Syllabus: MAT 115-001 Precalculus, Spring 2015
TR 2:00 - 3:15 BR 208

Instructor: Linda Smith Gurganus (gurganusL@uncw.edu)

Web Page: http://people.uncw.edu/gurganusl/

Office: BR 201A (two doors west of the elevator)

Cell Phone: (910) 616-9390 Please call between 7:30 AM and 7:30 PM.

<table>
<thead>
<tr>
<th>My Schedule</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
</tr>
</thead>
</table>
| 9:00 – 9:50 | MAT 161  
BR 161 lab | MAT 161  
BR 206 | MAT 161  
BR 161 lab | MAT 161  
BR 206 | MAT 161  
BR 206 |
| 10:00 – 10:50 | Office Hours | Office Hours | Office Hours | Office Hours | Office Hours |
| 11:00 – 11:50 | MAT 161  
BR 161 lab | MAT 161  
BR 206 | MAT 161  
BR 161 lab | MAT 161  
BR 206 | MAT 161  
BR 206 |
| 12:00 – 2:00 | Lunch | Lunch | Lunch | Lunch | Lunch |
| 2:00 – 3:15 | Office Hours | MAT 115  
BR 208 | Office Hours | MAT 115  
BR 208 | |

Office hours are set aside for my students (appointments recommended but not essential).
For an appointment: see me after class, e-mail me, or drop by my office.

Text: *Algebra and Trigonometry Enhanced with Graphing Utilities, 6th Ed.*, by Sullivan & Sullivan, Pearson, 2012. The text is a good one to keep for future reference. If you like electronic texts and/or on-line homework, MyMathLab includes access on an-line copy of the text during the course and interactive on-line homework.

At the UNCW bookstore, you can purchase the text bundled with MyMathLab Student Access or MyMathLab Student Access alone. Or purchase MyMathLab Student Access from the publisher at [www.mymathlab.com](http://www.mymathlab.com). For those who choose to use MyMathLab, the course ID is gurganus78846.

Graphing Calculator: Required. I recommend only the TI-83 and TI-84.

Recommended Materials: Notebook, paper, pencils, graph paper, colored pens/pencils/highlighters, 6” ruler. Polar graph paper for trig (unit circle, etc.) can be printed from several free websites, including my web page.

**Design and Purpose: Is this the Right Course for You?**

- **MAT 115 covers MAT 111-112 College Algebra and Trig in one semester.** It moves fast and is not easy. It is designed for majors in Math, Statistics, Economics, Engineering, Chemistry, Biochemistry, Computer Science, and Physics. It is not simply an alternative to MAT 111. It is much more than that.

- Do not take this if you are weak in algebra, know little or no trig, need a slower pace.

- What math course do you need to take next? MAT 161 and MAT 152 require trig. MAT 151 alone does not. Statistics courses do not.
  - MAT 111 College Algebra would be a better choice for those who just need to prepare for a statistics course or MAT 151 Basic Calculus.
  - MAT 112 Trigonometry would be a better choice if you are very strong in algebra but need trig.

**Course Description: MAT 115 Precalculus (3)**
Prerequisite: Satisfactory performance on the UNCW math placement test [4].
Covers functions and their inverses: polynomial, rational, exponential, logarithmic, and trigonometric.
No credit for MAT 115 after receiving a C- or better in MAT 111 or 112.
**Course Goal:** MAT 115 is the standard university semester review of algebra and trigonometry topics that are prerequisite to an initial study of calculus. Its principal goal is to extend a student’s knowledge of algebra and trigonometry from the minimum required for admission to a knowledge that is necessary for success in standard university calculus. Students in this course will be expected to develop the mathematical skills found in the core topics of functions and inverse functions. Students will investigate some of the wider applications of these skills in the natural and social sciences and communicate results using correct mathematical syntax.

MAT 115 will count for the Mathematics and Statistics requirement in University Studies by supporting all the Common Student Learning Outcomes (MS) for that category. If another course is used to meet the Mathematics and Statistics requirement of University Studies, MAT 115 may count for the Quantitative and Logical Reasoning requirement by supporting all the Common Student Learning Outcomes (QRE) for Quantitative and Logical Reasoning.

**Student Learning Objectives:** Upon completion of this course, you should be able to:

- Find and use **graphical, numerical, analytical and verbal** representations of functions and their inverses.
- Understand the **meaning and use** of polynomial, rational, exponential, logarithmic and trig functions.
- Solve absolute value, polynomial, rational, exponential, logarithmic, and trigonometric equations, inequalities, and systems of equations.
- Use **correct mathematical syntax** to explain solutions in both written and graphic forms.
- Model a variety of applications using the concepts of algebra and trigonometry.
- Use technology to help solve problems, interpret results, and verify and communicate conclusions.
- Determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.

