COURSE SYLLABUS FOR MAT 105

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.**

Text

General Course Objectives
As a result of this 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. Given sufficient data use trigonometry to solve application problems.

Activities and Requirements
1. Student preparation of homework assignments.
2. Students participation in class discussions and group work.
3. Regular and punctual attendance as determined by the departmental policy.

Grading Scale
Grades will be assigned according to the grading scale listed below.
A (91-100)    B (81-90)    C (71-80)    D (61-70)    F (below 61)

Evaluation and Grading
1. Assigned homework will be collected, graded and returned. No credit will be given for answers only unless we have agreed on that prior to collection of the assignment. If you are absent, you may turn in the homework along with a doctor's excuse for the absence. You **may not send your homework** on the days that you choose to cut class. Homework grades will be averaged and will count as one test grade at the end of the semester.
2. Writing assignments will be an integral part of the course in the form of a question on a test or a class exercise that requires you to provide a written explanation of a concept or procedure. Evaluation of your response will include mathematical content, spelling, grammar, and sentence construction.
3. There will be announced and unannounced short quizzes which will count as homework grades. Makeup will be allowed for **excused absences only**.
4. **Approximately four scheduled tests** will be given during the semester.
5. A **comprehensive final examination will be given on December 4 at 3 p.m. (Sec. 1, 10 M W F) and on December 5 at 8 a.m. (Sec. 2, 8 T R)**. You will be required to take the exam on the day it is given.
6. The homework and the announced tests will comprise 75% of your final grade. The final examination will comprise 25%.
7. Cheating and plagiarism are not tolerated. The penalty will be a zero on the test or paper in question.
8. Two points will be added to **your average of homework and assigned tests** at the end of the semester for perfect attendance.
Class Attendance and Make-up Tests

Prompt and regular attendance is necessary for success in this course. In order to receive credit in this course, a student must attend a minimum of 75% of the class meetings. No more than 11 total absences (MWF section) or 7 (TR section), excused and unexcused, will be allowed. If you exceed that number, you will be assigned a grade of "F" as the final grade in the course. To be counted present, you must arrive on time for the class and remain in class the entire time. Any absence from scheduled work must be covered by an excuse (doctor's or official university) before you are allowed to make-up the work. All make-up work must be completed within two days after returning to class. It is the student's responsibility to bring the excuse and schedule a time for the make-up work.

Policies
1. Do not bring food into the classroom.
2. Always bring your calculator to class.
3. Do not fold any papers (homework or tests) that you turn in. You may write on the back of the page.
4. Cell phones must be off and hidden during class. Text messaging is not allowed.
5. You are responsible for the cost of printing a copy of any assignment that you complete in a DSU pay-for-print computer lab.
6. You may work together on regular homework assignments unless you are instructed otherwise.
7. Regular homework assignments may continue throughout dead week.

Important Dates
Students who remain in the course after September 19 and who elect to drop the course will receive a grade of W if passing or 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 on the drop slip and turned in to the Registrar's Office. No course on campus may be dropped after November 9. If you plan to audit this course, you must notify me by August 28.

Disabilities
Special arrangements can be made for a student with a documented clinically diagnosed physical or learning disability. The student should inform the instructor of any documented disability necessitating special provisions.

Instructor: Dr. Rose Strahan  e-mail: rstrahan@deltastate.edu
Office: Walters 270A Office Phone: 846-4505  Home Phone: 843-8123
Office Hours: Monday, Wednesday, Friday–9:00-10:00, 11:00-12:00, 1:00-4:30
Tuesday, Thursday -- 9:30-11:45, 1:30-4:30

Unit 1 - Chapters 1 and part of 2

Objectives: At the end of this unit, you should be able to:
1. define the following: Standard position for an angle, initial side of an angle, terminal side of an angle, coterminal angles, quadrant angle, acute angle, obtuse angle, straight angle, right angle, sine function, cosine function tangent functions, secant function, cosecant function, cotangent function, Arcsin x Arccos x, and Arctan x:
2. find the length of the subtended arc and the area of a sector of a circle, given the
radius and the measure of the central angle of the circle;
3. convert between radian and degree measure;
4. give values of the trigonometric functions for angle with measure 0°, 30°, 45°,
60°, 90°, 180°, and any integral multiple of these measures;
5. solve problems like those assigned below.

