

Pikes Peak Community College
Division of Mathematics and Technology
SYLLABUS

MAT 125
section# 175

Survey of Calculus
(4 credits/60 contact hours)

Spring 2009

Details

Course Schedule: TR 7:00 – 8:50 E102

Instructor: Chad Leckie

Office: W119

Phone: 719 – 502 – 3600

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Website: www.chaoticgolf.com

charles.leckie@asd20.org (best bet)

Prerequisite: MAT 121 (College Algebra) or Accuplacer Scores EA 100+ AND CLM 55+

Text: *Calculus and its Applications* by Bittinger, Ellenbogen, 9th Edition, Pearson Addison Wesley

Recommended: TI-83, TI-84 or TI-86 graphing calculator or equivalent.

Note: You may *not* use TI-81, TI-82, TI-89, TI-92, or HP 48G calculators.

Optional: Student Solutions Manual

Course Description & Objectives

Most things in the world change - the price of food, clothing styles, a car's fuel efficiency or your annual income. Calculus is the tool that allows us to study changing quantities; it allows us to describe and predict the future behavior of these quantities.

In order to study changing quantities, we first need to *model* them with functions. We will begin the course with a review of functions and models, then look more in depth at the behavior of functions as we study the concepts of limits and continuity.

Our main tool in the study of change, and one of the major themes of calculus, is the *derivative*. We will use the concept of the limit to define the derivative, or the rate at which a function changes at one moment in time.

After exploring a plethora of applications of the derivative, we will consider a process which is seemingly unrelated to the derivative, but which is actually connected in a deep way. To motivate this topic, we will consider questions like the following: what is the area of the region bounded by the graph of a function $y = f(x)$, the lines $x = a$, $x = b$, and the x -axis? What can this area tell us about the function $y = f(x)$? We will discover a surprising result: if the function represents the rate of change of some quantity, this area gives the *total change* in the quantity. In addition to the mathematics we will be investigating, you will learn how to read, write and communicate about mathematics. You will do this by reading the text book and discussing problems in class, as well as carefully writing up the results of a semester-long project.

While every effort has been made to ensure that this course will follow the schedule outlined in this syllabus, any information contained herein is subject to change at the instructor's discretion.

Course Requirements

We will cover most of Chapters 1 through 5. In order to facilitate class discussion, please try to read the text before class each day. We will focus on some of the major ideas in class, but we cannot cover everything there. This may mean there are topics which we do not discuss in class, but which show up on the homework, quizzes, and exams. That is, unless I explicitly say otherwise, you are responsible for every topic in the reading. Part of the responsibility for what we do cover in class is yours - *please ask questions*.

Attendance is essential for successful completion of this course. You are responsible for everything we do in class, *even if you are not present*. Thus, it is up to you to find out from a classmate what was covered in class on any day you miss. I will not spend class time repeating myself, so please see me before or after class to catch up, if necessary. It is also up to you to find out about any announcements, especially schedule changes. For example, not knowing that the date of a test has changed is **not** an excuse for missing the test.

Homework will be assigned and collected from each section. I will assign a large number of problems, and will require you to hand in some designated subset of them. Since doing homework is your way to study for the exams, be sure you do *all* of the assigned problems. I encourage you to work in small groups on the homework, however, *you should be sure you understand the problems yourself and the work you turn in must be your own*. When turning in homework, please write neatly, organize the problems in order, and label them clearly. Any homework I cannot read will be returned ungraded.

As part of the homework, you will use a graphing calculator and the ideas of calculus to create mathematical models and study them in several of the extended technology applications.

Finally, there will be five **tests** and a comprehensive **final exam**. There will be *no* makeups given for the tests or the final exam, nor can the final be taken early. See Important Dates below for the date and time of the final.

Grading

Your final grade will be computed with the following weights:

Homework/Quizzes	10%
Exams (5)	70%
Final Exam	20%

The final grades will be calculated according to the following scale:

A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

Important Dates

Jan 19 – 20	No classes due to Martin Luther King Day
Feb 5	Drop Date – Last Day to Drop w/Refund
March 23 – 29	Spring Break
April 20	Withdraw Date – no refund
May 12	Last day of class
May 14	Final Exam ... E102 7:00 pm (subject to change)
May 16	Graduation

College Policies

Conduct: Students must follow the student code of conduct outlined in the Student Course Catalog on pp. 20-21. Disruptive behavior will not be tolerated - you may be asked to leave the room if I deem your behavior to be disruptive to your fellow students. Please note: arriving late to class is disruptive to the other students; *please arrive on time. Please turn off all cell phone and pagers while in class.*

Academic Rigor: Academic rigor means sustaining a learning environment that challenges students to attain high levels of intellectual and technical skills in an ethical manner. Rigorous learning requires fortitude, persistence, preparation, hard work, and zeal. Rigorous teaching requires a professional commitment to academic discipline and to inspiring students to develop their knowledge and understanding. Such high performance at a demanding institution can lead to a successful and satisfying career.

