

# MATH 1210—Calculus I

Section 01, MTWRF, 11:00 am–12:50 pm, NIB 135, CRN: 30060  
Summer 2009—5 credits

**Instructor:** Taylor Jensen

**Phone:** 879–4256

**Email:** jensen@dixie.edu

**Office:** NIB 137

**Office Hours:** MF 9:00–11:00 am; early morning (7:30–8:30 am) by appointment only

**Additional Help:** Browning Learning Resource Center

Required Text: *Calculus: Concepts and Contexts* (3<sup>rd</sup> edition) by James Stewart

Calculator Requirement: You **must** have a graphing calculator. The TI–83 (any version) or TI–84 (any version) is recommended.

Prerequisite: You **must** meet at least one of the following minimum requirements:

- Passed Math 1065 (or both Math 1050 *and* Math 1060) with a “C” or better
- ACT math score of 26 or higher
- A suitable CPT score (check at the Testing Center)

## Course Description & Course Objectives

Math 1210 is designed for students intending to earn a Bachelor of Science degree in mathematics, engineering, or other science-based major. Students will gain a basic understanding of calculus, which can be described as the mathematics of motion and change. Topics include limits and continuity, differentiation, applications of differentiation, integration, and applications of integration. Functions are the object of analysis in calculus. The functions studied in Math 1210 include algebraic functions, exponential functions, logarithmic functions, trigonometric functions, and inverse trigonometric functions. Incoming students must have a working knowledge of college algebra and trigonometry. The course is a lecture course with homework assignments, tests, and a comprehensive final exam. Math 1210 is a prerequisite for Math 1220 and Physics 2210.

All classes in mathematics at Dixie State College of Utah support the general education goals of the college. Each mathematics class will:

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

Upon successful completion of Math 1210, a student will demonstrate meaningful understanding of the concepts of limit, continuity, differentiability, derivative, and definite integral.

Additionally, such a student will demonstrate the ability to:

- Evaluate limits (including those requiring the application of l’Hospital’s rule)
- Apply knowledge of limits in order to graph functions

- Apply appropriate differentiation formulas
- Find tangent lines to curves
- Find relative and absolute extrema of functions
- Solve related rates problems
- Apply both parts of the Fundamental Theorem of Calculus
- Evaluate definite integrals and find indefinite integrals (including integrals that require techniques such as integration by parts, substitution, partial fraction decomposition, etc.)

## Behavior Policies

1. **Your attendance and behavior are expected to reflect your dedication to excellence as a university student.** You are expected to attend class, participate in discussions and group work, and to use class time for Math 1210 activities only.
2. **You must abide by all regulations set forth in the “Student Rights and Responsibilities Code” (DSC Policy 5.33).** These regulations can be found online at <http://www.dixie.edu/humanres/polstu.html> (then click on the link to DSC Policy 5.33). In particular, you should be aware of your obligations pertaining to academic performance (“Academic Performance Responsibilities,” DSC Policy 5.33.5).

## Homework Policies

The goal of your doing homework should be to gain *understanding* of basic calculus—above and beyond rote memorization and superficial knowledge of formulas and “facts”. My homework policies are designed to incite your full engagement when doing homework, so you feel it is to your benefit both to do the homework and to do it well. With that in mind, let me present the policies:

1. You will read a section and complete assigned “examples” for that section *before* attending the scheduled lecture about that particular section. After actively participating in a classroom discussion, you will then complete all assigned “exercises” from that section. Together, “examples” and “exercises” constitute the homework problems of Math 1210. Homework is due at the *beginning* of class on the due date scheduled. **Late homework will not be accepted for any reason.** If you are involved in extracurricular activities (such as an athletic team), and one of your scheduled events conflicts with a homework due date, it is your responsibility to finish the homework and turn it in *early*.
2. Five homework problems will be randomly selected from each assignment and graded. Three “examples” and/or odd-numbered “exercises” will be graded on *completion only*. Two even-numbered “exercises” will be graded on *correctness*. Each homework assignment will be worth ten points.
3. The two *lowest* homework scores you earn during the semester will be replaced by 10s.

