Math 2118: Mathematics for Elementary and Middle School Teachers III

Sect. 501 CRN 53342

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Instructor Information

Instructor: Elaine Clark **Office:** Arts & Sciences Bldg. Room 142C, UNM-Valencia
Phone: 925-8618 (my office), 925-8600 (Academic office)
email: ewclark@unm.edu or send a message in Learn. I will check email Monday mornings through Thursday afternoons and usually on Sunday afternoons unless I am out of town or it is a university holiday. Expect a response within 24 hours to email messages sent Sunday afternoon through Thursday. If you send me a message on Friday or Saturday, expect a message no later than the following Monday.

Office Hours:

In my office, A142C (Face to Face and Online):

Tuesday 12:00 to 1:30 PM
Wednesday 11:30 AM to 12:30 PM
Thursday 11:00 AM to 12:30 PM

In-Person only (Math Center or LRC 119):

Monday 3:15 to 4:15 PM
Wednesday 5:45 to 6:15 PM

Other hours by appointment. I can be available in the evenings or on Fridays or Sundays to meet online if there is need. I am also on campus most days by 10:00 AM and can meet as needed (unless I have a meeting already scheduled).

Be sure to check my weekly schedule posted in Learn to make sure I have not changed availability. Occasionally I may have an unexpected or impromptu meeting come up that takes me away from the office. It is a good idea to let me know you are coming so I don't run off.

Course Prerequisites

The current prerequisite for this course is a grade of C or better in Math 111 or Math 1110 or Math 1118.

Starting Fall 2020 the prerequisites will be a grade of C or better in Math 111 or Math 1110 or Math 1118 AND one of the options below:

- a grade of C or better in Math 1215X
- Next Gen Accuplacer Quantitative Reasoning score of 250
- ACT score of 19

Course Overview

This course covers algebra from the viewpoint of elementary school curriculum with emphasis on proportional and linear relationships. This includes operations on fractions (nonnegative rational numbers). Also included: data analysis and other topics with connections to the elementary curriculum. Problem solving is emphasized throughout.

Student Learning Outcomes

Course goals and course-level student learning outcomes are listed at the end of this syllabus. Also, familiarize yourself with the Common Core State Standards (CCSS) addressed in Math 2118. These standards have been adopted by the State of New Mexico, in addition to many other states, and may be referred to throughout the semester. http://newmexicocommoncore.org/mathematics/

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Text and Tools

Required Text: *Mathematics for Elementary Teachers with Activities* (5th edition) by Sybilla Beckmann. We will cover topics from these chapters in our text: 3, 5, 6, 7, 9, 11, 12, 15.

An e-text will be automatically available to you inside our class in Learn. In order to not be billed for access to this e-text, you will need to opt out by February 6. See email sent by the University Bookstore.

Internet and Computer (required): You will need reliable access to a computer, high-speed internet, and the ability to upload free software to access the online materials. All the programs we use should be fully compatible with mobile devices – phones, tablets, laptops, etc. You will also need administrative rights to download free software or plug-ins or add-ons on the computer you plan to use for this course. If you do not own a computer, be sure you schedule time to spend in the computer labs on campus or in a public library.

UNM Learn (required): You will need access to Blackboard UNM Learn. This is the primary program we will use for communication in the class. You will use your UNM NetID to log into UNM Learn. You may access it directly via http://learn.unm.edu

Four-Function Calculator: A calculator will be useful from time to time. Some of you may be familiar with using the calculator provided on your cell phone, but simple four-function calculators are very inexpensive and a little easier to use than your cell phone in a group setting. That said, do not count on using your calculator to help you ***explain*** how to do the math we will be doing.

Paper, Pencil, and Eraser: Some people can do mathematical calculations in their heads but the purpose of this course is to show and explain all the steps of the calculations you are asked to complete. Also, though some people may be able to do things perfectly the first time, for mathematics it is best to use a pencil. I usually carry along an extra eraser.

Time for this Course

This is a three-credit-hour course so plan right now to spend a minimum of ***6 to 9 hours per week*** outside of class for homework and assignments. Explanation is a key part of the what you are learning in this class and making sense of what is going on in mathematics takes time. Do not try to complete homework assignments just before class time, but begin working on them as soon as possible after I introduce the topic in class.

Course Grade

Your Course Grade will be based on your performance on the following:

Homework assignments	220 points (10 points each assignment)
In-class attendance/participation	230 points (10 points for each class day)
Term Exams (3 of these)	300 points (100 points each exam)
Project/Paper	100 points (50 points each for Project 1 and Term Paper)
Portfolio	50 points
Final project	100 points
Total	1000 points

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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 reserve the right to assign a + or – to a letter grade. **You must earn a C or better to pass this course.**

You can resubmit almost any graded assignment for a higher score if you would like (this includes term exams), but resubmissions are due within a week of when you received it back graded or by deadline on class schedule. You cannot resubmit your portfolio or final project for a higher score. Due dates for all assignments are on the tentative class schedule at the end of this syllabus. Be sure to check in Learn in case there is a change in due date.