Academic Honesty: All forms of cheating are grounds for an immediate F in the course for all parties involved. Academic dishonesty is defined as the unauthorized use of assistance with intent to deceive a faculty member or another person assigned to evaluate work submitted to meet course requirements. While you are strongly encouraged to work together on homework, all work submitted must be your own. All exams and quizzes are closed note and closed book, unless otherwise announced. Please refer to the college catalogue for further information regarding academic honesty.

Withdrawals: Drop with a refund is possible during the first 15 percent of the term. An official withdrawal may also be initiated by the student through 80 percent of the term, resulting in a grade of "W." A "W" grade has no credit and is not computed in the GPA. If you simply stop attending without officially withdrawing, a grade based on the total points earned will be assigned to you at the end of the term as per the grading policy listed in the syllabus. This will usually result in an "F" grade on your grade report and may not be changed to a "W" once it is issued. The last day to withdraw (without a refund) is April 20, 2009.

Important Notes:

- Withdrawal for any reason after the official term "Drop Date" (February 5, 2009) will result in the student forfeiting the Colorado College Opportunity Fund (COF) credit in an amount equal to this course's credit hours.
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| If it becomes necessary to withdraw from the class, it is your responsibility to do so. |
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Incomplete (Instructor discretion): If you experience an emergency, have 75% of the class completed with a grade of C or better, and you have a verifiable and justifiable reason why the course cannot be completed at the time, then you may sign a contract with me. The course must be completed before the end of the next 15 week semester, otherwise your grade reverts to an F. Note that incompletes are rarely given and may pose some risk to your GPA.

Audit: Students may choose to take this course for audit. Normally, the audit option should be declared at registration; however, students may change their registration from credit to audit up to the current term "Drop Date" (February 5, 2009) published in the PPCC schedule. The request to change to audit must be done on a semester registration form and must receive written recommendation by the Division Dean and be approved by the Vice President for Educational Services prior to the published "Drop Date." Once an audit status is approved, the decision is irreversible. Audit grades do not transfer and are not computed in the GPA. Courses taken by audit do not count toward enrollment status for financial aid or veterans' educational benefits. **Important Note: Audit courses are not eligible for the Colorado College Opportunity Fund (COF) stipend. Students are responsible for the additional tuition amount per credit hour audited that would normally be covered by COF.**

Colorado State Competencies: The requirements in this course meet or exceed the mathematics competencies established by the Colorado Commission on Higher Education for guaranteed transfer, general education courses in mathematics.

Americans with Disabilities Act (ADA): Students with disabilities may request classroom accommodations. You are encouraged to make an appointment to see me as soon as possible. Also, be sure to contact the Office of Accommodative Services and Instructional Support (OASIS).

Assessment: In order to meet accreditation requirements of the Higher Learning Commission, students may be asked to participate in a department-level, program-level or institutional-level assessment.

Course Calendar

Week	Date	Topic
1	Jan 20	NO CLASS
	Jan 22	Chapter R
2	Jan 27	Chapter 1.1 and 1.2
	Jan 29	Chapter 1.3 and 1.4
3	Feb 3	Chapter 1.5, 1.6
	Feb 5	Chapter 1.7, 1.8
4	Feb 10	Chapter R and 1 Review
	Feb 12	Exam Chapter R and 1
5	Feb 17	Chapter 2.1 and 2.2
	Feb 19	Chapter 2.3
6	Feb 24	Chapter 2.4 and 2.5
	Feb 26	Chapter 2.6
7	Mar 3	Chapter 2.1 – 2.6 Review
	Mar 5	Exam Chapter 2.1 – 2.6
8	Mar 10	Chapter 2.7
	Mar 12	Chapter 3.1 and 3.2

9	Mar 17	Chapter 3.3, 3.4, and 3.5
	Mar 19	Chapter 3.6
10	March 23 – 27 ----- Spring Break -----	
11	Mar 31	Chapter 2.7 – 3.6 Review
	Apr 2	Exam Chapter 2.7 – 3.6
12	Apr 7	Chapter 4.1 and 4.2
	Apr 9	Chapter 4.3 and 4.4
13	Apr 14	Chapter 4.5
	Apr 16	Chapter 4.6
14	Apr 21	Chapter 4 Review
	Apr 23	Exam Chapter 4
15	Apr 28	Chapter 5.1, 5.2, and 5.3
	Apr 30	Chapter 5.4, 5.6, and 5.7
16	May 5	Chapter 5 Review
	May 7	Exam Chapter 5
17	May 12	Review for Final Exam
	May 14	Final Exam ... E102 7:00 pm (subject to change)