**Course Description**: Methods of integration, polar co-ordinates, parametric equations, sequences and series, and vectors.

**Prerequisites**: Grade of C or better in MATH 2413 or its equivalent

**Prepares for**: MATH 2415, 3301, 3321, 3322, 3370

**Text**: No required text. Notes available online.

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**Grading**: Grades will come from the following sources in this class.

**Written Homework**: Homework will typically be due 1-1½ weeks after I hand the set out. Each homework assignment will be typically worth a total of 10 points and only selected problems from each assignment will be graded. Homework is due at the start of class (i.e. the moment that I walk into the classroom and start talking) on the day that it is due. Any homework handed in after this point is late and will not be accepted. I will drop your lowest homework score at the end of the semester.

**Hour Exams**: There will be four hour exams each worth 100 points. The material covered on each exam and tentative date for the exam is listed on the Syllabus for my notes. Because I’m fixing the material on each exam at this point scheduling will be very tentative at best. It is your responsibility to get to class and find out the actual date of the exam!

**Comprehensive Final Exam**: There will also be a comprehensive final exam worth 200 points. The final will be on Friday, May 4 from 8:00 AM --- 10:30 AM (provided I read the final exam schedule right).

**Lowest Test Score Replacement**: After final exams are given I will replace your lowest test score with the percentage on your final exam provided it will help your grade. For example if your lowest grade is a 72 and you have a final exam score of 164 then I will replace the 72 with 164/200 ( x 100) = 82. If on the other hand your final exam score is 128 I will not replace the 72 with your final exam percent (128/200 ( x 100) = 64) since it is lower than the 72.

**Attendance**: Attendance will be taken every day and will be used in any way I see fit in setting final grades.

**Grading & Scale**: I have a very simple grading scale. At the end of the semester I add up all the points that you have received and then divide that number by the total possible number of points. I then compare this percentage to the following scale and assign your grade.

- 100% - 90% A, 89% - 80% B, 79% - 70% C, 69% - 60% D, 59% - 0% F

**Makeup Exams**: I do not give makeup exams. Because I replace your lowest test score with the final exam percentage if you miss ONE exam then that will be the exam that is replaced by the final exam percentage provided you notify me in writing no later than 3 days after the exam was given with the reason you missed the exam. If you miss two exams I will expect verifiable proof of very good reasons (my call on what is very good) for BOTH exams. If you provide such proof we will take care of the second missed exam at that point. To date no one has convinced me they had a good reason for missing two exams.

**Calculators**: No graphing calculators will be allowed during exams. If I see you using one on an exam you will lose your calculator for the rest of the exam and you will lose 20 points on your exam score. Failure to bring an appropriate calculator to exams is your problem not mine.
Lectures/Help Session: This class meets five days a week. During a typical week we will lecture four days and on one day (unless I need to makeup some time) we will hold a “help session” for you to ask questions. The help session is a real class day and you are expected to attend it. I will let you know which day it will be as soon as I know what day will be holding it on each week.

Web Pages: The web page for this class can be accessed at http://www.math.lamar.edu. Click on the faculty link, my name, then the class link from the menu as the top of the page. On this page you will find things like exam dates, homework assignments, homework solutions and other handouts. Information put on this site is NOT official. If there is ever any discrepancy between the web site and anything announced in class, then follow what was announced in class! Notes for the class may be downloaded from http://tutorial.math.lamar.edu. Please note that the assignment problems on http://tutorial.math.lamar.edu are NOT your homework assignments. Those are for other purposes. Your homework assignments/solutions are at http://www.math.lamar.edu.

Learning Outcomes: Upon successful completion of this course you should be able to:
1. Compute integrals using integration by parts.
2. Compute integrals, using trigonometric substitution and other methods, involving products of trigonometric functions.
3. Integrate using partial fractions.
4. Compute improper integrals.
5. Approximate definite integrals using the Midpoint, Trapezoid and Simpson’s Rule.
6. Find the arc length of a function.
7. Find surface area of a solid of revolution.
8. Sketch the graph of a parametric curve.
9. Explore area, arc length, surface area, and tangents with parametric equations.
10. Convert between polar and Cartesian coordinates.
11. Graph basic polar graphs and explore areas with polar coordinates.
12. Determine if a sequence is convergent, divergent, monotonic, or bounded.
13. Understand how partial sums relate to an infinite series.
15. Determine if a series converges or diverges using any of the following tests: Divergence Test, Integral Test, Comparison Test, Limit Comparison Test, Alternating Series Test, Ratio Test, and Root Test.
17. Compute the radius and interval of convergence for a power series.
18. Compute the derivative and integral of a power series.
19. Compute a Taylor or Maclaurin series for a function.
20. Explore the binomial series.
21. Know the basic 3-D coordinate system.
22. Understand vectors and basic vector arithmetic.
23. Compute the dot product of two vectors.
24. Compute the angle between two vectors.
25. Find the projection of one vector onto another.
26. Compute the cross product of two vectors.
27. Determine if two vectors are parallel or orthogonal.
28. Write down the equation of a line in 3-D space.
29. Write down the equation of a plane.

Dates To Know:
March 12 – 16: Spring Break. No classes.
March 30: Good Friday. No classes.
April 30: Last day of classes.
Drop Dates: See Important Student Information handout for drop dates.

Disclaimer: While I have made a sincere effort to ensure that this syllabus is correct, changes may be required. I will announce any substantive changes during a regularly scheduled class. If you find an error or omission, please advise me at once so that the other members of the class may be advised.