Math 1B: Calculus
Winter 2020, CRN 32473, Section 63, 5 Units
Tuesday and Thursday 6:30 PM to 8:45 PM
Classroom Location: (S Quad, Room 45)

Instructor Information

Instructor:	Andrew Jianyu YU
Email:	yujian@fhda.edu
Office Location:	E37 (E Quad, Room 37)
Office Hours:	Tuesday and Thursday 3:30 PM to 4:00 PM; 6:15 PM to 6:30 PM

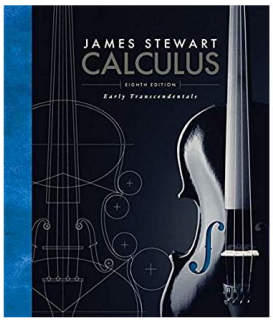
Course Description

Fundamentals of integral calculus

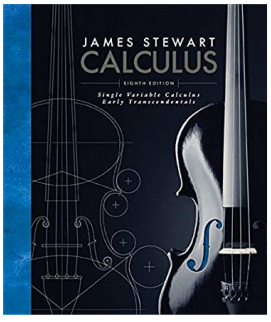
Prerequisite

Math 1A or Math 1A Honor
Note: This class is not open to students with credit in Math 1B Honor
Advisory: EWRT 211 and READ 211 (or LART 211), or ESL 272 and 273

Textbook



Calculus: Early Transcendental, by James Stewart, 8th Edition; Book Length 1368 pages; ISBN-10: 9781285741550, ISBN-13: 978-1285741550, ASIN 1285741552; Publisher: Cengage Learning; Publication date: February 4th, 2015
This textbook is a full version, which contains chapter 1 to chapter 17. It is sufficient for the entire calculus sequence. Math 1A covers chapters 1, 2, 3, and 4. Math 1B covers chapters 5, 6, 7, 8, and 9. Math 1C covers chapter 11, 12, and 13. Math 1D covers chapter 14, 15, and 16.



Single Variable Calculus: Early Transcendental, by James Stewart, 8th Edition; Book Length 960 pages; ISBN-10: 9781305270336, ISBN-13: 978-1305270336; Publisher: Cengage Learning; Publication date: January 1st, 2015
This textbook contains chapters 1 to 11 of the full Calculus version, which is only sufficient for Math 1A and 1B.

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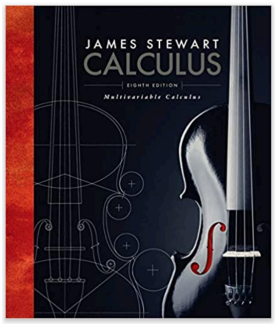
Multivariable Calculus: Early Transcendental, by James Stewart, 8th Edition; Book Length 624 pages; ISBN-10: 9781305266643, ISBN-13: 978-1305266643; Publisher: Cengage Learning; Publication date: June 15th, 2015

This textbook contains chapters 12 to 17 of the full Calculus version, which is only sufficient for Math 1C and 1D.



Calculator

TI-83 Plus TI-84 Plus TI-84 Plus CE TI-Nspire

Graphing calculator is required for the course. You may rent a TI-83 Plus in the bookstore for about $20 per semester/quarter. You are required to bring a physical calculator to the exam, and sharing calculator is considered as cheating incident. Using the calculator apps on your phone is strictly prohibited on the exam. Do not purchase the TI-Nspire Graphing Calculator (around $150) because it is too advanced for this course. Instructions will not be provided for TI-Nspire.

Technical Requirements

- **Your Email:** Please check your email regularly. If possible, connect your email with an app in your smartphone. I will send the homework, lecture notes, and announcement through email. Note that these materials will also be posted on Canvas. You are welcome to ask me any questions related to lecture, homework, or personal emergency through email.
  Subject of my emails "Math 1B: _____"
  Please keep a record of all the email with the subject above until the semester/quarter is officially finished. You are required to use the same subject time when you send me an email because I have more than 100 students every semester/quarter.
- **Canvas:** All the lecture notes, homework, solutions, and announcements will be posted on Canvas under the "File" tab.

Lectures and Expected Preparation

We will use a template for every section in the textbook. A template contains definitions, formulas, graphs, and examples. The answers to all the problems and examples are not included. Your instructor will solve each problem in class. You are expected to take notes in class. You should plan to spend a minimum of two hours outside of class for each hour spent in class to learn and make satisfactory progress in the class.

Attendance

Attendance will be taken each day using a sign in sheet. The instructor may drop a student who accrues 4 or more absences without notice.

Homework, 20% of the Course Grade

Problems will be assigned to each section. There is no online homework in this class. You are expected to fully demonstrate all your work on paper. Homework will be assigned and collected in a weekly basis. It reflects everything you learned in a week. Scores for homework assignment will be based on completeness, clarity, promptness, and accuracy. The lowest homework grade will be dropped at the end of the course.

Quiz, 20% of the Course Grade

A quiz will be given in class at the due date on every homework assignment. You are expected to get 2 to 3 short problems on the quiz. Quiz questions are based on the homework due on that day. For example, if the first homework contains 4 sections, the quiz problems are based on those 4 sections. If the first homework is due next Thursday, then first quiz will be held on the next Thursday. Quiz is closed book and closed notes, but calculator is allowed.

