# Ordinary Differential Equations (MAP 2302)

## Syllabus for Summer Semester 2008

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| INSTRUCTOR: | Doug Jones |
| CLASS DAYS: | MTWR |
| CLASSROOM: | AC 112 |

**INSTRUCTOR:** Doug Jones  
**CLASS DAYS:** MTWR  
**CLASSROOM:** AC 112

**MY OFFICE:** SM 243  
**Office Hours:** 11:00-12:00 MTWR SM 243

**MY PHONE:** 201-8120  
**DEPT. FAX:** 201-8119  
**MY EMAIL:** jonesd@tcc.fl.edu

**Pacing Schedule**

**CLASS TIME:** 9:50 am — 10:45 am.

**OUR CLASS BEGINS:** Tue., May 6  
**LAST DAY TO "W" or "AW":** Tues., Jun. 24  
**ALL CLASSES END:** 5pm Wed., Jul. 16  
**YOUR FINAL EXAM:** 9:00am - 10:45am Thurs., Jul. 17.

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## 1. Textbook


## 2. Prerequisite

Calculus II (MAC 2312) with a grade of "C" or better.

## 3. Course Description

Methods of solution of ordinary differential equations, linear and nonlinear systems of differential equations, and boundary value problems. Methods include operators, undetermined coefficients, variation of parameters, Laplace transforms, and series solutions. There is also utilization of the CAS (Computer Algebra System) MAPLE. A graphing calculator is required. Lecture 3 hours.
4. GRADING POLICY:

A. GRADING SCALE

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt; 89.5</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 79.5</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 69.5</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 59.5</td>
</tr>
<tr>
<td>F</td>
<td>= 59.5</td>
</tr>
</tbody>
</table>

B. Look for your grades on BlackBoard.

C. FACTORS DETERMINING GRADE

1. THE AVG OF YOUR QUIZZES, POD's TURN-IN HOMEWORK, and NOTEBOOKS counts as 1 TEST. (Call this avg HQ).

2. THE AVG OF YOUR 3 TESTS AND YOUR HQ COUNTS 75% of YOUR COURSE GRADE. THAT IS: (T1+T2+T3+HQ)/4 = 75% of YOUR GRADE.

3. YOUR CUMULATIVE FINAL EXAM COUNTS 25% of YOUR COURSE GRADE.

4. THIS RESULTS IN THE FORMULA

\[ G = \frac{(T_1 + T_2 + T_3 + 3HQ + 4E)}{16} \]

Where G is your FINAL GRADE (numerical), and E is your FINAL EXAM grade.

5. ATTENDANCE and ADMINISTRATIVE WITHDRAWAL POLICY:

WITHDRAWALS: If you decide to withdraw from this course, the last date for you to withdraw with a "W" or for me to withdraw you with an "AW" is Tuesday, June 24, 2008.

ATTENDANCE POLICY: Class attendance is required. Roll will be taken. If you have more than three (3) un-excused absences, you may be withdrawn administratively. If you have more than five (5) absences before Tuesday, June 24, 2008, for any reason whatsoever, you shall be withdrawn administratively. However, if you simply stop attending class after that date, you cannot be dropped. In such event, you will receive an F in the course.

If you are absent, it is your responsibility to contact me, check the class web page, or contact someone in the class to find out what was covered in class and what homework was assigned.

LATE ARRIVALS: Any late arrival or early departure, without prior notification not only exhibits poor manners, but also will be counted as an absence.

CAVEAT: The pacing schedule may be changed as we go through the semester. You should be in class (each meeting) so that you are aware of the changes.

6. GOALS OF THE COURSE: Since this is an introductory course, its primary goal is to teach the student how to solve a fairly representative assortment of types of differential equations which will be useful in her/his future course-work and in his/her future profession. A secondary goal, and one which takes longer to achieve, is that of helping the student to see how to construct mathematical models which are fairly faithful translations of specific physical problems, and which, naturally, result in a differential equation, or system of differential equations. This secondary goal is really the more important of the two, but it cannot be completely accomplished within the framework of MAP 2302; it can at most be begun here with its development continued in subsequent courses.

7. ATTENTION: ENGINEERING STUDENTS! There are more stringent performance standards-and-requirements for engineering students than for the general university population. For example, the following information is taken from the FSU Undergraduate Academic Program Guide, requirements for Mechanical Engineering, and other engineering disciplines may have slightly different requirements. Also, Colleges of Engineering at other Universities may have even stronger requirements.

Admission Requirements to Major Program of Studies.

