



Course Syllabus

Course: MAT240 (Multivariable Calculus) **Semester:** Spring 2012
Section: 35289
Day(s): MW **Time:** 10:55AM-1:05PM **Location:** CM-454
Meeting Dates: January 18 – May 11

INSTRUCTOR

Name: Christopher P. Benton, Ph.D. **Office Location:** CM-422
Phone: (480) 423-6248 **Email:** docbenton@docbenton.com
Office Hours: TTh 10:30 am - 1:00 pm **Web:** www.docbenton.com
Special Notes: Information in this syllabus is subject to change at the discretion of the instructor in order to meet the particular needs of this class.

TEXT & SUPPLIES

Title: Multivariable Calculus, 5th Edition **Authors:** McCallum, Hughes-Hallett, Gleason, et al.

Publisher: Wiley

Other materials required: TI-83/84 Calculator (no calculators with computer algebra systems allowed)

Textbooks can be purchased at the Campus Bookstore or online at www.foollett.com

COURSE DESCRIPTION

Multivariate calculus including vectors, vector-valued functions, partial differentiation, multiple integration, and an introduction to vector fields. Note: Student may receive credit for only one of the following: MAT240 or MAT241. Prerequisites: Grade of "C" or better in MAT230 or MAT231.

PLEASE NOTE: A TI-83 or TI-84 graphing calculator is required for homework and exams. Enrollment in this course requires in-person registration with an advisor's signature.

COURSE OUTLINE

The following chapters and sections will be covered in this course:

12. Functions of Several Variables
12.1, 12.2, 12.3, 12.4, 12.5, 12.6
13. Vectors
13.1, 13.2, 13.3, 13.4
14. Differentiating Functions of Several Variables
14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7
15. Optimization
15.1, 15.2, 15.3
16. Integrating Functions of Several Variables
16.1, 16.2, 16.3, 16.4, 16.5, 16.6, 16.7
17. Parameterization and Vector Fields
17.3, 17.4
18. Line Integrals
18.1, 18.2, 18.3, 18.4

COURSE OBJECTIVES

1. Understand graphs of surfaces and curves in 3-dimensions using various coordinate systems.
2. Learn algebraic properties and key theorems regarding vectors and vector-valued functions.
3. Define and evaluate various types of partial and directional derivatives in higher dimensions.
4. Solve optimization problems involving functions of several variables.
5. Define and evaluate the integral for functions of several variables and noneuclidian coordinates.
6. Learn applications of multiple integrals.
7. Introduce vector fields and line integrals.
8. Prove and apply Green's Theorem, Stokes' Theorem, and the Divergence Theorem.

COURSE REQUIREMENTS

- Attendance – Excessive absences can result in withdrawal from the course.
- Preparation – Students are expected to read each section prior to its being covered in class.
- Participation – Active participation is essential. Students should participate in class and ask questions over problems and material they do not understand.
- Homework – Students should complete assignments before the next class.
- Exams – In general, exam problems will come from the homework.

ATTENDANCE

- Attendance is required and essential to achieve course objectives. Active participation in class is an important component of your grade.
- You may accumulate **four absences** without penalty. After **four more absences** you may be **withdrawn** from the course. However, if you want to withdraw from this or any other course, do not quit coming to class and assume that you will be withdrawn automatically. That may not happen. It is your responsibility to submit a formal drop form if you want to withdraw.
- Official absences (field trips, tournaments) and religious holidays shall not count among the total number of absences allowed. However, students shall obtain an official absence verification from the appropriate dean, and present it to the instructor **before** the absence. Prior arrangements must be made with the instructor for make-up work. If arrangements have been made, the student shall not be penalized.
- Tardiness – **Arriving late or leaving early will count as 1/2 absence.** Students are expected to remain in class until dismissed by the instructor. Leaving during class to go to the restroom, get a drink of water, or to make cell phone calls can be disruptive to other students, and will count as an absence.

