Technical Math II (Mth 86)   Spring 2012

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Times & Locations   CRN 21191   TuTh   7:15 – 9:00   MOD 104, Bend Campus

Text: Mth 86 Course Pack, Spring 2012.

Supplemental Materials: Calculator, scratch paper.

Help! *Regular office hours:*   TR 12:00 – 1:00 (Redmond).   I encourage all of you to contact me anytime you are having difficulties with the course material or assignments. You are welcome to stop by my office anytime or arrange another time to meet. Just let me know.

Free drop-in tutoring is available 7 days a week in the Bend Tutoring Center (library's lower level). In addition to Bend, there is tutoring available in Redmond. See COCC's web site for the tutoring schedule (tutortest.cocc.edu). I encourage you to take advantage of the free tutoring and it's a good place to do homework because you can get instant help when you need it.

If you have experienced test anxiety consider attending HD_100_TT. Additional courses are offered for those who want to improve their study skills. If you have any issues that would affect your success at COCC please check with the CAP center in the basement of the Library or visit their web sites.

> cap.cocc.edu/CAP+Testing/testtips/   or   cap.cocc.edu/Personal+counseling/

Course Description: Mth 86 is an introductory course covering the geometric relationships as well as the function relationships in trigonometry.   In addition, algebra concepts are expanded upon and mathematical modeling is introduced. Real-world applications and group projects are emphasized. A graphing calculator is required.

Preparation: You should have successfully (B- or better) completed COCC's Mth 85 or its equivalent or tested into this class. If you decide to take this class even though you do not meet these prerequisites, be aware that you will have to work extra diligently to succeed in the class. Due to the pace of this course you will have little time to play catch-up. If you have any concerns as to your preparedness for this class please speak to me the first day so I can help get you on track.

Outside Effort: For this course, like most College courses, students should expect to spend two hours outside of class for every hour inside of class. (~8 hrs/wk) Those of you with less than stellar math skills should plan to spend extra time outside of class. As with most classes, what you get out of this course is directly proportional to what you put in.

Calculators and Technology: A full range graphing calculator is a must. I recommend the TI-83 (any model). I will use the TI-83+ in classroom demonstrations since that is what most students have. Some of you may already have another calculator which is fine. – However, you are responsible for knowing how to use it. There are very few restrictions on your calculator use. Calculators that are part of cell phones or PDA's will not be allowed in testing situations.

Evaluation

Class Participation: You are expected to participate in class. Bring your calculator and scratch paper each day.

Homework: I will generally assign homework every day. It will usually be due the next class day after it is assigned. Since there may be problems you could not complete or have questions about you will have until 5 pm to turn in the homework. Please ask me about anything you don't understand -- during class or outside of class. I will not 'grade' your homework, only check that you did it.

- Consider your homework in the same light as you would a salaried job.
- Homework must be **neat** and **organized**!!!!!!!
- Homework is due by 5:00 pm on the due day. Late homework receives zero credit.
- Show your work! Box or circle your answers!
- You are expected to self-check your answers against the answer keys.
- Please staple multiple pages (a paper clip is a less desirable alternative).
- **No** mangled, ragged or irregular pages!
- You are encouraged to ask questions concerning the homework during class.
- You are highly encouraged to **work in groups** and to **use the COCC tutors**.
- You are highly encouraged to use your instructor.
- In this class, ✓ means the answer is correct and ✗ means that the answer is wrong.

Tests: There are two in-class exams scheduled plus a comprehensive final exam. You will not be allowed to consult your notes or textbook during an exam. You will need to use a calculator. In all cases, you must show your work and it must be legible for full credit. If you need to reschedule an exam, you must contact me prior to the exam. You test average is based on the best three out of the four exams.

⇨ *In all cases, if you are going to miss an exam you must make **prior arrangements** for rescheduling that exam. Failure to make prior arrangements will result in a zero for that exam.* ⇦

Labs/Projects: A lab/project is more extensive than a homework problem. Usually, there will be a written component that complements the mathematics. Projects may be worked on as a group -- sometimes I will assign groups, sometimes I'll let you choose your own groups. Learning to communicate your ideas to your peers and to work together effectively is a part of this course. I realize that you may not be able to work with others outside of class, so I will let you turn in individual projects. But, I highly encourage you to work in teams. Late or messy projects will be severely penalized.

Final Grade: Your grade will be based on:

8 Labs/Projects (best 7 of 8):	20%
2 Midterm Exams + Final Exam (best 2 of 3):	70%
Homework	10%

Grading Scale: 100% -- **A** -- 90% -- **B** -- 80% -- **C** -- 70% -- **D** -- 60% -- **F** -- 0%.

At any time you may check your grade or locate assignments at my on-line class schedule.

Cell phone use during class is absolutely inappropriate.
Cell phones must be off and out of sight.

Grading Scenarios

	HW	Labs	Exams	Net Score
Skips HW/Quizzes, aces projects/exams	0%	100%	100%	80%
Does all HW, aces projects but does poorly on exams	100%	100%	67%	80%
Does all HW, aces projects but mediocre on graded work.	100%	100%	70%	80%

Cheating or Plagiarism: You are highly encouraged to work together and help each other. However cheating or plagiarism on any assignment or test will result in a zero being recorded for that item, and may result in an F for your final course grade.

