

**Essentials**

- Math 120, Trigonometry, Section 1  
SDSMT, Summer 2008, 3 credits
- We meet Monday, Wednesday, and Thursday from 8:00–10:00 AM in McLaury 313.
- The course text is *Trigonometry*, by Coburn, McGraw Hill Publishing. We will cover Chapters 1 through 5.
- A tentative course outline can be found on the class webpage.

**Instructor information**

- Dr. Travis Kowalski (either “Travis” or “Dr. K” is fine)
- Office: McLaury 314D  
Phone: (605) 394-6146  
Email: [travis.kowalski@sdsmt.edu](mailto:travis.kowalski@sdsmt.edu)
- Webpage: <http://www.mcs.sdsmt.edu/tkowalsk/>
- Office hours: after class from 10:00–11:00 AM. Or you can make an appointment with me if those times do not fit your schedule: just contact me by email or after class.

**Course objective and description.** This is a comprehensive study of trigonometry. Topics include trigonometric functions, equations, and identities, inverse trigonometric functions, exponential and logarithmic functions, and applications of these functions.

**Prerequisites.** Math 120 requires a grade of “C” or better in Math 102 (College Algebra) or an acceptable score on the COMPASS placement examination.

**Technology.** This class requires any calculator that can compute trigonometric functions (i.e. any scientific or graphing calculator, or the Tablet PC). All students have access to a powerful “computer algebra system” called Maple, which can be accessed on their Tablet PC or from any campus computer, and I will illustrate its use daily in class and through occasional computer labs.

**Grading.** The grading is based on the following:

Quizzes: 100 points (total)  
4 exams: 100 points (each)

Letter grades will be assigned according to the following scale:

A: 450–500 points  
B: 400–449 points  
C: 350–399 points  
D: 300–349 points  
F: less than 300 points

Plus or minus grades are not allowed (Board of Regents policy, Fall 2003). I reserve the right to *lower* these values as I see fit.

**Instruction and attendance.** Class will mostly take the form of lecture and discussion. Your daily attendance is expected, though not required. I will not take role, nor will I note frequent absences: I'm not your mother. However, I may have class assignments, activities, and quizzes for which no make-up will be allowed: I work strictly on the "you snooze, you lose" policy.

However, when you attend class, be sure you are on-time and ready to participate for the duration of class. I work hard at making class useful and informative for you, and will strive to make calculus, if not fun exactly, then at least engaging. Arriving to class late or attempting to pack up early are extremely disrespectful behaviors, both towards the instructor and to other students, and I have little patience for either. Further details about classroom behavior are outlined below.

**Assignments.** The only way to *learn* mathematics is to *do* mathematics. As a result, I will challenge you with frequent assignments, in class and out, to help you develop skill and proficiency with calculus. Assignments will come in two flavors:

- *Homework.* I will assign homework problems for you to work on every day in class, which I expect you to work on in a dedicated "homework notebook," either on your Tablet or on paper. These problems will give you the best training in the mechanical aspects of the course, and are one of the ways I can gauge how much effort you are putting into the course. I will not, however, collect all of these problems.
- *Quizzes.* Instead, during the semester I will give a number of short "pop" quizzes. If you stay relatively up-to-date with the homework, you should have no problem with these.

**Examinations.** There will be four hour-long examinations over the semester which will test your mastery of the course material. These exams are designed to test not only your ability to solve standard problems (such as basic homework problems), but also your ability to synthesize ideas and use your trigonometric skills in novel or extended ways. Examinations will be held every other Thursday. Details regarding the exams will be made available as they approach.

**Make-up exams.** It is the *your* responsibility to check about missed class or examinations, especially when the problem is known previous to the absence. If you have an excused absence to an exam, then the other three exams will be weighted more heavily to make up for the missed exam. Departmental policy prohibits final exams be given early, so plan your summer travel accordingly.

**Getting help.** There are many resources available should you like or need additional help with calculus. Among the three most important resources are:

- *My office hours.* Make use of them. I'm more than happy to work with you on a more personal basis during office hours – heck, it's my job! Check my webpage for my office hours this semester.
- *The Tech Learning Center.* Located in the basement of the Devereaux Library, fellow Tech students are willing and able to help you with basic math and calculus problems. You can make an appointment or just drop in when you have questions.
- *Math department tutors.* The Math Department keeps a list of SDSMT students willing to tutor students privately. You can contact these tutors and find a schedule that suits you best. Go to the department office in McLaury 308 to see this semester's tutor list.

**Special needs.** Students with special needs or requiring special accommodations should contact the instructor and/or the campus ADA coordinator, Dr. Jolie McCoy, at 394-1924 at the earliest opportunity.

