Instructor: Ms. Brittany McLean

Phone: TBA

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Office Hours: Please contact instructor to schedule

Location: Online

Course Title: Concepts of Elementary and Middle School Mathematics

Texts: Material will be provided using MyLabMath, others by the instructor along with a textbook available to be reserved in the library.

Billstein, R., Boschmans, B., Libeskind, S., Lott, J.W. (2019). *A Problem Solving Approach to Mathematics for Elementary School Teachers*. (13th ed.). Boston: Pearson.

> ****We will be using MyLabMath through Pearson online, so your textbook will be an e-text. The bookstore should have the information.**
>
> Textbook ISBN-13: 9780135183885
>
> ****I will provide a Google Classroom and Pearson code for our class***

Credit: 4 credit hours

Course Description: This course will provide you with the proper foundation for and understanding of the mathematical concepts encountered in elementary school, middle school, Algebra 1, and Geometry. Topics will include, but are not limited to, the structure and properties of number systems, the set of Real numbers, algebraic modeling and thinking, Euclidean Geometry. Investigations through labs and technology of these topics will highlight the underlying principles of where our algorithmic rules come from.

Course Objectives: Students will deepen their understanding of –
- Number systems (bases) and their structure
- Set of real numbers including: basic operations, number sense, and properties
- Rational Numbers including: modeling, computation, and estimation
- Algebra including: functional idea of equality, operations with monomials and polynomials, algebraic fractions, linear and quadratic equations and inequalities, linear systems equations and inequalities, radicals and exponents, arithmetic and geometric sequences and series, algebraic and trigonometric functions, and transformations among graphical, tabular, and symbolic forms of functions
- Geometry including: geometric figures, Pythagorean Theorem, perimeter, area, surface area of 2D and 3D figures, coordinate and transformational geometry
- Probability and Statistics including: permutations and combinations, experimental vs theoretical, and measures of central tendency
- Preparation for the Mathematical portion of the Elementary Praxis

Course Requirements and Evaluation: The student is responsible for all material in class. Most assignments are due at the beginning of the next class unless otherwise noted. In order to complete the assignments before the deadline, the student should follow the recommended schedule for that week. (Weekly Schedule Attached)

Class Attendance/Participation: Students are expected to attend class and participate in class. This **includes eliminating distractions such as cell phones** and other devices when it is not required for class activities.

Homework: These assignments will require the student to scan some their homework to submit it via the class website which the instructor will provide instructions. In order for a student to receive full or partial credit, the student **must** show all their work in their own handwriting. Other homework assignments are required to be done on MyLabMath.

Quizzes/Tests: There will be quizzes and tests through the semester (approximately either a quiz or test every week). Quizzes and tests will be done and submitted via Randolph College pledge system. Some quizzes and tests are required to be done on MyLabMath and your handwriting work will be turned in for partial credit.

Final Exam: Follow Randolph College's system for final exam procedure.

Grade Distribution:
Class Participation/Attendance: 10%
Homework: 15%
Quizzes: 15%
Tests: 45%
Final Exam: 15%

Grading Scale:
A   93—100
A-   90—92.9
B+   87—89.9
B   83—86.9
B-   80—82.9
C+   77—79.9
C   73—76.9
C-   70—72.9
D+   67—69.9
D   63—66.9
D-   60—62.9
F   0—59.9

Important Dates: Summer Session
Please review important dates on Randolph's webpage so you are aware of the following:
First Day and Last Day
Drop Day
Withdrawal Day
Final Exams Days
Any Holidays

This calendar may be changed at the instructor's discretion.
Changes will be discussed in class and posted on Google Classroom.

Week	Date	Topic	Extra Resources	Activities/Homework
1	May 20	Numeration Systems & Whole Numbers: o **Numeration System** o Add, Sub, Multiple, Divide Whole Num.	TB Ch. 3.1-3.5	3.1 3.2 3.3 3.4 Quiz Ch. 3
		Number Theory o **Divisibility**, **Prime** & **Composite** Num. o **GCD** and **LCM** o Integers o Add, Sub, Multiple, Divide Integers	TB Ch. 4.1-4.3 TB Ch. 5.1-5.2	4.1 4.2 4.3 Quiz Ch. 4 5.1 5.2 Test Ch. 3-5
2	May 27	Rational Numbers & Proportional Reasoning: o Rational Numbers: Add, Sub, Mult, Div o **Proportional** Reasoning	TB Ch. 6.1-6.4	6.1 6.2 6.3 6.4 Quiz Ch. 6
		Decimals, Percents, and Real Numbers: o Terminating & Repeating **Decimals** o Operations on Decimals o **Percents** and Real Numbers	TB Ch. 7.1-7.5	7.1 7.2 7.3 7.4 7.5 Quiz Ch. 7 Test Ch. 6-7
3	June 3	Algebra Thinking: o **Variables** and **Functions** o Equals Relation and **Equations** o Equations in a Cartesian Coord. System	TB Ch. 8.1-8.4	8.1 8.2 8.3 8.4 Quiz 8
		Probability: o Determining, Counting, & Techniques Data Analysis/Statistics o Displaying Data o **Central Tendency** and Variation	TB Ch. 9.1 TB Ch. 10.2-10.4	9.1 10.2 10.3 10.4 Quiz Ch. 9-10

4	June 10	Geometry 　o Basic Notations 　o Curves, **Polygons**, and Symmetry 　o **Angles and Dimensions**	TB Ch. 11.1-11.4	11.1 11.2 11.3 11.4 Quiz Ch. 11 Test Ch. 8-11
5	June 17	Area, Pythagorean Theorem, and Volume: 　o **Linear Measure** 　o **Areas** of Polygons and Circles 　o Pythagorean Theorem, Distance 　o Surface Area 　o Volume and Mass	TB Ch. 13.1-13.5	13.1 13.2 13.3 13.4 13.5 Quiz Ch. 13
6	June 24	Review Final Exam Final Exam (Cumulative)		