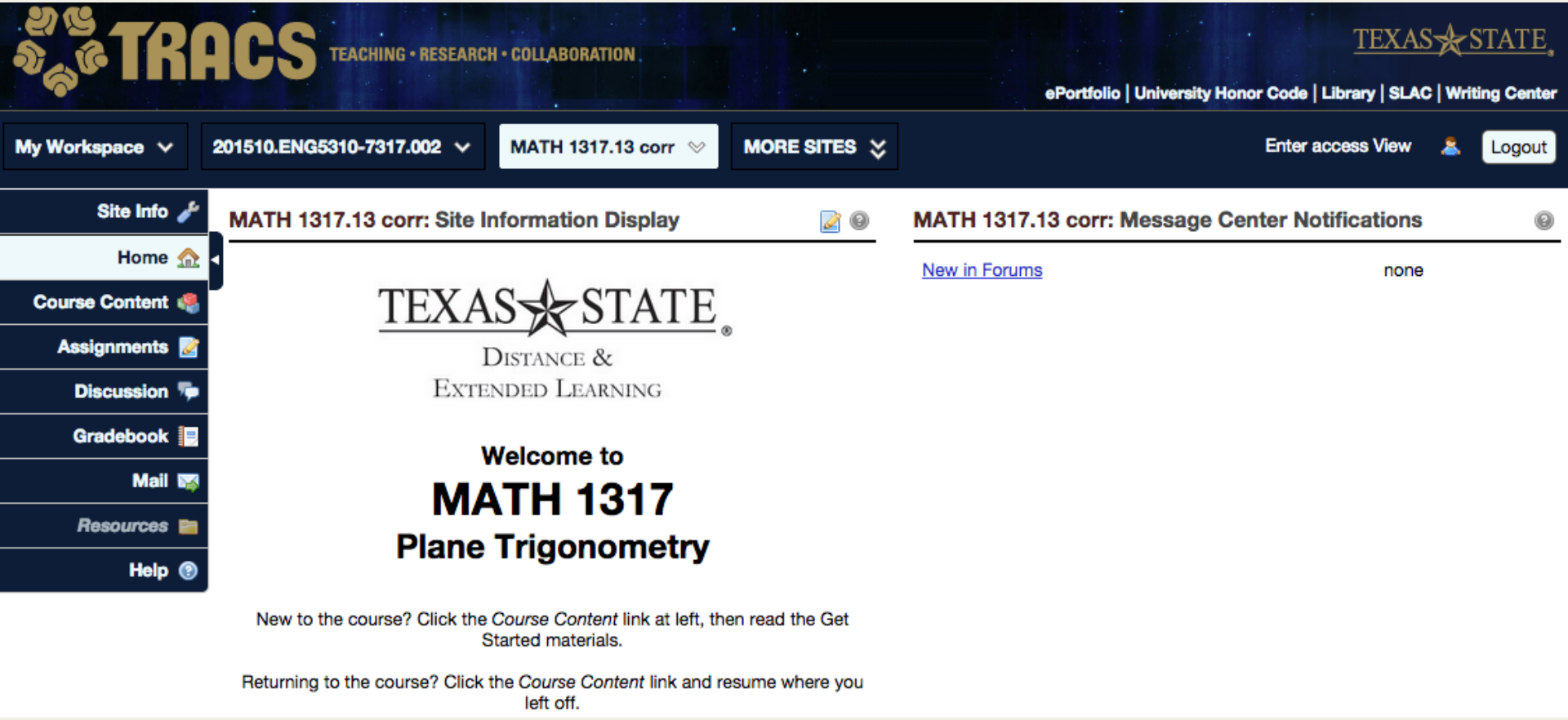
TEXAS STATE®

DISTANCE & EXTENDED LEARNING

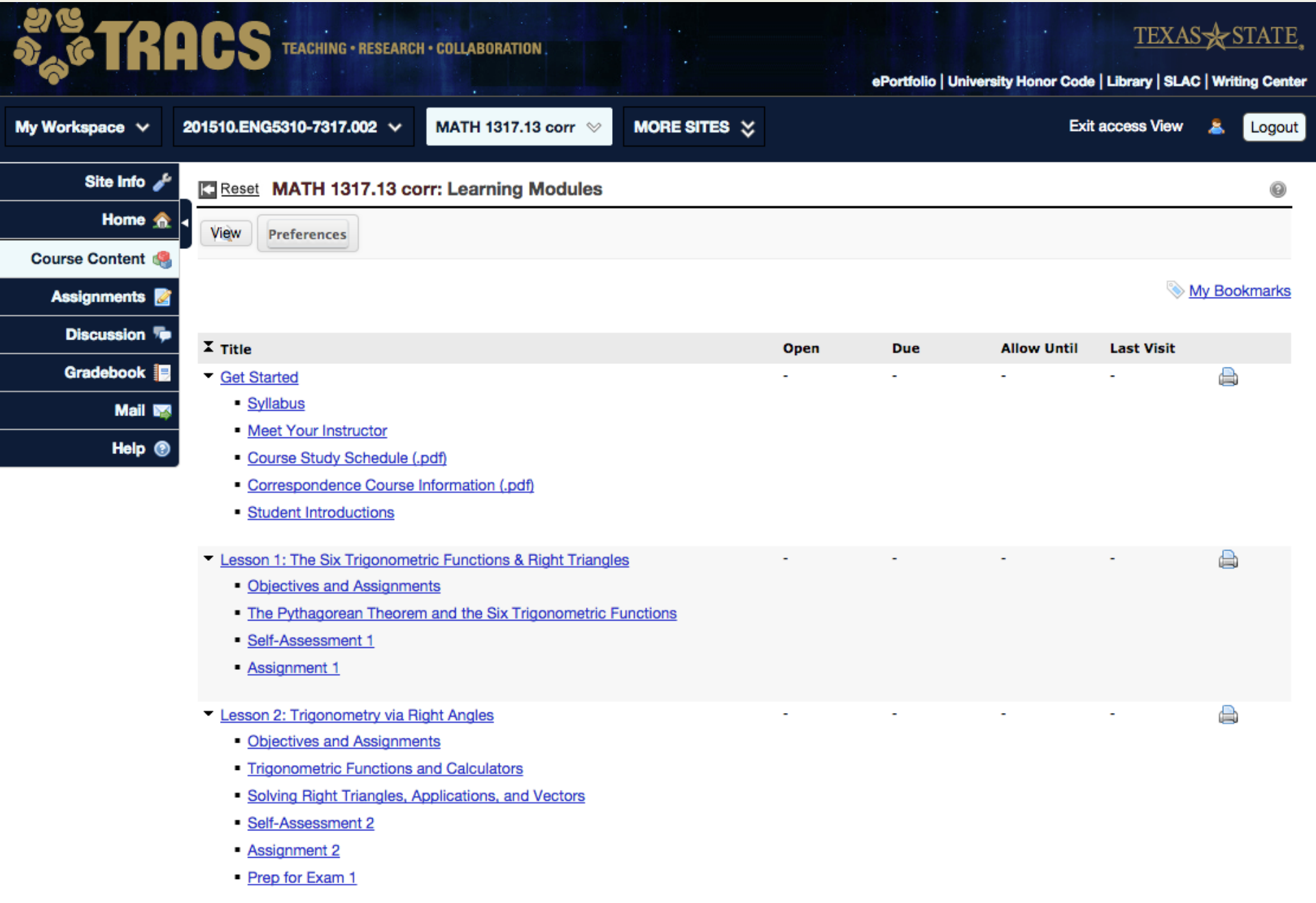
MATH 1317: Correspondence

Course Sample

Home screen


TRACS
TEACHING • RESEARCH • COLLABORATION
TEXAS STATE
ePortfolio | University Honor Code | Library | SLAC | Writing Center
My Workspace
201510.ENG5310-7317.002
MATH 1317.13 corr
MORE SITES
Enter access View
Logout
Site Info
Home
Course Content
Assignments
Discussion
Gradebook
Mail
Resources
Help
MATH 1317.13 corr: Site Information Display
TEXAS STATE
DISTANCE & EXTENDED LEARNING
Welcome to
MATH 1317
Plane Trigonometry
New to the course? Click the Course Content link at left, then read the Get Started materials.
Returning to the course? Click the Course Content link and resume where you left off.
MATH 1317.13 corr: Message Center Notifications
New in Forums
none

Course Content

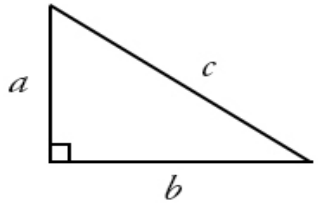


Lesson One

Lesson 1: The Six Trigonometric Functions & Right Triangles

The Pythagorean Theorem and the Six Trigonometric Functions

The geometry of triangles is the basis of trigonometry. Knowing what an angle is and how it is measured is fundamental, and you should thoroughly master this knowledge before proceeding. Having done so, we move on to another fundamental fact about triangles, the Pythagorean Theorem. We apply this theorem repeatedly throughout the course, and you should commit it to memory. This theorem, applied in special situations by the Babylonians centuries earlier than Pythagoras, is attributed to him since he was the first to give a proof that the relationship $a^2 + b^2 = c^2$ holds for any right triangle with hypotenuse of length c and legs of lengths a and b.



