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Spring 1-2016

M 122.01C: College Trigonometry

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TEXTBOOK: *Precalculus: Functions & Graphs, 4th Edition*
Mark Dugopolski
Available as an e-book through MyLabsPlus

WELCOME TO GOLLEGE TRIGONOMETRY! M122 is a one-semester three-credit course; its main focus is the study of trigonometry and, together with M121 (College Algebra), to prepare you for Calculus. Placement in M122 is based on your successful completion of M121 (College Algebra) with a grade of C- or better (B- or better is recommended). (I also assume your successful completion of M121 was recent.) College Algebra (M121) and College Trigonometry (M122) together satisfy the same degree requirements as Precalculus (M151). Credit not allowed for both M122 and M151.

Be certain that you are enrolled in the proper math class at the beginning of the semester. You may not be able to switch into a more appropriate class after the first week. If you have any concerns about your placement please contact me *immediately.*

WHY DO WE STUDY TRIGONOMETRY? Trigonometry is the branch of mathematics dealing with the measurements and relationships of various types of triangles and their sides and angles. Although you might not expect this discipline would turn up in so many areas — physical applications of the world around us, as well as in many branches of physics and higher mathematics — this is indeed the case. Applications of trigonometry are found wherever angles and/or curves are involved.

Part of trigonometry — an important part — is practical, but I think it is simplistic to consider this part its only value. Like any branch of academic study, trigonometry furnishes us with mental frameworks that make our world more understandable, every day. In fact, the larger and more important goal in this course is not to solve a triangle, but to continue to learn abstract reasoning.

This course has been designed for you. Yes, you! Your willing participation is essential if you plan to succeed in this course. No one can teach you if you are not engaged and ready to learn. You need to do your part by preparing on your own to the best of your ability. Put in some effort. Don't fall behind. Challenge yourself. Ask questions! If you keep up with the homework, you will find the material makes sense and the obstacles are manageable.

I cannot emphasize enough how important it is for you to be diligent in your study habits. You cannot learn math by wishful thinking alone; I am convinced of this. Different students have different learning styles, but every student can improve with effort. Find the technique that works best for you.

LEARNING GOALS: Upon successful completion of this course, students will be able to
1. Define trigonometric ratios using right triangles and coordinate systems: the unit circle and polar coordinates;
2. Graph trigonometric, exponential, and logarithmic functions of a real variable;
3. Investigate the algebra of trigonometric functions, including composition of functions, inverse functions, and transformations;
4. Solve trigonometric identities and equations;
5. Use trigonometric functions of a real variable to model real-world phenomena and solve applied problems

COURSE CONTENT:
1. The Trigonometric Functions (Angles and Their Measurements, The Sine and Cosine Functions, The Graphs of the Sine and Cosine Functions, The Other Trigonometric Functions and Their Graphs, The Inverse Trigonometric Functions, Right Triangle Trigonometry)
2. Trigonometric Identities and Conditional Equations (Basic Identities, Verifying Identities, Sum and Difference Identities, Double-Angle and Half-Angle Identities, Product and Sum Identities, Conditional Trigonometric Equations)
3. Applications of Trigonometry (The Law of Sines, The Law of Cosines, Vectors, Trigonometric Forms of Complex Numbers, Powers and Roots of Complex Numbers, Polar Equations, Parametric Equations)

CALCULATOR: A graphing calculator is required for M122; the Department of Applied Arts and Sciences recommends Texas Instruments models TI-83 or TI-84 (regular or plus editions). Calculators with symbolic manipulation capabilities (e.g. TI-89, TI-92) will not be allowed in testing situations. Be sure to check out the Pearson TI calculator tutorial under Tools for Success on MLP!

MYLABSPLUS HOMEWORK and QUIZZES: MyLabsPlus is an innovative way for you to do homework with immediate feedback. Every section of the M122 text covered in class has a corresponding assignment in MyLabsPlus. Homework questions can be submitted up to three times until the assignment closes.

There is a chapter quiz for each of the chapters covered in class as well; each quiz can be taken twice and the highest score is the recorded score. **NOTE:** these assignments and chapters are open for specific times and in a specific order. Check the MyLabsPlus calendar frequently to be sure you are keeping current with your assignments. You must keep up with the progression in order to succeed in this course. *Late homework is subject to a 20% penalty.* You can find the MyLabsPlus icon at the top of the my.umt.edu page: http://my.umt.edu/.

TESTS: There will be four tests given over the course of the semester. The scheduled dates are shown on the Course Outline and are *not* flexible. If arrangements for making up a test have not been made within a week, the test grade is automatically set to zero. You are allowed to use a calculator and <u>one</u> 8½"x11" page of notes (front and back). **You are not permitted to use a cell phone**. Corrected tests will be returned within one week after the test date. If you have questions regarding the grading of your test, please wait until after class to discuss it.

FINAL EXAM: The final exam for this class will be given in class during finals week. You are allowed to use a calculator and <u>one</u> 8½"x11" page of notes (front and back). **You are not permitted to use a cell phone**. The final exam is optional for any student who has an A in the course on the last day of classes.

TUTORING: Math tutoring is available for all UM students. Check for hours at the Learning Center at the Missoula College campus (AD 06; 243-7826) and at math@Mansfield (Mansfield Library) on the Mountain Campus: http://www. umt. edu/math/MLC/default. htm.

