Notes for Instructors
2006-2007

You need to prepare a handout for students. A sample handout appears in this Math Manual. Your handout should spell out all details on testing, grading, and homework for your section of the course as well as include the other statements required by the department. It must also include a lecture/testing calendar that will give the student a sense of pace for the course. For guidance in setting up your calendar we have included the calendars used by Mike Dellens and Clarence McGuff. They approach the course in somewhat different orders. In setting up your schedule you must be aware that certain topics are required while others are optional, see below under syllabus.


Transferability: This course should transfer without problem to most Texas public four-year schools since it now has the four-hour Texas Common Course Number (We know for certain that it does transfer to UT.). Private colleges are not covered by the common course numbers. The student should check with the school to which he intends to transfer if there is any question about this.

Testing: You should give at least four tests. Using the testing center for one or two tests is an option that will free up additional class time. If you choose this option, be sure to think of how you will justify to your students this additional demand on their time and deal with the problems of security (multiple versions of each test) and keeping your students from falling behind (deadlines). In any event, the final exam always should be given in class during the last class meeting.

Homework: Homework should be assigned regularly. Any scheme that allows you to give a homework grade, such as brief quizzes in class, collecting notebooks when you give tests or grading an occasional assignment, is desirable but not required.
**Computer Projects/Assignments:**

We recommend that you include computer projects and/or assignments as part of your course curriculum. Clarence McGuff, Mike Dellens, Allison Sutton, or Marcus McGuff can share projects/assignments that have been used in previous semesters. Also, you can use projects that you find elsewhere or projects/assignments that appear in the textbook. The software ODE Architect is available for student use at NRG, RGC and RVS. You and your students can learn to use the software in about one hour. Clarence, Mike and Allison have orientation worksheets to help you and your students learn how to use the software. The software Mathematica, is also available on departmental computers and Marc can give advice on how to use it in DE.

**Attendance:**

Some instructors keep track of attendance and may drop students who miss more than four classes. Some students who stop attending expect their instructor to fill out a withdrawal form for them. Be sure to include on your first day handout a statement that you are not responsible for withdrawals.

**Syllabus:**

Required: The material in the following sections must be covered in this course. In some cases one may choose to combine topics in such a way as to make some sections less obvious. This is acceptable as long as the material is covered.

- Chapter 1 Sections 1, 2, and 3
- Chapter 2 Sections 1 through 7
- Chapter 3 Sections 1 through 7 and either 8 or 9
- Chapter 4 Sections 1 through 4
  (although it is not required to test on 4.4 a homework assignment should be.)
- Chapter 5 Sections 1 and 2
- Chapter 7 Sections 1 through 6
- Chapter 8 Sections 1 and 3 (might combine with 2.7)
- Chapter 9 Section 1

Optional: Approximately 25% to 35% of these should be covered.

- Chapter 2 Section 8
- Chapter 3 Section 8 or 9 which ever was not covered before.
- Chapter 5 Section 5
- Chapter 6 Any or all Sections
- Chapter 7 Sections 8 and 9
- Chapter 8 Section 2 and 6
- Chapter 9 Sections 2 through 5
- Chapter 10 Sections 1, 2, 4, 5, 7
MATH 2420 – Differential Equations

INSTRUCTOR: ---------------------------------------------
Office: ---------------------------------------------
Phone: ---------------------------------------------
e-mail: ---------------------------------------------
web page: ------------------------------------------
Office Hours: --------------------------------------
Others by appointment.

COURSE DESCRIPTION
MATH 2420 DIFFERENTIAL EQUATIONS (4-4-0). A course in the standard types and solutions of linear and nonlinear ordinary differential equations, include Laplace transform techniques. Series methods (power and/or Fourier) will be applied to appropriate differential equations. Systems of linear differential equations will be studied. Skills: S Prerequisites: MATH 2414 with a C or better or its equivalent. ( ) Course Type: T
Prerequisites: MATH 2414 or its equivalent. (MTH 2164)

COMMON OBJECTIVES FOR MATH 2420 - Differential Equations
To the instructor: These are to be printed in hard copy on the handout and can be found at:
   http://www2.austin.cc.tx.us/mthdept2/tfcourses/obj2420.htm

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

Text: Elementary Differential Equations, 8th edition, Boyce and DiPrima, Wiley

Optional: Student Solutions Manual

Calculator
The use of calculators or computers in order to perform routine computations is encouraged in order to give students more time on abstract concepts. The software ODE Architect is available for student use. It is recommend that instructors include computer projects and/or assignments as part of the course curriculum. The ODE Architect software is available during and outside class.

INSTRUCTIONAL METHODOLOGY
This course is taught in the classroom primarily as a lecture/discussion course. The class will also have a computer lab component.

