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Spring 1-2016

M 122.50C: College Trigonometry

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

WELCOME TO COLLEGE 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.
2. Understand and use the unit circle and polar coordinates.
3. Graph trigonometric functions of a real variable.
4. Investigate the algebra of trigonometric functions, including composition of functions, inverse functions, and transformations.
5. Use trigonometric laws and identities to solve equations.
6. Use trigonometric functions of a real variable to model real-world phenomena and solve applied problems.
7. Understand and use basic polar coordinates.
8. Understand and use basic vector operations.
9. Understand and use basic parametric equations.

A NOTE ON ONLINE LEARNING: Online classes are different from face-to-face classes, as you will soon discover (unless you already have experience with the online format). You have to be self-motivated and responsible. I have broken the class down into weekly blocks; I strongly recommend that you watch the publisher's appropriate lessons available through MyLabsPlus Multimedia Library and make every effort to keep up with the homework. This course could easily take 12 hours per week of your time (if not more), so be sure to budget for it. Once you fall behind, it can be extremely difficult to catch up, although I do grant extensions on occasion.

I want to be crystal clear here: *Online education, particularly in mathematics, is not for everybody.* You have to be willing to struggle with the material and challenge yourself in order to progress. Of course I will respond to your questions and frame my answers as clearly as possible, but there is a frustration factor involved with that progress. Note also that because HW can be repeated until it is perfect, it boosts your grade. The online quizzes and tests, however, tend to be more representative of your level of understanding. Only you know how comfortable you are with the material. Please do not expect a miracle to pull you through the final exam — it shouldn't be a surprise. I am supportive but I'm not naive, and neither should you be.

MYLABSPLUS (MLP): MyLabsPlus is an innovative way for you to do homework and take quizzes with immediate feedback; MyLabsPlus also keeps you on task and using your developing math skills. Every section of the M122 text covered has a corresponding assignment in MyLabsPlus; homework questions can be retaken up to three times. Late homework is subject to a 20% penalty. Review exercises at the end are optional but recommended.

There is a chapter quiz and a chapter exam for each chapter covered. Each quiz can be taken twice and the higher score is the recorded score. Each exam can be only taken once. **NOTE** that 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. MyLabsPlus can be accessed through my.umt.edu.

CALCULATOR: A graphing calculator is required for M122; the Department of Applied Arts and Sciences recommends and uses 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!

STUDENTS WITH DISABILITIES: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in EL154 (mountain campus), telephone number 243-2243. Their website is <http://life.umt.edu/dss/>. I will work with you and DSS to provide an appropriate accommodation.

TUTORING: Math tutoring is available for all UM students. Check for hours at the Learning Center at the MISSOULA COLLEGE (AD06) and at math@Mansfield on the Mountain Campus: <http://www.umt.edu/math/MLC/default.htm>.

FINAL EXAM: The final exam for this class is comprehensive and is worth 150 points. **The exam will be given at the MISSOULA COLLEGE.** You may have one page (8½" x 11") of notes (both sides) to assist you. If you think that you have math anxiety, I suggest that you prepare carefully; there are also links addressing math anxiety that may help you on p. 4. The University of Montana also offers workshops that you may choose to attend.

Because this is an online class, some students are not able to take the final exam in the scheduled time and place; those students need to arrange for a proctor to administer the exam. More information about arranging for a proctor will be provided during the semester.

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 forty-fifth (45) 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 **forty-fifth** instructional day.

Beginning the forty-sixth (46) 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,
- Accident or illness,
- Family emergency, or
- 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:	25%
MyLabsPlus quizzes:	20%
Online tests:	40%
Final exam:	15%

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%

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.

OTHER INFO:

Learning Center (Missoula College): AD06, phone # 243-7826

Math Learning Center (Math Bldg, Main Campus): Basement — used for taking make-up tests

math@Mansfield: Mansfield Library — drop-in tutoring center <http://www.umt.edu/math/MLC/default.htm>

Academic calendar available at <http://www.umt.edu/provost/academiccalendar.html>

OneStop (look for MyLabsPlus link): <http://onestop.umt.edu/>

Some useful websites: <http://www.khanacademy.org/>

<http://www.purplemath.com/>

<http://algebasics.com/>

<http://www.prenhall.com/divisions/esm/app/graphing/ti83/> great TI calc tutorial

http://www.prenhall.com/divisions/esm/app/calc_v2/ graphing calc help

<http://incompetech.com/graphpaper/> (free graph paper generator)

<http://www.mathacademy.com/pr/miniexam/anxiety/> Coping with Math Anxiety

<http://mtsu32.mtsu.edu:11064/anxiety.html> Help for Math Anxiety

IMPORTANT DATES

Class Day 7:

Last day for students to Add classes via CyberBear without consent.

Class Day 15:

Last day to register for classes, add classes with override slip/electronic override, change credits in variable credit courses, or drop classes with a refund on CyberBear or with override slip/electronic override. Last day to withdraw from the semester (drop all courses) with a partial refund. Last day to change grading option to or from audit. Last day to Buy or Refuse health insurance coverage or add clinical health fee.

Class Day 16 – Class Day 45:

Autumn Semester course changes require a drop/add form with Advisor and Instructor signatures. Students can add or drop courses or change grading options, except audit. \$10 fees will be assessed per drop and per add. A 'W' will appear on the transcript.

Class Day 46 – Last Day of Classes:

Autumn Semester course changes require a petition form available at Griz Central Registration Counter with Advisor, Instructor and Dean Signatures. Students can add or drop courses or change grading options, except audit. \$10 fees will be assessed per drop and per add. A 'WP' or 'WF' will appear on the transcript.

Last Monday of Classes:

Last day to withdraw from the semester (Dropping all Autumn courses) by 5:00 p.m.

After Last Monday of Classes:

If withdrawing from all Autumn Semester courses, a petition to retroactively withdraw will be required and students must obtain the appropriate signatures.

M122 ONLINE SPRING 2016 COURSE OUTLINE:

Week 1: Jan 25 – 29 §5.1, 5.2
Week 2: Feb 1 – Feb 5 §5.2, 5.3
Week 3: Feb 8 – Feb 12 §5.4, 5.5
Week 4: Feb 15 – Feb 19 §5.5, 5.6
Week 5: Feb 22 – Feb 26 §6.1
Week 6: Feb 29 – Mar 4 §6.1, 6.2
Week 7: Mar 7 – Mar 11 §6.3, 6.4
Week 8: Mar 14 – Mar 18 §6.5
Week 9: Mar 21 – Mar 25 §6.6, 7.1
Week 10: Mar 28 – Apr 1 §7.1, 7.2
Week 11: Apr 4 – Apr 8 Spring Break
Week 12: Apr 11 – Apr 15 §7.3
Week 13: Apr 18 – Apr 22 §7.4, 7.5
Week 14: Apr 25 – Apr 29 §7.5, 7.7
Week 15: May 2 – May 6 Review
→ Final Exam: Face-to-Face Wednesday, May 11, 5 - 7 PM, HB 01 (MISSOULA COLLEGE) ←