Math 115: Technical Mathematics
Spring 2017 Section 501 CRN 40373
Syllabus

Instructor: Elaine Clark **Office:** Academic Bldg. Room 142C

Office Hours:

I will be on campus (UNM-Valencia) most days, Monday through Thursday, from 9:30 AM to 4:00 or 5:30 PM, except for meetings on Wednesdays at 1:30. I will post my actual schedule each week in Learn. I can be available on Skype, BlueJeans, or in person for appointments.

Phone: 925-8618 (my office, yes I have voice mail), 925-8600 (Academic office)
email: ewclark@unm.edu or send a message in UNMLearn. I will check email Monday through Thursday afternoon unless I am out of town, and *usually* on Fridays. If you send a message over the weekend (Friday through Sunday), I will likely not see it until Monday morning.

Course Prerequisite

In order for you to enroll in this course you need to have passed Math 100 or Math 022 with a C or better, or have tested into the course. If you have not met the prerequisite you will be dropped from the course.

Course Overview

This course is designed for students in a technical trade, Allied Health, or Tech Prep program. There is an expectation for minimal background in mathematics (meet high school graduation requirements). For some of you, several topics may be "easy," for others, these same topics may present a challenge, especially if it has been some time since you have done mathematical calculations and solved problems algebraically. We will begin with basic arithmetic operations on real numbers (whole numbers, fractions, decimals). We will delve into measurement in both the American Standard and International (metric) systems. We will do some algebra and work with geometric formulas. There are also sections on trigonometry and statistics. All of this will give you an overview of the types of mathematics you will likely use in technical and health fields.

Course Learning Objectives

You will find a complete list of the course learning objectives at the end of this syllabus. I will also let you know in each unit which learning objectives are met.

Text and Tools - Required

- The text for this course is "Basic Technical Mathematics," `10th Edition, by Allyn J. Washington. We will cover sections from all chapters of the book. You will need to purchase the book with a ***MyMathLab access code***, so buying this book used or renting it may not be the best options.

  MyMathLab Course code: clark03846

On the other hand, the book is embedded as an e-text in MyMathLab, http://www.pearsonmylabandmastering.com/northamerica/mymathlab/, so you do not need to purchase a hard copy of the book unless you prefer not to read material on a computer or mobile device. However, the HTML version of the etext is not yet available, so if you need a book that is readable by a device, you may wish to purchase the hardcopy.

- In addition, you should purchase the following tools:
  - Ruler (with both American Standard and Metric units)
  - Protractor
  - Grid or graph paper
  - Paper, pencil and eraser

This is an online course so Internet access is required. Also, it will help if you have access to some sort of video camera. The one on your phone, if you have one, will be adequate. Most communications for this course, and activities and projects will be posted in Learn. You should check in Learn at least once a week. There will also be assignments posted in MyMathLab. Be aware of deadline dates, they may not always be the same.

Course Grade

Your Course Grade will come from:

- Homework assignments 15%
- Activities and Discussion Postings 15%
- Quizzes in MyMathLab 20%
- Projects/papers 20%
- Midterm Exam 10%
- Final Exam 20%

Check Learn regularly for postings or changes of assignments and due dates.

Depending on the grading option you have chosen, your final course grade will be determined as follows:

- You will receive an A in the course if you have a weighted average of 90% or better.
- You will receive a B in the course if you have a weighted average of 80% to 89%.
- You will receive a C in the course if you have a weighted average of 70% to 79%.
- You will receive a D in the course if you have a weighted average of 50% to 69%.
- You will receive an F in the course if you have a weighted average less than 50%.
- You will receive a CR in the course if you have a weighted average of at least 70%.
- You will receive an NC in the course if you have a weighted average less than 70%.

I do not usually give a + grade unless you are on the borderline between two letters in which case I may give the C+ for example instead of the B-. I give the D+ instead of the C- because a C- is not a passing grade. **You must earn a C or better to pass this course.**

Homework Assignments – 15% of your course grade

Each week, for each unit except Unit 0, you will have

- A computational assignment due in MyMathLab. You must score at least a 60% on the computational assignments in order for the unit quiz to open. You can go back and redo the computational assignments as many times as you like to improve your score, even past the due date, so it is conceivable that you could score 100% on all of these. I will stop tracking your grade on these computational assignments just before finals week. These are worth **10 Homework Points each**.
- A writing exercise to turn in through Learn. Do not forget to do these assignments. They will be posting in Learn instead of MyMathLab, so it will be easy to forget unless you develop the habit of logging into Learn for each unit. These are worth **5 Homework Points each.**

Your Homework assignments score will be a weighted average of all the computational assignments and writing exercises you have completed out of the total possible.

