# Lake-Sumter State College Course Syllabus

<table>
<thead>
<tr>
<th>Course / Prefix Number</th>
<th>MAC 2311</th>
<th>Course Title:</th>
<th>Calculus with Analytic Geometry I</th>
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<tbody>
<tr>
<td>CRN:</td>
<td>10340,10805</td>
<td>Credit:</td>
<td>5</td>
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<tr>
<td>Term:</td>
<td>FALL 2015</td>
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### Course Catalog Description:
This is the first course in a three-semester sequence, which continues with MAC 2312 and concludes with MAC 2313. The following topics will be covered in this three-semester sequence: review of functions; limits and continuity; the derivative; differentiation of algebraic and transcendental functions; the mean value theorem and intermediate value theorem; extrema and graph sketching; area and the definite integral; antidifferentiation; the fundamental theorem of calculus; inverse functions; arc length; techniques of integration; parametric equations and polar coordinates; Taylor’s formula, infinite sequences and series; vectors in the plane and in space; topics from plane and solid analytic geometry; directional derivatives and curvature; differential calculus of functions of several variables; multiple integration; vector calculus, including vector fields, line integrals, curl, divergence, and Green’s Theorem. NOTE: A graphing calculator is required.

### Instructor:
Danny Triolo

### Contact Information:
- **Email:** triolod@lssc.edu
- **Phone:** 352-536-2106 (South Lake)
- **Website:** [http://www.lssc.edu/faculty/dannyt](http://www.lssc.edu/faculty/dannyt)

### Office Location:
- **Leesburg – Building SM**
  - Room 230A
- **South Lake - Building 2**
  - Room 339

### Office Hours:
**LEESBURG:**
- Monday/Wed: 930am-1100am, 1230pm-1pm
- Friday: 730am-8am, 930am-1100am

**SOUTH LAKE**
- TUESDAY/THURSDAY: 9am-930am, 11am-1230pm

### Prerequisites:
C or higher in MAC 1114 & MAC 1140

### Textbook and Other Course Materials:
MyMathLab access code is required (see next section).

### Technology and Online Computer Access Requirements:
Calculator: TI-83 Plus or TI-84 Plus (including Silver Editions)
You are required to register for My Math Lab to complete the online portion of this course. You may purchase an access code in the college bookstore or online at [www.mymathlab.com](http://www.mymathlab.com). You will need the course ID: **triolo99105** to register. Use your LakeHawk email address when registering for the course. If you have not activated your LakeHawk account, go to the LSSC homepage and follow the instructions. The online portion of this course’s content may be accessed from any computer with an Internet connection (a high speed connection is best); if you do not have Internet access at home, you may use the computers on campus.

All students are required to use LakeHawk Mail for official college e-mail communications. See the college webpage for instructions on activating LakeHawk Mail.
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<th>Course Objectives:</th>
<th>To prepare the student with rigorous mathematical applications in the applied sciences requiring an understanding and application of the calculus.</th>
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| 1. The student will demonstrate and apply knowledge of the fundamental concepts of the limit of a function, continuity of a function, and the derivative of a function.  
   a. Understand and apply the definition of the limit of a function.  
   b. Determine the limit of a variety of functions using the basic limit laws.  
   c. Understand and apply the definition of the continuity of a function.  
   d. Find limits of functions at infinity.  
   e. Understand and apply the definition of the derivative of a function and how it relates to rates of change and the slope of a function at a point. |
| 2. The student will demonstrate and apply the rules of differentiation to polynomial, exponential, logarithmic, hyperbolic, and trigonometric functions, and the corresponding inverse functions.  
   a. Develop and use rules to differentiate polynomial, logarithmic, exponential, hyperbolic, and trigonometric functions and their inverses.  
   b. Differentiate expressions by using the product, quotient, and/or chain rule  
   c. Differentiate functions implicitly.  
   d. Set up and solve related rates problems, exponential growth and decay, and other problems found the natural and social sciences.  
   e. Approximate the value of a function using a linear approximation and the change in a function using a differential. |
| 3. The student will demonstrate knowledge of the applications of differentiation.  
   a. Determine the maximum and/or minimum value(s) of a function.  
   b. Understand and apply the Mean Value Theorem.  
   c. Determine the interval(s) of increase/decrease.  
   d. Determine the concavity of a function.  
   e. Develop and use various techniques, including L’Hospital’s Rule, to find indeterminate forms of a limit.  
   f. Use a variety of pre-calculus and calculus tools to sketch a graph.  
   g. Set up and solve various optimization problems. |
| 4. The student will demonstrate and apply knowledge of indefinite and definite integration.  
   a. Understand and apply the definition of an antiderivative of a function and finding the particular antiderivative satisfying an initial condition.  
   b. Understand and apply the definition of the definite and indefinite integral of a function.  
   c. Determine the area under a curve using definite integration.  
   d. Use a velocity function to determine distances.  
   e. Understand and apply the Fundamental Theorem of Calculus, parts one and two.  
   f. Develop and apply the basic rules of antidifferentiation.  
   g. Develop the Substitution Rule and apply it for definite and indefinite integration. |
| 5. The student will demonstrate knowledge of the applications of integration.  
   a. Use definite integration to find the area between two curves.  
   b. Use definite integration to find the volume of a solid of revolution using the disk, washer, and/or cylindrical shell technique.  
   c. Determine the average value of a function.  
   d. Understand, interpret, and apply the Mean Value Theorem for Integrals. |