Homework Assignments

Completing homework assignments on time is critical to your success in this class. Expect to do 2 to 3 hours of homework for every hour of class meeting time (an average of 6 to 9 hours per week). There will be approximately 24 assignments to turn in, each worth 10 points. This means that you can miss 2 assignments and still earn the 220 points.

Explaining

For all written assignments, do not ***just*** show me that you know how to complete the problem. You also need to explain what you did and why you did it. The audience for your work should be another student in this class who is having a difficult time. That student should be able to look at your paper, read what you wrote, and think, "Aha! I get it!" That said, do not actually share your work with another student and let them copy. Each homework assignment turned in should at the end be the work of the student whose name is at the top of the page. When I grade these assignments, I will be looking for whether you

- addressed all mathematical components presented by the problem,
- showed and ***explained*** all steps and calculations,
- used notation properly,
- structured answers well so that it is easy to follow the thought process,
- wrote everything legibly (can I read it?).

Attendance/Participation

Attendance is expected in this course. Tardiness or early departure may be regarded as an absence.

I *will* drop you if one of the below events occurs:

- You miss the first two days of class
- You have two or more absences in the first three weeks of class
- You are not turning in assignments during the first three weeks of class

If I drop you from the class or you drop yourself, you will still have to pay for access to the book unless you drop or opt out by February 6.

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After February 7 I will not drop you from the class unless you specifically ask me to. Please note that it is your responsibility to drop the course if you stop attending. A failing grade of F may be assigned if you stop attending and do not drop before the posted deadline.

Participation in the class means being on time and in class for the whole scheduled time. Also, we will have several group activities you will complete during class. Do not ask your group members to back up and explain what they did during the class time you missed.

Each class day counts for 10 attendance/participation points. If you are absent for a class, you can still complete the in-class activity for half of those points. Notice that once you have your 230 points you have enough for that part of your grade – this means you can be absent on some days. I work very hard to make attending class worth your time, so if you miss class you *will* miss something worthwhile.

Term Exams

There are three exams during the course of the term. These exams will be take-home. I should not receive identical papers from two or more people – these are not "group tests." I want you to have time to think about your explanations for the questions posed. Each exam is worth 100 points.

Projects

There is a project for you to complete early in the semester, a term paper that will be due about mid-semester, and a final project you will complete. These are:

- Project 1 – complete a scale drawing. Details available separately. Worth 50 points.
- Term Paper – find out about the NCTM. Details available separately. Worth 50 points.
- Final Project – teaching demo. You will create a lesson that pertains to a topic we cover in this class ***and*** that uses a children's book. These will be individual projects and how you want to present the lesson will be up to you as long as you can do it within the time constraint. Worth 100 points.

Portfolio

I would like you to keep a binder/portfolio containing all of your notes, handouts, and graded work. This needs to be a three-ring binder with section dividers. You may wish to organize your binder by content (notes, handouts, homework, etc.) or by the topics (numeration, adding whole numbers, etc.), but it needs to be organized. At the end of the semester you will also include a self-reflection page – more about this to come later. The portfolio is worth 50 points in your final grade.

Extra Credit

I may on occasion provide an extra credit opportunity. These will be added in as appropriate. No more than 10% of your course grade can come from extra credit points.

Other Important Information

Student Behavior

All students must abide by the Student Code of Conduct as stated in the Pathfinder: http://pathfinder.unm.edu/. According to the Code of Conduct, student activities that interfere with the rights of others to pursue their education or to conduct their University duties and responsibilities will lead to disciplinary action. This includes any activities that are disruptive to the class and any acts of academic dishonesty.

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Students are expected to behave in a courteous and respectful manner toward the instructor and their fellow students. Texting during class is not permitted, not even during group work. If you have a cell phone it must be silenced or set to vibrate. If you must take a call, please step out of the classroom even during group work. Some people like to have a laptop, netbook, or tablet in class to take notes and look up information on the Internet. As long as your use of a computer or mobile device does not disturb those around you, and as long as what you are doing is pertinent to the class, this is acceptable. If, however, you are doing something that does not have to do with what is happening in class I will ask you to put the device away.

No food is allowed in the classroom and only drinks that are in closed containers.

If you exhibit any behavior that is disruptive or I consider as endangering myself or other students, you will be asked to leave and I will report the incident to the director of Student Services.

Plagiarism and Not Doing Your Own Work

It is a bad idea to plagiarize or to have other people do your work for you. If I receive assignments from two or more people that are supposed to be done individually (for example, the homework assignments and unit tests), you will *all* receive a zero for that assignment.

Equal Access

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. It is up to you to obtain documentation of a disability by contacting Equal Access Services at Valencia Campus. I will not guarantee accommodation if I do not receive the appropriate documentation within the first two weeks of the semester.

