MATH 132-002 – Calculus II with Analytic Geometry, Fall 2009, Liberty University, Lynchburg, VA	Class Meets in: Science Hall 135 Lecture Times: M-W-F 11:25am- 12:15 am, T-TH 10:50am-12:05pm
Thus shall you say to them: "The gods who did not make the heavens and the earth shall perish from the earth and from under the heavens" It is he who made the earth by his power, who established the world by his wisdom, and by his understanding stretched out the heavens. *Jeremiah 10:11-12 (E.S.V.)*	James S. Cook Office: Applied Science 105 Office Hours: 5:00-6:20pm M-T-TH & by appointment Email: jcook4@liberty.edu (preferred) office phone: 434-582-2476

I. Course Description

A continuation of Math 131. Applications of integration, exponential and logarithmic functions, inverse trigonometric, hyperbolic and inverse hyperbolic functions, techniques of integration, limits involving infinity, improper integrals, infinite series   4 hours credit

II. Rationale

Calculus can be exciting; this subject offers a student so much new scope and power. The student will learn how to set up and solve calculus problems. This course is aimed at mainstream calculus students and strives for an optimal balance of intuition and rigor. Many diverse applications will be considered in order to service the ever-expanding clientele, which includes many students outside the field of mathematics, physics, and engineering.

III. Prequisite Statement

To enroll in this course you must have successfully completed Math 131 or the equivalent and Math 133 or co-enrollment with Math 133.

It is the student's responsibility to make up any prerequisite deficiencies, as stated in the Liberty University Catalog, which would prevent the successful completion of this course

IV. Materials List

- Required Notes: See my website for course notes. You need to have a copy of the notes with you in-class. I don't require you to carry the text to class but I would ask that you have the relevant sections of my notes printed before class. If your eyesight is good you can print them front and back two pages a side, it's not much to carry.

- Required Text: Calculus, Sixth Edition, By James Stewart, Brooks/Cole Publishing Co. 2008.

- No graphing calculator is required for this course. Mathematica can do much more than even the best graphing calculator. I will allow (basic) scientific calculators during tests, but no graphing calculators, laptops, PDAs, IPODS,cell phones, bluetooth-type devices, or any other electronic device capable of either data storage or communication. If in doubt ask.

V. Learning Outcomes

This course will emphasize understanding calculus principles as well as skill. Upon completing this course students should be able to:

1. Compute derivatives and integrals for common transcendental functions, and analyze their graphs.
2. Find indefinite and improper integrals using different integration techniques, apply L'Hopital's rule for indeterminate forms.
3. Use various tests to determine series convergence, perform standard operations with convergent power series, find Taylor and Maclaurin representations.
4. Write parametric equations of conic sections, sketch their graphs in polar and Cartesian coordinates, use conic sections to solve applied problems.
5. Demonstrate proficiency in the ability to take the knowledge acquired and apply it to problem-solving situations.
6. Learn general intellectual skills such as observing, classifying, analyzing and synthesizing.

VI. Assignments/Requirements

- Cognitive growth – Demonstrate mathematical proficiency by working exercises and solving problems related to the topics discussed. (See the course description and the outcomes listed in Section V above.)

- Product – Daily assignments and quizzes, four in-class tests, and a comprehensive final exam

- Process – A students will demonstrate individual progress by solving problems in daily assignments, quizzes, and tests. (See the outcomes listed in Section V above.)

VII. Grading Policies
   - Free tutoring may be available in the Testing/Tutoring Center (TE 128) and in the Math Help Center (SH 134).
   - late assignments are penalized.
   - Quizzes may be announced or unannounced, take-home or in class, open or closed book, group or independent work.
   - No make-up quizzes will be given.
  - Students are expected to abide by the Liberty University Honor Code as stated in *The Liberty Way*.

Your score for the course is earned as follows:

1. [1500pts] Quizzes and Homework: The Homework will be collected weekly in general. A complete list of problems as well as due dates is given on the course website. Quizzes may be given at any time during the semester, usually I give a quiz to alert you to the fact the test is coming. Typically there are 5pts per moderate homework problem. There are certain harder homework problems which require more work and are worth more. Late homework will be penalized.

2. [6000pts] Tests: there will be four tests, each is worth 1500pts of the final course grade.

3. [2500pts] Comprehensive final exam.

4. Bonus points are possible, the points listed are all that is required.

•Course Grade: Your minimum final course grade will be determined by the following point scale (no rounding)
   9000-9999+ = A   8000-8999 = B   7000-7999 = C   6000-6999 = D   0-5999 = F

•Forming study groups is encouraged. However, it is important that you do not simply copy other student's homework. You may check answers, but you should not replicate steps. Exceptions to this rule should be clear; no group work on tests and no group work when I outlaw it. For example, I typically outlaw group work on an easy take-home test.

