

# MATH 104-03

## TRIGONOMETRY

Meets: Tuesday/Thursday Time: 9:30-10:45

Room: 391

### INSTRUCTOR CONTACT INFORMATION AND OFFICE HOURS

**Instructor:** Shannon Gracey **Phone:** 619-421-6700 ext. 5517 **e-mail:** [sgracey@swccd.edu](mailto:sgracey@swccd.edu)

**Course Website:** [www.swccd.edu/~sgracey](http://www.swccd.edu/~sgracey)

**Office:** Room 320D, M/W 10:30-11:50, TH 12-1:30, or you may make an appointment by calling or e-mailing me, using the contact info written above.

### COURSE MATERIALS

**Text:** *Trigonometry, 9<sup>th</sup> ed.*, Lial, Hornsby, and Schneider

**Calculator:** A graphing calculator is required. The TI 83 plus or TI 84 plus graphing calculator is recommended.

### PREREQUISITES AND RECOMMENDED PREPARATION

**Prerequisite:** Satisfactory completion of MATH 65; or higher-numbered math course; or the equivalent skill level as determined by the Southwestern College Mathematics Assessment

**Recommended Preparation:** Satisfactory completion of ENGL 158 or the equivalent skill level as determined by the Southwestern College Reading Assessment

### QUESTIONS

Questions are an important part of the learning process. If you have a question, please feel free to ask me at any time! If you have a question, there are probably at least 5 other students with the same question. If I cannot answer your question immediately, I will come back to it ASAP.

### HOMEWORK

Homework will be collected on exam and quiz days at the beginning of the class. Homework is graded on completeness. Each new assignment must be started on a new paper, be clearly labeled with the chapter, section, and assignment, and stapled. Graphs must be on GRAPH PAPER! In order to be successful in this course, **YOU MUST PRACTICE MATH PROBLEMS!!! No late homework will be accepted.**

### QUIZZES & EXAMS

Quizzes will typically be given at the end of each odd chapter. There will be at least 3 quizzes. No quizzes will be dropped, however your lowest quiz score may be replaced by your attendance percentage. Exams will typically be given at the end of each even chapter and will also cover the previous odd chapter. No exams are dropped, however your lowest exam score may be replaced by your earned homework percentage.

### ATTENDANCE & TARDIES

Each student is responsible for his/her registration in classes. Each student must attend the first class meeting or make arrangements with the instructor if he/she is going to be absent. Failure to attend the first class meeting or excessive unexcused absences, that is, more than 6 hours of missed class time, may result in a student being dropped from this class. Each class you will be given 2 points if you arrive on time and stay for the entire class, 1 point if you arrive late or leave early, and 0 points if you are absent. At the end of the semester this percentage  $\{(earned\ points)/(points\ possible)\} \times 100$  will replace your lowest quiz score.

## DISABILITY SUPPORT SERVICES (DSS)

DSS provides programs and services for students with disabilities. Southwestern College recommends that students with disabilities discuss academic accommodations with their professors during the first two weeks of class. This syllabus and course handouts are available in alternate media upon request.

## ACADEMIC SUCCESS CENTER REFERRAL

To further your success, reinforce concepts, and achieve the stated learning objectives for this course, I refer you to Academic Success Center learning assistance services. You will be automatically enrolled in NC 3: Supervised Tutoring, a free noncredit course that does not appear on your transcripts. Services are located in the ASC (420), the Writing Center (420D), the Reading Center (420), Math Center (426), the Library/LRC Interdisciplinary Tutoring Lab, MESA (396), specialized on-campus School tutoring labs, the Higher Education Center, and the San Ysidro Education Center. Online learning materials and Online Writing Lab (OWL) are available at [www.swccd.edu/~asc](http://www.swccd.edu/~asc).