COURSE RATIONALE MATH 2420
This is a traditional introductory course in the standard types and solutions of linear and nonlinear ordinary differential equations and systems of linear differential equations usually taken by mathematics, engineering and computer science students.

EVALUATION/GRADING SCHEME
The instructor is to insert his/her own policy if any on the following:

- Grades
- Testing in class or testing center or both.
- Homework
- Corrections:
- Retake/makeup:
- Lab requirements:

**Student participation:**

**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.

**Attendance/ Withdrawal Policy (withdrawal deadline is --------)**
Attendance is required in this course. Students who miss more than 4 classes may be withdrawn. 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 withdrawal date, neither the student nor the instructor may initiate a withdrawal.

**Reinstatement policy:** The instructor is to insert his/her own policy if any.

**TESTING CENTER POLICY**
ACC Testing Center policies can be found at: [http://www.austincc.edu/testctr/](http://www.austincc.edu/testctr/)
When a test is given in the testing center a deadline will be given and if a test is not taken by that deadline it will be considered as a missed test, see grading policy above.

**STUDENT SERVICES**
The web address for student services is: [http://www.austincc.edu/rss/index.htm](http://www.austincc.edu/rss/index.htm)
The ACC student handbook can be found at: [http://www.austincc.edu/handbook/](http://www.austincc.edu/handbook/)

**INSTRUCTIONAL SERVICES**
The web address is: [http://www.austincc.edu/faculty/newsemester/](http://www.austincc.edu/faculty/newsemester/)
then click on “Campus Based Student Support Overview”.

**Course-Specific Support Services**
Sometimes sections of MATH 0197(1-0-2) are offered. The lab is designed for students currently registered in Differential Equations, MATH 2420. 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](http://www.austincc.edu/tutor)

The following statements will be included and instructors must use the statements provided by the college/mathematics department and found in the front part of this *Manual*. Go to
http://www.austincc.edu/mthdept5/mman06/statements.html Insert full statement for each of the following in your syllabus.

Statement on Students with Disabilities
Statement on Scholastic Dishonesty
Recommended Statement on Scholastic Dishonesty Penalty
Statement on Academic Freedom
Student Discipline Policy

MATH 2420

COURSE OUTLINE/CALENDAR: The instructor will have to create this before class starts and give it to the students. Be sure to indicate a testing scheme as well as a topic order and pace. Be sure to add the following statement to your handout:

Please note: schedule changes may occur during the semester. Any changes will be announced in class.

A couple of sample schedules are attached as examples. These schedules are the ones used by Mike Dellens and Clarence McGuff. You are not required to follow either so long as you cover the required topics and an appropriate amount of the optional materials.

<table>
<thead>
<tr>
<th>Week</th>
<th>Clarence McGuff's</th>
<th>Mike Dellens'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1:1-3</td>
<td>1-3, 2.1</td>
</tr>
<tr>
<td>2</td>
<td>2:1-8; 2.8 optional, omit 2.9</td>
<td>2.2, 2.3</td>
</tr>
<tr>
<td>3</td>
<td>2 continued (2.7 next week)</td>
<td>2.4, 2.5</td>
</tr>
<tr>
<td>4</td>
<td>2.7 &amp; 8.3; TEST</td>
<td>2.6</td>
</tr>
<tr>
<td>5</td>
<td>7:1-9 ; omit 7.7</td>
<td>Test 1</td>
</tr>
<tr>
<td>6</td>
<td>7 continued</td>
<td>3.1-3.4</td>
</tr>
<tr>
<td>7</td>
<td>7 continued</td>
<td>3.5-3.7</td>
</tr>
<tr>
<td>8</td>
<td>9.1 – 9.5</td>
<td>3.8, 4.1-4.3</td>
</tr>
<tr>
<td>9</td>
<td>9.1 – 9.5; TEST</td>
<td>4.4, Test 2</td>
</tr>
<tr>
<td>10</td>
<td>3:1-7 and either 8 or 9</td>
<td>5.1, 5.2, 7.1, 7.2</td>
</tr>
<tr>
<td>11</td>
<td>3 continued</td>
<td>7.3-7.5</td>
</tr>
<tr>
<td>12</td>
<td>4:1-4</td>
<td>7.6, 2.7, 8.1</td>
</tr>
<tr>
<td>13</td>
<td>5:1-3; TEST</td>
<td>8.2, 8.3, Test 3</td>
</tr>
<tr>
<td>14</td>
<td>6:1-6 with 5 optional</td>
<td>9.1, 10.1, 10.2</td>
</tr>
<tr>
<td>15</td>
<td>6 continued</td>
<td>10.4, 10.5</td>
</tr>
<tr>
<td>16</td>
<td>Review and Final Test</td>
<td>Review and Final Test</td>
</tr>
</tbody>
</table>