4. Because exam dates and homework due dates often coincide (or nearly so), you should photocopy all homework assignments before turning them in. That way, you can use your completed homework assignments as study aids for exams.

## Exam Policies

1. **Exams cannot be made up for any reason.** Midterm exams will be administered in the Testing Center, while the Final Exam will be administered in our regular classroom.
2. If you miss a midterm exam, your score on that exam will be extrapolated from the *next* midterm exam (or from the final exam, if necessary). Extrapolated midterm exam scores are subject to an automatic penalty of 30% of the total value of the missed exam. In addition, missing a midterm exam will result in your automatically being removed from the class email list until you have contacted me to explain why you missed the exam.
3. If you miss a second midterm exam or the final exam, you will receive an automatic **zero** for that exam, regardless of excuse.
4. You are allowed to bring one “cheat sheet” (8½ by 11 inches, front and back) to each midterm exam. You should photocopy your cheat sheet before you take the corresponding midterm exam because the Testing Center staff will **not** allow you to take it with you after you complete the exam. You will be allowed to bring your accumulated collection of photocopied midterm exam cheat sheets to the final exam.

## Grading

Assignments (10 pts. each)	140 points	Last Midterm	30 points
Midterms (60 pts. each)	240 points	Final Exam ( <i>comprehensive</i> )	140 points

There are 550 total points possible. Your grade will be determined according to the percentage of points you earn in this course.

≥ 92.0% A	≥ 89.0% A–	≥ 86.0% B+	≥ 82.0% B
≥ 79.0% B–	≥ 75.0% C+	≥ 70.0% C	≥ 67.0% C–
≥ 64.0% D+	≥ 60.0% D	< 60.0% F	

## Disability Resource Center

If you are a student with a documented physical or mental impairment that will substantially limit a major life activity, please contact the Disability Resource Center on the main campus. The Center Coordinator and staff will assist you in evaluating your eligibility for services. If you are deemed eligible, reasonable accommodations that are appropriate for your disability will be assigned. If you have any questions concerning this process, please contact the Center at (435) 652–7516 or go to the Student Services Center, Room 201.

## Website Resources

Library	<a href="http://library.dixie.edu/">http://library.dixie.edu/</a>
Writing Center	<a href="http://new.dixie.edu/english/dsc_writing_center.php">http://new.dixie.edu/english/dsc_writing_center.php</a>
Testing Center	<a href="http://new.dixie.edu/testing/">http://new.dixie.edu/testing/</a>
Tutoring	<a href="http://dsc.dixie.edu/tutoring/index.htm">http://dsc.dixie.edu/tutoring/index.htm</a>

## Communication Policy

Important class and college information, including syllabus changes for this class, will be sent to your “Dmail” account. This information includes your DSC bill, financial aid/scholarship notices, notification of dropped classes, reminders of important dates and events, and other information critical to your success in this class and at DSC in general. All DSC students are automatically assigned a “Dmail” account. If you don’t know your user name and password, go to [new.dixie.edu](http://new.dixie.edu) and click on “Dmail” for complete instructions. You will be held responsible for information sent to your “Dmail” account, so please check it often. When trying to get a hold of me, the best option is to call my office phone or email me.

## My Philosophy

I believe every future scientist or engineer, including *you*, can learn the material taught in this course. I am confident that learning this material will make a *vital* difference in your ability to apply mathematical reasoning to help solve the complex problems facing our world. Learning about mathematics should be *fun!* If we’re not having fun while we learn, we’re not really learning! ☺