## BEHAVIOR

- **CHEATING ON ANY TEST OR QUIZ WILL EARN A GRADE OF F!!! PLAGIARISM (COPYING) OF OTHER PEOPLE'S WORK IS NOT ACCEPTABLE. Any person caught doing this will get an F on the assignment or test in question and can also potentially be given a grade of F for the course and/or be referred to the college discipline process.**
- You may not use your cell phone or PDA as a calculator on exams.
- During class your cell phone/pager should be off.
- If you know you need to leave class early, take a seat near the door.
- **RESPECT YOUR FELLOW STUDENTS AT ALL TIMES!!!**

## GRADING

**Exams (4—MAKE-UPS ARE GRANTED ONLY IF I AM NOTIFIED BEFORE THE EXAM) .....50%**  
**Quizzes (3—MAKE-UPS ARE GRANTED ONLY IF I AM NOTIFIED BEFORE THE EXAM)... 20%**  
**HOMEWORK (NO LATE ASSIGNMENTS ACCEPTED).....5%**  
**Final (CUMULATIVE).....25%**  
A: 90%—100% B: 80%— 89% C: 70%— 79% D: 60%— 69% F: 59% and below  
*Final grades are left to the discretion of the instructor.*

**STUDENT LEARNING OUTCOMES—Upon successful completion of Math 104, the student should be able to:**

- Demonstrate knowledge and the appropriate application of the six trigonometric functions to find arc length, solve triangles, and find linear and angular velocity as related to real-world problems.
- Analyze and sketch the graphs of the six trigonometric function using such principles as asymptotic, periodic, and reciprocal behavior, as well as plotting points generated by a table or graphing calculator.
- Evaluate and solve trigonometric models and equations using inverse functions, Law of Sines, Law of Cosines, graphing calculator, and algebraic techniques. State, verify, and apply trigonometric identities, including but not limited to reciprocal, cofunctional and Pythagorean identities, sum and difference identities, and double-angle and half-angle identities.

## STUDENT LEARNING OBJECTIVES

1. Student will define and apply the trigonometric functions with respect to general angles in terms of degrees and radians.
2. Student will evaluate the trigonometric functions of special angles (and their multiples) as well as the quadrantal angles.
3. Student will solve problems in the application of radian measure, i.e., arc length, area of a sector, linear and angular velocity.
4. Student will graph all trigonometric functions and the inverse functions for sine, cosine and tangent with respect to periodicity, translation, amplitude and phase shift.
5. Student will prove trigonometric identities using the basic fundamental identities.
6. Student will solve trigonometric and inverse trigonometric equations.
7. Student will solve for unknown parts of the right and oblique triangles using the law of sines and law of cosines.
8. Student will set up and solve geometric and real-life problems with a calculator.
9. Student will represent a vector in algebraic form and perform simple operations with vectors.
- 10 Student will represent complex numbers in algebraic, geometric and polar form.

\*As a final note: To be successful in this course, it is recommended that you spend 2 hours outside of class for every hour in class.

### Chap 1. Trigonometric Functions

- 1.1 Angles
- 1.2 Angle Relationships and Similar Triangles
- 1.3 Trigonometric Functions
- 1.4 Using the Definitions of the Trigonometric Functions

### Chap 2. Acute Angles and Right Triangles

- 2.1 Trigonometric Functions of Acute Angles
- 2.2 Trigonometric Functions of Non-Acute Angles
- 2.3 Finding Trigonometric Functions Values Using a Calculator
- 2.4 Solving Right Triangles
- 2.5 Further Applications of Right Triangles

### Chap 3. Radian Measure and the Circular Functions

- 3.1 Radian Measure
- 3.2 Applications of Radian Measure
- 3.3 The Unit Circle and Circular Functions
- 3.4 Linear and Angular Speed

### Chap 4. Graphs of the Circular Functions

- 4.1 Graphs of the Sine and Cosine Functions
- 4.2 Translations of the Graphs of the Sine and Cosine Functions
- 4.3 Graphs of the Tangent and Cotangent Functions
- 4.4 Graphs of the Secant and Cosecant Functions

