

**CALCULUS I CRN# 43488**

TWR 4:00PM – 5:25PM (Snow124)

<b>Instructor:</b>	Jie Liu	<b>Office:</b>	SNOW143
<b>Email:</b>	<a href="mailto:liu@dixie.edu">liu@dixie.edu</a>	<b>Office Hours:</b>	W 1:00 - 4PM TR 2:30 - 4PM
<b>Phone:</b>	435-652-7983		Or by appointment
<b>Text Book</b>	<b>Calculus - concepts and Contexts, 4th Edition</b> by James Stewart		

**Course Prerequisites**

C or better in Math1050 and Math 1060 or ACT Math score of 23 or higher.

**Course Description**

All mathematics classes at Dixie State University support the general education goal of the college, and will:

1. Require students to perform mathematical processes including fractions, percentages, decimals, proportions/ratios, algebraic equations and/or calculus techniques.
2. Provide students with application problems that use a variety of methods including arithmetical, algebraic and geometric methods.
3. Challenge students to make inferences from mathematical models that include formulas, graphs and tables.
4. Provide students with real-life applications that use a variety of mathematical functions.

**Objectives**

Upon successful completion of Math1210, a student will demonstrate through testing the ability to:

1. Define and evaluate limits.
2. Define and identify continuity and differentiability.
3. Apply limits to graphing techniques.
4. Define the derivative.
5. Use formulas for differentiation.
6. Use the derivative to find tangents to curves.
7. Apply the derivative in problems involving extrema and related rates.
8. Define the definite integral.
9. Use L'Hospital's Rule to evaluate limits.
10. Perform integrations by various techniques (parts, substitution, and partial fractions).
11. Perform numerical integration.
12. Approximate area under curve.

**Disability Accommodations**

Students with medical, psychological, learning or other disabilities desiring reasonable academic adjustment, accommodations, or auxiliary aids to be successful in this class will need to contact the DISABILITY RESOURCE CENTER Coordinator (Baako Wahabu) for eligibility determination. Proper documentation of impairment is required in order to receive services or accommodations. DRC is located in the North

Plaza Building. Visit or call 652-7516 to schedule appointment to discuss the process. DRC Coordinator determines eligibility for and authorizes the provision of services.

### **Dmail**

Important class and college information will be sent to your Dmail account. All DSC students are automatically assigned a Dmail account. If you don't know your user name and password, go to [www.dixie.edu](http://www.dixie.edu) and select "Dmail," for complete instructions. You will be held responsible for information sent to your Dmail email, so please check it often.

### **Important dates/deadlines**

<http://www.dixie.edu/reg/calendar.html>

### **Resources**

Library - <http://library.dixie.edu>

Writing Center - [http://dixie.edu/dsc\\_writing\\_center/](http://dixie.edu/dsc_writing_center/)

Testing Center - <http://dixie.edu/testing>

Tutoring Center - <http://dixie.edu/tutoring/>

### **Policy for Absences Related to College Functions**

<http://www.dixie.edu/humanres/policy/sec5/523.html>

### **Policy for Student Rights and Responsibilities**

<http://www.dixie.edu/humanres/policy/sec5/533.html>

### **Course Work:**

The student's final grade will be determined by her/his performance on homework, exams, class activities & projects.

- Homework: Homework will be collected every Tuesday. **No late homework will be accepted.** Homework are graded mainly by completion and random problems will be graded by correction each time. Students must show their work in order to get full credit. Students are encourage to check their answers in the back of the text book or Student Solution Manual. The homework may be graded on a scale from 0-10. Please write neatly and label chapter, section and problem number for each question. Order and staple your work before your turn them in.
- Exams: There will be 5 exams and a comprehensive final. All the exams are in class exams. Each student is expected to take the examinations as scheduled in the syllabus. **Make-up exams will be given at the discretion of instructor, and only if prior arrangements have been made.**
- Grading: Chapter tests – 70% total (14% each), Homework – 10%, Final – 20%. Grades will be assigned as follows: **A** (94-100%), **A-** (90-93%), **B+** (87-89%), **B** (83-86%), **B-**(80-82%), **C+**(75-79%), **C** (70-74%), **C-**(65-69%), **D+**(60-64%), **D**(55-59%), **D-**(50-54%), **F**(0-49%)

## Assignment & Tentative Schedule

Course schedules, assignments, and exam dates are subject to change as circumstances dictate. It is the responsibility of each student to attend the class and get the updated info.