## Lecture Schedule

MATH 1210—Summer 2009

<u>DATE</u>	<u>LESSON</u>	<u>DATE</u>	<u>LESSON</u>
6/1	Syllabus & 1.1	6/29	4.1
6/2	1.2 & 1.3	6/30	Review
6/3	1.4 & 1.5	7/1	4.2
6/4	1.6 & Appendix C	7/2	4.3 & 4.5
6/5	1.7	7/3*	NO CLASS
6/8	Review	7/6	4.6
6/9*	2.1 & 2.2	7/7	4.8
6/10	2.3 & 2.4	7/8	4.9
6/11	2.4 & 2.5	7/9	Review
6/12	2.5	7/10	5.1 & 5.2
6/15	2.6 & 2.7	7/13	5.2 & 5.3
6/16	2.8	7/14	5.4
6/17	2.9	7/15	5.5
6/18	Review	7/16	Review
6/19	3.1 & 3.2	7/17	5.6
6/22	3.3	7/20	5.7
6/23	3.4 & 3.5	7/21	5.10
6/24	3.5	7/22	Prep for final exam
6/25	3.6 & 3.7	7/23	Final exam (in class)
6/26	3.7 & 3.8		

\* The last day you may drop the class without a “W” appearing on your transcript is Tuesday, June 9<sup>th</sup>. The last day you may drop the class is Friday, July 3<sup>rd</sup>. Other important dates on the academic calendar for this semester can be found online at <http://new.dixie.edu/reg/?page=calendar&sid=200930>.

Midterm exams open the class day on which we review the preceding material. They close *two days* later.

The final exam will be at 11:00 am on Thursday, July 23<sup>rd</sup>, in NIB 135.