### Chap 5. Trigonometric Identities

- 5.1 Fundamental Identities
- 5.2 Verifying Trigonometric Identities
- 5.3 Sum and Difference Identities for Cosine
- 5.4 Sum and Difference Identities for Sine and Tangent
- 5.5 Double-Angle Identities
- 5.6 Half-Angle Identities

### Chap 6. Inverse Trigonometric Functions and Trigonometric Equations

- 6.1 Inverse Circular Functions
- 6.2 Trigonometric Equations I
- 6.3 Trigonometric Equations II
- 6.4 Equations Involving Inverse Trigonometric Functions

### Chap 7. Applications of Trigonometry and Vectors

- 7.1 Oblique Triangles and the Law of Sines
- 7.2 The Ambiguous Case and the Law of Sines
- 7.3 The Law of Cosines

### Chap 8. Complex Numbers and Polar Equations

- 8.1 Complex Numbers
- 8.2 Trigonometric (Polar) Form of Complex Numbers
- 8.3 The Product and Quotient Theorems
- 8.4 De Moivre's Theorem; Powers and Roots of Complex Numbers
- 8.5 Polar Equations and Graphs (Optional)
- 8.6 Parametric Equations, Graphs, and Applications

**TENTATIVE SCHEDULE**  
**FALL 2008**  
**MATH 104**

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<b>AUGUST</b>	18	19 Intro, 1.1-1.2	20	21 1.3-1.4	22
<b>AUGUST</b>	25	26 <b>QUIZ 1/ CH. 1</b>	27	28 2.1-2.2	29 SAT. 8/30 IS THE LAST DAY TO ADD OR WITHDRAW W/REFUND
<b>SEPTEMBER</b>	1 <b>HOLIDAY</b>	2 2.2-2.3	3	4 2.4	5
<b>SEPTEMBER</b>	8	9 2.5	10	11 review	12 LAST DAY TO DROP W/O RECEIVING A W OR APPLY FOR C/NC—3PM
<b>SEPTEMBER</b>	15	16 <b>EXAM 1/ CH. 1-2</b>	17	18 3.1-3.2	19
<b>SEPTEMBER</b>	22	23 3.3-3.4	24	25 <b>QUIZ 2/CH. 3</b>	26
<b>SEPTEMBER/ OCTOBER</b>	29	30 4.1-4.2	1	2 4.3-4.4	3
<b>OCTOBER</b>	6	7 review	8	9 <b>EXAM 2/ CH. 3-4</b>	10
<b>OCTOBER</b>	13	14 5.1-5.2	15	16 5.2-5.3	17
<b>OCTOBER</b>	20	21 5.4-5.5	22	23 <b>QUIZ 3/ CH. 5</b>	24
<b>OCTOBER</b>	27	28 6.1-6.2	29	30 6.2-6.3	31 DEADLINE TO PETITION FOR FALL GRADUATION
<b>NOVEMBER</b>	3	4 6.3-6.4	5	6 review	7 LAST DAY TO DROP AND RECEIVE A W— 3PM
<b>NOVEMBER</b>	10	11 <b>HOLIDAY</b>	12	13 <b>EXAM 3/ CH. 5-6</b>	14
<b>NOVEMBER</b>	17	18 7.1-7.2	19	20 7.3 <b>QUIZ 4/ CH. 7.1-7.2</b>	21
<b>NOVEMBER</b>	24	25 8.1-8.2	26	27 <b>HOLIDAY</b>	28 <b>HOLIDAY</b>
<b>DECEMBER</b>	1	2 8.3-8.4	3	4 8.6, review	5
<b>DECEMBER</b>	8	9 <b>EXAM 4/ CH. 7-8</b>	10	11 <b>REVIEW FOR FINAL</b>	12 <b>NO CLASSES</b>
<b>hDECEMBER</b>	15	16	17	18 <b>FINAL 8AM-10AM</b>	19

