MAC 1147
Precalculus Algebra & Trigonometry
Departmental Syllabus
Revised: Fall 2017 by Robert Storfer

Topics Covered: Polynomial and rational functions and their graphs, trigonometric functions and their graphs, inverse trig functions, trig identities and conditional equations, solving right and oblique triangles, conic sections, sequence and series and the binomial theorem.

Text: Algebra and Trigonometry, FIU custom edition, by Blitzer (published by Pearson), ISBN 9781323656495. Students are required to do online homework from the MyLabsPlus web site. It is recommended that this homework component be counted as 15% of the final grade. Faculty not wanting to make their own MyLabsPlus assignments may copy the course coordinator’s MyLabsPlus course. Offline textbook homework must be assigned in addition to the MyLabsPlus assignments, particularly in sections on graphing and proofs of Trig identities. Make it clear to your students that tests will cover both MyLabsPlus and text problems.

Suggested pacing: There are usually about 28 100-minute classes in a semester. With four tests, not including the cumulative final exam, this leaves about 24 100-minute lectures. The pacing below allows you to cover all of the material in 23 lectures. The objectives referenced below can be found in the left margin of the text at the beginning of each section.

CHAPTER 2 (1 lecture)
Review sections 2.2, 2.5, and 2.6 remembering that students should have seen this material in MAC 1105.
Section 2.2 review objectives 4 and 5
Section 2.5 review objectives 1-4 and 7
Section 2.6 review objectives 1-3 and 5
Section 2.7 is reviewed with chapter 4

CHAPTER 3 (3.5 lectures)
Section 3.3 cover objectives 1, 2, and 4.
Section 3.4 cover objectives 1-3
Section 3.5 cover everything except objective 7 (symmetry is optional)
Section 3.6 cover objectives 1-2
CHAPTER 4 (2 lectures)
Review sections 2.7 and 4.1-4.4 remembering that students should have seen this material in MAC 1105.
Section 2.7 review objectives 2-3
Section 4.1 students should be able to graph exponential functions, including shifts and reflections, and state the domain and range of these functions
Section 4.2 review the first 5 objectives, including examples with natural & common logarithms
Section 4.3 review the first 5 objectives
Section 4.4 review objectives 2-4

CHAPTER 5 (5.5 lectures)
Section 5.1 cover objectives 1-7
Section 5.2 cover all 6 objectives
Section 5.3 cover all 4 objectives
Section 5.4 cover objectives 1-3 lightly; periodic properties can be covered when you teach graphing
Section 5.5 cover objectives 1-5
Section 5.6 cover objectives 1, 3 and 5. The remaining objectives are optional. There is no online homework for this section. At a minimum, make sure students know the 6 graphs in table 5.6, their domains, ranges & periods.
Section 5.7 cover all 5 objectives
Section 5.8 cover objective 1, objective 2 is optional

CHAPTER 6 (3 lectures)
Section 6.1 cover objective 1
Section 6.2 cover objectives 1 and 2; students can avoid the tangent identities by dividing sine by cosine.
Section 6.3 cover objective 1; students can avoid the tangent identity by dividing sine by cosine.
Section 6.5 cover all 6 objectives

CHAPTER 7 (3.5 lectures)
Section 7.1 Cover objectives 1, 2 and 4 if time is short, omit the derivation & the ambiguous case
Section 7.2 Cover objectives 1 and 2. If time is short, omit the derivation.
Section 7.3 Cover all 6 objectives
Section 7.4 Cover only the first objective. Students do not have to be able to graph lemniscates or limacons with inner loops. They do not need to be able to distinguish between dimpled & convex limacons. At a minimum, cover circles, cardioids and rose curves. There is no online homework for this section.

CHAPTER 10 (1.5 lectures)
The conic sections should be covered in an informal manner. Students do not need to know what a focus or a directrix is. They should be able to look at a second degree equation and identify which conic it is, and then draw the graph.
Section 10.1 Students should be able to do problems like #1-18, 37-56, 63-64 (graph only)
Section 10.2 Students should be able to do problems like #13-26, 33-50 (graph only)
Section 10.3 Students should be able to do problems like #5-16, 35-48 (graph only), 65-68

CHAPTER 11 (3 lectures)
Section 11.1 Cover all 4 objectives
Section 11.2 Cover all 4 objectives
Section 11.5 Cover the first two objectives
Prerequisite: MAC 1105 with grade of C or higher or adequate ALEKS placement test score. Graphing calculators are prohibited. Point out to students that, since we start in chapter 3 (other than a brief review of chapter 2), they are responsible for knowing the material in chapters P and 1.

This course is a combination of MAC 1140 and MAC 1114. Students may not receive credit for both MAC 1140 and MAC 1147 or for both MAC 1114 and MAC 1147. Students who already have credit in our former MAC 2147 Precalculus course should take MAC 1140. Business majors should be encouraged to take MAC 1140 instead of this course because there is no Trig in Business Calculus.