MATH 105

PLANE TRIGONOMETRY

(10:00 - 10:50 MONDAY/WEDNESDAY/FRIDAY)
Ewing 219

SPRING 2014

Course Designation

MAT 105. PLANE TRIGONOMETRY. Trigonometric functions; identities; trigonometric equations; applications. A student who has earned credit in MAT 106 cannot receive credit for this course. Prerequisite or Corequisite: MAT 104. 3 hours.

Text

Margaret L. Lial, John Hornsby, and David I. Schneider. Trigonometry. Tenth edition. Pearson Education, 2013.

General Course Objectives

Upon completion of the course, the student will be able to:

1. Define and evaluate trigonometric functions.
2. Graph trigonometric functions and recognize their graphs.
3. Prove trigonometric identities and simplify trigonometric expressions.
4. Solve trigonometric equations.
5. Solve triangles, given sufficient data, and use trigonometry to solve application problems.

Subject Matter or Content to be Studied

1. The trigonometric functions
2. Graphs of trigonometric functions
3. Inverses of trigonometric functions and the graphs
4. Solutions of right triangles
5. Trigonometric identities
6. Application of trigonometric functions to real world problems

Activities and Requirements

1. Class attendance, as determined by the regulations of the University and the Department.
2. Homework exercises to be completed by the student and graded at the discretion of the instructor.
3. Participation in class discussion and group work.
4. Scheduled tests will be given periodically throughout the semester. Students will be given adequate notice.
5. A comprehensive final exam will be given as scheduled at the end of the semester.
6. Regular and punctual attendance is necessary for successful completion of this course.
7. A scientific calculator is required; use of graphing calculators will not be allowed during testing periods.

Presentation Methods

Lecture, cooperative learning through group work, and class discussion.

Tutoring Service

Free tutoring will be available in the Mathematics Department for those students who need help outside of class. Hours when tutors are available are at the main office, Broom Hall 280.

Evaluation and Grading

A series of class tests, pre-announced, will be administered during the semester and returned promptly to the students. Homework assignments will be made for each section of the textbook which is covered. Unannounced daily quizzes may be given throughout the semester. The homework/quiz grade will count the same as a major test grade. In addition, a comprehensive final exam will be administered and will constitute two sevenths of the grade for the semester.

Homework

Homework assignments will be made for each section of the textbook which is covered. These assignments will be either from the textbook or from MyMathLab. Written homework should be completed in a neat and orderly fashion. Homework is due at the beginning of the period; no late homework will be accepted.

Grading Scale

Grades will be assigned according to the following scale:

A (90% or above)   B (80% - 89%)   C (70% - 79%)   D(60% - 69%)   F (below 60%)

Cheating and plagiarism are not tolerated. If it is established that a violation has occurred, the instructor may determine the penalty, or he may report the offense to the department chair and dean of the school. The usual penalty involves a grade of zero on the test, examination, or paper in question.

Make-Up Tests, Class Attendance, and Tardiness

A student absent from class and missing a scheduled test is entitled to a make-up test if evidence is presented to the instructor that the absence was due to personal illness or death in the immediate family. Absences authorized by the Vice President for Academic Affairs for official purposes (athletics, performing groups, student government, etc.) also entitle a student to make-up test privileges. Any absence from scheduled work must be covered by an excuse from the Vice President for Academic Affairs, the Student Health Service, or a doctor before the student is allowed to make up that work. Any exception to this rule must be arranged before the missed work! Each student is directly responsible to the individual faculty member for making up work missed due to excused absences. ALL make-up work must be completed within three days after returning to class. In order to receive credit in this course, a student must attend a minimum of 75% of the class meetings. Students in this class will be allowed no more than 11 absences, excused and unexcused. If a student exceeds the allowable number of absences, a grade of "F" will be assigned in the course. In order to be counted present, a student must arrive on time for the class and remain in class the entire time. When a student is tardy for class, it is the student's responsibility to talk to the faculty member about changing the recorded absence to a tardy. This must be done on the day that the tardy occurred. Failure to do so will result in a recorded absence. After the student has accumulated three tardies, the faculty member will not change the recorded absence to a tardy.

Classroom Policies

1. Do not use tobacco or eat in the classroom.
2. Do not bring guests, including children, to class.
3. Come to class on time.
4. Be prepared to start class at the scheduled time. Have paper, pencil, book, homework, etc. out and ready.
5. Do not ask to leave class early. Schedule any appointments at times that do not conflict with classroom time.
6. Calculator use is permitted on all homework assignments and tests.
7. Be sure to show all work on homework assignments and tests. No partial credit can be given if no work is shown.
8. Homework must be turned in when it is due. No late homework will be accepted.
9. Cheating and plagiarism are not tolerated. If it is established that a violation has occurred, the penalty will be a zero on the test, examination, or paper in question.
10. It is the responsibility of the individual student to inform the faculty member of any clinically diagnosed learning disability or other limiting disability that might in some way hinder the student's progress in this class. Reasonable accommodations are available upon request.
11. Pagers and cellular phones should be turned off and stored out of sight during class time.

Important Dates

Students who remain in the course after January 28, 2014, and who then elect to drop the course will receive a grade of W if passing or a grade of F if failing the course at the time of the drop. A drop is not effective and complete until the drop slip has been signed by all parties designated and turned in to the Registrar's office. No course may be dropped after May 2. The final examination for this course is scheduled for 3:00 p.m. on Monday, May 5, 2014. That is when it <u>must</u> be taken. If you plan to audit this course, you must notify the instructor by January 27. You will not be allowed to change your status in this class from credit to audit after this date.