**Semester Grade Calculation:**

**Grading Scale:**

| A range begins at 90 (A- goes through 92.5; UNCW does not give a grade of A+) |
| B range begins at 80 (B- goes through 82.5; B+ begins at 87.5) |
| C range begins at 70 (C- goes through 72.5; C+ begins at 77.5) |
| D range begins at 65 (no + or -) If you make a D in this course, you need to **retake** it before calculus. |
| F below 65 |

Factors influencing borderline grades include attendance, consistent work throughout the semester, and improvement shown by performance on the final exam.

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests (3)</td>
<td>66% (3 x 22%) – or less*</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30% (three parts, one for each test, at 10% each) – or more*</td>
</tr>
<tr>
<td>Quizzes</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Policy on Improvement and Mastery:* You will need to master this material and retain it for calculus and beyond. If you keep working all semester to improve your mastery and retention of all the material, your final exam should reflect that. For every part of the final exam with a grade higher than the corresponding previous test, the weight of the previous test will be lowered to 5% and the remainder of the weight will go to that part of the final exam.

**Attendance:** This class moves incredibly fast. If you MUST miss, you are responsible for the material covered: go over the notes posted on line and be caught up by the next class. UNCW does not allow students to come to class if they are sick with a fever, to avoid spreading illness. I take attendance and report absences when asked by Financial Aid, Athletics, etc. If your semester grade is borderline, attendance will be a factor in your grade.

**Calculator:** Bring to class daily; use appropriately. This is a valuable tool, **not a crutch**. Make sure you master algebraic techniques, know properties and shapes of functions, memorize trig function values, etc., rather than depending on a calculator. Exact answers are often preferred over approximations: 1/3 is not .33, π is not 3.14, etc. Some parts of tests will not allow calculator use, because I want to test your analytical and algebraic skills. Reset calculator RAM before tests. No calculator sharing during tests. No calculators with CAS. TI-83 or 84 only.
**Homework:** To help you master this material, I will provide you with plenty of practice problems: textbook exercises, on-line homework at [www.mymathlab.com](http://www.mymathlab.com), worksheets, and old tests. Odd-numbered textbook problems have answers in the back of the book. The on-line problems provide immediate feedback and help when needed. Use whatever works best for you to master the material. The on-line problems will be available all semester, so you can return to them and continue to work on complete mastery.

**Quizzes:** A few quizzes will be given, to make sure you are not getting behind.

**Quality of Work:** You must show work that substantiates your answer in order to receive credit. Use standard mathematical notation and symbols correctly, be legible and well organized, communicating clearly, so the reader can follow your logic. Explanations should involve correct spelling and grammar. The goal is work that is worthy of a person with a university education. I will model this in class and will be glad to provide feedback on your work, to help you reach this goal.

**Tests (3):** Tests will usually be in two parts, with and without calculator. Know what you need to be able to do without a calculator, so there will be no surprises. Test format is similar to the worksheets and old tests posted on my faculty web page. You will have the entire class period if you need it. No extra time without an accommodation letter from the Office of Disability Services. Solutions will be posted soon after tests.

**Makeup Test Policy:** No make-ups unless I determine the reason is valid, based on the documentation you provide. If I do not allow you to make it up, the zero for the missed test will be 5% of your semester grade, with the remaining weight going to the final exam. Make-ups must be prompt, before the next class if possible. If you know you will miss a test ahead of time, let me know as soon as possible, so arrangements can be made to take it early or promptly after you return. This includes athletes who will be away for a university athletic event. If an absence is unforeseen, contact me the day of the test, by phone if possible, but don’t wait till the next class -- it will be too late then.

**Policy on Absence for Religious Observance:** In accordance with North Carolina SL 2010–211, students are entitled to 2 excused absences for religious observances per academic year. You must inform the registrar in writing the first week of class if you will be missing any classes due to religious observance (so you can make up work/tests).

**Final Exam:** Cumulative; mandatory. Thursday, May 7, 3 – 6 PM. Dates and times determined by the Registrar. If you have three exams scheduled for the same day, you can ask to have one changed to a different date.

**Classroom Behavior Expectations:**

- Be here to learn, fully engaged, and willing to contribute. Take notes; work problems along with me.
- Questions and ideas are welcome.
- If I make a mistake, please speak up. No need to raise your hand -- interrupting me is fine, because it saves us valuable time and gets the confusion cleared up immediately.
- If time constraints force me to postpone a question till after class, see me after class with your question.
- You are welcome to bring an audio recorder to class, take pictures, look at my notes after class, etc.
- Bring your calculator to class every day. You will need it most days, and on the calculator-active portions of tests. I cannot allow sharing of calculators on tests, because answers could be shared.
- Bringing the textbook to this class may be helpful but is not required.
- Distractions: Avoid texting, web surfing, doing homework for other classes, etc. Silence your phone. If you need to take a call, step outside. No need to ask permission to leave the room for the rest room or to take an emergency call. If you need to leave early or arrive late, please do so quietly. Get notes for what you missed.
- During tests and quizzes, turn off your cell phone and put it away; time will be displayed on the large screen.
- Drinks and quiet snacks in class are fine; just clean up after yourself.
- Disrespect towards others in class and harassment of any form will not be tolerated.

