

CASPER COLLEGE COURSE SYLLABUS

Course: Math 2210 - Calculus III

Semester: Fall 2015

Lecture Hours: 5

Lab Hours: 0

Credit Hours: 5

Class Time: M-F 10:00 – 10:50

Room: PS 214

Instructor: Kendall Jacobs

Office: PS 338

Office Phone: 268-2043

Email: kjacobs@caspercollege.edu

Office Hours:

TTH 8:00-8:50 TTH 11:00-11:50 MWF 1:00-1:50

If the above times don't work for you, please feel free to make an appointment or just drop by!

COURSE DESCRIPTION: Multivariable calculus, including series, limits and continuity of functions of several variables, partial differentiation, multiple integration, and an introduction to vector calculus.

STATEMENT OF PREREQUISITES: MATH 2205, Calculus II (C or better)

COURSE GOAL: The goals of this class are to learn how to use the tools of differential and integral calculus in the study of multi-dimensional functions, to practice communicating with precision, and to develop the ability to solve nonstandard problems.

COURSE OUTCOMES: Students should:

1. Be able to use of the three dimensional coordinate system. They should understand how vectors can be represented algebraically in this system and the various operations on vectors (dot and cross product, components, etc.). They should also understand how functions and surfaces can be represented using this system.
2. Be able to represent space curves as vector functions and be able to apply differentiation and integration to such curves. They should be able to do application problems involving motion, curvature and arc length
3. Have a basic understanding of differential Calculus in \mathcal{R}^n . This includes the ability to calculate and interpret partial derivatives, gradient vectors and directional derivatives.
4. Have a basic understanding of integral Calculus in \mathcal{R}^n . This includes the ability to do double and triple integration and use alternative coordinate systems such as polar, cylindrical and spherical coordinates
5. Be able to solve application problems involving determining extreme values, surface area, volume, physics applications, expected value, and probability.
6. Be able to calculate and interpret partial derivatives, gradient vectors and directional derivatives.
7. Be able to use technology (in particular a computer algebra system) to analyze problems involving multivariate calculus.

Materials needed for the course:

Book: Calculus – Early Transcendentals 2nd Edition by Briggs Cochran and Gillett. If you took Calc II from Casper College last semester, it is the same text. I may supplement with a few open source resources. We will not be using My Math lab.

Calculator: A calculator with graphing and programmable capabilities is very useful and one that does symbolic calculations will be advantageous – however, calculator usage may be restricted on exams. Also we will use Mathematica and or Sage so you need a way to store files.

METHODOLOGY: Primarily lecture, with some group work, projects, and computer labs. You will be expected to OWN everything taught in class (whether or not you are present). I recommend that you study with the intent to understand and not just to get by on the test. You will be strongly encouraged to participate in class. I hope you ask LOTS of questions.

Besides contributing to lectures and class discussions, you will be asked to participate in group activities and peer teaching assignments. Proficiency in mathematics requires practice! Consequently, homework assignments will be assigned daily. I will monitor your progress via quizzes, projects, and exams.

Evaluation Criteria: Your letter grade will be based on your performance on the following:

Exams (approx 80%):

Five 100-point exams will be given (including the final). You are required to take exams at the scheduled hours. Under some pre-approved circumstances an exam may be taken early. In the event that an exam is missed, a 200- point cumulative final may be required. All exams and quizzes are cumulative. Calculator usage may be restricted on exams. Some exams may have a take home component involving technology or may include an oral component. The comprehensive final exam is required.

HW/Maple Labs /Quiz (approx 20%):

I will assign both pencil and paper assignments as well as regular WebWork exercises.

In addition to homework, you may also expect to see a short quiz at least once a week. I will drop the lowest three or more, so you may get several zeros before your grade is affected. ***This means that no late work will be accepted.***

Many of the homework assignments will have a technology component and will require use of Mathematica or Sage software, which is available on the college computers in PS 104 and PS 106, and/ or use of a graphing calculator. Assignments requiring technology will be submitted via our Moodle Course Webpage.

You can also expect to present 2-3 problems to the class during the course of the semester. These presentations will be graded.