# Homework Assignments

MATH 1210—Summer 2009

<u>DUE DATE</u>	<u>EXAMPLES</u>	<u>ODDS</u>	<u>EVENS</u>
6/5	1.1: read only 1.2: 1, 3, 5 1.3: 3, Exer. #7, 7, 10 1.4: 3, 5, 8, 9	1.1: 1, 5–13 odd, 27–31 odd, 35, 39, 43–51 odd, 55, 59–69 odd 1.2: 1, 3, 5, 9–17 odd, 19–21 all, 25 1.3: 3, 5, 11–55 every other odd (e.o.o.) 1.4: 1–13 e.o.o., 15–25 odd	1.1: 26, 28, 30, 56, 68 1.2: 2, 4, 16, 18, 22 1.3: 6, 12, 28, 40, 50 1.4: none
6/9	1.5: 1, 3 1.6: 1–4, 7, 8, 10 App. C: 6, 7(b), 8 1.7: 1–7	1.5: 5–17 odd, 23, 25 1.6: 3–27 e.o.o., 35, 37, 43–53 odd App. C: 29, 31, 41–45 odd 1.7: 3–15 odd, 29	1.5: 12, 14, 16, 18, 26(b) 1.6: 22, 26, 48(a), 50(a), 54 App. C: 46 1.7: 6, 8, 10, 14, 20
6/12	2.1: 3 2.2: 1–4, 7–9 2.3: 1–8, 10	2.1: 1–7 odd 2.2: 3–23 odd, 27 2.3: 3–27 odd, 31–37 odd	2.1: 4, 6, 8 2.2: 4, 8, 10, 12, 22(a) 2.3: 12, 16, 20, 30, 32
6/17	2.4: 1, 4, 8, 9(b), 10 2.5: 1–10 2.6: 1, 2, 4	2.4: 3–11 odd, 19, 23, 25, 33–39 odd 2.5: 3, 7, 9–29 e.o.o., 35–41 odd 2.6: 1–7 odd, 11–19 odd, 23	2.4: 14, 16, 22, 34, 38 2.5: 10, 18, 24, 30, 36 2.6: 8, 10, 14
6/19	2.7: 1–5 2.8: 3–7 2.9: 1, 3, 4	2.7: 3–9 odd, 13–29 e.o.o., 35 2.8: 1–5 odd, 6, 7, 10, 14, 15, 19–23 odd, 31, 38, 40 2.9: 1–7 odd, 11–19 e.o.o., 21–27 odd	2.7: 14, 16, 18, 26, 36 2.8: 20, 22, 24, 34, 46(a & b) 2.9: 2, 10, 12, 20, 28
6/24	3.1: 1, 2(a), 3, 5, 6, 8, 9 3.2: 1(a), 3, 5, 6 3.3: read only	3.1: 3–23 e.o.o., 25, 37, 38, 41, 43–45 all, 47–53 odd, 57, 62 3.2: 1, 2, 3–23 odd, 27, 31–35 odd, 43 3.3: 1–17 odd, 18, 19, 21, 24, 27, 29	3.1: 22, 24, 26, 46, 58 3.2: 18, 20, 32, 42, 44 3.3: none
6/29	3.4: 1–4 3.5: 1, 2(b), 3–10 3.6: 2–5	3.4: 1–19 odd, 25–41 e.o.o. 3.5: 3–5 all, 7, 10, 11–19 e.o.o., 21, 23–31 e.o.o., 34, 41–49 odd, 53, 57, 69, 71, 74 3.6: 1–17 e.o.o., 19, 25–35 odd, 39, 43, 50	3.4: 10, 16, 18, 36, 40 3.5: 28, 30, 32, 42, 70 3.6: 12, 18, 30, 32, 40
6/30	3.7: 1–8 3.8: 2, 4	3.7: 3–23 e.o.o., 25–37 odd 3.8: 1, 5–11 odd, 15, 25–27 all, 29	3.7: 18, 20, 22, 34, 36 3.8: 6, 8, 18, 28(a), 30
7/6	4.1: 1–5 4.2: 1–6 4.3: 1–6	4.1: 3, 5, 9–17 e.o.o., 18, 21, 25–37 odd 4.2: 3–13 odd, 23–35 e.o.o., 37, 39, 43–55 odd 4.3: 1, 7–27 e.o.o., 29, 31, 41, 49–53 odd	4.1: 14, 24, 26, 32, 34 4.2: 4, 34, 36, 44, 48 4.3: 12(b), 12(c), 14(b), 14(c), 54
7/8	4.5: 1–9 4.6: 1–5	4.5: 5–41 e.o.o., 47 4.6: 3–39 e.o.o., 40, 43	4.5: 6, 18, 28, 32, 36 4.6: 4, 12, 16, 22, 32
7/10	4.8: 1–3 4.9: 1–7	4.8: 5–17 e.o.o., 23, 25 4.9: 1–29 e.o.o., 31–35 odd, 39, 41, 45–49 odd	4.8: 6, 8, 10, 12, 30 4.9: 12, 22, 28, 40, 54

<b><u>DUE DATE</u></b>	<b><u>EXAMPLES</u></b>	<b><u>ODDS</u></b>	<b><u>EVENS</u></b>
7/16	5.1: 1-3 5.2: 1, 2, 4, 6-8 5.3: 1-7	5.1: 1(a), 3(a), 5(b), 5(c), 11, 17 5.2: 1, 5, 11, 21-25 odd, 31, 35-45 odd, 49 5.3: 1-25 e.o.o., 31-35 odd, 41-47 odd, 53-59 odd	5.1: 2(a)(i), 2(a)(ii), 2(a)(iii) 5.2: 22, 32, 42, 46, 50 5.3: 26, 28, 42, 44, 50
7/21	5.4: 3-5 5.5: 2-8 5.6: 1-6	5.4: 3-15 odd, 19 5.5: 1-49 e.o.o., 51-57 odd 5.6: 1-9 e.o.o., 11-31 odd	5.4: 12, 14, 16, 20(a), 20(c) 5.5: 26, 34, 46, 50, 52 5.6: 6, 10, 14, 26, 40
7/23	5.7: 1, Exer. #7, 2-5 5.10: 1-10	5.7: 1-13 odd, 19, 21, 27, 29 5.10: 5-17 e.o.o., 19-25 odd, 29, 31, 43, 47	5.7: 6, 8, 10, 20, 22 5.10: 20, 22, 24, 26, 48