**Study Smart:** I will do all I can to present the material clearly, but learning is your responsibility. Work on improving your study skills. Go back to the text and see if there are things I left out that will make the material clearer to you. Master concepts, terminology, notation, and skills. Work on definitions and meanings, thinking how you would explain something to someone else. Get enough sleep, nutrition, and exercise, so that your thinking will be at its
best. Study when you are alert, not when you are exhausted. Make friends in class, form study groups, discuss the material, whatever helps. Randall Library and Fisher have space designed for group study. Go to the math lab, come to me for help during my office hours or ask me to schedule a review session. Your goal is long-term memory and permanent skills needed for calculus and beyond, not just getting a grade, so cramming is counter-productive. Keep working on mastery throughout the semester, and it should pay off.

<table>
<thead>
<tr>
<th>Free Tutoring</th>
<th>on a walk-in basis in the Math Lab, at the University Learning Center (ULC), DePaolo 1056.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Lab Hours:</td>
<td>Opens Mon, Aug 25 with limited hours the first week: Mon – Fri, 9 – 5.</td>
</tr>
<tr>
<td>Regular hours:</td>
<td>Sun 2-9 Mon-Thu 9-9 Fri 9-2</td>
</tr>
<tr>
<td>Closed Saturdays and during breaks.</td>
<td>Final Exam period: limited hours (Mon – Fri, 9 – 5)</td>
</tr>
</tbody>
</table>

The ULC also provides free one-on-one tutoring by appointment for MAT 115 students. Make an appointment: [http://www.uncw.edu/ulc/appointmentinstructions.html](http://www.uncw.edu/ulc/appointmentinstructions.html)

**Review Sessions** will be held on an approximately weekly basis. Dates and times will be posted on my faculty web page. Most will be Sunday evenings, 6:30 – 8:30, in our classroom. They may be conducted by me or by a graduate student assistant. Come with questions. If no one shows up, the tutor will leave at 8 pm.

**Students with Documented Disabilities:** For reasonable accommodation, including extra time on tests, you must

1. register with the Office of Disability Services, DePaolo Hall, 1st Floor,
2. bring me your Accommodation Letter from Disability Services, and
3. meet with me to make accommodation arrangements based on the Accommodation Letter.

I cannot legally give extra time on tests or quizzes without this.

**UNCW's Academic Honor Code** applies to all members of the university community and will be enforced. See [http://www.uncw.edu/odos/documents/cosl-current.pdf](http://www.uncw.edu/odos/documents/cosl-current.pdf) beginning with page 5.

Anything you turn in for a grade, including homework, is to be your own work. This is important because your goal is mastery, not just getting a grade. Personal integrity is also an issue. Cheating incidents are taken very seriously. We are required to report them to the Dean of Students. A first offense may result in a permanent grade of F that stays on your transcript, even if you retake the course. A second offense can result in expulsion from the university.

**Textbook Chapter Coverage:** *(we will go through this very fast and skip around!)*

- R: Review (as needed, on your own)
- 1: Graphs, Equations, Inequalities
- 2: Graphs *(omit section 4)*
- 3: Functions and their Graphs *(omit section 6)*
- 4: Linear and Quadratic Functions
- 5: Polynomial and Rational Functions *(omit sections 2 and 3)*
- 6: Exponential and Logarithmic Functions *(omit section 9)*
- 7: Trigonometric Functions
- 8: Analytic Trigonometry *(omit section 7)*
- 9: Applications of Trig Functions (amount covered depends on how much time we have)
- 10: Polar Coordinates (amount covered depends on how much time we have)
- 12: Systems of Equations (sections 1 and 6 only, depending on how much time we have)
- 13: Binomial Theorem (section 5 only)

**Important Dates:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 20, Tue</td>
<td>Last day to register, add, or drop a class w/o a grade</td>
</tr>
<tr>
<td>Feb 27, Fri</td>
<td>Last day to withdraw with a grade of W</td>
</tr>
<tr>
<td>Jan 19, Mon</td>
<td>Martin Luther King, Jr., state holiday; no classes</td>
</tr>
<tr>
<td>Week of March 8</td>
<td>Spring Break; no classes</td>
</tr>
<tr>
<td>Apr 2-3, Thu - Fri</td>
<td>Easter Break; No classes</td>
</tr>
<tr>
<td>Apr 29, Wed</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>Apr 30, Thu</td>
<td>Reading Day (no classes – just reviewing for exams)</td>
</tr>
<tr>
<td>May 7, Thu, BR 208</td>
<td>MAT 115 Final Exam, 3 – 6 PM</td>
</tr>
</tbody>
</table>

Tentative Test Dates: , Tue Feb 10, Tue March 24, and Thur Apr 23.