Assignments
1. Sec. 1.1A  p. 8   #1-24
2. Sec. 1.1B  p. 12  #4, 5, 7,15, 19, 24, 29, 32, 35, 37, 39, 41 3.
Sec. 1.2 pp. 18-20 #5, 6, 7, 10, 11, 13, 15, 17, 19, 20
4. Sec. 2.1 pp. 34-35 #5, 11, 13, 15, 17, 20, 22, 25, 26, 28
5. Sec. 2.2 p. 42  #1-24
6. Sec. 2.3 pp. 50-51  #8, 9, 10, 11, 12, 14, 15, 16, 17, 18

Unit 2 - Part of Chapter 2 and Chapter 9

Objectives: At the end of this unit, you should be able to:
1. solve right triangles using the trigonometric functions;
2. use the trigonometric functions to solve application problems involving right triangles;
3. state the law of sines and law of cosines;
4. use the law of sines or the law of cosines to solve oblique triangles;
5. solve problems like those assigned below.

Assignments
1. Sec. 2.4  p. 56   #4, 6, 9, 10, 13, 14
2. Sec. 2.5  pp. 62-63 #1-14
3. Sec. 9.1  p. 272  #4, 7, 9, 14, 18, 20
4. Sec. 9.2  p. 277  #5, 6, 8, 11, 17, 18
5. Sec. 9.3 pp. 283-284 #1-10
6. Sec. 9.4  p. 291  #5, 6, 8, 10, 15, 18, 19, 21
7. Sec. 9.5A  p. 297-298  #1-8
Sec. 9.5B pp. 298-299  #13, 15, 17, 18

Unit 3 - Chapters 3 and 4

Objectives: At the end of this unit, you should be able to:
1. define the following functions: sine, cosine, tangent, cotangent, secant, cosecant,
and tangent;
2. state the domain, range, and fundamental period of each function in #1;
3. sketch the graphs of the sine and cosine functions, including those with
amplitudes other than 1, with period other than 2π and with phase shifts;
4. determine the endpoints, quarter point, midpoint, three quarter point of a generic
box for any curve of the form y = A sin(Bx+C) and y = A cos(Bx+C);
5. sketch one or more periods of the graphs of the functions in #4;
6. sketch graphs of functions involving tangent, cotangent, secant, and cosecant;
7. state intervals over which each of the functions in #1 is increasing or decreasing;
8. define and state the domains and ranges of the inverse trigonometric functions;
9. evaluate the inverse trigonometric functions for a given value from the domain;
10. distinguish between the inverse trigonometric functions and inverse trigonometric
relations, the notations arcsin and Arccos, etc.;
11. solve problems like those assigned below.

**Assignments**

1. Sec. 3.1 p. 91 #17, 18, 19, 20, 21, 22, 33, 34
2. Sec. 3.2 pp. 105-106 #6, 8, 17, 19, 25-30
3. Sec. 3.3 pp. 115-116 #17, 19, 22, 24, 26, 28, 31, 33, 39, 40
4. Sec 3.4 pp. 119-120 #15, 18, 21, 24, 27, 28
5. Sec. 4.2A p. 149 #13-24 all
   Sec. 4.2B p. 151 #1-14 all
6. Sec. 4.3 pp. 155-156 #23-30 all

**UNIT 4 - Chapters 5, 6, and 7**

**Objectives:** At the end of this unit, you 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 studied to prove other identities;
8. solve problems like those listed below.

**Assignments**

1. Sec. 5.1 pp. 167-168 #31,35,38,42,47,55,56,59,62,66,69,70
2. Sec. 5.2 pp. 175-176 #42-70 even
3. Sec. 5.3 p. 181 #2-32 even
4. Sec. 6.1 pp. 193-194 #28, 30, 32, 33, 35-45 odd
5. Sec. 6.3 pp. 198-199 #17-26 all
6. Sec. 7.1 p. 216 #18, 19, 20, 26-38 even
7. Sec. 7.3 pp. 227-228 #9-19 odd, 22-32 even

**UNIT 5 - Chapter 8**

**Objectives:** At the end of this unit, you should be able to:
1. find fundamental solutions for trigonometric equations;
2. find all solutions for trigonometric equations;
3. use factoring and identities to solve trigonometric equations;
4. solve trigonometric equations where the argument is a function of the angle $\theta$;
5. solve problems like those assigned below.

**Assignments**

1. Sec. 8.1 p. 241 #14, 15, 19, 21, 25, 28, 31, 32, 34, 35
2. Sec. 8.2 pp. 244-245 #9, 11, 15, 21, 23, 27, 28, 31, 35, 36
3. Sec. 8.3 p. 250 #7, 8, 11, 14, 18, 23, 28
4. Sec. 8.4 pp. 255-256 #9, 11, 16, 21, 25