To be admitted, students must complete at least 52 hours of credit with an adjusted GPA of 2.0, including at least half the required hours in the Liberal Studies program, including all of Area I (English, Math). In addition, the student must meet the...
College of Engineering pre-engineering requirements before the student declares the intended engineering major:

- A grade of "C" or better in EGN 1004L (1) First Year Engineering Lab. One repeat attempt is permitted. Complete course in freshman year or first year at FSU;
- A grade of "C" or better, from any institution attended, in Calculus I (4), Calculus II (4), General Chemistry I with Lab (4), and General Physics I with Lab (5). A single repeated attempt in only one of these courses is allowed. (my underlining added for emphasis)

Visit the link above for more information.
Also, here is a recent update from the FAMU/FSU College of Engineering. [top]

8. CALCULATOR REQUIREMENTS: You will need a graphing calculator in this class. Bring it to class with you every day. If you have not bought one, I suggest the TI-83 PLUS, or something comparable. I shall use a TI-84 PLUS, SILVER EDITION, in class almost every class period.

No specific brand or model of calculator is required; however, certain calculators are not allowed. Models such as TI-89, TI-92, TI VOYAGE 200, & HP-48 (series) are not allowed, as well as any other device having a "qwerty" keyboard and/or symbolic computing capability.

Also, for several reasons, I suggest that you buy your own calculator and not just borrow one from your friend —

1. You are entering the level of your education which is beyond the "general knowledge" or "liberal arts" stage. You have chosen a professional, technical career track, and your calculator will become one of the standard instruments of your profession. A lawyer has his/her own law books, a musician has her/his own instrument, a doctor has her/his own stethoscope, . . . . Get the picture?
2. I shall reset, not clear, but reset your calculator at the beginning of each TEST, QUIZ, or FINAL EXAM. And I am sure that your friend would not appreciate having all her or his programs erased from memory.
3. Also, if you have your own calculator, then you probably will have your own manual that goes along with the calculator. And as I give periodic instruction on the use of your calculator, I shall often refer to specific pages in your calculator manual.

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9. OTHER EQUIPMENT: In addition to a graphing calculator, discussed above, you will need the following equipment:

- a straightedge,
- a compass,
- a protractor,
- a mechanical pencil (0.5 mm with HB or B lead), and
- a decent eraser (One may come with your pencil, but I doubt it!)

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10. WEB PAGE: The PRECALC WEB PAGE is an important learning & teaching tool. But to use it as a substitute for attending class is a mis-use.

On the WEB PAGE I will post

- The Syllabus and Pacing Schedule,
- Daily Notes of what we did in class,
- Copies of "Old Tests" and/or "Study Guides" before Test Time,
- Announcements and Reminders, and
• Interesting Precalc-related “Hot-Links.”

Here are some of the ways that you can effectively use the PRECALC WEB PAGE:

• If you must miss a class, you can find out what we did that day, read over the material on your own, try to make sense out of it, and prepare any assignments and/or reading for the next class.
• Even if you were in class, you can read the daily notes to see what I thought that I taught you that day! (I say this because it seems to often happen that what a teacher thinks that (s)he taught and what a student learns are two different things!)

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11. HOMEWORK: Homework must be done in order to succeed in this class! If you are unwilling or unable to devote at least two homework hours outside class for every hour inside class (*), you will not realize your true potential in this course.

There are three types of homework assigned in this course:

• PROBLEMS-OF-THE-DAY (PODs): I will give the problem in class — not every day, but many (or "most") days. It might be a textbook problem, or it might be a problem that I make-up on the spot. Then you work the problem and turn it in at the beginning of the next class period. Group work is allowed, permitted, and encouraged on PODs.
• TURN-IN HOMEWORK (TI): Selected homework problems will be assigned and collected at specified times. These problems will be graded for technique, accuracy, and neatness. At the end of the semester, the lowest TI score will be dropped before computing your homework average.
• NOTEBOOK HOMEWORK (NB): These problems are to be done on a daily basis. These problems should be kept in a Black Marble Lab Book. Each section must be clearly labeled. I shall periodically spot-check your NOTEBOOK. Also, you will turn in your notebook at the beginning of the class on test day. At this time, the degree of completion of the assigned problems will result in a grade. Each NOTEBOOK GRADE will count as three (3) turn-in assignments. No NOTEBOOK GRADE will be dropped.

