

MATH 2414
Calculus II

Mike Dellens, co-chair; 223-3291 dellens@austincc.edu Mike Huff, co-chair; 223-2068 mhuff@austincc.edu

Full Committee

Notes to Instructors

Spring 2006

Textbook: 3rd Edition will be used for the first time in spring 2006

Calculus, Concepts and Contexts, 3rd edition, Stewart, Publisher: Thompson, Brooks Cole, 2005 (Single-variable version has all the material for Calculus II, but not for Calculus III. Advise students to buy the full version if they intend to go to Calculus III.)

Supplemental Material for Students:

Student Solution Manual

Study Guide for Stewart's Single Variable Calculus: Concepts & Contexts, 3rd edition

Supplemental Material for Instructors:

Complete Solutions Manual, Instructor's Guide, Lab Manuals on graphing calculators and CAS.

The Nature of the Course: This textbook enables the instructor to use technology and the rule of four (topics are presented geometrically, numerically, algebraically, and verbally) to focus on conceptual understanding. At the same time, it retains the strength of the traditional calculus by exposing the students to the rigor of proofs and the full variety of traditional topics. We strongly recommend that you read the author's preface in the textbook.

Handouts:

You should provide students with a handout clearly stating your policies on grading, homework, exams, attendance, and projects. Your handout should also include your office location, phone number, and hours and e-mail and web page addresses. You may wish to have students fill out an information sheet. They can be helpful in determining whether a student has met the prerequisites for the course. These are available through the department or you may use your own. Lastly, you should provide students with a syllabus. You do not have to use the recommended problems.

Suggested Testing Schedule:

Four or five exams are recommended. A comprehensive final is optional. Some instructors use a comprehensive final as a make-up exam. In addition, a significant percentage of each exam should be done in class or in the testing center.

While you should compose exams that are consistent with the syllabus and your style of teaching, exams composed solely or primarily of multiple choice questions are generally not considered acceptable. Group testing is strongly discouraged; however, if you ever use group testing, you will need to document carefully how the tests were administered, how the groups were composed, and how the exams were graded. If you have questions, you are encouraged to consult with a committee member.

Technology:

Although the text is not technology dependent, you are encouraged to familiarize yourself with how it is used and incorporate appropriate use of technology. Section 1.3 of the text discusses use of graphing calculators although the same can be done with computer plotting routines. Virtually every section of the text has problems that employ scientific and graphing calculators. CAS (Mathematica, Maple, and Derive) problems are also incorporated. For more information on technology resources at ACC, contact a member of the course committee.

Homework: It is our feeling that a good Calculus course must be problem-oriented. This text has some great exercises; try to assign some that require more than just routine computation. As in most texts, answers to odd-numbered problems are given in the back. If you do not want to make up your own homework assignment or if you have questions concerning the homework, please contact members of the course committee for suggestions concerning homework.

First Day Handout for Students

MATH 2414 Calculus II Starting Spring 2006

Section Number & Synonym: **Time of class:** **Campus & Room #:**

Instructor's Name:

Phone numbers (including ACC voice mail for adjuncts)

Office hours and location of office

Information on how conferences outside of office hours can be arranged

e-mail address

Web page (if any)

COURSE DESCRIPTION

MATH 2414 Calculus 2 (4-4-0). A standard second course in calculus. Topics include integration of elementary functions; techniques of integration; integrals with infinite limits of integration; integrals of discontinuous integrands; applications of the definite integral; an introduction to differential equations; infinite series; analytical geometry; and other applications. Prerequisites: MATH 2413 with a C or better or the equivalent. (MTH 1864)

REQUIRED TEXTS/MATERIALS

The required textbook for this course is:

Textbook: *Calculus, Concepts and Contexts*, 3rd edition, Stewart, Publishers:Thompson,Brooks Cole, 2005

(Single-variable version has all the material for Calculus II, but not for Calculus III. Advise students to buy the full version if they intend to go to Calculus III.)

