

**SYLLABUS**  
**MAT 172**  
**PRECALCULUS TRIGONOMETRY**  
**Spring 2009**

**Faculty Information:**

**Instructor:** Dr. Olin R. Wood  
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**Phone:** 687-9681

**Course Information:**

**Course Title:** Precalculus Trigonometry  
**Course Number:** MAT 172 N1  
**Credit Hours:** 3  
**Contact Hours:** 3  
**Class Location:** ELM 344  
**Class Meeting Time:** Monday—6:00-8:50 pm

**Course Description:** This is the second of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on properties and applications of transcendental functions and their graphs, right and oblique triangle trigonometry, conic sections, vectors, and polar coordinates. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural science/mathematics.*

**Prerequisite:** MAT 171

**Corequisite:** MAT 172A

**Textbook:** Sullivan & Sullivan, *Algebra and Trigonometry 5th Edition (Topics from Chapters 6-11)*

**Course Goal:** Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction.

**Course Specific Competencies:** Upon successful completion of the course, the student will be able to:

- Graph, transform, and solve problems involving logarithmic and exponential functions.
- Graph, transform, and solve problems involving trigonometric equations.
- Solve applied problems involving right and oblique triangles.
- Graph, transform and solve problems involving polar coordinates.
- Graph, transform and solve problems involving vectors.
- Use analytic geometry to solve problems.

### **Reinforcement Experiences for General Education Cross-Curriculum Competencies:**

The course encapsulates reinforcement experiences for the general education cross-curriculum competencies:

- Communicate effectively in speaking, writing, reading, and listening.
- Locate, evaluate, and use information to analyze problems and make logical decisions.
- Apply math skills and/or natural science knowledge appropriately to organize, analyze and make information useful.
- Develop the ability to succeed as a self-directed learner.

**Grading:** *Make-up tests may not be given.* There will be six chapter tests and a comprehensive final exam. All testing is closed-book. The final exam grade will be substituted for the first test missed. Any other tests missed will be counted as a zero. If no tests are missed during the semester, the final exam grade may be substituted for the lowest test grade. Chapter tests will be 80 percent of the course grade. *Online homework will be 10 percent of the course grade. The final exam is mandatory and will be 10 percent of the final grade.* If for any reason it is necessary for a student to drop this class, a drop form should be obtained from a counselor during the official withdrawal period. There is no penalty on the GPA (Grade Point Average) for an official withdrawal; however, *if a student just stops coming to class, the final course grade will be an "F" or a "U" which lowers the GPA.* The course grade will be the weighted average of tests, online homework, and the final exam using the scale: A (90-100), B (80-89), C (70-79), D (60-69), F (below 60).

### **Inclement Weather Schedule:**

The College will close when weather conditions are such that driving is hazardous.

The following procedure will be observed for inclement weather conditions:

1. Announcements concerning school operation will be made by 6:30 am on local radio and TV stations for day classes. A voice mail message will be recorded on the switchboard. If it appears that ice or snow may be cleared by mid-morning, the schedule below will be followed and all College personnel and students should report by 10am.
2. Closing or delaying the day programs does not automatically close evening classes. Announcements will be made on radio stations and the College switchboard no later than 3pm concerning the evening classes. College website: **www.abtech.edu**
3. When weather conditions dictate early dismissal of the day or evening classes, the announcement will be made by telephone to each building on campus.
4. Commuters should exercise personal judgment concerning highway conditions regardless of College announcements, particularly those commuting from outlying areas.
5. Adjustments in the College calendar for days missed because of inclement weather will be made at the end of the semester

**Final Exam Policy:** Final exams for all classes are given during the last 1-2 hours of the regular class schedule.

**Attendance:** BE HERE!! Regular attendance is necessary to keep up with the work and be successful with the course. To receive course credit, a student should attend a minimum of 80 percent of the contact hours of the class. Upon accumulating absences exceeding 20 percent of the course contact hours, the student may be dropped from the class with a grade of “U” at the discretion of the instructor. A tardy is defined as arriving late for class, leaving early, or being away from class without permission during class hours. Three tardies may constitute one absence.

