

**SYLLABUS**  
**MAT 140**  
**SURVEY OF MATHEMATICS**

**Summer 2009**

**Faculty Information**

**Instructor:** R. Trent Codd, Jr., AA, BS, BSCS, MA, EASGC  
**Email Address:** tcodd@abtech.edu  
**Office:** Elm 339  
**Phone:** 254-1921 ext. 813

**Course Information**

**Course Title:** Survey of Mathematics  
**Course Number:** MAT 140 D1  
**Credit Hours:** 3  
**Contact Hours:** 3  
**Class Location:** ELM 344  
**Class Meeting Time:** MTW 09:30-10:50 AM

**Course Description** This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics may include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural science/mathematics.*

**Prerequisite:** MAT 070 or MAT 080

**Textbook:** Angel, Abbott, Runde, A Survey of Mathematics with Applications, 8<sup>th</sup> Edition, ISBN: 0-321-50107-1, Addison/Wesley 2009

**Course Goal:** Upon completion, students should be able to demonstrate both an understanding of the theoretical concepts and appropriate use of linear algebra models to solve application problems.

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

- Use matrix algebra to solve systems of linear equations.
- Use probability to solve problems related to odds, expected value, conditional probability, counting, and combinations.
- Use Boolean logic circuitry to construct a binary adder.
- Use synthetic methods to write a numeral in any base.
- Use financial formulas to determine interest, payment, APY, and amortization tables.

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

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

1. Demonstrate effective speaking, writing, reading and listening skills.
2. Demonstrate proficiency in analyzing problems and making logical decisions through locating, evaluating, and using information.
3. Demonstrate proficiency with math skills and/or natural sciences knowledge by organizing and analyzing information to come to logical conclusions.
4. Demonstrate basic competency in computer technology.
5. Demonstrate knowledge of cultural diversity.

**Grading Policy:** You will have **class participation** opportunities and **5 unit tests** throughout the semester. **Makeup tests will not be given.** If for any reason it is necessary for you to withdraw from this class, you must complete the appropriate form and submit it to the Records and Registration Office by the deadline. If you quit attending class without completing the appropriate forms your grade will become an "F". The final grade will be  $\frac{3}{4}$  the average of your tests and  $\frac{1}{4}$  the average of your class participation scores. **A(90-100), B(80-89), C(70-79), D(60-69), F(below 60)**

**Attendance Policy:** 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.

### **Summer Session - 2009**

Registration: Current and Continuing Students	<b>May 4 - 8</b>
General Registration	<b>May 11 - 15</b>
Last Day to Pay Tuition and Fees	<b>May 15*</b>
<i>* Unpaid registrations will be deleted from the computer registration system at 4:30 p.m.</i>	
Late Registration	<b>May 18 - 22</b>
Last Day to Pay Tuition and Fees for Late Registration	<b>May 22*</b>
<i>* Unpaid registrations will be deleted from the computer registration system at 4:30 p.m.</i>	
New Student Welcome	<b>May 22, 9:00 a.m.</b>
Memorial Day College Holiday	<b>25-May</b>
Classes Begin	<b>26-May</b>
Schedule Adjustments	<b>May 26 - 27</b>
Last Day to Apply for Summer Graduation	<b>22-May</b>
Last Day to Drop for a Partial Refund	<b>8-Week Session: May 29</b> <b>10-Week Session: June 1</b>
Independence Day College Holiday	<b>3-Jul</b>
Last Day to Withdraw	<b>8-Week Session: July 7</b>
10-Week Session: July 10	
Last Day of Class/Examinations	<b>8-Week Session: July 21**</b>
<i>** July 21 will be scheduled as a Friday make-up day for both sessions.</i>	
Summer Graduation	<b>7-Aug</b>
Total Class Days	<b>8-Week Session: 40</b> <b>10-Week Session: 50</b>

***All dates in this calendar are subject to change***

**Code of Student Conduct:** 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.

**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 in the buildings of A-B Tech.
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.

**Other Information:** Additional help in math and related courses is available in the Academic Learning Center, located in Laurel 112, 114, 116, and 118. The Center will be open for the summer session from 9:00 AM – 6:30 PM Monday through Thursday, and from 10:00 AM – 12:00 PM on Friday.

**Calculator:** A graphing calculator is required for this course. The TI-86 will be the calculator used by the instructor for instruction purposes.

**Statement of Right to Make Changes:** I reserve the right to make changes in the syllabus. Any changes will be announced in class.

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**MAT 140  
SURVEY OF MATHEMATICS  
Content Outline**

**Exercises listed below are recommended for Skills Practice**

1. 4.3 Systems of Numeration : **exercises # 3 – 50**
  2. 3.1 Statements and Logical Connectives : **exercises # 9 – 103**
  3. 3.2 Truth Tables : **exercises # 5 – 68**
  4. 3.3 More Truth Tables : **exercises # 7 – 78**
  5. 3.4 Equivalent Statements : **exercises # 9 – 84**
  6. 3.5 Symbolic Arguments : **exercises # 13 – 60**
  7. ## Logic Gates and the Binary Adder : **Handout 1**
  8.     **\*\* EXAMINATION 1 \*\***
  9. 7.3 Matrices : **exercises # 12 – 66**
  10. 7.4 Solving Systems of Equations Using Matrices : **exercises # 7 – 24**
  11. 7.5 Systems of Linear Inequalities : **exercises # 3 – 19**
  12. 7.6 Linear Programming : **exercises # 7 – 17**
  13.     **\*\* EXAMINATION 2 \*\***
  14. 11.2 Simple Interest : **exercises # 19 – 32**
  15. 11.3 Compound Interest : **exercises # 7 – 44**
  16. 11.5 Mortgages and Amortization : **Handout 2**
  17.     **\*\* EXAMINATION 3 \*\***
  18. 12.1 Empirical Probability : **exercises # 15 – 30**
  19. 12.2 Theoretical Probability : **exercises # 13 – 72**
  20. 12.3 Odds : **exercises # 9 – 38**
  21. 12.4 Expected Value : **exercises # 9 – 28**
  22. 12.5 Tree Diagrams : **exercises # 7 – 27**
  23.     **\*\* EXAMINATION 4 \*\***
  24. 12.6 Disjunctions and Conjunctions : **exercises # 13 – 80**
  25. 12.7 Conditional Probability : **exercises # 5 – 70**
  26. 12.8 Counting Principle and Permutations : **exercises # 9 – 62**
  27. 12.9 Combinations : **exercises # 7 – 49**
  28. 12.10 Probability with Counting Rules : **exercises # 9 – 43**
  29.     **\*\* EXAMINATION 5 \*\***
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**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.**
5. **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 Full

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**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**

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MAT 140  
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**Your Acknowledgement**

I have been provided access to the course syllabus, understand what is expected of me, and agree with the provision set forth in the syllabus.

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Your name

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Your student I.D. Number

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Your signature

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Date