Activities and Discussion Postings – 15% of your course grade

Since this is an online class, you do not have the luxury of seeing your classmates in person, or me for that matter, during the week.

- Discussion postings are in Learn and provide a way for you to interact with your classmates. Each posting will have information about the number of points it is worth, and a rubric explaining the point distribution. If you do not post to the discussion forums by the indicated due dates, you will not receive credit for that posting. **Point values on these will vary**, so see what it says for that posting.
- Activities will also be posted in Learn and provide extra practice on topics that are often difficult for students. It is important for me to see how you approach the problem so I can give you feedback, so be sure to show your work on these activities. I will take the activities up to one week after the due date, but if an activity is late, your final score will be docked points. Activities generally count for **10 A&D points each**.

Your Activities and Discussions score will be a weighted average of all of the activities and discussions you complete out of the total possible.

Quizzes in MyMathLab – 20% of your course grade

There is a quiz or test for each unit posted in MyMathLab. For the Unit 0 test *only* you will receive 10 points for completing it on time no matter what your score is. For all other quizzes you will receive the final score on that quiz as shown in MyMathLab. You must score at least a 60% on the corresponding computational assignment before the quiz will open.

The deadlines for quizzes are fixed. You cannot work past deadline on these unless you request an extension. I will allow you up to 4 extensions on quizzes during the semester. This is extensions for up to 4 quizzes. I will not automatically give these extensions just because you missed a quiz deadline, you will need to request the extension. Also, periodically I will review your quizzes, and if I disagree with the score MyMathLab gave you, I will adjust your score. **Each quiz is worth 10 quiz points.**

Your Quiz score will be the average of all of the quizzes you completed out of the total possible.

Projects – 20% of your course grade

You will have 3 projects to complete in this course. Descriptions of what you will need to do to complete these projects will be posted in Learn. Each project will be worth 100 points and your score out of the total 300 points will count for 20% of your course grade.

Midterm Exam – 10% of your course grade

The midterm exam will be a written exam, not on the computer. **You will need to take it in person.** If you cannot come to Valencia Campus or Zimmerman Library at main campus during one of the times I offer for you to take the midterm, you will need to arrange a proctor. The proctor must be someone who is officially employed at a testing center, a public library, or a school, or, if you are in the military or reserves, the proctor can be your commanding officer or designated representative. I must be able to verify their employment or rank. You will need to provide me with contact information at least two weeks before the midterm exam is scheduled so that I can communicate with this person.

Final Exam –20% of your course grade

The requirements for the final exam are the same as for the midterm exam. The final exam will be cumulative.

Time to allot for this course: Plan right now to spend an average of 9 to 12 hours per week on the assignments for this course. This time cannot all be lumped on the weekend; you will need to spend some time during the week as well. There is no guarantee you will pass if you dedicate this amount of time, you still need to demonstrate understanding of the material and use your time wisely, but you will likely not pass if you don't spend enough time on the assignments.

Support: If you are struggling in this course, do not be afraid to ask for help!

- Ask My Instructor: Do not be afraid to click on the Ask My Instructor button in MyMathLab!
- Office Hours: I have office hours Monday through Thursday in various places. Feel free to come by or log into Skype or BlueJeans for online hours or make an appointment to get help.
- Form study groups: You may work together with other members of our class. However, for work meant to be done individually and turned in for a grade, you will need to write what *you* know, not regurgitate a consensus of the group. ***For example, if I receive Project submissions from two or more people that are identical, all students involved will receive a zero for that assignment.***
- Free Tutoring: The Learning Commons has free tutoring and open labs. Call 505-925-8907 for more information. There is also tutoring available in the STEM center and I will be spending one hour a week there. Call 505-925-8553 for more information.
- Other Tutoring: If you do not live in the Albuquerque or Valencia County area you should explore other options for tutoring. There are generic online tutoring sites available on the Internet, but be aware that you often get what you pay for. In other words, if it is free, it may not be that great.
- Online Resources: In Blackboard Learn I will post various resources for you. These will include a link to Kahn Academy, a folder with SmartPen recordings that I have created, and a folder with lectures I will create from time to time. Be sure to check out these resources and open the sample recording to make sure they work properly.

Plagiarism and Not Doing Your Own Work

It's a bad idea to plagiarize or to have other people do your work for you. Refer to the UNM-Valencia Catalog for the campus policy on "Dishonesty in Academic Matters." If I receive assignments from two or more people that are supposed to be done individually (for example, the homework assignments), and that are basically identical, you will *all* receive a zero for that assignment.