**Important Dates for THIS Class:**

**Spring Semester 2009**

<b>Classes begin</b>	<b>January 12</b>
<b>Schedule Adjustment</b>	<b>January 12-13</b>
<b>Holiday (campus closed)</b>	<b>January 19</b>
<b>Last day to withdraw from a class without penalty</b>	<b>April 7</b>
<b>Holiday and Spring Break (no classes)</b>	<b>April 13-18</b>
<b>Last Day of classes/exams</b>	<b>May 11*</b>
(*Up to 3 days made be made up due to inclement weather closings.)	

**Code of Student Conduct:** The following actions are specifically prohibited on this campus under the Code of Student Conduct:

1. Academic Dishonesty - You may not deceive any official of the College by cheating on any assignment, examination, or paper. This includes plagiarism, which is defined as the theft and use of the ideas or writings of another as one's own.
2. Alcoholic Beverages - You may not possess or use alcoholic beverages on campus. You may not be under the influence of alcoholic beverages on campus.
3. Animals - You may not have an animal of any kind on campus. This includes animals left within a vehicle. Working dogs, such as police dogs and Seeing Eye dogs, are permitted.
4. Damage to Property - You may not damage property of the College or of any other person working at or attending the\_ College.
5. Disobedience - You may not disobey the reasonable directions of College employees, including administrators, faculty members, security officers, and other staff employees.
6. Disorderly Conduct - You may not conduct yourself in a way which will interrupt the academic mission of the College or which will disturb the peace of the College.
7. Disruption - You may not disrupt the normal activities of the College by physically or verbally interfering with instruction, meetings, traffic, or scheduled administrative functions.
8. Drugs - You may not possess, use, or be under the influence of any narcotic or illegal drug on campus in violation of the laws of the state of North Carolina or of the United States.
9. False Information - You may not present to the College or its employees false information; neither may you knowingly withhold information which may have an effect on your enrollment or your status in the institution and which is properly and legally requested by the College.
10. Assault - You may not strike or threaten to strike another person for any reason whatsoever. Threatening to strike another person is defined as assault, and striking another person is defined as battery.
11. Gambling - You may not gamble on campus.

12. Possession of Weapons - You may not have a weapon of any kind, including a knife, stun gun, or any firearm in your possession on campus. Law Enforcement officers are exempt from this prohibition.
13. Professional Conduct - Various curricula have specific codes of professional conduct for which you may be held accountable, if you are enrolled in those curricula.
14. Theft - You may not steal the property of another individual or of the College. Students who are caught stealing will be required to make restitution and may be eligible for civil prosecution as well as College discipline.
15. Public Laws - You may not violate the laws of the state of North Carolina while on campus. Doing so may lead to legal actions as well as campus discipline.
16. Sexual Harassment - You may not sexually harass, either verbally or physically, any member of the College community, including other students, employees, or other persons on the College campus.
17. Use of the Internet - The College has an extensive policy on appropriate use of the Internet. Users of the College computers acknowledge the policy whenever they sign on. You may not use the College's access to the Internet for e-mail or access to sexually explicit material.

**Code of Classroom Conduct:** Asheville-Buncombe Technical Community College is an institution for adult learning. It is a partnership between instructors with the desire to teach and students with the desire to learn. In order to create an appropriate environment for teaching and learning to flourish, there must be respect for the instructor and fellow students. Listed below are guidelines for classroom behavior which the College has established to ensure that the learning environment is not compromised.

1. Attendance: You are expected to be in class the entire class time. Do not enter late or leave early. Rare exceptions may be excused, particularly under emergency circumstances, but you should be prepared to explain your tardiness to the instructor after class. Likewise, the need to leave early should be explained to the instructor before class.
2. Absences: Inform the instructor in advance, if you know you are going to miss a class. Also, take responsibility for getting missed assignments from other students. Do not expect that you will be allowed to make up work, such as unannounced quizzes or tests, after an absence. Instructors are not responsible for re-teaching the material you missed because of absence.
3. Conversation: Do not carry on side conversations in class.
4. Other Activities: You may not work on other activities while in class. This includes homework for other courses or other personal activities.
5. Internet: In classes where Internet access is provided, you may use the Internet for valid, academic purposes only. You may not use it for open access to other non-academic sites which are unrelated to the course.
6. Sleep: Do not sleep in class.
7. Attitude: You are expected to maintain a civil attitude in class. You may not use inappropriate or offensive commentary or body language to show your attitude regarding the course, the instructor, assignments, or fellow students. Keep in mind that all electronic interactions (e-mail, chats, discussion forums, etc.) are extensions of the classroom and should be treated as such. Unacceptable language and behavior will be addressed as if you were sitting in the classroom.
8. Profanity and Offensive Language: You may not use profanity or offensive language in class.

