



Course Syllabus Math A251 Section: 491



College Calculus – Summer 2016

Eagle River Campus

Instructor: Mr. Russ Frith

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Time: Tuesday 6:00 P.M. – 8:40 P.M.

Location: Eagle Center, Room 212

Thursday 6:00 P.M. – 8:40 P.M.

Office Hours: After class or by appointment

Phone: 907-223-9657 (C)

Best way of contact: Email.

Special Note: I usually check my email several times during the day.

Provisional Class Lecture Notes: <http://rfrith.uaa.alaska.edu/Calculus/M200.php>

Note: The class website has not been peer reviewed and the reliability cannot always be guaranteed. Thus, there could be periodic outages. In addition, there are likely technical errors with content. If you spot any problems, please let me know and I will endeavor to fix any problem. Also, if you are stuck on a homework problem and would like to have a detailed solution, I will use this site to post a solution. Access to this website is optional. If you do not have internet access, then your textbook will be a sufficient substitute.

Prerequisites: Undergraduate – UAA level Algebra (MATH A151) and Trigonometry (MATH A152)

Course Description: This course will cover: limits and derivatives, differentiation, integration, and applications.

Text: Calculus: Early Transcendentals, 8th Edition, James Stewart.

Technology Usage: I do not rely on graphing calculators or other advanced forms of technology for this class. Use of electronic devices for the exams is optional. If you wish to solve homework problems using a personal computer or a graphing calculator and need assistance from me, that's fine with me. I will try to help you with those issues. Ultimately, you need to solve problems independent of technological assists because my emphasis is on students' mastering the procedures and techniques to solve problems. Test questions will be fashioned so that you will not need to crunch numbers (with few exceptions, however, such as Newton's Method). You will need to apply mathematical reasoning to solve problems. Partial credit will be given if you don't get the correct answer but if you demonstrate the correct methods for solving a particular problem.

Course Objectives:

1. Study the characteristics of functions,
2. Apply calculus skills to model and to analyze real world problems,
3. Communicate effectively using mathematical terminology,

4. Analyze and defend plausible solutions.

Instructional Strategies: Lecture, tests, and homework

Testing Methods: The tests will consist of short answer, application and modeling problems. Tests will be given at the last 60 minutes of the period and when a student has turned in the test s/he may leave. There will be no makeup tests. Your final exam percentage score will substitute for your first missed test. If you miss two or more tests, then a grade of zero will be given for each missed test. Each test is worth 100 points, and the final is worth 200 points. Points are accumulative. Partial credit will be given for relevant responses to test questions. The minimum score you can receive for a problem is zero points.

Homework: Homework is assigned intermittently at the instructor's discretion. Each question is worth ten points and there will be between three to ten questions per assignment. Homework assignments must be stapled and answers must be documented in the correct sequence. **Unstapled homework will not be accepted.** Answers submitted using illegible writing will receive no credit. **You may not email your homework** unless permission is granted. Homework is due the next class period unless otherwise stated. Homework is due at the start of class. Homework that is turned in one week after it is due will be worth 50% of the original score. Homework cannot be submitted two or more weeks late. You may work in groups of at most three on each homework assignment.

Responsibility: If you miss a class then it is your responsibility to find out what you missed for that day's class. **I will not provide missed lecture notes.** You are encouraged to make arrangements with one of your classmates who can supply you with missed lecture notes. Video lectures are available on the class web site. Remember to turn cell phones on vibrate during class.

Attendance: Attendance is recommended. You are expected to attend all lectures and you are responsible for information covered during the classes. Copies of sample lecture notes will be found on the class website.

Grade Formula: $0.2 * (\text{homework average}) + 0.6 * (\text{test average}) + 0.2 * (\text{final score})$

100% - 90% A

79% - 70% C

Below 60% F

89% - 80% B

69% - 60% D

Incomplete grades for the semester will not be given.

Academic Success and Support Services:

If you need disability-related accommodations, please notify Disability Support Services at 786-4530.

Cheating, Plagiarism, or Other Forms of Academic Dishonesty:

Disciplinary action may be initiated by the university and disciplinary sanctions imposed against any student found responsible for committing, attempting to commit, or intentionally assisting in the commission of academic dishonesty. Academic dishonesty applies to examinations, assignments, laboratory reports, fieldwork, practicums, creative projects, or other academic activities.