Netiquette and Behavior Expectations

One of the overriding principles in online conversations is to "craft your responses effectively." It is sometimes difficult to remember that there are real people reading posted messages. This is especially true of online communication where others do not have the opportunity to see body language or hear tone of voice; therefore, they have a greater possibility of misunderstanding what is meant.

Please, follow these guidelines in all of your online responses and discussion postings.

- Honor everyone's right to an opinion.
- Respect the right of each person to disagree with others.
- Respond honestly but thoughtfully and respectfully; use language which others will not consider foul or abusive. You may also use emoticons to convey a lighter tone.
- Respect your own privacy and the privacy of others by not revealing information which you deem private and which you feel might embarrass you or others
- Be prepared to clarify statements which might be misunderstood or misinterpreted by others.

A Special Note about Anger

- Do not send messages that you have written when you are angry, even anonymous ones. In the online world, angry messages are known as "flaming" and are considered bad behavior. Venting and flaming are two different things. It is possible to vent without sounding angry. Stick to the facts of what is causing you frustration.
- Do not send messages that are written all in upper case; this is the visual equivalent of SHOUTING. It is considered aggressive and is considered bad behavior. If you ever feel like shouting a message, take a deep breath and wait until you have calmed down before responding. Then, respond in a calm and factual manner.

In the discussion threads in Blackboard Learn I will provide a thread for venting. These postings will be anonymous and will allow you to vent any frustration you are feeling about MML, the course, and math in general. Sometimes I may answer these posts if there is an issue that needs addressing.

ADA and Students with Disabilities

If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that your accommodations are provided in a timely manner. The person to call for evaluation and documentation is Jeanne Lujan at (505)925-8910. Also, here is their web site so you can check out accommodations and support that is available to you: http://www.unm.edu/~vcadvise/equalaccess.htm .

Title IX Statement: In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 - http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html.

Student Learning Outcomes for Math 115

Addresses UNM core area 2/HED Area II: Mathematics (Liberal Arts Math Competencies)

Upon completion of this course, students will demonstrate competence (70% or better) in the following areas:

Course Goal #1: Communication
SLO 1: Students will use correct mathematical notation and terminology.
SLO 2: Students will correctly interpret graphical representations of information.
SLO 3: Students will explain (orally and/or in writing) the steps needed to solve a problem.
SLO 4: Students will analyze solutions to equations and formulas, and give them contextual meaning.

Course Goal #2: Real Number Arithmetic
SLO 1: Students will correctly add, subtract, multiply, and divide common fractions.
SLO 2: Students will correctly add, subtract, multiply, and divide decimal fractions.
SLO 3: Students will correctly add, subtract, multiply, and divide integers.
SLO 4: Students will correctly evaluate exponents and radicals.
SLO 5: Students will correctly perform calculations and solve problems in which some values are percents.
SLO 6: Students will correctly convert between common fraction, decimal fraction, and percent notation.
SLO 7: Students will correctly use the Order of Operations.
SLO 8: Students will correctly solve proportional equations.

Course Goal #3: Measurement
SLO 1: Students will correctly use tools to find accurate measurements in both the American Customary and Metric measurement systems.
SLO 2: Students will correctly convert between units within and between both the American Customary and Metric measurement systems.
SLO 3: Students will correctly interpret significant digits from recorded measurements.

Course Goal #4: Basic Algebra
SLO 1: Students will correctly solve for a variable in linear and quadratic equations.
SLO 2: Students will correctly solve for the indicated variable in a formula.
SLO 3: Students will correctly add, subtract, multiply, and simplify algebraic expressions.

SLO 4: Students will correctly convert contextual statements (word problems) into algebraic expressions and equations.
SLO 5: Students will correctly complete calculations with scientific notation.

Course Goal #5: Plane Geometry and Solid Figures (2-D and 3-D)
SLO 1: Students will correctly compute perimeter, circumference, area, volume, and surface area of 2-D and 3-D geometric figures.
SLO 2: Students will correctly measure various attributes of 2-D and 3-D geometric figures.
SLO 3: Students will correctly solve contextual problems involving 2-D and 3-D geometric figures.

Course Goal #6: Triangle Trigonometry
SLO 1: Students will correctly use the Pythagorean Theorem to solve problems as applied to right triangles.
SLO 2: Students will correctly use basic trigonometric ratios to solve problems as applied to right triangles.
SLO 3: Students will correctly use the Law of Sines and/or the Law of Cosines to solve problems as applied to oblique triangles.

Course Goal #7: Statistics
SLO 1: Students will correctly read and construct graphs from data.
SLO 2: Students will correctly calculate measures of central tendency.