Detailed instructions on how to prepare your homework will be given in these separate hand-outs:
How To Do Homework — And Why. (pdf)
About Your Notebook! (pdf)
How To Write-Up Problems (html)

(*) Note: This is just homework time. It does not include the time necessary to read the textbook, work the examples in the textbook, and think about the material! All three of these activities should be done before you start to work your homework problems! [ top ]

12. QUIZZES: Frequent quizzes, both "in-class" and "take-home" will be given. At the end of the semester, the lowest QUIZ score will be dropped before your quiz average is computed. [ top ]

13. TESTS: There will be three (3) unit tests during the semester. The tentative test dates are:

• Test #1, Mon., June 2, 2008,
• Test #2, Wed., June 25, 2008, and
• Test #3, Mon., July 7, 2008.

There may be a few multiple-choice questions on each test, but most of the test problems will be "free-response" aka "work-em-out," and considerable credit will be given for correct technique, proper application of theory and concepts, and logical, professional presentation. Also, each test may have some "carry-over" problems from the previous tests. [ top ]
14. BONUS PROBLEMS: From time-to-time, bonus problems will be assigned. If you don't do them, it will not count against you; however, if you do them, it will boost your homework average.  

15. FINAL EXAM: The Final Exam will be cumulative. It will be given in this room Thurs., July 17, 2006, between 9:00 am and 10:45 am. No one will be permitted to begin the EXAM after the first person has left the room. There will be no early exam, no late exam, and no make-up exam! IF YOU MISS THE FINAL EXAM, IT IS AN AUTOMATIC "F" IN THE COURSE.  

16. MAKE-UP POLICY AND DUE-DATES: This is summertime. Time moves very fast. Therefore, there will be no "late" or "make-up" homework, quizzes, bonuses, tests, or the final exam; All work is due at a "time certain," and late work will not be accepted. Any missed assignment gets a zero. Period. End of Report!  

If you miss one test, I can substitute your final exam grade for the missed test grade if and only if you have a very good, documentable reason for missing the test.  

I will drop 1 of your Turn-In Homework scores, and I will drop 1 of your Quiz scores to compensate for this "zero-tolerance" policy.  

However, no POD grade and no Notebook-Homework grade will be dropped.  

17. CLASSROOM POLICY:  

1. No eating, drinking or smoking is allowed in classrooms. Any food or drink brought into AC 112 must be left on the table at the door. Absolutely no food or drink at any computer station.  
2. Please place all trash in the appropriate container.  
3. Please turn off or silence your cell phone before coming to class. If any cell phone goes off during class, I will count the rings (or seconds) and the owner will have one point per ring (or sec.) taken off the next paper that I grade, be it quiz, homework, test, or final exam!  
4. Absolutely, positively NO CELL PHONE anyplace near you DURING ANY TEST OR QUIZ.  
5. Inappropriate language will not be tolerated. I do not use profanities or vulgarities, and I expect the same from you. Once you are in the professional world your employer will insist on this behavior.  
6. Before leaving your computer station at the end of the class period, please —  
   a. shut down your computer,  
   b. manually turn off your monitor,  
   c. tidy-up your station in general, and  
   d. tuck-in your chair.  

For these thoughtful acts I thank you!  

7. Out of courtesy to both me and your fellow students, when the class has started, I expect and require that you give me your undivided attention. The only talking that should go on is my instruction and explanations, my questions and answers to you, and your questions and answers to me. If you have a question, ask me, not your neighbor. If I decide that I want your neighbor to help you, then I shall say so. What I have to tell you is important, and I want you to listen, pay attention, take notes, and understand — all at once. This requires concentration, and peripheral distractions are detrimental to your learning process.  

18. OUTSIDE HELP: Only about 25% – 33% of your learning of precalc will occur in the classroom. As you read and study the material, and as you work on your homework, you will need outside help. I enjoy helping students in small groups or in a one-on-one setting. As a matter of fact, I think that all the teachers here at TCC love to give extra help. Just come by my office during
my office hours (which are fairly extensive) or by appointment, and I'll help you. It would be best if you come to me with specific questions after you have read the material and tried the examples. Then we can use our time efficiently.

Also, there is very good help available in the Math Center, DH 225, Phone: 850-201-8251. [ top ]

19. TCC ENGINEERING CLUB: If you are at all interested in ENGINEERING as a profession, I invite you to participate in the TCC ENGINEERING CLUB.
For more information, please visit the TCC ENGINEERING CLUB WEB PAGE at: http://tccengineeringclub.com/ or check out the TCC ENGINEERING CLUB BLOG AT: http://engineeringtcc.blogspot.com/ [ top ]

20. ADMINISTRATIVE MATTERS:
WEB-ASSISTED CLASS: This is a web-assisted class – def. “Classroom based course with some use of internet resources required.”
BLACKBOARD: I shall use the “BlackBoard” program for posting of announcements and grades.