TESTING & MAKEUP POLICY

Exam	Percentage
Test 1	16%
Test 2	16%
Test 3	16%
Test 4	16%
Final Exam	16%
MAPLE Assignments	10%
Quizzes	10%
The final exam grade can replace your lowest grade on any of the other tests (Test 1 Through Test 4). However, nothing can replace the final exam grade. The final exam is mandatory. Also, if you miss a test, then that automatically becomes the grade replaced by the final. If you miss a second test, then you will need a good, verifiable excuse in order to receive a makeup exam. No leaving the room until you have turned in your test.	

ASSIGNMENTS – Subject to Change at Instructor’s Discretion

Assignments and other pertinent information are posted at www.docbenton.com. Exam problems will generally be taken from the homework. Also, additional credit may be earned by turning in a homework portfolio at the end of the semester.

GRADING SCALE

Grade	Range
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

ELECTRONIC DEVICE POLICY

Cell phones, mp3 players, computers, and similar electronic devices are not to be used during class.

ACCOMMODATIONS

It is a college policy to provide reasonable accommodations to students with disabilities. If you would like to request accommodations due to a physical, mental, or learning disability, please contact the Disability Resources & Services office, SC-144, 480-423-6517.

ACADEMIC HONESTY

- Every student in this class is expected to produce his/her own original work.
- Cheating/dishonesty is unacceptable and will not be tolerated.
- Cheating/dishonesty will result in being dropped from the course with a failing grade.
- Cheating/dishonesty will result in a letter to the Dean of Students for further action.

CODE OF CIVILITY

As your instructor, I will strive to be professional, courteous, respectful and empathetic to your needs and concerns. I will:

- Begin and end class on time
- Be prepared for each class session
- Provide academic feedback and grade assignments in a timely manner
- Be available for individual consultation
- Clarify assignments and inform you of any adjustments to the class schedule or policies

As a student, you are expected to be reflective, courteous, respectful and empathetic to your classmates, instructor and other college staff assisting in your learning. You are expected to arrive on time for class and remain until class has ended. Your instructor should be notified in advance if there is a need to leave early. You will be expected to:

- Turn off cell phones and pagers before entering classroom.
- Be in class and be on time
- Be prepared for class sessions
- Participate in class activities
- Follow instructions and complete assignments.
- Put forth your best effort
- Be quiet and attentive during lectures
- Raise your hand if you have a question
- Maintain knowledge of your grade status
- Contact your instructor right away about concerns or situations that interfere with your success in class
- Comply with policies found in the SCC Catalog and SCC Student Handbook
- Be responsible for all information contained in this syllabus

Students may be dismissed from class for disruptive behavior.

SCC General Education Statement:

General Education enhances students' abilities in critically analyzing and effectively communicating in Written, Oral, Visual, and Numerical form. General Education is WOVeN through the curriculum and co-curricular experiences at Scottsdale Community College.

DAY & EVENING FINAL EXAM SCHEDULE

Classes listed as **MWF** below include day classes which meet regularly on Monday/Wednesday, Monday/Tuesday/Wednesday, Monday/Wednesday/Friday, Monday/Wednesday/Thursday, four times a week, or daily. **TuTh** indicates classes which meet on Tuesday and Thursday. Final exams for classes meeting only on **Friday, Saturday or Sunday** will be held on the last class meeting of the semester.

Nonstandard Class Meeting Times*:

- Classes scheduled to begin before 7:30 a.m.
- Classes scheduled to begin between 3:30 p.m. and 3:55 p.m.
- Classes scheduled to begin before 4:00 p.m. that meet on Monday only, Tuesday only, Wednesday only or Thursday only.

*Classes meeting at nonstandard class meeting times may experience location and/or student schedule conflicts. When a student's class schedule results in a time conflict between two or more final exams, the instructors, in consultation with the Department Chair(s), will work together to establish an alternative final exam schedule for the student.

