

# Syllabus for Math 116-001 and 116-002

## Brief Precalculus Mathematics

Section 001: MW 5:50-6:40 PM LeConte 101  
TR 6:00-6:50 PM LeConte 115  
CRN: 12546

Section 002: MW 7:00-7:50 PM LeConte 115  
TR 7:35-8:25 PM LeConte 115  
CRN: 12547

**Instructor:** Jack R Dalton  
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**Website:** [jrdalton.github.io](http://jrdalton.github.io)

**Email:** [jrdalton@math.sc.edu](mailto:jrdalton@math.sc.edu)  
**Office Hours:** Hybrid TR 7-7:30 LC115 & BB,  
Online only MR 4-5 on BB,  
or by Appointment

### COURSE DESCRIPTION AND OBJECTIVES

**Prerequisites:** C or better in MATH 112 or MATH 115, or placement through Precalculus version of the Mathematics Placement Test.

Essential algebra and trigonometry topics for Calculus, including working with equations that involve polynomials, rational functions, exponential and logarithmic functions, and trigonometric and inverse trigonometric functions.

This course is intended for students with prior experience in Precalculus, but not ready for MATH 141.

**Learning Outcomes:** *Upon successful completion of this course, students will be able to:*

- Factor polynomial expressions, solve polynomial equations, work effectively with rational expressions, use order of operations, and find and interpret the average rate of change of a function on an interval,
- Write the equation of a linear or an exponential function, distinguish between the growth or decay of linear and exponential functions, differentiate between interest compounded at different rates,
- Study composition of functions and inverse functions, analyze and compare graphs, and solve systems of linear equations.
- Work with mathematical terms such as linear, quadratic, exponential, logarithmic, inverse polynomial, rational, circular, and trigonometric functions and express these terms in correct context.
- Develop various properties graphically and formulaically (domain, range, inverse functions, unit circle, Pythagorean identities, reciprocals, half-angle, and double-angle, and transformations).

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### REQUIRED MATERIALS

- **Textbook:** *Just-in-Time Algebra & Trigonometry for Calculus*, 4<sup>th</sup> Edition, Mueller and Brent, Pearson 2013. ISBN 9780321671042.

### COURSE POLICIES AND EXPECTATIONS

**Design:** This class meets four times a week for lecture for 50 minutes. Most classes will be split into two parts: lecture; and problem solving. It is **very** important that you study for at least two hours outside of class for every hour in class. Spend the time reading the book, doing the homework, and studying from old quizzes and exams.

**Participation:** Participants are expected to attend every class meeting and to get involved in the discussion. We will learn much more if we explore the mathematics together. All participants are expected to show respect to other students, the instructor, and any guests who may be visiting the class during the year (Golden Rule). Any behavior that negatively affects the learning of your classmates WILL NOT BE TOLERATED. I have no problem kicking a student out for being disruptive. Out-of-class participation is also expected, so get to know the other students in class; exchange phone numbers; work together on collaborative assignments; and give each other moral support.

**Homework Presentations:** Each student will record themselves presenting the solutions to two homework problems during the course of the semester. On your day, you will choose a question from the section covered the previous class, write up the question and your solution neatly, and explain the steps in a video. If you get the question wrong, or get stuck, that's fine, as long as I can tell you tried to solve the problem, and you showed up prepared. The due date will be 4 PM the day your presentation will be played for the class.

**Cell Phones and Laptops:** Make sure that your **cell phone is off and away** during our sessions. If you have an emergency, go into the hall to text or make calls. Laptops in class are not needed for this course, and will therefore not be allowed, unless approved by the instructor.

**Attendance:** Attendance is expected and will be taken daily. You are also expected to be punctual. Unexcused absence from 10% or more class periods WILL result in the reduction of one letter grade. For excused absences, proper documentation is required, and the sooner you tell me, the better. Your attendance will also be considered in borderline grade cases.

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**Academic Integrity:** I expect you to familiarize yourself with the Honor Code found in the current student handbook. Repercussions for violations of this Honor Code can be severe. Keep in mind that “Any student who violates this Honor Code or who knowingly assists another to violate this Honor Code shall be subject to discipline.” Honor Code can be found here:

[https://sc.edu/about/offices\\_and\\_divisions/student\\_conduct\\_and\\_academic\\_integrity/index.php](https://sc.edu/about/offices_and_divisions/student_conduct_and_academic_integrity/index.php)

**Students with Disabilities:** Students who would like to request accommodations for disabilities must talk to me as soon as possible. Students must register with the Office of Student Disability Services BEFORE I can make any accommodations.

**Make-Up Policy:** Exams and quizzes can be made up **ONLY** in the case of an emergency. It is your responsibility to contact me within a reasonable time to request a make-up exam. If your excuse is a non-emergency, you may take the quiz/exam with a 50% point penalty.