Title IX

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. 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

Semester Deadline Dates

Jan 31, 2020: Last day to ADD a class or to CHANGE grade mode on LoboWEB
Feb 7, 2020: Last day to DROP without "W" grade and 100% tuition refund on LoboWEB
April 17, 2020: Last day to DROP without Dean's permission on LoboWEB
May 8, 2020: Last day to CHANGE grade mode with form or to ADD or CHANGE credit hours with form or to DROP with Dean's permission.

Help: If you are struggling, seek help immediately. In addition to my office hours, there is extra help available at main campus:

- CAPS: Center for Academic Program Support, 3rd floor Zimmerman Library, 277-4560 (tutors are students)
- Math Ed Table: Days and times TBD, located at instructor table in SMLC 230 (tutors are instructors)
- CATS: Counseling and Therapy Services, Student Health Center, 277-4537 (for test anxiety, etc.)

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Tentative Schedule of Topics

Week	Topics Covered
1 Jan 20-Jan 24	MLK Day – No School Monday **Unit 1: Measurement and Proportional Reasoning** • Chapter 11: Measurement, Dimensions, Formal Units (Sects. 11.1, 11.2)
2 Jan 27-Jan 31	• Length, Precision and Accuracy, Informal Units (Sects. 11.1, 11.3) • Areas of Rectangles, Moving and Additivity (Sections 12.1, 12.2)
3 Feb 3-Feb 7	• Areas of Parallelograms and Other Polygons (Sects. 12.3, 12.4) • Area and Circumference of Circles and the Number Pi (Sect. 12.6)
4 Feb 10-Feb 14	• Motivating and Defining Ratio and Proportional Relationships (Sect. 7.1) • Solving Proportion Problems by Reasoning with Multiplication and Division (Sect. 7.2)
5 Feb 17-Feb 21	• Using graphs and unit rates for comparisons; Converting from One Unit of Measurement to Another (Sect. 7.3, 11.4) • **Start Exam 1** • **Project 1**
6 Feb 24-Feb 28	• **Take-Home Exam 1 due** **Unit 2: Explaining Rational Number Operations and Problem Solving** • Review Fractions (Sects. 2.2, 2.3, 2.4) • Adding Fractions and Decimals (Sect. 3.4)
7 Mar 2-Mar 6	• Subtracting Fractions and Decimals (Sect. 3.4) • Multiplying Fractions (Sect. 5.1)
8 Mar 9 – Mar 13	• Multiplying Decimals (Sect. 5.2) • Dividing Fractions from the How-Many-Groups Perspective (Sect. 6.4)
9 Mar 16 – Mar 20	SPRING BREAK – no classes
10 Mar 23 – Mar 27	• **Midterm Portfolio Check** • Dividing Fractions from the How-Many-Units-in-1-Group Perspective (Sect. 6.5) • Dividing Decimals (Sect. 6.6) • **Start Exam 2**
11 Mar 30 – Apr 3	• **Take-Home Exam 2 due** • **Work on Term Paper**
12 Apr 6-Apr 10	• **Term Paper due** **Unit 3: Elementary Algebra, Applications, and Data Analysis** • Understanding the importance of notation - equivalence and equal sign (Sect. 9.3) • Decoding word problems and mixed operation word problems (various sections)
13 Apr 13 – Apr 17	• Creating context – writing word problems (various sections) • Solving Algebra Word Problems with Strip Diagrams (Sect. 9.4)
14 Apr 20-Apr 24	• Sequences (Sect. 9.5) • Formulating Statistical Questions, Gathering Data, and Using Samples (Sect. 15.1)

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15 Apr 27 – May 1	• **Start Exam 3** • Displaying Data and Interpreting Data Displays (Sect. 15.2) • The Center of Data: Mean, Median, and Mode (Sect. 15.3)
16 May 4 – May 8	• **Exam 3 due** • **Portfolios due, work on final projects**
17 May 13	• **Final Project presentations**

Course Goals and Student Learning Outcomes

Goal 1: Understand data analysis from the viewpoint of elementary school curriculum, such as making and interpreting dot plots, pictographs, and bar graphs.

SLO 1: By the end of the course, students will be able to display, analyze, and interpret data.

Goal 2: Know how to use appropriate vocabulary, notation, and reasoning in valid mathematical explanations.

SLO 2: By the end of the course, students will be able to construct valid mathematical explanations.

Goal 3: Understand problem solving in the context of mathematical applications.

SLO 3: By the end of the course, students will be able to model and solve a variety of mathematical applications using various approaches relevant to the K-8 curriculum.

Goal 4: Understand the interconnectedness of elementary mathematical concepts and relate these concepts to application problems.

SLO 4: By the end of the course, students will be able to describe real-world situations that model expressions and equations.

Goal 5: Understand algebraic concepts from the viewpoint of elementary school curriculum.

SLO 5: By the end of the course, students will be able to demonstrate understanding of algebraic concepts of the K-8 curriculum.