Exams, 35% of the Course Grade (Two Exams in this Course)

There are two exams in this course. The exam date will be announced at least one prior the exam. Review problems will be provided, discussed, and solved in class. Exam problems are similar to the review problems. Although exams are closed book and closed notes, your instructor will provide a formula sheet during the exam. The formula sheet will be sent along with the review problems. You are not allowed to modify the content of the formula sheet. Sharing calculator during the exam is considered at cheating. Your exam will not be graded if cheating incident is found. Your lowest exam score will <u>not</u> be dropped. Both exams are individual assignments.

Final Exam, 25% of the Course Grade

The final exam will be comprehensive. The Final Exam is an individual assignment. Exam topics will be announced in advanced. A formula sheet will be provided during the review session. The same formula sheet will be provided during the exam date. You are not allowed to modify the content of the formula sheet. Please bring your own calculator to the exam. Sharing calculator, using a smartphone or tablet with internet access, looking at your neighbor's exam, or communicating with your neighbor are considered as cheating incident, which will not be tolerated. Assistant seeker will receive a zero on the exam, and assistant provider will be reported to the college.

Grading Rubrics

Your course grade will be assigned in the following standard:

A: 100% to 92%	A-: 91% to 90%	
B+: 89% to 86%	B: 85% to 82%	B-: 81% to 80%
C+: 79% to 74%	C: 73% to 70%	
D: 69% to 60%	F: below 60%	

Extra Credit Assignment

There are no extra credit assignments in this course to improve your grade. Please do not ask for any.

Academic Integrity

Academic dishonesty will not be tolerated. Any student attempting to defraud the instructor on a quiz, exam, final exam, or any other assessment item designated as an individual assignment will receive a zero on that assignment. This score is irreplaceable. If a cheating incident is detected on your work, the rest of your works in the course will be closely monitored and examined.

Available Support Services

The Math Tutorial Center in S43 has free tutoring for this course. If you need help in studying the class materials, please seek for a math tutor in the learning center immediately. Do not wait until the last minute to seek for help.

Academic Adjustments for Students with Disabilities

Please see instructor during office hours to discuss your situation confidentially if you have accommodations; see the instructor during the first week of class or as soon as you receive approval from the appropriate support service. For information about eligibility, support services or accommodations due to physical or learning disability see:

- Disability Support Service (DSS): www.deanza.edu/dss Location: SCS-141 (408) 864-8753; TTY (408) 864-8748
- Educational Diagnostic Center (EDC): www.deanza.edu/edc Location: LCW 110; (408) 864-8839
- Special Education Division:; www.deanza.edu/specialed (408) 864-8407

Course Content

Chapter 5: Integrals

Section 5.1: Areas and Distances
Section 5.2: The Definite Integral
Section 5.3: The Fundamental Theorem of Calculus
Section 5.4: Indefinite Integrals and the Net Change Theorem
Section 5.5: The Substitution Rule

Chapter 6: Applications of Integration

Section 6.1: Areas Between Curves
Section 6.2: Volumes
Section 6.3: Volumes by Cylindrical Shells
Section 6.4: Work
Section 6.5: Average Value of a Function

Chapter 7: Techniques of Integration

Section 7.1: Integration by Parts
Section 7.2: Trigonometric Integrals
Section 7.3: Trigonometric Substitution
Section 7.4: Integration of Rational Functions by Partial Fractions
Section 7.5: Strategy for Integration
Section 7.6: Integration Using Tables and Computer Algebra Systems
Section 7.7: Approximate Integration
Section 7.8: Improper Integrals

Chapter 8: Further Applications of Integration

Section 8.1: Arc Length
Section 8.2: Area of a Surface of Revolution
Section 8.3: Applications to Physics and Engineering
Section 8.4: Applications to Economics and Biology
Section 8.5: Probability

Chapter 9: Differential Equations

Section 9.1: Modeling with Differential Equations
Section 9.2: Direct Fields and Euler's Method
Section 9.3: Separable Equations
Section 9.4: Models for Population Growth

Course Objectives

A. Analyze and explore aspects of the integral calculus.
B. Analyze and evaluate the definite integral as a limit of a Riemann sum and examine its properties
C. Examine the Fundamental Theorem of Calculus
D. Find definite, indefinite, and improper integrals using various techniques
E. Examine applications of the definite integral in Mathematics
F. Examine some applications of the definite integral to other subjects, such as, physics, economics and biology. Required applications include probability, center of mass, and work done by force.
G. Examine differential equations

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Important Dates to Remember

January 6	First day of fall quarter
January 18	Last day to add classes
January 19	Last day to drop classes for full refund or credit Last day to drop classes without a W *It is student's responsibility to complete this process.*
January 20	Martin Luther King Jr Day – Campus Closed
January 31	Last day to request "Pass/No Pass" for 12-week classes. *Do not choose this option for a math class. You need a solid letter grade to meet prerequisite or transfer.*
February 14, 15, 16, 17	President's Day – Campus Closed
February 28	***Last day to drop classes with "W"**
March 1	Last day to file for winter degree or certificate
March 23 to 27	Final exam's week

***College Policy**: If the student chooses not to complete the class, it is the STUDENT'S RESPONSIBILITY to drop or withdraw by the college deadlines. If you stop attending but do not withdraw or drop you may fail with a grade of F.

The professor reserves the right to make changes to the syllabus, including project due dates and test dates (excluding the officially scheduled final examination), when unforeseen circumstances occur. These changes will be announced as early as possible so that students can adjust their schedules.

Student Learning Outcome(s):

*Analyze the definite integral from a graphical, numerical, analytical, and verbal approach, using correct notation and mathematical precision.
*Formulate and use the Fundamental Theorem of Calculus.
*Apply the definite integral in solving problems in analytical geometry and the sciences.