Most of these policies are common sense and are associated with being a responsible adult at an institution of higher learning.

**Classroom behavior.** The Student Handbook prohibits the disruption or obstruction of teaching. Activities that are disruptive and/or obstructive to teaching will include, but are not limited to, the following:

- *Showing up late to class.* While it is understandable that you might be a few minutes late to class there is a limit to how late one can be. As a general rule, it is acceptable for a person that is less than 5 minutes late to enter class. I ask that if you are more than 5 minutes late to class to refrain from entering class. You can always catch me after class if they need to see me.
- *Eating in class.* Your schedule may have classes that overlap your lunch hour, or don't leave you time to eat during the day. Nevertheless, refrain from eating during class. Those with medical conditions that require special accommodations are certainly welcome to speak with me.
- *Electronic disruptions.* The use of cell phones, pagers, PDAs, non-SDSMT laptop computers, or any other associated electronics in class is prohibited. The best advice is to simply leave your electronic noisemakers at home or in your car. However, if there is some compelling reason why you require such a device then make sure your device is (at the very least) set to vibrate or (preferably) turned off. If an electronic device disrupts class then the owner will sacrifice their highest homework score for each offense, or pay The Fine. The Fine for electronic device disruption is the purchase of cookies and/or donuts for the entire class. This happens to be similar to a policy used at the state legislature.

**Academic dishonesty.** If you cheat on a test or assignment, you may fail the course. At the very least, you will get a negative score on that test or assignment since cheating is worse than doing nothing. Discussing a problem with other students is a valuable learning tool; copying someone else's work is not. All students will be held to the institutional standard for academic honesty and integrity. The following are the relevant sections taken from the student handbook (SD BOR policy), which states that acts of academic dishonesty will include, but are not limited to, the following:

- *Cheating*, which is defined as, but not limited to, the following: (1) the use or giving of any unauthorized assistance in taking quizzes, tests, or examinations; (2) the use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the institutional faculty or staff.
- *Plagiarism*, which is defined as, but is not limited to, the following: (1) the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgement consistent with accepted practices of the discipline; (2) the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.
- *Dishonesty* relating to academic achievement, research results or academically related public service.
- *Furnishing false information* to any institutional official, faculty member or office.
- *Forgery, fabrication, alteration, misrepresentation or misuse* of any document, record, or instrument of identification, including misrepresentations of degrees awarded or honors received.

**State Policy on "Freedom in Learning."** Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.

**Official policies.** You can read the official Board of Regents student policies at

- [http://www.sdbor.edu/policy/3-Student\\_Affairs/documents/3-4.pdf](http://www.sdbor.edu/policy/3-Student_Affairs/documents/3-4.pdf).

**Student learning outcomes.** This course meets GenEd Goal #5: Students will understand and apply fundamental mathematical processes and reasoning. As a result of taking a course meeting this goal, students will:

- Use mathematical symbols and mathematical structure to model and solve real world problems.  
*Assessment.* Students will demonstrate the use of trigonometric functions to model a real world problem. This will be demonstrated on quizzes, labs, homework, and/or exams.
- Demonstrate appropriate communication skills related to mathematical terms.  
*Assessment.* Students will demonstrate appropriate communication skills related to the mathematical terms and concepts that are associated with trigonometric functions. This will be demonstrated on in-class problems, labs, homework, quizzes and/or exams.
- Demonstrate the correct use of quantifiable measurements of real world situations.  
*Assessment.* Students will demonstrate the correct use of quantifiable measurement for real world situations. For example, the differences between degree measure and radian measure, the differences between period and frequency, and the properties of inverse functions can each play an important role in physical applications. This will be demonstrated on quizzes, labs, homework, and/or exams.

A student who successfully completes this course should, at a minimum, be able to:

1. define radian and degree measures and be able to convert between the two
2. list the features of the unit circle and state the definitions of sine and cosine
3. state the definitions of the trigonometric functions tangent, cosecant, secant and cotangent
4. recall or derive the values of all six trigonometric functions at all standard angles without use of reference material or calculator
5. state the right triangle definitions for sine, cosine, tangent, cosecant, secant and cotangent functions
6. identify and draw the basic graphs of  $A \sin(bx-c)$ ,  $A \cos(bx-c)$  and  $\tan(bx)$
7. evaluate inverse sine, inverse cosine and inverse tangent functions by memorization (standard angles) or by calculator (nonstandard angles)
8. state the domain and range of the sine, cosine and tangent functions
9. describe the relationship between the domain of a function and the range of its inverse
10. use trigonometric identities to simplify expressions and solve equations

**Official outcomes.** Visit

- [http://www.hpcnet.org/math\\_assessment/course\\_objectives](http://www.hpcnet.org/math_assessment/course_objectives)