Delta State University is committed to a policy of equal employment and educational opportunity. Delta State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, or veteran status. This policy extends to all programs and activities supported by the University.

If a student has a disability that qualifies under the American with Disabilities Act and requires accommodation, he should contact Dr. Richard Houston, the Director of Counseling (Counseling Center; phone 846-4690) for information on appropriate policies and procedures.

Instructor: Dr. Clifton Wingard

Instructor's Office: Broom Hall 281

Office Phone: 846-4510   **E-mail**: cwingard@deltastate.edu

Instructor's Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9:00-10:00	8:00 – 11:30	9:00-10:00	8:00 – 11:30	9:00-10:00
1:30-4:30	3:00-4:30	1:30-4:30	3:00-4:30	

MAT 105

ASSIGNMENT SHEET

UNIT 1   Chapters 1 and 2

<u>Objectives</u>

At the end of this unit, the student should be able to:

1. define the following: angle, vertex, initial side of an angle, terminal side of an angle, acute angle, obtuse angle, right angle, straight angle, complement, supplement, coterminal angles, sine function, cosine function, tangent function, cotangent function, secant function, cosecant function, quadrantal angle, reference angle;
2. calculate with degrees, minutes, and seconds;
3. convert between decimal degrees and degrees, minutes, and seconds
4. use geometric properties of angles and triangles;
5. give values of the trigonometric functions for angles with measure 0°, 30°, 45°, 60°, 90°, and 180°, and any integral multiple of these measures;
6. solve right triangles using the trigonometric functions and use the trigonometric functions to solve application problems involving right triangles;
7. use the reciprocal identities, quotient identities, Pythagorean identities, and cofunction identities;
8. solve problems like those assigned below.

<u>Assignments</u>
1.1   1 – 133 odd
1.2   1 – 35 odd, 41 – 67 odd
1.3   1 – 93 odd
1.4   1 – 65 odd, 69 – 77 odd
2.1   1, 3, 5 – 10, 11 – 59 odd, 77, 79
2.2   1 – 6, 10 – 17, 19 – 39 odd, 45 – 53 odd, 59 – 63 odd, 71 – 81 odd
2.3   5 – 31 odd, 44 - 49
2.4   1 – 45 odd, 49 – 55 odd
2.5   1 – 4, 5 – 11 odd, 15 – 21 odd, 27 – 31 odd, 35, 36, 38

TEST 1 on UNIT 1   February 5, 2014

UNIT 2   Chapters 3 and 4

At the end of this unit, the student should be able to:

1. define the following: radian measure, sine function, cosine function, tangent function, cotangent function, secant function, and cosecant function, $\sin^{-1}x$, $\cos^{-1}x$, $\tan^{-1}x$, period of a function;
2. convert between degrees and radians;
3. find the length of an intercepted arc and the area of a sector of a circle;
4. state the domain and range of the six trigonometric functions;
5. sketch the graphs of sine, cosine, tangent, cotangent, secant, and cosecant functions;
6. solve problems like those assigned below.

<u>Assignments</u>

3.1   1 – 6, 7 – 17 odd, 25 – 59 odd, 63 – 81 odd
3.2   1 – 17 odd, 21 – 31 odd, 39 – 53 odd, 58
3.3   1 – 37 odd, 51, 53, 67 – 73 odd
4.1   1 – 12, 13 – 43 odd, 47, 49
4.2   1 – 45 odd
4.3   1 – 27 odd
4.4   1 – 23 odd

TEST 2 on UNIT 2   February 28

UNIT 3   Chapter 5

Objectives

At the end of this unit, the student should be able to:

1.   state and use the fundamental identities;
2.   state and use the properties and identities of the six trigonometric functions;
3.   prove a given equation is an identity
4.   state and use sum and difference formulas for sine, cosine, and tangent;
5.   state and use co-function identities;
6.   state and use double-angle identities;
7.   use the identities studies to prove other identities;
8.   solve problems like those assigned below.

Assignments

5.1   1 – 11 odd, 25 – 31 odd, 33 – 42, 47 – 67 odd
5.2   1 – 77 odd
5.3   1 – 11 odd, 15 – 65 odd
5.4   1 – 51 odd, 57 – 65 odd
5.5   1 – 31 odd, 37 – 65 odd
5.6   1 – 15 odd, 19 – 29 odd, 33 – 43 odd

                    TEST 3 on UNIT 3   March 28

UNIT 4   Chapters 6 and 7

Objectives

At the end of this unit, the student should be able to:

1.   find values of the inverse trigonometric functions;
2.   find fundamental solutions for trigonometric equations;
3.   find **all** solutions for trigonometric equations;
4.   use factoring and identities to solve trigonometric equations;
5.   find solutions to equations involving inverse trigonometric functions;
6.   state the law of sines and the law of cosines;
7.   solve triangles using the law of sines and the law of cosines;
8.   solve problems like those assigned below.

Assignments

6.1   1 – 65 odd, 77 – 87 odd, 93 – 101 odd
6.2   1 – 47 odd
6.3   1 – 39 odd
6.4   1 – 39 odd

7.1   1 – 19 odd, 25, 27, 39 – 49 odd
7.2   1 – 29 odd
7.3   1 – 35 odd, 39, 41, 45, 63 – 69 odd

                    TEST 4 on UNIT 4   April 25

Final Exam   Monday, May 5, 2014   3:00 p.m.