

South Plains College
Mathematics Department
Calculus I – MATH 2413
Course Syllabus
Spring 2019

Instructor: Jay Driver
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Office Hours: MW 1:30-2:30pm
TR 1:30-3:00pm
F 9:00am-12:00pm
And by appointment!

Course Description: MATH 2413. CALCULUS I. (4:3:2) Prerequisite: MATH 1314 and MATH 1316 (or concurrent enrollment in MATH 1316) or MATH 2412. Topics include functions, limits, continuity, differentiation of algebraic functions, applications of the derivative, differentials, indefinite integrals, definite integrals and applications of definite integrals. (copied from the current SPC catalog)

Textbook: OpenStax College. (2017). [Calculus, Volume 1](https://openstax.org/details/books/calculus-volume-1). Houston, TX: OpenStax CNX. Retrievable from <https://openstax.org/details/books/calculus-volume-1> Print ISBN 193816802X, Digital ISBN 1947172131

The following statements are considered at South Plains College to be **Core Objectives**, which are embedded into the curriculum of this course.

Communication Skills:

- Develop, interpret, and express ideas through written communication
- Develop, interpret, and express ideas through oral communication
- Develop, interpret, and express ideas through visual communication

Critical Thinking:

- Generate and communicate ideas by combining, changing, and reapplying existing information
- Gather and assess information relevant to a question
- Analyze, evaluate, and synthesize information

Empirical and Quantitative Competency Skills:

- Manipulate and analyze numerical data and arrive at an informed conclusion
- Manipulate and analyze observable facts and arrive at an informed conclusion

Course Objectives: Upon completion of this course, mastery of the following objectives should be met by the student.

1. Develop solutions for tangent and area problems using the concepts of limits, derivatives, and integrals.
2. Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point.
3. Determine whether a function is continuous and/or differentiable at a point using limits.
4. Use differentiation rules to differentiate algebraic and transcendental functions.
5. Identify appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.
6. Evaluate definite integrals using the Fundamental Theorem of Calculus.
7. Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

Attendance: Attendance and effort are the most important activities for success in this course. Class attendance may be taken at any time during the class period, so please do not arrive late or leave early. You may be dropped from this course with a grade of X or F if you are absent three consecutive classes or if you exceed five absences throughout the semester. Be on time and silence any cell phones before entering the classroom.

Assignments & Grading: Homework assignments will be made at each class meeting. Quizzes may be administered at any time. Keep all class materials (notes, handouts, homework, quizzes, and exams) organized in a notebook (3-ring binder). These materials are subject to be turned in for grading at any time. Please make

certain all materials accompany you to each class meeting. No late assignments will be accepted. Daily work (homework, quizzes, notebook) will count for 20% of the final grade, while all exams count for 80% of the final grade. Expect four major exams (15% each) throughout the course and a cumulative final exam (20%) at the end of the course. Your final average in the course will determine the letter grade posted on your transcript. This grade is determined by the following scale: A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Format for submitting all assignments:

1. Write the problem.
2. Show all necessary work.
3. Clearly mark your answer.
4. Check your answers in the back of the textbook to make certain you are practicing correctly.

Supplementary Course Information & Tutoring: Blackboard is the online course management system that will be utilized for this course. This course syllabus, as well as any class handouts can be accessed through Blackboard. Login at <https://southplainscollege.blackboard.com/>. The user name and password should be the same as the MySPC and SPC email.

User name: first initial, last name, and last 4 digits of the Student ID

Password: Original CampusConnect Pin No. (found on SPC acceptance letter)

Free tutoring is available in room M116 at the Levelland campus or in Building 2 at the Reese Center. Check Blackboard often for the latest tutoring schedule and course supplements (handouts, online practice quizzes, additional notes, sample problems for practice, etc.).

Questions regarding Blackboard support may be emailed to blackboard@southplainscollege.edu or by telephone to 806-716-2180.

Supplies: You will need a scientific or graphing calculator, graph paper, and a 3-ring binder. Calculators on cell phones, TI-89, TI-92, or TI-Inspire calculators, or any other electronic devices will not be allowed during testing without permission from the instructor.

Diversity: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) & Lubbock Center 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College -1401 College Avenue, Box 5, Levelland, TX 79336, 806-894-9611.

Calculus I Tentative Course Outline

MATH 2413.002 (TR 8:30-10:35am)

Spring 2019

Week	Day	Date	Lesson Topic & Assignment
1	Tue	Jan 15	<i>Assignment 1</i> : Functions Review
	Thur	Jan 17	<i>Assignment 2</i> : Limits: Tables and Graphs
2	Tue	Jan 22	<i>Assignment 3</i> : Limits & Continuity
	Thur	Jan 24	<i>Assignment 4</i> : Definition of Derivative
3	Tue	Jan 29	<i>Assignment 5</i> : Differentiation Rules
	Thur	Jan 31	<i>Assignment 6</i> : Rates of Change
4	Tue	Feb 5	Exam 1 (15%)
	Thur	Feb 7	<i>Assignment 7</i> : Differentiation of Trigonometric Functions
5	Tue	Feb 12	<i>Assignment 8</i> : The Chain Rule
	Thur	Feb 14	<i>Assignment 9</i> : Derivatives of Inverse Functions
6	Tue	Feb 19	<i>Assignment 10</i> : Implicit Differentiation
	Thur	Feb 21	<i>Assignment 11</i> : Differentiation of Exponential and Logarithmic Functions
7	Tue	Feb 26	Exam 2 (15%)
	Thur	Feb 28	<i>Assignment 12</i> : Related Rates
8	Tue	Mar 5	<i>Assignment 13</i> : Curve Sketching (part 1 of 2)
	Thur	Mar 7	<i>Assignment 14</i> : Curve Sketching (part 2 of 2)
	Mon-Fri	Mar 11-15	<i>SPC Spring Break (all offices closed)</i>
9	Tue	Mar 19	<i>Assignment 15</i> : Optimization
	Thur	Mar 21	<i>Assignment 16</i> : Antiderivatives
10	Tue	Mar 26	Exam 3 (15%)
	Thur	Mar 28	<i>Assignment 17</i> : Definite Integrals & The Fundamental Theorem of Calculus
11	Tue	Apr 2	<i>Assignment 18</i> : Integration by Substitution
	Thur	Apr 4	<i>Assignment 19</i> : Integration Involving Exponential and Logarithmic Functions
12	Tue	Apr 9	<i>Assignment 20</i> : Integration Resulting in Inverse Trigonometric Functions
	Thur	Apr 11	Exam 4 (15%)
13	Tue	Apr 16	<i>Assignment 21</i> : Area Between Curves
	Thur	Apr 18	<i>Assignment 22</i> : Volumes by Slicing and Volumes of Revolution (Disks and Washers)
14	Tue	Apr 23	<i>Assignment 23</i> : Volumes of Revolution Part 2: The Shell Method
	Thur	Apr 25	<i>Assignment 24</i> : Moments and Centers of Mass <i>Last day to drop a class at SPC</i>
15	Tue	Apr 30	<i>Assignment 25</i> : Arc Length and Surface Area of Revolution
	Thur	May 2	<i>Assignment 26</i> : Numerical Integration
16	Tue	May 7	Final Exam (20%) from 8:00-10:00am