MATH 2415
Calculus III

Marcus McGuff, chair mmcguff@austincc.edu 223-4024
A full list of committee members can be found at
http://www.austincc.edu/mthdept5/mman06/cdocs/coursecommittees

Notes for Instructor
2006-2007

A Complete Solution Manual is available to instructors only.

The material for MTH 2415 is taken from the appendices and Chapters 9, 10, 11, 12 of the text. The topics in
Chapter 13 are covered in MTH 2254, Calculus IV. Suggested schedules for the regular semester and the
summer session are given in the Student Information handout.

You may want to take advantage of software appropriate for this course. The College has site licenses available
for DPGraph (a 3-D graphing program), both of which are available on all computers in the math computer
classrooms. Winplot (a freeware general graphing program) is also available on these computers. DPGraph and
WINPLOT are available for student download and use at home as well. Check with the course committee or the
chair of the math Technology Committee for further information if you aren’t sure how to access these programs
or have other technology related questions.

Four natural testing places built into this schedule would be
#1-Appendices and chap. 9 sec. 1-4
#2-sec. 9.5-9.7, chap. 10
#3-Chap. 11
#4-Chap. 12
A comprehensive final exam is suggested, but not required. Do give at least four tests.

You are expected to provide students with a first-day handout with information concerning the number of
exams, the material to be tested on each exam, your homework policy, your attendance policy (if any), and a
description of how you will weigh various factors that contribute to the semester average. Be sure to indicate
that you are not responsible for withdrawing students for any reason, although you reserve the option to
withdraw students who miss four or more classes.

You should have a plan to include student homework in your grading scheme. If you do, make your plan known
to your students. It is recommended that you either collect homework regularly and grade selected problems, or
give frequent homework quizzes during the semester.

You have the option of giving some exams in the Testing Center. To do so, you should place multiple versions
of the exam in the Testing Center several days prior to the initial test date. Check with the Testing Center for
specific instructions on how to do this. In any event, the final test should be given in class.

If you have further questions or concerns regarding this course, please feel free to contact course committee
members listed at the top of this document or the faculty currently teaching this course.
First Day Handout for Students

MATH 2415   CALCULUS III   Session (Fall ’06, Spring & Summer ’07)

Synonym & Section:                Time:       Room:

Instructor:
Office:
Office Phone:
E-mail:
Web page: (if any)

Office Hours:
Other times by appointment

COURSE DESCRIPTION
MATH 2415 CALCULUS III (4-4-0). A standard third course in calculus. Topics include polar coordinates and
polar curves; vectors and analytical geometry in three dimensions; vector-valued functions and curvature;
components of acceleration; functions of several variables; limits and continuity in three-space; partial and
directional derivatives; gradients, tangent planes, and extreme of functions of two variables; multiple integrals in
rectangular, polar, spherical, and cylindrical coordinates; applications of multiple integrals to area, volume,
moments, centroids, and surface area. Prerequisites: MATH 2414 or its equivalent with a grade of C or better.
(MTH 2154)

REQUIRED TEXTS/MATERIALS
The required textbook for this course is:
Optional: Study Guide

Technology required: You must have access to technology which enables you to (1) Graph a function, (2) Find the zeroes
of a function. (3) Do numerical integration. Most ACC faculty are familiar with the TI family of graphing
calculators. Hence, TI calculators are highly recommended for student use. Other calculator brands
can also be used. Your instructor will determine the extent of calculator use in your class section.

INSTRUCTIONAL METHODOLOGY: This course is taught in the classroom primarily as a
lecture/discussion course.