•Missed Tests: If you have an emergency absence then the final exam will substitute for the missed test. In particular, your grade on the missed-test material will be substituted for the missed test. For example, if you miss test 1 and if my final has 1000 points of test-I-type integration and you earn 900 of the 1000 points on integration on the final then you get 90% of 1500 =1350 for test 1. If your absence is known ahead of time then you need to notify me so we can make arrangements.

Comment: I do not "give grades", rather you EARN your grade through your responsible and continual efforts to master the material. I want everyone to pass my course, but it is you who must do the work. I will do everything in my power to help you work effectively. The recipe for passing is quite simple: come to class, pay attention, do your homework. I rarely fail anyone who actually does these three simple things.

VIII. Attendance Policies
   - Class attendance is essential and students are expected to be present each class. If an absence is unavoidable,
    then the student should notify the professor in writing or by email in advance. If advance notice is not possible, then an
    email should be sent promptly after the absence. It is your responsibility to get up to speed on any missed material.

  - Phones, beepers, iPods, etc. should be turned off and put away during class.

  - Students will arrive on time and stay for the entire class.

  - Students will bring printed lecture notes, pen/pencil, paper, calculator, and completed homework to class. (text not expected)

IX. Other Policies
Dress Code: Students are expected to come to class dressed in a manner consistent with The Liberty Way.
Honor Code: We, the students, faculty, and staff of Liberty University, have a responsibility to uphold the moral and ethical standards of this institution and personally confront those who do not.
Academic Misconduct: Academic misconduct includes: academic dishonesty, plagiarism, and falsification. See The Liberty Way for specific definitions, penalties, and processes for reporting.
Disability Statement: Any student with a documented disability may contact the Office of Disability Academic Support (ODAS) in Teacher Education Building-TE 127 in order to make arrangements for an academic accommodation.
DROP/ADD POLICY: A Fall/Spring course may be dropped without a grade, tuition, and fee charges within the first five days of the semester. From the sixth day until the end of the tenth week, a Fall/Spring course may be withdrawn with a grade of W or WF.
Classroom Policies: The inappropriate use of technology, such as cell phones, iPods, laptops, calculators, etc. in the classroom is not tolerated. Other disruptive behavior in the classroom is not tolerated. Students who engage in such misconduct will be subject the penalties and processes as written in the Liberty Way**. Also, I may dedicate pop-quizzes to those caught texting in lecture.**

X. Calendar for the semester/term

Quizzes may be given during any lecture. A tentative list of homework is given on the course webpage. Additions or deletions of problems on the tentative list may occur mid-semester. However, such modifications will be emailed and/or announced in lecture. I do expect you check email on a daily basis. (I send hints sometimes, especially if someone asks a good question where the answer helps the whole class)

Assignment	Due Date
Test 1	Thursday, September 22, 2009
Test 2	Tuesday, October 22, 2009
Test 3	Tuesday, November 10, 2009
Test 4	Thursday, December 8, 2009
Comprehensive Final Exam.	Official LU-scheduled time, usual room.

XI. Homework Assignments and Course Calendar

See the course website http://www.supermath.info/math132f09.html for detailed instructions and due dates.

XII. Disclaimer:

While I have attempted to completely specify the content of this course, I reserve the right to change this syllabus if necessary. It is your responsibility to monitor your Liberty University email account for any changes in the syllabus. I will notify you via email and announce in class in the event something needs modification.

XIII. Motivation comments from your instructor:

This is the second in a 3-semester course on Calculus. The methods and concepts presented in this course are fundamental to most, if not all, technical disciplines. Integration and differential equations and power series approximations are ubiquitous elements of current scientific discussion. In other words, Calculus is used to phrase many of the laws of physics which describe much of the natural world. This means that if we know calculus then we can better appreciate the general revelation of God.

It is important that you master the techniques of MATH 132. I look forward to helping you toward that goal, but ultimately you must think for yourself. The ability to think in math comes from practice (for most of us anyway) so make sure you set aside plenty of time throughout the week to work out the subject for yourself.

It is possible that you may not use calculus in your daily life, but there is still something to be gained by its study. As Christians we are called to sharpen our minds towards the purpose of defending our faith and winning others to Christ. Mathematics demands that we think more precisely than in many other avenues of discussion. In short, I argue that mathematics can help you think better. Think of it as weight lifting for your brain. No pain, no gain.

Finally, there is beauty. Mathematics can be beautiful and we can thank our Creator for allowing us to comprehend that beauty. A well crafted proof can be appreciated much the same way as other fine art. This is often sufficient motivation for pure mathematicians.