Syllabus for MATH 145-01
Pre-Calculus, Fall 2014
http://jamesrohal.com/teaching/fall-2014-math-145-01/

Professor: Dr. James Rohal

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Office Hours:	See http://jamesrohal.com/schedule/

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 SAT equivalent,

Course Objectives: The objective of this course is to solidify the algebra 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:

1. Identify various classes of functions and their associated graphs.
2. Describe what the graph of a function looks like by its equation.
3. Use algebraic manipulation to find alternate forms of equations.
4. Solve equations of the following types:
    - Polynomial (including linear, quadratic, and higher-order)
    - Rational
    - Exponential
    - Logarithmic
5. Sketch the graph of equations of the following types:
    - Polynomial (including linear, quadratic, and higher-order)
    - Rational
    - Exponential
    - Logarithmic
    - Trigonometric
6. Investigate applications of the above functions.
7. Interpret the graphs of functions in contextual problems.
8. Synthesize algebraic techniques within the context of this course.

Text: *Precalculus: Real Mathematics, Real People, Alternate Edition* (6th Edition) by Larson.

Attendance: 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.

Homework: Homework problems will be listed on the board after each lecture. I encourage you to work together on assignments. The weekly homework quizzes will be based off of these problems.

Quizzes: There will be weekly homework quizzes. You will complete several problems which will then be graded in class by a fellow classmate.

Exams: There will be four exams and a final. The first exam is a review exam. Your next three exams will cover new material. Of these three exams, your lowest exam grade will be replaced with your (scaled) final grade (if it is better than your lower exam grade). You must take all four exams to be eligible for this benefit.

Fri, Sep 12	Exam #1
Fri, Oct 3	Exam #2
Mon, Nov 3	Exam #3
Mon, Nov 24	Exam #4
Thu, Dec 11	Final Exam in Main Hall 210 from 10:30am – 12:30pm

Make-up Policy: If you are absent the day of an 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 must 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. If an assignment is due on a day you are absent, you must have a valid excuse to receive points on the assignment. There will be no opportunity to make up missed quizzes.

Cheating: Don't do it. 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:

Exams	4×130 points
Final	1×270 points
Quizzes	7×30 points

The standard grading scale will be used. There are *no opportunities* for extra credit in this course besides that given on exams. The grade A+ is awarded at my discretion based on exceptional performance throughout the class.

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. Carrie Young is the ADA representative; she can be reached at (304) 336-8216 or by email at carrie.young@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.

Course Outline:

Chapter 1	§1.1: Lines in the Plane
	§1.2: Functions
	§1.3: Graphs of Functions
	§1.4: Shifting, Reflecting, and Stretching Graphs
	§1.5: Combinations of Functions
	§1.6: Inverse Functions
Chapter 2	§2.1: Quadratic Functions
	§2.2: Polynomial Functions of Higher Degree
	§2.3: Real Zeros of Polynomial Functions
	§2.4: Complex Numbers
	§2.5: The Fundamental Theorem of Algebra
	§2.6: Rational Functions and Asymptotes
	§2.7: Graphs of Rational Functions
Chapter 3	§3.1: Exponential Functions
	§3.2: Logarithmic Functions
	§3.3: Properties of Logarithms
	§3.4: Solving Exponential and Logarithmic Equations
	§3.5: Exponential and Logarithmic Models
Chapter 4	§4.1: Radian and Degree Measure
	§4.2: Trigonometric Functions
	§4.3: Right Triangle Trigonometry
	§4.4: Trigonometric Functions of Any Angle
	§4.5: Graphs of Sine and Cosine
	§4.7: Inverse Trig Functions
Chapter 5	§5.1: Using Fundamental Identities
	§5.2: Verifying Trigonometric Identities
	§5.3: Solving Trigonometric Equations
	§5.4: Sum and Difference Formulas
	§5.5: Multiple-Angle and Product-to-Sum Formulas
Chapter 6	§6.1: Law of Sines
	§6.2: Law of Cosines
Chapter 7	§7.1: Solving Systems of Equations
	§7.2: Systems of Linear Equations in Two Variables