9. Cell phones and beepers: You may not receive or send telephone calls or pages during class. You are responsible for turning off cell phones and beepers upon entering class.
10. Guests: You may not bring unregistered friends or children to class.
11. Food, Drink, Tobacco Products: You may not have food or drink in class. You may not use tobacco products on the campus of A-B Tech. **It is the policy of Asheville-Buncombe Technical Community College that tobacco use is not permitted on A-B Tech's campuses. A-B Tech is tobacco-free.**
12. Personal Business: You may need to transact personal business with the instructor, asking him or her to sign forms. Plan to do this before instruction begins or after class.

Typically, violations of the Code of Classroom Conduct will be dealt with as minor infractions. However, repetition of minor infractions or other more serious violations of the Code of Student Conduct may lead to removal from the classroom while the matter is resolved and referral to the Vice President for Student Services for disciplinary action.

## **NETIQUETTE**

### **General**

1. Understand that typed messages lack cues normally associated with face-to-face conversation. Without these supporting cues for context, satire or sarcasm can come across in unintended ways.
2. Use parenthetical explanation to explain meanings that might be misunderstood.
3. Do not criticize spelling or grammar but do check your own spelling, punctuation, and grammar.
4. Don't use all capital letters. In the online world, this is the equivalent of shouting and it is difficult to read.
5. All lowercase letters indicate mumbling.
6. Be brief and to the point.

### **Subject Lines**

1. Keep subject lines short.
2. Make subject lines informative by indicating the content of the message.
3. Make subject lines clear and unambiguous.

### **Replying**

1. If you excessively reply to ongoing discussions and include the original message, your messages will be very long and hard to follow.
2. For simple messages, quoting the original message when replying will clarify your response.
3. Using carets to indicate lines of text that are quoted.

**Email**

1. Unless you are explicitly given permission, don't publicly post email sent to you in private.
2. Recognize that instant delivery of email does not guarantee an instant response.
3. If you are sending information from another source, pay attention to whether the material is copyrighted and cite sources.
4. For important messages, compose a draft in a word processor so you can spell check it.
5. Be careful when addressing emails. One character out of place, or a ".com" suffix when the person's email really ends with ".edu", and your message won't be delivered.
6. If it is going to take considerable time to reply fully, try to acknowledge receipt of a message promptly and let the sender know that you will answer.

**Attachments**

1. Do not send huge attachments.
2. When you're replying to a message that has an attachment, do not include the attachment again.
3. Avoid sending attached files that lack filename extensions (that's because some computers won't be able to open them).

**Flaming**

1. Do not flame! Flaming refers to derogatory, abusive, threatening, sarcastic, rude, or otherwise mean-spirited messages directed at people.
2. If a message provokes a negative emotional response, put it away for a while, then reread it and see if you're misinterpreting it. If you don't understand a particular item, ask the sender for clarification before replying to an incorrect conclusion.
3. Messages are not secure. Remember, it's very easy for someone else to forward messages you thought were confidential.
4. Apologize. If there's been a misunderstanding or miscommunication, you can often nip a flame war in the bud by a brief apology.
6. Don't write anything that you won't want other people to be able to see for a long time (posts can be archived for years).

## **Discussions**

1. **Lurk before you leap.** Lurking is visiting without participating. While it's rude to make a habit of lurking, a little lurking can acquaint you with rules and procedures, help you get the "lay of the land," and prevent embarrassment.
2. **Avoid posting non-informative messages on bulletin boards.** Chat is more like a telephone, so saying "Me, too!" or "I don't know" is accepted. But on bulletin boards, people don't like to read postings that aren't substantive.

## **Chat**

1. **Remember that chat rooms are "logged"** (i.e., a record is kept of conversations).
2. **Do not disrupt chat rooms by pasting large blocks of text into the input box** (thus causing the screen to scroll faster than other users are able to type) or otherwise act in a manner that negatively affects other users' ability to engage in real time exchanges.
3. **If you are having a conversation that is off the main topic, please move to another chat room.**
4. **If you are a fast typist, please pause occasionally to let slower typists contribute to the discussion.**

## **California State University at Fullerton**

Excerpted from Bramucci, Robert. Cal State Fullerton.