Grading Scale: You are guaranteed a traditional grading scale of 90% + A, 80-89% B, 70-79% C, 60-69% D, 59%-F. But I reserve the right to lower this without notice if I deem it necessary. Class average and participation MAY be taken into consideration for borderline grades.

Absent/Late Policy: Students are expected to attend all class sessions and submit work when it is due. In general, quizzes and in-class projects cannot be made up. Late homework is subject to a significant grade reduction. The instructor reserves the right not to accept assignments that are more than a week late. If you are absent for one week or more due to accident, illness, etc., contact the dean of students and explain your reason. In these cases I can make arrangements with you to make up assignments.

Student Rights and Responsibilities:

Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor in order to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take your problem through the appropriate chain of command starting with the department head, then the division chair, and lastly the vice president for academic affairs.

Academic Dishonesty - Cheating & Plagiarism: Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student

ADA Accommodations Policy: It is the policy of Casper College to provide appropriate accommodations to any student with a documented disability. If you have a need for accommodation in this course, please make an appointment to see me at your earliest convenience. If you need ADA accommodation you may contact Brent Heuer, Accommodative Services Counselor 307-268-2557

Course Content: See attached schedule:

Last Day to Change to Audit or Withdraw: November 12, 2015 will be the last day to drop this class. If you are thinking about changing your class status, you must contact me BEFORE this date. You will not be allowed to audit unless you have been attending class on a regular basis.

Help: I recommend you keep up with the class. If you need help, then get it . . . FAST! I will be available to help individuals during my office hours or by appointment. PLEASE don't hesitate to stop by or give me a call. I want you to succeed!

**IF YOU ARE HAVING TROUBLE IN THIS CLASS, PLEASE SEE ME
AS SOON AS POSSIBLE!!!**

MATH 2210-01 Calculus III
FALL 2015 TENTATIVE SCHEDULE
SUBJECT TO CHANGE!
 Instructor: Kendall Jacobs

WEEK	TOPICS
WEEK ONE Aug 24-28	Course Introduction Three Dimensional Coordinate Systems -Vectors – Dot Product
WEEK TWO Aug 31-Sept 4	Dot Product – Cross Product – Lines and Curves in Space – Parametric Representation
WEEK THREE Sept 7 – Sept 11	Calculus of Vector Valued Functions -Vector Differentiation & Integration Sept 7 Labor Day – No Class
WEEK FOUR Sept 14-Sept 18	Motion in Space - Arc Length & Curvature-Velocity & Acceleration Exam I
WEEK FIVE Sept 21-Sept 25	Planes and Surfaces – Level Curves - Parametric Surfaces -
WEEK SIX Sept 28-Oct 1	Functions of Several Variables-Limits & Continuity
WEEK SEVEN Oct 5 – Oct 9	Partial Differentiation-Tangent Planes and Linear Approximations Chain Rule -Directions Derivatives
WEEK EIGHT Oct 12-Oct 16	Gradients- Max Min Problems Exam II
WEEK NINE Oct 19-Oct 23	Optimization -LaGrange Multipliers Oct 19-20 Fall Break No Class
WEEK TEN Oct 26-Oct 30	Double Integrals over Rectangles-Iterated Integrals-Double Integrals Double integrals in Polar Coordinates-Applications of Double Integrals)
WEEK ELEVEN Nov 2-Nov 6	Surface Area-Triple Integrals & Applications Nov 6 – Advising Day
WEEK TWELVE Nov 9 – Nov 13	Triple Integrals in Other Coordinates-Change of Variables-Vector Fields Exam III
WEEK THIRTEEN Nov 16-Nov 20	Line Integrals-Fundamental Thm of Line Integrals)
WEEK FOURTEEN Nov 23-Nov 26	Line Integrals-Fundamental Thm of Line Integrals) Nov 25 – 27 Thanksgiving Holiday – No Class
WEEK FIFTEEN Nov 30-Dec 4	Green’s Theorem-Curl and Divergence
WEEK SIXTEEN Dec 7 – Dec 10	Surface Integrals-Stokes’ Theorem-Divergence Theorem Exam IV – Vector Calculus
Dec 14-Dec 18	Final Exam Week – Comprehensive exam is required