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<tr>
<th>Student Learning Outcomes (SLOs) Assessed in this Course:</th>
<th>Academic Integrity:</th>
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<td>The successful functioning of the academic community demands honesty, which is the basis of respect for both ideas and persons. In the academic community, there is an ongoing assumption of academic integrity at all levels. There is the expectation that work will be independently thoughtful and responsible as to its sources of information and inspiration. Honesty is an appropriate consideration in other ways as well, including but not limited to the responsible use of library resources, responsible conduct in examinations, and the responsible use of the Internet. (See college catalog for complete statement.)</td>
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### Important Information for Students with Disabilities:

Any student with a documented disability who requires assistance or academic accommodations should contact the Office for Students with Disabilities immediately to discuss eligibility. The Office for Students with Disabilities (OSD) is located on the Leesburg Campus, but arrangements can be made to meet with a student on any campus. An appointment can be made by calling 352-365-3589 and specific information about the OSD and potential services can be found at [www.lssc.edu](http://www.lssc.edu), then go to “Quick Links” and click on Disability Services.

### Privacy Policy (FERPA):

The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part99) is a Federal law that protects the privacy of a student’s education records. In order for your information to be released, a form must be signed and in your records located in the Admissions/Registrar’s Office.

### Attendance/Withdrawal Policies:

Regular attendance is essential to your success in this course.

If you must miss a class, you should contact a fellow student to find out what was covered, copy notes, etc. because you are responsible for what was covered during your absence. I am not a personal tutor and I will not give you a private makeup lesson.

If you wish to withdraw from this course, it is your responsibility to go to the Admissions Office and do so officially by the deadline listed in the College Catalog and below.

### Withdrawal Deadline:

The deadline for withdrawing from this course this semester is **Monday November 2, 2015 by 4:30PM**.

### Methods of Evaluation:

Your course average will be based on the following components:

- Written Homework – 10%
- MyMathLab Homework – 10%
- Quizzes – 10% - *The majority of quizzes will be done outside of class in MyMathLab but there will be some in class quizzes that may or may not be announced.*
- Final Exam – 20%
- 5 Tests – 50%

If your final exam is greater than your lowest chapter test then I will drop the lowest chapter test and replace it with your final exam score.

### Grading Scale:

Your course average is converted to a letter grade according to the departmental grading scale:

- At least 90: A
- At least 80 but less than 90: B
- At least 70 but less than 80: C
- At least 60 but less than 70: D
- Less than 60: F
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<tr>
<th>Week 1</th>
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<th>Week 9</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Intro to Course, Some Trig</td>
<td>Monday</td>
<td>Test 3 - Sections 4.1, 4.2, 4.3, 4.6, 4.7</td>
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<tr>
<td>Wed</td>
<td>Sections 2.1, 2.2</td>
<td>Wed</td>
<td>Sections 4.9, 5.1, 5.2</td>
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<tr>
<td>Friday</td>
<td>Section 2.3, 2.4</td>
<td>Friday</td>
<td>Sections 5.2, 5.3</td>
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<tr>
<th>Week 2</th>
<th>Week 10</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Sections 2.4, 2.5</td>
<td>Monday</td>
</tr>
<tr>
<td>Wed</td>
<td>Sections 2.6, 2.7</td>
<td>Wed</td>
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<tr>
<td>Friday</td>
<td>Sections 2.7, Review</td>
<td>Friday</td>
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<tr>
<th>Week 3</th>
<th>Week 11</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Holiday</td>
<td>Monday</td>
</tr>
<tr>
<td>Wed</td>
<td>Sections 3.1, 3.2</td>
<td>Wed</td>
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<tr>
<td>Friday</td>
<td>Sections 3.3, 3.4</td>
<td>Friday</td>
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<tr>
<th>Week 4</th>
<th>Week 12</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Sections 3.4, 3.5</td>
<td>Monday</td>
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<tr>
<td>Wed</td>
<td>TBA</td>
<td>Wed</td>
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<tr>
<td>Friday</td>
<td>Test 1 - Ch 2/Sections 3.1, 3.2</td>
<td>Friday</td>
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<tr>
<th>Week 5</th>
<th>Week 13</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Sections 3.6, 3.7</td>
<td>Monday</td>
</tr>
<tr>
<td>Wed</td>
<td>Section 3.7</td>
<td>Wed</td>
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<tr>
<td>Friday</td>
<td>Section 3.8</td>
<td>Friday</td>
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<tr>
<th>Week 6</th>
<th>Week 14</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Sections 3.9, 3.10</td>
<td>Monday</td>
</tr>
<tr>
<td>Wed</td>
<td>TBA</td>
<td>Wed</td>
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<tr>
<td>Friday</td>
<td>No Class</td>
<td>Friday</td>
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<th>Week 7</th>
<th>Week 15</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Test 2 - Chapter 3 (Omit 3.1,3.2, 3.11)</td>
<td>Monday</td>
</tr>
<tr>
<td>Wed</td>
<td>Sections 4.1, 4.2</td>
<td>Wed</td>
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<tr>
<td>Friday</td>
<td>Sections 4.2, 4.3</td>
<td>Friday</td>
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<tr>
<th>Week 8</th>
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<tbody>
<tr>
<td>Monday</td>
<td>Section 4.6</td>
</tr>
<tr>
<td>Wed</td>
<td>Section 4.7</td>
</tr>
<tr>
<td>Friday</td>
<td>TBA</td>
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*Days listed as TBA may be used to finish material I was not able to get to as planned on previous days. If we are on schedule then these days will be review sessions.*
| Classroom Rules and Policies: | 1. Come to class on time.  
2. Act like an adult.  
3. Do not violate the LSSC policy on Academic Integrity.  
4. If you must leave early, arrive before class begins and let me know.  
5. Leave class when dismissed.  
6. If you violate #2 or #3, I will tell you to leave class for the day and submit a student incident report to the administration. |
| Violence Statement: | Lake-Sumter State College has a policy of zero tolerance for violence as stated in College Board Rule 2.17. Appropriate disciplinary action will be taken in accordance with Board Rule 2.17. |
| Syllabus Disclaimer: | Information contained in this syllabus is, to the best knowledge of this instructor, considered correct and complete when distributed to the student. The instructor reserves the right, acting within policies and procedures of Lake-Sumter State College, to make necessary changes in course content or instructional techniques without prior notice or obligation to the student. |
There is a lot of material to be covered in this course and I will not always be able to take homework questions in class. Plan to attend office hours to ask questions about the homework. This list is subject to change. Any changes will be announced in class.

1.1: 3, 7, 9, 14, 21, 47, 49
1.3: 3-9, 15, odd, 21, 31, 35, 37, 41, 51, 53, 59
1.5: 1-4, all, 7, 9, 23, 29
1.6: 3, 13, 14, 15, 22, 23, 25, 33, 41, 47, 51, 54, 63, 67, odd

2.2: 1-25, odd, 29-37, odd, 39 ac, 41 a, 46
2.3: 1-47, odd, 54, 57
2.4: 1-7 odd, 15-18 all
2.5: 1-11 odd, 17-31 odd, 35-45 odd, 51-55 odd
2.6: 1-11 odd, 15-37, 41-49, 53, 55, 57 a, 59-63
2.7: 1-11 odd, 17-37, 48
2.8: 1-15 odd, 16-19 all, 21-33 odd, 37-40 all, 43-49 odd, 53, 57

3.1: 1-39 odd, 43-47 all, 53-57 odd, 64, 75
3.2: 1, 2, 3-33 odd, 35 a, 37 a, 39 a, 41-51 odd
3.3: 1-24 all, 25 a, 29-33 odd, 34, 35, 49, 50, 51
3.4: 1-77 odd, 84 ab
3.5: 5-29 odd, 35, 37, 49-57 odd, 61
3.6: 3-33 odd, 37-55 odd
3.7: 7, 9, 25, 26, handout
3.9: 1-45 odd
3.10: 1-25 odd
3.11: 1a-6a all, 7-10 all, 31-39 odd

4.1: 1-43 odd, 47-61 odd
4.2: 1-15 odd, 23
4.3: 1-53 odd, 61, 64, 65
4.4: 7-65 odd, 77
4.5: 1-53 (any of these are good practice, some more difficult than others)
4.7: 3-7 odd, 11-15 odd, 19-23 odd, 35, 49
4.9: 1-25 odd, 59, 61, 63

5.1: 1-8 all, 13-23 odd
5.2: 1-11 odd, 17-29 odd, 33-53 odd
5.3: 1-43 odd
5.4: 1-45 odd, 49-53 odd, 57, 59-62 all, 69
5.5: 1-73 odd, 85

6.1: 1-29 odd, 33, 35
6.2: 1-33 odd, 45
6.3: 1-25 odd, 37-43 odd
6.4: 1, 3, 5, 7, 9, 19, 21, 23
6.5: 1-8 all, 9 ab, 11 ab