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
8/24	8/25 1.1	8/26 1.1 & 1.2	8/27 1.3	8/28
8/31	9/1 1.5&1.6	9/2 1.6&1.7	9/3 Review	9/4
9/7 Labor Day	9/8 <b>Chapter 1 test</b>	9/9 2.1 & 2.2	9/10 2.2&2.3	9/11
9/14	9/15 2.3	9/16 2.4&2.5	9/17 2.5	9/18
9/21	9/22 2.6&2.7	9/23 2.7&2.8	9/24 Review	9/25
9/28	9/29 <b>Chapter 2 test</b>	9/30 3.1&3.2	10/1 3.2&3.3	10/2
10/5	10/6 3.4	10/7 3.5&3.6	10/8 3.6	10/9
10/12	10/13 3.7&3.8	10/14 3.8&3.9	10/15 Fall break	10/16
10/19	10/20 Review	10/21 <b>Chapter 3 test</b>	10/22 4.1&4.2	10/23
10/26	10/27 4.2&4.3	10/28 4.5	10/29 4.5&4.6	10/30
11/2	11/3 4.6	11/4 4.7&4.8	11/5 Review	11/6
11/9	11/10 <b>Chapter 4 test</b>	11/11 5.1&5.2	11/12 5.2&5.3	11/13
11/16	11/17 5.4	11/18 5.5&5.6	11/19 5.6	11/20
11/23	11/24 5.7&5.8	11/25 Thanksgiving	11/26 Thanksgiving	11/27
11/30	12/1 5.9&5.10	12/2 Review	12/3 <b>Chapter 5 test</b>	12/4
12/7	12/8 Final Review	12/9 Final Review	12/10 Final Review	12/11
	12/15 Final exam 3:30-5:30PM			

## Homework assignments

1.1 Four Ways to Represent Functions	1,5,7,9,11,25-33odd, 37, 41, 45-53odd, 57, 61-71odd
1.2 Mathematical Models	1,3,5c,9-17odd,19-21,25
1.3 More Functions	3-55eoo (every other odd)
1.5 Exponential Functions	1, 3, 9-21odd, 27, 29
1.6 Inverse Functions and Logarithms	3-27eoo, 37, 39, 45-55odd
1.7 Parametric Curves	3-17odd, 22, 31
Chapter 1 Review	1-3,5-8,11-17odd,18-20,22-28,31,33
2.1 Tangent and Velocity Problems	1-3,5-8
2.2 The Limit of a Function	3-27odd, 31
2.3 Calculating Limits and Limit Laws	3-29odd, 33-39odd
2.4 Continuity	3-13odd, 16, 19, 25, 27, 35-43odd
2.5 Limits Involving Infinity	3, 7, 9-37eoo, 39-47odd
2.6 Derivatives and Rates of Change	1-7odd, 11-21odd, 29-39odd, 43, 45
2.7 The Derivative of a Function	1-7odd, 6, 10, 14, 15, 19, 23, 25, 35-38, 42, 43, 44
2.8 What Does $f'$ Says about $f$ ?	1-11, 15-23eoo, 25-31odd
Chapter 2 Review	1-17odd, 21-31odd, 35-39odd, 40, 41-47odd
3.1 Derivatives of Poly. and Exp. Functions	3-23eoo,29,41,42,45,47-49,51-57odd,61,65
3.2 Product and Quotient Rules	1-45eoo, 2,3-31eoo,43,53,54
3.3 Derivatives of Trigonometric Functions	1-23odd, 27-45odd
3.4 The Chain Rule	3, 5, 7-35eoo, 4, 12, 30, 38, 51-59odd, 63, 67, 79, 81, 86
3.5 Implicit Differentiation	1-25eoo, 33, 39, 41, 43, 52
3.6 Inverse Trig Functions and Derivatives.	1-11odd, 17-27odd, 31, 32, 37-40
3.7 Derivatives of Logarithmic Functions	3-27eoo,29-43odd
3.8 Rates of Change in the Natural and Soc. Sci.	1-19odd, 20, 21-31odd
3.9 Linear Approximation and Differentials	1,5-11odd,24-27,29
Chapter 3 Review	1-35eoo, 39-44, 51-56, 63-66
4.1 Related Rates	3,5,11-27eoo,31-43odd,20
4.2 Maximum and Minimum Values	3-11odd,23-43eoo 13, 41, 47-61odd
4.3 Derivatives and he Shapes of Curves	1,7-31eoo,33,35,41,45,59-63odd
4.5 Indeterminate Forms and L'Hospital's Rule	5-45eoo,47
4.6 Optimization Problems	3-47eoo, 54, 57
4.7 Newton's method	3-21odd, 25, 29, 31
4.8 Antiderivatives	1-37eoo, 39-43odd, 47-51odd
Chapter 4 Review	1-15odd, 25-43odd, 47-55odd, 58, 61
5.1 Area and Distances	1a,3a,5b,5c,11,17
5.2 The Definite Integral	1,5,11,21-25odd,31,35-45odd
5.3 Evaluating Definite Integrals	1-29eoo,33-37odd,43-49odd,57-63odd
5.4 The Fundamental Theorem of Calculus	3-17odd,19
5.5 The Substitution Rule	1-53eoo,55-59odd
5.6 Integration by parts	1-33eoo, 10,11-31eoo,42
5.7 Additional Techniques of Integration	1-15odd,19,20,23,25,31,33
5.9 Approximate Integration	5,7,9,13(to 3 decimals),17c,19c,27,31
5.10 Improper Integrals	5-33eoo,19,43,49
Chapter 5 Review	2-5,7,9-33eoo,35-49odd,55-61odd

*Enjoy your learning adventure!*