



Course Syllabus

Course #: MTH 1320 **Course Name:** Intermediate Trigonometry

Division: Arts & Sciences

Class Days: Mon/Wed or Tues/Thurs

Class Time:

Location: Classroom:

Laboratory:

Credit Hours: 3

Contact Hours: 3

Lab Hours: 0

Lecture Hours: 3

Instructor:

Office Location:

Phone:

Email Address:

Office Hours:

Division Office/Location: A202

Division Fax: 419.355.1248

Full-time Contact Person: Nina Schyllander

Phone(s): 419.559.2307

Course Description:

This course covers a geometry review, the rectangular and polar coordinate systems, angular measure, the six trigonometric functions, right triangles, oblique triangles, vectors, and trigonometric identities. Graphing calculator required.

Prerequisite(s): Grade of “C” or better in MTH 1310.

Corequisite(s): None

Entry Level Skills and Knowledge:

Intermediate mathematics and algebra skills.

Required Texts, Supplies and Equipment:

Analytic Trigonometry with Applications, Ninth Edition by Raymond Barnett, Michael Ziegler, and Karl Byleen. Published by John Wiley and Sons.

Hand-held Calculator: TI-83+ or TI-84+ required

Supplies: Graph paper, ruler, and protractor

Grading:

The final course grade will be determined as follows:

| | |
|---|-----|
| Daily Grades (quizzes, homework, class participation, etc.) | 25% |
| Tests | 50% |
| Comprehensive Final Exam | 25% |

Grading scale is as follows:

90 – 100 = A

80 – 89 = B

70 – 79 = C

60 – 69 = D

0 – 59 = F

Learning Outcomes:

General Education

Evaluate arguments in a logical fashion.

Technical Education

Course Outcomes:

Upon completion of this course, students should be able to perform these competencies:

1. Classify angles and report their measures in degrees, radians, and revolutions.
2. Identify the six trigonometric ratios and find their values by calculator.
3. Solve right triangles.
4. Apply right triangles to solve practical problems and vectors.
5. Solve oblique triangles using the laws of sines and cosines.
6. Apply the laws of sines and of cosines to solve practical problems and vectors.
7. Add vectors by scale drawing and by use of polar-rectangular conversions.
8. Apply radian measure to solve problems involving arc length and uniform circular motion.
9. Graph the trigonometric functions.
10. Identify and verify the fundamental trigonometric identities.

Assessment of Student Learning:

This course may include a project that is one of several that will be used by faculty to assess student academic performance in the program. A panel of faculty will review all (projects or whatever assessment activity you are doing), then assess and summarize the academic performance of students at this point in the program. The results of this assessment will be shared among the department faculty, used to identify needed changes or improvements, and submitted to the Student Academic Assessment Committee as part of the college's overall student academic assessment effort.

Assessment Project and Measurement in course (if any):

Plan of Work:

| Session | Date | Activities |
|--|------|------------|
| See topical outline attached at back of this syllabus. | | |

Course Requirements:

There will be an assignment given each class period. This should be completed by the next class meeting and will be discussed at that time.

Policies

Department Policies: The schedule of tests will be followed as closely as possible. Not all of the course work is in the text. It is important to be in class and to take notes. Students are expected to read the text before class discussion.

Tests must be taken on the scheduled day. Failure to do so will result in a ten percent (10%) penalty. Make-up tests must be taken within one (1) week of the date that the test is given in class.

It is expected that the student will participate by having assignments completed on time, answering questions in class, asking pertinent questions, being on time, and having a cooperative attitude.

Final Exam Policy: The final exam is comprehensive. All students, regardless of grade average, must take the comprehensive final exam for this course.

Course Withdrawing: If for any reason you need to withdraw from this course, be certain that you do so according to College procedure. It is your responsibility to know and follow this procedure. If you simply stop coming to class, without officially withdrawing from the course, your grade is an automatic "F." Please follow official College procedure for withdrawing from this or any course.

College Academic Policies are located in the College Catalog. A copy of the current catalog may be picked up in any of the division offices or admissions. The list of college policies is also available online at <https://www.terra.edu/register/Collegecat/policies.asp>.

Support Services: The College offers a number of support services to assist in your success in this course and all courses. Among these services are the Writing & Math Center in B105, the Office of Learning Support Services, which coordinates the campus disability services and tutoring programs, the computer labs, and the computers in the atriums.

Any student who feels he/she may need an accommodation based on the documentation of a disability should contact the Office of Learning Support Services privately to discuss his/her specific issues. Please contact the OLSS at (419) 334-8400 X 208 or visit 100 Roy Klay Hall (Building A) to coordinate reasonable accommodations.

If you have a documented disability and are receiving academic accommodations through the Office of Learning Support Services, please schedule a meeting with your instructor in a timely manner so that we may discuss how these services will be arranged.

