



**CENTRAL
OREGON
COMMUNITY
COLLEGE**

Technical Math I (Mth 85)

Fall 2015

Instructor Franz Helfenstein

Office Grandview 218, Bend Campus

Phone 383-7730 (Bend Office) 382-2430 (home) Fax: 541-330-4353 (Bend)

e-mail fhelfenstein@cocc.edu

Web Site www.cocc.edu/fhelfenstein/

Times & Location CRN 41277 TuTh 3:15 - 5:00 RDM 305, Redmond Campus

Text: Mth 85 Course Pack, Fall, 2015 (a fairly recent course pack also works) Available Electronically!

Supplemental Materials: Calculator, scratch paper, and ruler with both metric and US scales.

Help! *Regular office hours:* Wed 10:15 - 3:00 (Bend), Tu 5:00-5:30 (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 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 85 is a relatively **fast-paced** course covering measurement conversions, error analysis, introductory algebra topics and geometry as well as their applications.

Preparation: You should have successfully (B- or better) completed COCC's Mth 20 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 hard 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 for this class please speak to me.

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 calculator is a must. 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, so it is highly recommended that you get a stand-alone calculator for use in daily work. I recommend the TI-34 Multiview. **Note:** For Mth 86 you will need a graphing calculator e.g. TI-83-84.

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

Evaluation

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

Quizzes: You will have 14 take-home quizzes.

Homework: I 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 a one-class grace period 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**!!!!!!
- 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).
- 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.

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. Your test average is based on the best two out of the three exams.



*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.*



Projects: A project is more extensive than a homework problem. Learning to produce professional looking documents associated with mathematics is a part of this course. Late or messy projects may be severely penalized by 50%.

Final Grade: Your grade will be based on:

Homework	5%
Quizzes	10%
2 Projects:	20%
Two Midterm Exams + Final Exam (best 2 of 3):	65%

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

At any time you may **check your grade, locate assignments, lookup COCC's finals' schedule** or other important **COCC timelines** at my on-line class schedule.
Blackboard or coccweb.cocc.edu/fhelfenstein/fall.htm

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 85: Technical Mathematics I)

Mth 85 is an introductory course and the first term in a two-term sequence in Technical Mathematics.

Mth 85 has a two-fold goal: first, to introduce/develop basic algebra and geometry skills and second, to apply those skills to (level-appropriate) real-world problems. More specifically, Mth 85 is designed: (1) to expand/extend "order of operations" to rational numbers, (2) to develop and practice the basic concepts of algebra together with the basic operations on algebraic expressions and equations (3) to develop a wide variety of geometric properties and relationships and (4) 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.

Mth 85 has the competencies from Mth 20: Pre-Algebra as prerequisites; no prior knowledge of algebra is assumed, and the course is not college-transferable. Mth 85 is a 4 credit hour (quarter system) course.

Performance Based Outcomes in Mathematics

Students who successfully complete any mathematics course at Central Oregon Community College 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 85: Technical Mathematics I will be able to:

- use the arithmetic of real numbers and order of operations.
- solve mathematical problems requiring solving linear equations.
- graph points using a two-dimensional Cartesian coordinate system.
- model and solve applied, real-world, and theoretical mathematical problems which may require solving equations or systems of equations in one or more variables.^{4,5,6}
- analyze, draw inferences and make predictions from graphs

All rational numbers and operations may be used in representing relationships. The full range of the number line will be employed. Two-dimensional or three-dimensional Cartesian graphs may be used.

Students will be able to use scientific calculators to perform multi-step rational number computations requiring order of operations. Graphing calculators are not required for this course.⁷

Week	Tuesday	Thursday
1	Syllabus , Download Text Book , Prerequisite Skills Order of Operations Review, Your Calculator pg 9-10; pg 16: 1-25	pg 25: 1-76 Pick 10 to check your skills. Do enough to feel confident. pg 27: 95-108, Quiz 1 Project 1 - Solar Assignment , Diagrams
2	Fractions, pg 34: 29,30,33,43-50; pg 42: 117-127 odds pg 40: Pick 10 to check your skills. Do enough to feel confident. Roots and Exponent Rules: pg 45: 2-16 evens; Quiz 2	Scientific Notation pg 53: 1-36 pick one from each row pg 53: 38-46 evens; pg 55: 13-20; Quiz 3
3	Rounding, Accuracy, Error in Measurements, Substitution pg 70: 4-44, divisible by 4 (ie 4,8,12,16,...44) pg 71: 45-63 odds; pg 75: pick any 5; Quiz 4	Calculations with ft-in, Basic Geometry, Graphing pg 83: 10-15; pg 88: 12,13,14,22,27 pg 96: Chap 1 Test; Quiz 5 Project 1- Solar Assignment Due Today
4	Converting Measures, Metric System, Dimensional Analysis pg 124: 1-10 all; pg 124: 12-64 evens; pg 127-128: pick any 5 Project 2- Brian's Siding (Project 2) ; Quiz 6	Ratio Proportion Applications, Percent Applications pg 133: all evens; pg 144: 3-21 odds; pg 148: 2-20 evens Quiz 7
5	In-class Review for Exam; Sample Exam w/ Key Blackboard Review for Exam 1	Outcomes Exam 1 , Study Guide Exam 1 (w/ key) Exam 1 (in class)
6	Absolute & Relative Error, Introduction to Algebra pg 156: Chapter 2 Test; pg 167: evens pg 172-173: evens; Quiz 8	Solving Algebraic Equations pg 186-187: 4-100 (by 4); Quiz 9 Chapter 2 Project Due Today (Approx Sol'n)
7	Solving Literal Equations (Formulas) pg 193: 4-28 (by 4), 31-61 (by 5); Quiz 10	Working with Non-linear Equations pg 201: 5-60 (by 5), pg 205: 1-41 (by 5) pg 210: 1,2,3; Quiz 11 Fri, Last day to drop w/o W
8	Introduction to Geometry- All Things Circular pg 226: 1-10; pg 230: 1-17 odds; Quiz 12	Geometry- All Things Triangular pg 233: 3,5,8; pg 240: 1-6,13,17; pg 248: 1,5,8,11,17; pg 256: 1,2,3,6,7,13,14,19,23,27; Quiz 13
9	Irregular Areas & Volumes; pg 268: 1-8,15,17,19,28 Quiz 14 Review for Exam 2 Blackboard Review for Exam 2	Thanksgiving Holiday No Classes- COCC Closed
10	Outcomes for Exam 2 & Final Exam Exam 2 (in class) Wednesday is the Last day to drop class (signature req'd)	Wrap-up and Final Exam Study Guide
Finals	Final Exam Thursday 3:15-5:15 pm Optional Project 3 & 4 Due	