We can apply this theorem to any right triangle, but there are two special triangles for which we wish to memorize the resulting numbers: the 30°–60°–90° triangle and the 45°–45°–90° triangle. The results are given in the text. I find that successful students are able to verify each of these results by reasoning as the text does (in the paragraph after each box on these triangles), and to apply the results, as in examples 5 and 6 of section 1.1.

Perhaps the most important part of section 1.2 is the diagram on page 22 showing the terminal sides of common positive angles laid against the circle of unit radius (i.e., the unit circle). This diagram, along with the distance formula and our knowledge of the special triangles, is used to find the value of sine and cosine of the standard angles. On the exams, knowing the trigonometric functions' values for these standard angles will be important. This knowledge will allow for a deeper understanding of the patterns of relationship between the trigonometric functions.

In section 1.3, we are given the definitions of the six trigonometric functions: sine, cosine, tangent, cotangent, secant, and cosecant of an angle θ. The abbreviations for these functions are heavily used, so be sure to memorize these. It is also important for you to understand the algebraic sign of each trigonometric function of θ for any quadrant that θ may happen to lie in (QI, QII, QIII, or QIV).

In section 1.4, we begin to investigate the relationships between the values of the trigonometric functions. As we shall see in later chapters, there are many such identities, and some of them are quite useful and practical. The ones in this particular section you should commit to memory. Reflecting upon the "because" statements in table 2 will help you to remember how the ratio identities arise and to remember the identities themselves.

As far as the Pythagorean identities go, I suggest memorizing the first one, and then remembering that you can get the other two identities by dividing the first by the square of cosine and sine, respectively, as shown on page 36 of the text.

Section 1.5 carries this further by showing how to use the basic identities (the ones from section 1.4) to establish other identities or to simplify expressions. Read all the examples carefully—each of these techniques is used in the exercises.

If you need additional instruction on the topics covered in this chapter, check out the textbook's lecture videos.

Assignment One

TRACS TEACHING • RESEARCH • COLLABORATION

TEXAS STATE

ePortfolio | University Honor Code | Library | SLAC | Writing Center

My Workspace | 201510.ENG5310-7317.002 | MATH 1317.13 corr | MORE SITES | Exit access View | Logout

Site Info
Home
Course Content
Assignments
Discussion
Gradebook
Mail
Help

Reset **MATH 1317.13 corr: Assignments**

Assignment - In progress

Add attachment(s), then choose the appropriate button at the bottom.

Title	Written Assignment 1
Due	Dec 31, 2017 5:00 pm
Status	Not Started
Grade Scale	Points (max 100.0)
Modified by instructor	Sep 2, 2014 9:24 am

Instructions

Before doing this assignment, you should complete the online assignment Lesson 1 on WebAssign.

Complete this assignment on your own paper, scan it, and attach it below. As indicated in the syllabus, this course includes eight assignments, which together constitute 30% of the grade for this course.

Please recall, as stated in the syllabus, that **only scanned, handwritten assignments will be accepted for this course**. Be sure to follow the assignment formatting guidelines on the syllabus to ensure timely grading of your assignment.

Check the course wiki (in the left-hand navigation menu) for the instructor's responses to student questions about assignments.

Please be sure to include any comments about how you think the course content can be improved to supplement the text, as well as comments about the length of this assignment. (For example, if the text failed to explain something clearly enough, let me know what that is, so I can address it!)

Complete the following problems from the textbook. Show your work and/or explain any steps needed to get your solutions.

1. Section 1.1
   - pp. 10-14: 62.
   - Rewrite the book's proof of the Pythagorean Theorem in your own words. (Don't just copy the book's proof—convince me that you understand it.)
2. Section 1.2
   - pp. 23-26: 78.
3. Section 1.3
   - pp. 31-33: 48, 68.
4. Section 1.4
   - pp. 39-41: 46, 62.
5. Section 1.5
   - pp. 45-47: 52, 86.
6. See page 52.
   - In the project stated, prove the Pythagorean Theorem using Bhaskara's picture and the outline given in item 1 on this page.

TEXAS STATE®

DISTANCE & EXTENDED LEARNING

MATH 1317: Correspondence

Course Sample