The following examples constitute forms of academic dishonesty prohibited by the Student Code of Conduct and are not intended to define prohibited conduct in exhaustive terms, but rather to set forth examples to serve as guidelines for acceptable and unacceptable behavior:

- a. presenting as their own the ideas or works of others without proper citation of sources;
- b. utilizing devices not authorized by the faculty member;

- c. using sources (including but not limited to text, images, computer code, and audio/video files) not authorized by the faculty member;
- d. providing assistance without the faculty member's permission to another student, or receiving assistance not authorized by the faculty member from anyone (with or without their knowledge);
- e. submitting work done for academic credit in previous classes, without the knowledge and advance permission of the current faculty member;
- f. acting as a substitute or utilizing a substitute;
- g. deceiving faculty members or other representatives of the university to affect a grade or to gain admission to a program or course;
- h. fabricating or misrepresenting data;
- i. possessing, buying, selling, obtaining, or using a copy of any material intended to be used as an instrument of assessment in advance of its administration;
- j. altering grade records of their own or another student's work;
- k. offering a monetary payment or other remuneration in exchange for a grade; or
- l. violating the ethical guidelines or professional standards of a given program.

Smoking:

Please don't smoke (anything). If you need to then go home. Here's a link to U.A.A.'s smoking policy: <http://www.uas.alaska.edu/policies/tobacco.html>. This applies to marijuana too.

Tentative Class Schedule for Summer 2016

DATE	LECTURE	TESTS/HOMEWORK Homework Due Dates Announced in Class
Week 1 17 – 19 May	Class Rules, Chapter 1 1.1 Functional Representation 1.2 Math Models 1.3 Functions	HW #1 {all problems}
Week 1 17 - 19 May	Sections 1.5 – 1.6 1.5 Exponential Functions 1.6 Inverse Functions & Logarithms	
Week 2 24 May - 26 May	Sections 2.1 – 2.4 2.1 Tangent & Velocity Problems 2.2 The Limit of a Function	Test #1, Chapter 1 HW #2 {3,6,9,11}
Week 2 24 May - 26 May	Sections 2.3 – 2.5 2.3 Limit Laws 2.4 Definition of a Limit 2.5 Continuity	HW #3 {evens}
Week 2, Week 3 26 May, 31 May - 2 June	Sections 2.6 – 2.8 2.6 Limits at Infinity; Horizontal Asymptotes 2.7 Derivatives and Rates of Change 2.8 Derivative as a Function	HW #4 {1,2d, 2e, 4, 7} HW #5 {1a, 1d, 1g, 2, 5, 6, 9}
Week 4 7- 9 June	Sections 3.1 – 3.4 3.1 Derivatives of Polynomials and Exponential Functions 3.2 Product and Quotient Rules 3.3 Derivatives of Trigonometric Functions	Test #2, Chapter 2 HW #6 {1c, 1g, 2b, 4} HW #7 {4,5,6}

	3.4 Chain Rule	
Week 5 14 – 16 June	Sections 3.4 – 3.8 3.4 Chain Rule 3.5 Implicit Differentiation 3.6 Derivatives of Logarithmic Functions 3.7 Rates of Change in Natural and Social Sciences 3.8 Exponential Growth and Decay	Test #3.1, Chapter 3. HW #8 {1e, 1h, 4, 6} HW #9 {1d, 3, 7} HW #10 {4,5} HW #11 {1,2} HW #12 {6,7}
Week 5, Week 6 16 June – 23 June	Sections 3.9 – 4.1 3.9 Related Rates 3.10 Linear Approximations and Differentials 3.11 Hyperbolic Functions 4.1 Maximum and Minimum Values	HW #13 {5,6,7,8} HW #14 {1,2,4} HW #15* {1b, 1c, 2, 4, 6d} (* bonus HW #16 {3,4,10}
Week 7 28 June – 30 June	Sections 4.2 – 4.3 4.2 Mean Value Theorem 4.3 Derivatives & Graphing	HW #17 {2,3,5,7} HW #18 {4,7, 10b, 10c, 13}
Week 7 , Week 8 30 June – 7 July No Class on 5 July	Sections 4.4 – 4.5 4.4 Indeterminant Forms & L'Hospital's Rule 4.5 Curve Sketching	Test #3.2, Chapter 3. HW #19 {2,3,6,7} HW #20 {1,3,5}
Week 8, Week 9 12 July – 14 July	Sections 4.7 – 4.9 4.7 Optimization Problems 4.8 Newton's Method 4.9 Antiderivatives	HW #21 {4,6,7,9} HW #22 {3} HW #23 {2,3,5}
Week 10 19 July – 21 July	Sections 5.1 – 5.3 5.1 Areas & Distances 5.2 The Definite Integral	Test #4, Chapter 4. HW #24 {all}

	5.3 Fundamental Theorem of Calculus	
Week 10, Week 11 21 July – 26 July	Sections 5.4 – 5.5 5.4 Indefinite Integrals 5.5 The Substitution Rule	
Week 11 28 July		Final Chapter 5

Bonus Questions are available upon request. I will decide which questions, how much extra credit they are worth, and which exams they will apply.