**Other Information:** Students may receive assistance before class, after class, or at other times. Requests for extra help, except for brief questions, should be scheduled in advance. Additional help in math and related courses is available in Developmental Studies, Ferguson Building, Room 118. The hours are from 9am-6:30pm M-Th, and 9am-1:00pm on Friday.

**Calculator:** A graphing calculator is required for this course. The TI-84 Plus Silver Edition will be the calculator used by the instructor. Your calculator may be cleared before testing. It is the responsibility of students to learn the proper use of their calculator.

**Academic Dishonesty:** You may not deceive any official of the college by cheating on any assignment, exam, or paper. This includes plagiarism, which is the intentional theft or unacknowledged use of another's words or ideas. Plagiarism includes (but is not limited to) paraphrasing or summarizing another's words or works without proper acknowledgement, using direct quotes of material without proper acknowledgement, or purchasing or using a paper or presentation written or produced by another. The faculty at A-B Tech may also consider presenting as original work a paper written for one class to satisfy a requirement in another class to be academic dishonesty.

**Homework:** Homework will consist of problems selected by the student and also assigned online problems.

**Test Items:** “Fair game” test items or lab problems include any theory or types of problems in the text assignments, other assignments, or class presentations.

**Statement of Right to Make Changes:** Changes in the syllabus, schedule, or other aspects of the course may be made at any time and will be announced in class.

**MAT 172**  
**PRECALCULUS TRIGONOMETRY**  
**Content Outline**

**CHAPTER 6 EXPONENTIAL AND LOGARITHMIC FUNCTIONS**

- 6.1 Composite Functions**
- 6.2 One-to-One Functions and Inverse Functions**
- 6.3 Exponential Functions**
- 6.4 Logarithmic Functions**
- 6.5 Properties of Logarithms**
- 6.6 Logarithmic and Exponential Equations**

**CHAPTER 7 TRIGONOMETRIC FUNCTIONS**

- 7.1 Angles and Their Measure**
- 7.2 Right Triangle Trigonometry**
- 7.3 Computing the Values of Trigonometric Functions and Acute Angles**
- 7.4 Trigonometric Functions of General Angles**
- 7.5 Unit Circle Approach and Properties of the Trigonometric Functions**
- 7.6 Graphs of the Sine and Cosine Functions**
- 7.7 Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions**

**CHAPTER 8 ANALYTIC TRIGONOMETRY**

- 8.1 The Inverse Sine, Cosine, and Tangent Functions**
- 8.2 The Inverse Trigonometric Functions Continued**
- 8.3 Trigonometric Identities**
- 8.4 Sum and Difference Formulas**
- 8.5 Double-Angle and Half-Angle Formulas**
- 8.6 Product-to-Sum and Sum-to-Product Formulas**
- 8.7 Trigonometric Equations**
- 8.8 Trigonometric Equations Continued**

**CHAPTER 9 APPLICATIONS OF TRIGONOMETRIC FUNCTIONS**

- 9.1 Applications Involving Right Triangles**
- 9.2 The Law of Sines**
- 9.3 The Law of Cosines**

**CHAPTER 10 POLAR COORDINATES; VECTORS**

- 10.1 Polar Coordinates**
- 10.2 Polar Equations and Graphs**
- 10.3 The Complex Plane and De Moivre's Theorem**
- 10.4 Vectors**
- 10.5 The Dot Product**

**CHAPTER 11 ANALYTIC GEOMETRY**

- 11.1 Conics**
- 11.2 The Parabola**
- 11.3 The Ellipse**
- 11.4 The Hyperbola**