REASONABLE ACCOMMODATIONS: Students with disabilities may request reasonable modifications. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, please consult http://www.umt.edu/disability. Examples of reasonable accommodations include extra time or use of a quiet room for tests and/or quizzes. To qualify for reasonable accommodations you must provide a letter from DSS. You are responsible for making the necessary arrangements with DSS (for the Mountain Campus) or the ASC (for the Missoula College campus). If you have any questions, please contact me.

ACADEMIC CONDUCT: All students are expected to practice academic honesty as defined by the Student Conduct Code, available at http://life.umt.edu/vpsa/documents/StudentConductCode1.pdf. Academic misconduct is subject to an academic penalty by the instructor and a disciplinary sanction by the University.

DROPPING AND ADDING COURSES OR CHANGING SECTIONS, GRADING OR CREDIT STATUS:
Students are expected, when selecting and registering for their courses, to make informed choices and to regard those choices as semester long commitments and obligations.

After registering and through the **first fifteen (15) instructional days of the semester**, students may use (http://cyberbear.umt.edu) to drop and add courses or change sections and credits.

Change of grading option to audit is not allowed after the 15 instructional day.

Beginning the sixteenth (16) instructional day of the semester through the <u>forty-fifth (45)</u> instructional day, students use paper forms to drop, add and make changes of section, grading option, or credit. The drop/add form must be signed by the instructor of the course and the student's advisor. The signed drop/add form must be returned to the Registration Counter (or the Registrar's Office at the College of Technology) no later than the **<u>forty-fifth</u>** instructional day.

Beginning the <u>forty-sixth (46)</u> instructional day of the semester through the last day of instruction before scheduled final examinations, students must petition to drop. The petition form must be signed by the instructor of the course and the student's advisor and, the dean of the student's major. The instructor assigns a grade of WP (withdrew/passing) if the student's course work has been passing or a WF (withdrew/failing) if the course work has been failing. These grades do not affect grade averages but they are recorded on students' transcripts.

Documented justification is required for dropping courses by petition. Some examples of documented circumstances that may merit approval are:

- Error in registration,
- Family emergency, or
- Accident or illness,
- Other circumstances beyond the student's control

Reasons that are not satisfactory include:

- Forgetting to turn in a drop slip
- Protecting a student's grade point average

The opportunity to drop a course for the current term ends on the last day of instruction before scheduled final exams. Dropping a course taken in a previous term or altering grading option or audit status for such a course is not allowed. The only exceptions are for students who have received a grade of NF (never attended).

WITHDRAWAL FROM THE UNIVERSITY: Students who withdraw from the University while a semester is in progress must complete withdrawal forms which are obtained from the Registration Counter in Griz Central in the Lommasson Center or the Registrar's Office in the College of Technology. Drop/add forms cannot be used to withdraw from school and students are not allowed to drop all their courses on the internet. Medical withdrawals are granted only for a student's significant health problems and must be documented by a healthcare provider.

When withdrawal forms are completed in Griz Central or the Registrar's Office in the College of Technology before the last two weeks of the semester, grades of W (withdrawal) are assigned. Beginning two weeks from the end of the term, students may not withdraw from the University except for very unusual circumstances.

INCOMPLETES: A grade of incomplete (I) will only be considered when all three of the following are true:
1. The student has been in regular attendance and passing up to three weeks before the end of the academic semester.
2. Factors beyond the student's control make it impossible to complete the course on time.
3. The instructor and the student agree that there is a reasonable probability that the student will be able to make-up the work required to complete the course and specific arrangements are drawn up and signed by both.

A student who receives an incomplete has one calendar year to resolve the incomplete (I) before it automatically reverts to a failing grade (F).

GRADING POLICIES: M122 must be completed with a grade of C or better in order to contribute towards satisfying the UM Math Literacy requirement. Auditing M122 or taking it as a Credit/No Credit course will not fulfill the requirement. The final grade will be computed as follows:

MyLabsPlus homework:	15%
Written homework:	5%
MyLabsPlus quizzes:	20%
Weekly Quizzes:	10%
Tests:	40%
Final exam:	10%

Letter grades correspond to numerical scores according to this plan:

A	B	C	D	F
90-100%	80-89%	70-79%	60-69%	Below 60%

M122 SPRING 2016 COURSE OUTLINE:

Jan 25 Intro to M122	Jan 27 §5.1	Jan 29 §5.2
Feb 1 §5.2	Feb 3 §5.3	Feb 5 §5.3
Feb 8 §5.4	Feb 10 §5.4	Feb 12 §5.5
	Feb 17 §5.5	Feb 19 §5.6
Feb 22 Review		Feb 26 §6.1
Feb 29 §6.1	Mar 2 §6.2	Mar 4 §6.2
Mar 7 §6.3	Mar 9 §6.3, 6.4	Mar 11 §6.4
Mar 14 §6.5	Mar 16 §6.5	Mar 18 Review
	Mar 23 §6.6	Mar 25 §6.6
Mar 28 §7.1	Mar 30 §7.1	Apr 1 §7.1, 7.2
Apr 4 – Apr 8 Spring Break		
Apr 11 §7.2	Apr 13 §7.3	Apr 15 §7.3
Apr 18 Review	Apr 20 Chapter 6.6 — 7.3 Test	Apr 22 §7.4
Apr 25 §7.4, 7.5	Apr 27 §7. 5	Apr 29 §7.7
May 2 Review	May 4 Chapter 7.4 — 7.7 Test	May 6 Review
✐ Final Exams May 9th – 13th The final for this class is scheduled for Monday, May 9th from 10:10 to 12:10 in this classroom.		

See the MyLabsPlus calendar to find the opening and closing dates for MyLabsPlus tests and homework.