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Preliminary Schedule (subject to change as needed)

Week	Date	Day	Assignments Due	Topic(s)	Sects. in Text
Martin Luther King Holiday, Monday, January 16					
	1/18	Wed.	Orientation;	Unit 0:	Sects.
1	1/22	Sun.	Week 1 Assign. Due	Basic Algebraic Operations	1.1 through 1.6
	1/24	Tues.		Unit 1: Operations on	Sects.
2	1/26	Thurs.	Unit 1 Comp. Assign.	Polynomials, Solving	1.7 through 1.12
	1/27	Fri.	**Project 1 due**	Equations & Formulas,	
	1/29	Sun.	Unit 1 Quiz	Applications	
Last day to add a class or change grade mode January 27 by 5:00 PM					
	1/31	Tues.	Writing exercise	Unit 2: Review of Geometry	Chapter 2
3	2/2	Thurs.	Unit 2 Comp. Assign.	Basics	
	2/3	Fri.	Activity		
	2/5	Sun.	Unit 2 Quiz		
Last day to drop without a grade is February 3 by 5:00 PM					
	2/7	Tues.	Unit 3 Comp. Assign.	Unit 3: Coordinate Plane,	Sect. 3.3
4	2/9	Thurs.	Comp. Assign. P2	Systems of Measurement,	Appendix B
	2/10	Fri.	Activity	Direct Measurement	Add'l sources
	2/12	Sun.	Unit 3 Quiz P1 & 2		
	2/14	Tues.	Discussion or writing	Unit 4: Trigonometric	Chapter 4
5	2/16	Thurs.	Unit 4 Comp. Assign.	Functions	
	2/17	Fri.	Activity		
	2/19	Sun.	Unit 4 Quiz		
	2/21	Tues.		Unit 5: Systems of Linear	Sects.
6	2/23	Thurs.	Unit 5 Comp. Assign.	Equations and Applications;	5.1 - 5.5; 16.5
	2/24	Fri.	**Project 2 due**	Gaussian Elimination	
	2/26	Sun.	Unit 5 Quiz		
	2/28	Tues.	Discussion or writing	Unit 6: Factoring	Sects.
7	3/2	Thurs.	Unit 6 Comp. Assign.	Polynomials, Multiplying &	6.1 - 6.6
	3/3	Fri.	Activity	Dividing Fractions	
	3/5	Sun.	Unit 6 Quiz		
	3/6	Mon.	Review for Midterm Exam		
8	3/10	Fri.	**Midterm Exam must be taken in person by 5:00 Friday, March 10**		
9	**Spring Break Sunday, 03/12 thru Sundary, 03/19**				
	3/21	Tues.		Unit 7: Adding and	Sects.
10	3/23	Thurs.	Unit 7 Comp. Assign.	Subtracting Fractions,	6.7, 6.8,
	3/24	Fri.	**Project 3 due**	Solving Quadratic Eqs.	7.1-7.3
	3/26	Sun.	Unit 7 Quiz		
	3/28	Tues.	Discussion or writing	Unit 8: Exponents and	Chapter 11
11	3/30	Thurs.	Unit 8 Comp. Assign.	Radicals	
	3/31	Fri.	Activity		
	4/2	Sun.	Unit 8 Quiz		

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Week	Date	Day	Assignments Due	Topic(s)	Sects. in Text
12	4/4	Tues.	Discussion or writing	Unit 9: Exponential and Logarithmic Functions	Chapter 13
	4/6	Thurs.	Unit 9 Comp. Assign.		
	4/7	Fri.	Activity		
	4/9	Sun.	Unit 9 Quiz		
13	4/11	Tues.		Unit 10: Inequalities and Linear Programming	Chapter 17
	4/13	Thurs.	Unit 10 Comp. Assign.		
	4/14	Fri.	**Project 4 due**		
	4/16	Sun.	Unit 10 Quiz		
Last day to drop without Dean's permission is Friday, April 14 by 5:00 PM					
14	4/18	Tues.	Discussion or writing	Unit 11: Variation	Chapter 18
	4/20	Thurs.	Unit 11 Comp. Assign.		
	4/21	Fri.	Activity		
	4/23	Sun.	Unit 11 Quiz		
15	4/25	Tues.	Discussion or writing	Unit 12: Statistics	Chapter 22
	4/27	Thurs.	Unit 12 Comp. Assign.		
	4/28	Fri.	Activity		
	4/30	Sun.	Unit 12 Quiz		
16	5/2	Tues.	Review for Final Exam	Catch up week	
Final Exam must be taken in person by 5:00 Thursday, May 11					