Behavior: At all times, I expect you to abide by the behavior guidelines for COCC students. Your rights and responsibilities are detailed at studentlife.cocc.edu/Policies/Rights+and+Responsibilities/. Failure to abide by these guidelines will result in notification to Student Life and can result in dismissal from the class.

Discrimination Policy: Faculty, staff and students are protected from discrimination and harassment under Title VII of the Civil Rights Act of 1964 and Title IX of the Education Amendments of 1972. It is the policy of the Central Oregon Community College Board of Directors that there will be no discrimination or harassment on the basis of age, disability, gender, marital status, national origin, color, race, religion, sexual orientation or veteran status in any educational programs, activities or employment. Persons having questions about equal opportunity and nondiscrimination should contact the Equal Employment Officer, c/o COCC's Human Resources office, (541) 383-7216. COCC is an affirmative action, equal opportunity institution.

ADA Statement: Students with documented disabilities who may need accommodations, those who have any emergency medical information the instructor should know of, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as early as possible, no later than the first week of the term. Students may also wish to contact Anne Walker, the **Coordinator of Services for Students with Disabilities**, (541) 383-7743.

Withdrawing from the Course: You may drop this class (and receive no grade) by submitting a drop form at the Boyle Center (BEC) or using the on-line BANNER system, without an instructor's signature, through the 7th week. After that, if you want to withdraw from the class, you must obtain your instructor's signature then turn in the drop slip at BEC; your grade will be a W. The last day to withdraw is Wednesday, the last week of regular classes. If you do not formally drop the class, but just stop coming, you will receive an F.

Catalog Course Description: (**Math 86: Technical Mathematics II**)

Mth 86 is an introductory course and the second term in a two-term sequence in Technical Mathematics.

Mth 86 two main topics of study: (a) an introduction to basic trigonometry and its applications and (b) an introduction to mathematical modeling. More specifically, Mth 86 is designed: (1) to expand/extend geometry to include trigonometry, (2) to extend the concepts of algebra to include mathematical modeling and (3) to develop relationships between verbal, numeric, algebraic and geometric entities. These concepts will be used to form the foundation of modeling and solving applied, real-world, and theoretical mathematics problems which are presented in this course. A graphing calculator is required.

Mth 86 has the competencies from Mth 85 which is a prerequisite. The course is <u>not</u> college-transferable. Mth 86 is a 4 credit hour (quarter system) course.

Performance Based Outcomes in Mathematics

Students who successfully complete any mathematics course at COCC will be able to:

1. *Work independently to explore mathematical applications and models, and to develop algebraic/symbolic, graphical, numerical, and narrative skills in solving mathematics problems.*

2. *Work as a member of a group/team on projects or activities that are designed to explore mathematical applications and models.*

3. *Use both written and oral skills to communicate about mathematical concepts, processes, complete mathematical solutions and their implications.*

4. *Use a variety of problem solving tools including symbolic/algebraic notation, graphs, tables, and narratives to identify, analyze, and solve mathematical problems.*

5. *Develop mathematical conjectures and use examples and counterexamples to examine the validity and reasonableness of those conjectures.*

6. *Create and analyze mathematical models of real world and theoretical situations, including the implications and limitations of those models.*

7. *Use appropriate technologies to analyze and solve mathematics problems, and verify the appropriateness and reasonableness of the solution(s).*

Specifically, students who complete Math 86: Technical Mathematics II will be able to:

*   model and solve applied, real-world, and theoretical mathematical problems involving right-triangle and oblique-triangle trigonometry. [1, 2, 4, 5, 6]

*   model and solve problems involving vectors in two dimensions both algebraically and graphically and understand the relationship between the methods and solutions.

*   model and solve problems using symbolic, graphic and numeric strategies and translate among written descriptions, symbolic, graphic and numeric representations of functions.

*   model and solve applied, real-word, and theoretical mathematical problems which may require solving equations or systems of equations in one or more variables. [4, 5, 6]

*   create, analyze, draw inferences and make predictions from charts, tables and graphs summarizing data from real-world and theoretical situations. [4, 5, 6]

*   represent mathematical relationships using tables, graphs, patterns, generalizations and equations. [4, 5, 6]

Graphing calculators (required) are broadly integrated into the course. [7]

Week	Tuesday	Thursday
1	Syllabus, Prerequisites The Graphing Calculator Heron's Formula	pg 432: 1-49 (skip radians) Lab #1
2	pg 438: 1-16	pg 447: 4-84 (by 4) Lab #2
3	pg 454: 1-105 (by 8) Practice w/ Random Triangles	Lab#3
4	pg 456: 111-117, pg 466 1,2,3	pg 466: 4-13 Lab #4
5	pg 496: 5-25 (by 5)	pg 507: 1-12, pg 517: 1-12 Lab #5
6	pg 507: 13-20, pg 517: 13-20	Outcomes/Reviewfor Exam 1 Warm Up for Exam 1 Exam 1 (in class)
7	Introduction to Functions and Mathematical Modeling	Fri, Last day to drop w/o W Lab #6
8		Lab #7
9		Lab #8
10	Exam 2 Study Guide Exam 2 (in class) Wed, Last day to drop class (signature req'd)	Final Exam Study Guide Piecewise Picture (extra credit)
Finals		**Our Final Exam is on 6/14 (TUESDAY)** 8:00-10:00