

**Syllabus for MATH 145**  
Precalculus, Fall 2015

**Professor:** Dr. James Rohal

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**Description:** Students will study real numbers, polynomial, rational, exponential, logarithmic, trig functions and graphs, and analytic trigonometry in order to prepare for Calculus I.

**Prerequisite:** MATH 140 or Math ACT 22 or Math SAT 520.

**Course Objectives:** The objective of this course is to solidify the algebra and trigonometry required to understand and succeed in Calculus. Examples and homework are intended to make you think about the mathematics that goes into solving a problem rather than simply apply a memorized process. By the end of this course students will be able to

- graph exponential and logarithmic functions,
- understand and explain the relationship between logarithmic and exponential functions,
- find the logarithm of a number for a given base,
- simplify expressions involving logarithms using properties of logarithms,
- solve exponential and logarithmic equations,
- investigate applications involving exponential and logarithmic functions,
- convert from degrees and radians, and vice versa,
- evaluate trigonometric functions for special angles without a calculator,
- evaluate trigonometric functions for any angle,
- graph a trigonometric function,
- find the period, amplitude, and phase shift for a trigonometric function as applicable,
- solve trigonometric equations,
- apply trigonometric identities and/or formulas including, but not limited to, the Pythagorean identities, sum and difference formulas, double-angle formula, half-angle formula, Law of Sines, and Law of Cosines,
- use trigonometry to solve real-world application problems,
- synthesize algebraic techniques within the context of this course.

**Required Materials:** *Algebra and Trigonometry*, 9th Edition, by Ron Larson. ISBN-13: 9781133959748. A hard copy of the text and WebAssign bundle is optional and may be purchased in the bookstore. Otherwise, you will need to purchase WebAssign online which includes an eBook. The cost of the eBook and WebAssign package is approximately \$75. A graphing calculator is required for this course. I recommend a TI-83/83+/84+.

**Attendance:** Attendance is mandatory. I will pass a seating chart around the first week of class. You are expected to sit in your assigned seat the remainder of the semester and attend all classes on time. Arriving late for a class or leaving early is very disruptive of class. If you need to leave early, please let me know at the beginning of class. If need to miss class due to a medical reason, religious observance, sport obligation, etc., please contact me prior to the absence so that we can discuss the matter.

**Communication:** All communication with your instructor will be done via University email. All announcements I post will be available on Sakai. Due dates for homework assignments, quizzes, and exams will be available under the Assignment tab on Sakai.

**Homework:** For each section in the book, a set of problems will be assigned online via WebAssign. The due date for these assignments will be posted under the Assignments tab on Sakai. It is your responsibility for keeping track of these due dates. When we complete a section, I will assign the homework to be due two class periods after. You must complete all of the WebAssign problems to receive 100% credit for your homework grade. To get started in WebAssign:

- 1) Go to <http://www.webassign.net>
- 2) Click on the button that says ENTER CLASS KEY.
- 3) Section 01 use the key: westliberty 2216 7221.  
Section 02 use the key: westliberty 4446 9193.
- 4) If you do not already have a WebAssign account, follow the instructions for setting up an account. If you do already have a WebAssign account, enter your login information and continue.

Keep an organized record of problems you work online in a notebook for future reference. Working homework diligently and seriously is where learning mathematics occurs; you must spend time struggling through assignments (and seeking help when necessary). I encourage you to work together on these assignments.

**Quizzes:** A quiz will cover approximately two to four sections at a time and will be announced prior to the class period in which they are administered.

**Exams:** There will be four exams and a final. The anticipated exam dates are listed below and are subject to change:

Wed, Sep 2	Review Exam
Wed, Sep 30	Chapter 5 Exam
Wed, Oct 28	Chapter 6 Exam
Mon, Nov 23	Chapter 7 Exam
Thu, Dec 10	Section 01 Final Exam in Main Hall 221 from 10:30am – 12:30pm
Fri, Dec 11	Section 02 Final Exam in Arnett Hall 202 from 8:00am – 10:00am

The final will be comprehensive.

**Calculators:** Bring your calculator to class every day. Calculators may be used on exams, with the exception of the TI-89 or newer models. A cell phone may not be used as a calculator.

**Make-up Policy:** If you are absent the day of a quiz or exam, then the score for that item will be zero unless you and I discuss it, and we both agree that a make-up is appropriate. Adjustments will be made for students who must miss class due to illness, observance of a religious holiday, and for students who miss due to a university sponsored activity (with letter from coach, sponsor, etc). I am more willing to give make-ups if *prior* permission is obtained. No late work will be accepted for WebAssign assignments.

**Cheating:** Don't do it. Take home exams are to be worked on individually. Students are expected to adhere to the official Academic Dishonestly Policy as stated below:

*Academic Dishonesty, in whatever form, belies the stated philosophy of WLU "to promote the development of the intellectual, cultural, social, physical, emotional, moral, and vocational capacities of all persons within its sphere of influence." Individuals who commit acts of academic dishonesty violate the principles, which support the search for knowledge and truth. The academic community has established appropriate penalties and disciplinary action for such behavior that can include being expelled from WLU.*

**Grading:** There are a total of 1000 points. The standard grading scale will be used.

Homeworks	250 points
Quizzes	$6 \times 25$ points
Exams	$4 \times 100$ points
Final	$1 \times 150$ points
Attendance	$50 \times \frac{\text{number of attended classes}}{\text{total number of classes}}$ points

**Special Attention:** If you have a disability that affects your academic experience and plan to seek accommodations, it is your responsibility to inform Disability Support Services as soon as possible. Disability Support Services is located in the

Learning and Student Development Center (LSDC) in Main Hall. Kateryna Forynna is the ADA representative; she can be reached at (304) 336-8216 or by email at [kateryna.forynna@westliberty.edu](mailto:kateryna.forynna@westliberty.edu). It is important to request accommodations early enough to provide adequate time to facilitate your request and provide faculty with written verification of eligibility.

**Tutoring:** Free, walk-in tutoring is available at the Learning and Student Development Center on the first floor of Main Hall. Students are strongly encouraged to take advantage of this resource. For more information, see <http://westliberty.edu/lcdc/tutoring-services/>.

### Course Outline:

#### Chapter 5 Exponential and Logarithmic Functions

- 5.1 Exponential Functions and Their Graphs
- 5.2 Logarithmic Functions and Their Graphs
- 5.3 Properties of Logarithms
- 5.4 Exponential and Logarithmic Equations
- 5.5 Exponential and Logarithmic Models

#### Chapter 6 Trigonometry

- 6.1 Angles and Their Measure
- 6.2 Right Triangle Trigonometry
- 6.3 Trigonometric Functions of Any Angle
- 6.4 Graphs of Sine and Cosine Functions
- 6.5 Graphs of Other Trigonometric Functions
- 6.6 Inverse Trigonometric Functions

#### Chapter 7 Analytic Trigonometry

- 7.1 Using Fundamental Identities
- 7.2 Verifying Trigonometric Identities
- 7.3 Solving Trigonometric Equations
- 7.4 Sum and Difference Formulas
- 7.5 Multiple-Angle and Product-to-Sum Formulas

#### Chapter 8 Additional Topics in Trigonometry

- 8.1 Law of Sines
- 8.2 Law of Cosines