**Face Coverings:** Face coverings protect you and your classmates in case the wearer is unknowingly infected but does not have symptoms. Faculty, students and staff are required to wear an appropriate face covering in all classrooms and in other designated areas on campus. Face coverings **should cover your nose and mouth** in a community setting. Students with conditions that prohibit them from wearing a face covering must register with the Student Disabilities Resource Center (SDRC); appropriate accommodations will be approved by the SDRC, and I will be notified. Failure or refusal to wear the required face coverings in designated areas may result in your immediate removal from the classroom and corrective action, including referral to the Office of Student Conduct, in accordance with University policies and procedures (UNIV 3.04). No eating in the classroom as food cannot be consumed through a mask.

**Hand and Surface Hygiene:** Please use hand sanitizer upon entering the classroom and wipe down your desk/table and chair at the beginning of class. All wipes should be disposed of in the trash can and not left on the desk or floor.

**Student Well-Being:** Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Division of Student Affairs and Academic Support. If you are comfortable doing so, please notify me as the instructor so that we can find resources that may be helpful. Students do not learn when they do not feel safe. If you feel unsafe on campus at any time in any place, please contact Police Dispatch at 803-777-4215 (in an emergency, please call 911) and reach out to the Division of Student Affairs and Academic Support. Again, if you are comfortable doing so, please notify me as the instructor, and I will do my best to make appropriate accommodations

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### ASSIGNMENTS

**Homework (VITAL FOR THIS CLASS):** Homework will be assigned on a daily basis, and due regularly. It is your responsibility to work through the homework problems in their entirety in order to gain mastery of the material. Students are encouraged to work together on homework, but each student must personally submit their own solutions. **Late homework will face a grade penalty.**

**Exams:** There will be two take-home exams distributed and submitted through blackboard. The dates will be announced in class at least one week in advance. Calculators will not be allowed on exams. Before each exam we will have a review day to help support your understanding. The exams are to help you figure out what you don't understand, so you know what to focus on for studying for the final. Rewrites will be allowed to recover half the lost points, but the rewrites must be gone over in my office hours, not just passed in to me. This must be done **before** the next exam (the whole point is you proving to me you understand the material that originally confused you).

**Final Exam:** The final exam is cumulative. ***Final Exam, Monday, December 7.*** Do not plan on being without Wi-Fi on this day or you will fail the course.

Mark your calendars now and make sure you can take the final exam online on: **Dec 7, Monday**

### EVALUATION

Homework .....	20%
Exams (2 at 15% each).....	30%
Attendance/Participation.....	10%
Cumulative Final .....	40%

Final Grades will use the following scale

A	B+	B	C+	C	D+	D	F
100-90%	89-87%	86-80%	79-77%	76-70%	69-67%	66-60%	59% and below

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### Important Dates:

- 10/21/2020 Last day for students to DROP without a grade of “W”.
- 11/20/2019 Last day for students to DROP or withdraw without a grade of “WF”.

**The following schedule is tentative and subject to change**

Monday, October 19, 2020	1	1.1-1.3: Parentheses, Operations with Fractions
Tuesday, October 20, 2020	2	1.4-1.5 & Appendix A: Exponents Roots, and Exponential Functions
Wednesday, October 21, 2020	3	1.6-1.8: Percents, Scientific Notation, Intervals
Thursday, October 22, 2020	4	2.1: Completing the Square, Eqn's of Circles
Monday, October 26, 2020	5	3.1-3.2 & Appendix F: Equations of Degree 1 & 2
Tuesday, October 27, 2020	6	3.3 & Appendix B: Other Types of Equations, Inverses
Wednesday, October 28, 2020	7	Appendix C: Logarithms, Laws, $\ln(x)$
Thursday, October 29, 2020	8	4.1-4.3: Functions and Their Graphs, Lines, Power Functions
Monday, November 2, 2020	9	4.4-4.7: Translations of Functions, Intersections, Simultaneous Sols
Tuesday, November 3, 2020	10	Asynchronous Virtual Instruction Day - Review for Exam, Go Vote
Wednesday, November 4, 2020	11	Exam 1
Thursday, November 5, 2020	12	5.1-5.4: Factoring! & Polynomial Long Division
Monday, November 9, 2020	13	5.5-5.6: Conjugates, Working with Radicals
Tuesday, November 10, 2020	14	6.1: Simplifying Expressions
Wednesday, November 11, 2020	15	7.1-7.2: Angles, the Sine and Cosine Functions, Periodicity
Thursday, November 12, 2020	16	7.3-7.4: Special Angles, Graphs of Sin, Cos
Monday, November 16, 2020	17	7.5-7.6: The Other Trig Functions and Their Graphs
Tuesday, November 17, 2020	18	Appendix D: The Inverse Trig Functions and Their Graphs
Wednesday, November 18, 2020	19	Review for Exam 2
Thursday, November 19, 2020	20	Exam 2
Monday, November 23, 2020	21	8.1-8.2: Compositions and Decomposition of Functions
Tuesday, November 24, 2020	22	9.1: Solving Linear Equations Involving Derivatives
Monday, November 30, 2020	23	Virtual Sync 10.1-10.3: Word Problems, Laws of Sines and Cosines
Tuesday, December 1, 2020	24	Virtual Synchronous 11.1: Trig Identities
Wednesday, December 2, 2020	-	Reading Day
Thursday, December 3, 2020	-	Reading Day
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Monday, December 7, 2020	-	Virtual Final Exam