a student's participation points for the day, at the discretion of the instructor.
      [1] A. Kamenetz. "How to get students to stop using their cellphones in class". NPR Ed, Nov 10 2015.
      [2] F. Sana, T. Westin, and N. Cepada. "Laptop multitasking hinders classroom learning for both users and nearby peers". Computers and Education,62:24-31, Mar 2013.
   2. **Electronic Devices During Tests and Quizzes:** The use of electronic devices (iPhone, iPad, smartphones, tablets, laptops, iPods, etc.) is prohibited during quizzes and tests.

I. **Testing Procedure:** You will be asked to leave books and other personal items at the front of the room during tests and exams. For that reason, you may want to leave expensive electronic devices and other valuable articles in cars or at home. The instructor will remain in the classroom during tests and exams, but he/she cannot guarantee the safety of easily pocketed items.

J. **Statute of Limitations:** While the instructor does his best to accurately review and assess student work, instances may occur where an error in assigning a grade may occur. The student has exactly three class periods from the time of receiving a grade to ask the instructor to review the grade. After this time has elapsed, all grades will be considered carved in stone.

K. **Classroom Etiquette:** Students are expected to treat the instructor and other students with respect. Please refrain from the following during class time:

1. Talking with other students (other than during classroom or group activities).
2. Leaving class early (other than an emergency).
3. Leaving the desk to sharpen a pencil in the middle of a lecture.
4. Cell phones ringing during class. Placing or receiving cellular phone calls during class.
5. I-pods or other music listening devices should NOT be in use during class time.

L. **Gordon E-mail:** Your Gordon e-mail address is where all official communication from Gordon College is sent. This includes registration information, etc. Please check your Gordon e-mail account periodically for important information. You should also delete junk e-mail to keep your mailbox from getting full. If your mailbox is full, you may not receive important e-mail notifications. Also, if I need to communicate with you via e-mail, I will send the message to your Gordon e-mail account.

M. **Office Procedures:** When you come to my office for help, please be prepared by doing the following.
   1. Bring you class notes and your calculator.
   2. Make sure you have read the section in the text, read the class notes, and studied the examples.
   3. Be prepared to show me at least two odd-numbered problems from the section that you have worked.
   4. Bring your incomplete or incorrect solution to each problem about which you have a question.
   5. Ask for help as early as possible. **Don't wait until the day of a test! I will _NOT_ help you if you come for help the day of the test!!**

N. **Harry's House:** The mission of [Harry's House](#) is to distribute food and toiletries to students to alleviate stress associated with short term food insecurity and other financial constraints in order to effectively reduce hunger and support educational success.

Tentative Lecture Schedule

Date	Section	Practice Problems
Mon, Jan 13	1.4: The Tangent and Velocity Problems	1-9 odd
Wed, Jan 15	1.4 (concluded)	
	1.5: The Limit of a Function	1-41 odd
Fri, Jan 17	1.5 (concluded)	
Mon, Jan 20	*Martin Luther King, Jr. Holiday – No Class*	
Wed, Jan 22	1.6: Calculating Limits Using the Limit Laws	1-53 odd
Fri, Jan 24	1.7: The Precise Definition of a Limit	1-7 odd, 15-19 odd, 23, 25, 27
Mon, Jan 27	1.8: Continuity	1-59 odd
Wed, Jan 29	Catch-Up Day	
Fri, Jan 31	**TEST I**	
Mon, Feb 3	2.1: Derivatives and Rates of Change	1-57 odd
Wed, Feb 5	2.1 (concluded)	
Fri, Feb 7	2.2: The Derivative as a Function	1-53 odd
Mon, Feb 10	2.3: Differentiation Formulas	1-83 odd, 87, 89, 91
Wed, Feb 12	2.4: Derivatives of Trigonometric Functions	1-51 odd, 55
Fri, Feb 14	2.5: The Chain Rule	1-75 odd
Mon, Feb 17	Catch-Up Day	
Wed, Feb 19	2.6: Implicit Differentiation	1-39 odd, 44, 45
Fri, Feb 21	2.6 (concluded)	
Mon, Feb 24	2.8: Related Rates	1-49 odd
Wed, Feb 26	2.8 (concluded)	
Fri, Feb 28	**TEST II**	
Mon, Mar 2	2.9: Linear Approximations and Differentials	1-35 odd
Wed, Mar 4 (midterm day Mar 5)	3.1: Maximum and Minimum Values	1-65 odd
Fri, Mar 6	3.2: The Mean Value Theorem	1-17 odd
Mon, Mar 9	3.3: How Derivatives Affect the Shape of a Graph	1-45 odd, 53-61 odd
Wed, Mar 11	3.4: Limits and Infinity; Horizontal Asymptotes	1-31 odd, 35-61 odd
Fri, Mar 13	3.5: Summary of Curve Sketching	1-39 odd, 45-53 odd
Mon, Mar 16 – Fri, Mar 20	*Spring Break – No Class*	
Mon, Mar 23	3.5 (concluded)	
Wed, Mar 25	3.7: Optimization Problems	1-41 odd, 51, 57, 59
Fri, Mar 27	3.8: Newton's Method	1-25 odd
Mon, Mar 30	**TEST III**	
Wed, Apr 1	3.9: Antiderivatives	1-45 odd, 51-55 odd

Date	Section	Practice Problems
Fri, Apr 3	Appendix E: Sigma Notation	1-35 odd
	4.1: Areas and Distances	1-23 odd
Mon, Apr 6	4.2: The Definite Integral	1-11 odd, 17-29 odd, 33-39 odd, 47-63 odd
Wed, Arp 8	4.3: The Fundamental Theorem of Calculus	1-61 odd
Fri, Apr 10	4.4: Indefinite Integrals and the Net Change Theorem	1-41 odd, 47, 49, 53-65 odd
Mon, Apr 13	4.5: The Substitution Rule	1-51 odd, 57, 59
Wed, Apr 15	Catch-Up Day	
Fri, Arp 17	5.1: Area Between Curves	1-35 odd, 47, 49, 53
Mon, Apr 20	5.2: Volumes	1-33 odd, 45, 47, 48, 49
Wed, Apr 22	5.2 (concluded)	
Fri, Apr 24	5.3: Volume by Cylindrical Shells	1-33 odd, 37-43
Mon, Apr 27	Volumes Concluded	
Wed, Apr 29	**TEST IV**	
Fri, May 1	5.5: Average Value of a Function	1-19 odd
Mon, May 4	Review for Final Exam	
Fri, Dec 8, 10:15-12:15	**FINAL EXAMINATION**	