Supplemental Material for Students: *Student Solution Manual*

Technology required: Technology required: You must have access to technology that 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 primarily through a lecture format. Additional methods such as using projects or laboratories may be used by individual instructors.

COURSE RATIONALE

This course is the second course in the traditional calculus sequence for mathematics, science and engineering students. It is part of what could be a four-semester sequence in calculus courses. The approach allows the use of technology and the rule of four (topics are presented geometrically, numerically, algebraically, and verbally) to focus on conceptual understanding. At the same time, it retains the strength of the traditional calculus by exposing the students to the rigor of proofs and the

full variety of traditional topics: integration, techniques of integration, applications of integration, infinite series and analytical geometry.

COMMON COURSE OBJECTIVES

Course Objectives are listed at: <http://www.austincc.edu/mthdept2/tfcourses/obj2414.htm>

Include these in your First Day Handout to Students.

COURSE EVALUATION/GRADING SCHEME

Explain grading criteria clearly here. The criteria should specify the number of exams and other graded material (homework, assignments, projects, etc.), with percentage allocation. 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
- Policy about late work (if applicable)
- Class participation expectations
- Reinstatement policy (if applicable)

Attendance Policy (if no attendance policy, students must be told that)

The Math Department's Attendance Policy follows. Instructors who have a different policy are required to state it. "Attendance is required in this course. Students who miss more than 4 classes may be withdrawn."

Withdrawal Policy (including the withdrawal deadline for the semester)

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

Incomplete Grade Policy

An incomplete grade (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.

Course-Specific Support Services

Sometimes sections of MATH 0189 (1-0-2) are offered. The lab is designed for students currently registered in Calculus II, MATH 2414. 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 that 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://www2.austincc.edu/rvslab/alllabs/>

The following policies are listed in First Day Handout section in front part of the Math Manual. Go to www.austincc.edu/mthdept5/mman05/statements.html Insert the full statement for each of the following in your syllabus.

Statement on Scholastic Dishonesty

Recommended Statement on Scholastic Dishonesty Penalty

Recommended Statement on Student Discipline

Statement on Students with Disabilities

Statement on Academic Freedom

Course Outline and Calendar: The actual pace and coverage of optional topics is at the discretion of the instructor.

16-Week Semester

Week 1: Review of selected topics from 4.9 to 5.4

Week 2: 5.5,5.6

Week 3: 5.7,5.8, begin 5.9

Week 4: finish 5.9,5.10

Week 5: 1.7, 3.5, 6.1

Week 6: 6.2, 6.3

Week 7: 6.4, begin 6.5

Week 8: finish 6.5, 6.7

Week 9: 7.1, 7.2

Week 10: finish 7.2,7.3

Week 11: 7.4, 8.1

Week 12: 8.2, 8.3

Week 13: 8.4, 8.5

Week 14: 8.6, 8.7

Week 15: 8.8, 8.9

Week 16: Final Exam

11-week Semester

Week 1: Review of selected topics from 4.9 to 5.4

Week 2: 5.5,5.6

Week 3: 5.7, 5.8,5.9

Week 4: 5.10, 1.7, 3.5

Week 5: 6.1, 6.2, 6.3

Week 6: 6.4, 6.5, 6.7

Week 7: 7.1, 7.2, 7.3

Week 8: 7.4, 8.1

Week 9: 8.2, 8.3, 8.4

Week 10: 8.5, 8.6, 8.7

Week 11: 8.8, 8.9, Final Exam

Instructors are encouraged to add a statement, such as “Please note: schedule changes may occur during the semester. Any changes will be announced in class.”

TESTING CENTER POLICY

ACC Testing Center policies can be found at: <http://www.austincc.edu/testctr/>
Instructor will add any personal policy on the use of the testing center.

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/evp/newsemester/index.htm> then click on “Campus Based Student Support Overview”.