Tutoring services are available to students beginning the second week of every quarter. Students requesting tutoring services should obtain a tutor request form from the OLSS in 100 Roy Klay Hall (Building A) or online at the Terra website. Please note that instructor verification and acceptance of the Student Learner Agreement is necessary for all tutoring requests. All requests should be submitted to 100 Roy Klay Hall (Building A).

MTH 1320 Topical Outline:

| Session | Course Content | Reading Assignment | Activity |
|---------|--|--------------------|--|
| 1 | Course Introduction | | |
| | 1.1 Angles, Degrees, and Arcs | pp. 2 – 13 | p. 10 – 1-51 odd, 55, 60, 63 |
| 2 | 1.2 Similar Triangles | pp. 13 – 21 | p. 18 – 1-23 odd |
| 3 | 1.3 Trigonometric Ratios and Right Triangles | pp. 21 – 33 | p. 31 – 1-55 odd, 65 |
| 4 | 1.4 Right Triangle Applications | pp. 34 – 44 | p. 38 – 1, 7, 11, 12, 15, 19, 27, 29, 31, 35, 37 |
| 5 | TEST I (Chapter One) | | |
| 6 | 2.1 Degrees and Radians | pp. 54 – 67 | p. 63 – 1-61 odd |
| | 2.2 Linear and Angular Velocity | pp. 67 – 73 | p. 71 – 1-13, 17, 21 |
| 7 | 2.2 Linear and Angular Velocity (continued) | pp. 67 – 73 | p. 71 – 1-13, 17, 21 |
| | 2.3 Trigonometric Functions: Unit Circle Approach | pp. 74 – 85 | p. 81 – 1-99 odd |
| 8 | 2.3 Trigonometric Functions: Unit Circle Approach (continued) | pp. 74 – 85 | p. 81 – 1-99 odd |
| | 2.4 Additional Applications | pp. 85 – 98 | p. 96 – 1, 5, 9, 11, 13 |
| 9 | 2.5 Exact Values and Properties of Trigonometric Functions | pp. 98 – 113 | p. 110 – 1-81 odd |
| 10 | 3.1 Basic Graphs | pp. 125 – 139 | p. 137 – 1-15 odd, 16, 21-27 odd |
| 11 | 3.2 Graphing | pp. 139 – 155 | p. 149 – 1, 2, 3-41 odd, 45, 51 |
| 12 | 3.3 Graphing | pp. 156 – 167 | p. 163 – 1-39 odd, 43 |
| 13 | 3.6 Tangent, Cotangent, Secant, and Cosecant Functions Revisited | pp. 192 – 201 | p. 200 – 1-21 odd |
| 14 | TEST II (Chapter Three) | | |
| 15 | 4.1 Fundamental Identities and Their Use | pp. 218 – 225 | p. 223 – 1, 2, 3-41 odd, 65, 67 |
| 16 | 4.2 Verifying Trigonometric Identities | pp. 225 – 235 | p. 233 – 1-25 odd, 39-79 odd |
| 17 | 5.1 Inverse Sine, Cosine, and Tangent Functions | pp. 274 – 294 | p. 289 – 1-49 odd, 57, 59, 69 |

| Session | Course Content | Reading Assignment | Activity |
|---------|---|--------------------|--|
| 18 | 5.2 Inverse Cotangent, Secant, and Cosecant Functions | pp. 294 – 299 | p. 299 – 1-55 odd |
| 19 | 5.3 Trigonometric Equations: An Algebraic Approach | pp. 300 – 309 | p. 307 – 1-13 odd |
| 20 | TEST III (Chapters Four and Five) | | |
| 21 | 6.1 Law of Sines | pp. 330 – 342 | p. 338 – 1-7 odd, 21-39 odd, 45-51 odd, 52, 63 |
| 22 | 6.2 Law of Cosines | pp. 342 – 351 | p. 348 – 1-33 odd, 39-43 odd |
| 23 | 6.3 Areas of Triangles | pp. 352 – 358 | p. 357 – 1-11 odd |
| 24 | 6.4 Vectors: Geometrically Defined | pp. 358 – 366 | p. 364 – 1-15 odd, 25-33 odd |
| 25 | 6.5 Vectors: Algebraically Defined | pp. 366 – 378 | p. 376 – 1-33 odd, 39 |
| 26 | TEST IV (Chapter Six) | | |
| 27 | 7.1 Polar and Rectangular Coordinates | pp. 400 – 408 | p. 407 – 1-55 odd, 63 |
| 28 | 7.2 Sketching Polar Equations | pp. 408 – 420 | p. 418 – 1-29 odd |
| 29 | Course Review | | |
| 30 | COMPREHENSIVE FINAL EXAM | | |