Day of Week	Classes Starting Between	Day/Date of Exam	Exam Time (Start/End)
MWF	7:30 a.m. and 8:25 a.m.	Monday, May 7	7:30 a.m. to 9:20 a.m.
MWF	8:30 a.m. and 9:25 a.m.	Wednesday, May 9	7:30 a.m. to 9:20 a.m.
MWF	9:30 a.m. and 10:25 a.m.	Monday, May 7	9:30 a.m. to 11:20 a.m.
MWF	10:30 a.m. and 11:25 a.m.	Wednesday, May 9	9:30 a.m. to 11:20 a.m.
MWF	11:30 a.m. and 12:25 p.m.	Monday, May 7	11:30 a.m. to 1:20 p.m.
MWF	12:30 p.m. and 1:25 p.m.	Wednesday, May 9	11:30 a.m. to 1:20 p.m.
MWF	1:30 p.m. and 2:25 p.m.	Monday, May 7	1:30 p.m. to 3:20 p.m.
MWF	2:30 p.m. and 3:25 p.m.	Wednesday, May 9	1:30 p.m. to 3:20 p.m.
MWF	3:30 p.m. and 3:55 p.m.	Monday, May 7	3:30 p.m. to 5:20 p.m.*
MW or M Only	4:00 p.m. and 5:25 p.m.	Monday, May 7	4:00 p.m. to 5:50 p.m.
MW or M Only	5:30 p.m. and 6:55 p.m.	Monday, May 7	6:00 p.m. to 7:50 p.m.
MW or M Only	7:00 p.m. and 8:30 p.m.	Monday, May 7	8:00 p.m. to 9:50 p.m.
W Only	4:00 p.m. and 5:25 p.m.	Wednesday, May 9	4:00 p.m. to 5:50 p.m.
W Only	5:30 p.m. and 6:55 p.m.	Wednesday, May 9	6:00 p.m. to 7:50 p.m.
W Only	7:00 p.m. and 8:30 p.m.	Wednesday, May 9	8:00 p.m. to 9:50 p.m.
TuTh	7:30 a.m. and 8:25 a.m.	Tuesday, May 8	7:30 a.m. to 9:20 a.m.
TuTh	8:30 a.m. and 9:25 a.m.	Thursday, May 10	7:30 a.m. to 9:20 a.m.
TuTh	9:30 a.m. and 10:25 a.m.	Tuesday, May 8	9:30 a.m. to 11:20 a.m.
TuTh	10:30 a.m. and 11:25 a.m.	Thursday, May 10	9:30 a.m. to 11:20 a.m.
TuTh	11:30 a.m. and 12:25 p.m.	Tuesday, May 8	11:30 a.m. to 1:20 p.m.
TuTh	12:30 p.m. and 1:25 p.m.	Thursday, May 10	11:30 a.m. to 1:20 p.m.
TuTh	1:30 p.m. and 2:25 p.m.	Tuesday, May 8	1:30 p.m. to 3:20 p.m.
TuTh	2:30 p.m. and 3:25 p.m.	Thursday, May 10	1:30 p.m. to 3:20 p.m.
TuTh	3:30 p.m. and 3:55 p.m.	Tuesday, May 8	3:30 p.m. to 5:20 p.m.*
TuTh or Tu Only	4:00 p.m. and 5:25 p.m.	Tuesday, May 8	4:00 p.m. to 5:50 p.m.
TuTh or Tu Only	5:30 p.m. and 6:55 p.m.	Tuesday, May 8	6:00 p.m. to 7:50 p.m.
TuTh or Tu Only	7:00 p.m. and 8:30 p.m.	Tuesday, May 8	8:00 p.m. to 9:50 p.m.
Th Only	4:00 p.m. and 5:25 p.m.	Thursday, May 10	4:00 p.m. to 5:50 p.m.
Th Only	5:30 p.m. and 6:55 p.m.	Thursday, May 10	6:00 p.m. to 7:50 p.m.
Th Only	7:00 p.m. and 8:30 p.m.	Thursday, May 10	8:00 p.m. to 9:50 p.m.

Any variance from this schedule due to an exam schedule conflict should be discussed with the instructors involved.