**SCHEDULE  
SPRING SEMESTER 2009**

**MAT 172 Precalculus Trigonometry**  
Section WN1  
Elm 344  
Monday 6:00-8:50 pm

**MAT 172A Precalculus Trigonometry Lab**  
Section N1  
Elm 344  
Wednesday 6:00-7:50 pm

<u>Monday</u>	<u>Wednesday</u>	<u>ACTIVITY</u>
<b>Jan 12</b>		<b>6.1-6.2</b>
	Jan 14	LAB on 6.1-6.2
<b>19</b>		<b>KING HOLIDAY</b>
	21	6.3-6.4
<b>26</b>		<b>6.5, LAB on 6.3-6.4-6.5</b>
	28	6.6-7.1
<b>Feb 2</b>		<b>LAB on 6.6-7.1, Review for test on Chapter 6</b>
	Feb 4	* TEST I (Chapter 6), 7.2
<b>9</b>		<b>Review Test I, 7.3-7.4</b>
	11	LAB on 7.2-7.3-7.4
<b>16</b>		<b>7.5-7.6-7.7</b>
	18	LAB on 7.5-7.6-7.7
<b>23</b>		<b>* Review for test on Chapter 7, TEST II (Chapter 7), 8.1</b>
	25	Review TEST II, 8.2
<b>Mar 2</b>		<b>8.3, LAB on 8.1-8.2-8.3</b>
	Mar 4	8.4-8.5
<b>9</b>		<b>8.6, LAB on 8.4-8.5-8.6</b>
	11	8.7-8.8
<b>16</b>		<b>LAB on 8.7-8.8, Review for test on Chapter 8</b>
	18	*TEST III (Chapter 8), 9.1
<b>23</b>		<b>Review TEST III, 9.2-9.3</b>
	25	LAB on 9.1-9.2-9.3
<b>30</b>		<b>* Review for test on Chapter 9, TEST IV (Chapter 9), 10.1</b>
	Apr 1	Review TEST IV, 10.2
<b>Apr 6</b>		<b>10.3, Lab on 10.1-10.2</b>
	8	10.4, LAB on 10.3
<b>13</b>		<b>EASTER HOLIDAY</b>
	15	SPRING BREAK
<b>20</b>		<b>10.5, Lab on 10.4-10.5</b>
	22	*Review for test on Chapter 10, TEST V (Chapter 10)
<b>27</b>		<b>Review Test V, 11.1-11.2, LAB on 11.2</b>
	29	11.3-11.4
<b>May 4</b>		<b>LAB on 11.3-11.4, Review for test on Chapter 11, Review for Exam</b>
	Dec 6	* TEST VI (Chapter 11)---Review Test VI
<b>11</b>		<b>*** Review for Exam---FINAL EXAM</b>

**NOTE: April 7---LAST DAY TO WITHDRAW WITHOUT PENALTY**  
Up to three days missed because of inclement weather may be made up.

**Dear Student,**

**Welcome to the Mathematics Department!**

**We look forward to working with you and providing you with the very best education in mathematics.**

**We are a seven-member team that boasts a combined experience of over one-hundred-fifty years in professional education. We are extremely proud of our services and our accomplishments, and we always strive to maintain the best of quality instruction and as well as adherence to high academic standards and goals. Because of this dedication, we enjoy an excellent academic reputation with the surrounding upper-division colleges and universities in the region. It is a high priority to maintain this reputation, and consequently the value of your degree.**

**In order to be successful in your Math class and to ensure that other students have the learning environment they deserve, we require that you adhere to the Code of Student Conduct located in your Student Handbook, and on your syllabus. A positive learning environment makes it much easier for any student to achieve their goals.**

**If it is necessary for you to discuss any personal issue with your instructor, it is imperative that you do so during their office hours or during an out of class appointment. We are happy to meet with you to talk about any issue that is relevant to your participation in class, or your grade in the course. We have appropriate and time-proven suggestions that should help you.**

**As a student at AB-Tech, it is expected that you to keep up with the class, turn in assignments on time, and take responsibility for your education. The instructor will assist you in every way possible that does not compromise the integrity of the course itself. Our reputation depends on it.**

**Again, Welcome to AB-Tech and have a great semester!**

**R. Trent Codd, Jr.; Chairman; AA, BS, BSCS, MA, EASGC; 38 years of experience  
Jerry L. Ashe; Instructor; AA, BS, MS; 22 years of experience  
Jackie Caldwell; Instructor; BS, MA; 20 years of experience  
Karma Crouch; Instructor; BS, MA Ed; 23 years of experience  
Valerie Martin; Instructor; AA, BA, MS; 8 years of experience  
Tammy Pagan; Instructor; AA, BS, MS; 20 years of experience  
Robby Webb; Instructor; BA, MA; 23 years of experience**

**Acknowledgement**

I have been provided access to the course syllabus for MAT 172 Precalculus Trigonometry and understand what is expected of me and agree with the provisions set forth in the syllabus.

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Name

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Student I.D. Number

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Signature

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Date