COURSE RATIONALE
The first two semesters of the calculus sequence dealt with material in two-dimensional rectangular Cartesian
coordinates. A primary goal of Calculus III is to extend these ideas to three dimensions and to other coordinate
systems. Therefore, in this course we introduce:
(i) several methods for interpreting graphs of multivariable functions
(ii) properties of vectors
(iii) differentiation and integration of multivariable functions
(iv) parametric equations of curves in two and three dimensions
(v) a mathematical description of motion in space

COURSE EVALUATION/GRADING SCHEME
Grading criteria must be clearly explained in the syllabus. The criteria should specify the
number of exams and other graded material (homework, assignments, projects, etc.) Instructors
should discuss the format and administration of exams. Guidelines for other graded materials,
such as homework or projects, should also be included in the syllabus.

COURSE POLICIES
The syllabus should contain the following policies of the instructor:
Missed exam policy
Late work policy (if applicable)
Class participation expectations
Reinstatement policy (if applicable)
Student discipline

Attendance Policy: Include YOUR attendance policy, even if it is that attendance is not required. If you make attendance required, the Math Department recommends the following statement: Attendance is required in this course. Students who miss more than 4 classes may be withdrawn although the instructor makes no commitment to do so.

Withdrawal Policy: It is the student's responsibility to initiate all withdrawals in this course. The instructor may withdraw students for excessive absences (4) but makes no commitment to do this for the student. After the last day to withdraw, (insert date), neither the student nor the instructor may initiate a withdrawal.

Incomplete Grade Policy: Incomplete grades (I) will be given only in very rare circumstances. Generally, to receive a grade of "I", a student must have taken all examinations, be passing, and after the last date to withdraw, have a personal tragedy occur which prevents course completion.

COMMON COURSE OBJECTIVES: Common course objectives should be included. They can be found at: 
http://www2.austin.cc.tx.us/mthdept2/tfcourses/obj2415.htm

Course-Specific Support Services: Sometimes sections of MATH 0193(1-0-2) are offered. The lab is designed for students currently registered in Calculus III, MATH 2415. It offers individualized and group setting to provide additional practice and explanation. This course is not for college-level credit. Repeatable up to two credit hours. Students should check the course schedule for possible offerings of the lab class ACC main campuses have Learning Labs which offer free first-come first-serve tutoring in mathematics courses. The locations, contact information and hours of availability of the Learning Labs are posted at: http://www.austincc.edu/tutor (Give Learning Lab Room # at your campus.)

Include the following policies that are listed at beginning of Math Manual. Go to www.austincc.edu/mthdept5/mman06/statements.html Insert full statement for each of the following in your syllabus.

Statement on Scholastic Dishonesty

Statement on Scholastic Dishonesty Penalty.

Statement on Student Discipline.

Statement on Students with Disabilities

Statement on Academic Freedom

TESTING CENTER POLICY: ACC Testing Center policies can be found at: http://www.austincc.edu/testctr/

STUDENT SERVICES: The web address for student services is: http://www.austincc.edu/rss/index.htm  The ACC student handbook can be found at: http://www.austincc.edu/handbook
INSTRUCTIONAL SERVICES: The web address is:
http://www.austincc.edu/faculty/newsemester/. Then click on “Campus Based Student Support Overview”.

Calendar/Syllabus/Suggested Testing Schedule:

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<th>16-Week Semester</th>
<th>11-Week Semester</th>
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<td><strong>Week 2</strong></td>
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<td><strong>Week 3</strong></td>
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<td><strong>Week 4</strong></td>
<td>9.5, 9.6</td>
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<td><strong>Week 5</strong></td>
<td>9.7, review parametric curves</td>
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<td><strong>Week 6</strong></td>
<td>10.1, 10.2, 10.3</td>
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<td><strong>Week 7</strong></td>
<td>10.4, project</td>
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<td><strong>Week 8</strong></td>
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<td><strong>Week 9</strong></td>
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<td><strong>Week 10</strong></td>
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<td><strong>Week 13</strong></td>
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<td><strong>Week 15</strong></td>
<td>12.7, 12.8</td>
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<td><strong>Week 16</strong></td>
<td>Review, Exam</td>
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Please note: Schedule changes may occur during the semester. Any changes will be announced in class.