**MATHEMATICS 1150 < Section #>**

# Elements of Algebra and Statistics for Elementary and Middle School Teachers

**< Semester, Year>**

**< Days, Time, Location>**

**Instructor:**

**Office:**

**Phone/Text**:

**Email:**

**Office hours:** < office hours and location>
**Prerequisite**: MATH 1100.

**Textbook:**

*MATHEMATICS: A Problem-Solving Approach for Elementary School Teachers,*12th ed, by Billstein Libeskind and Lott, Pearson/Addison Wesley

If you already purchased an access code for this text for either Math 1100 or 2250, then you don’t need purchase anything. Otherwise, you have the following options for the textbook:

Option 1: Paper Book ISBN-13:9780321756664

Option 2: Mymathlab access code (which includes the e-text) at the bookstore, the Bookmark, or at www.mymathlab.com.

**Description**: Functions, relations, sequences, discrete structures, probability, data analysis, and descriptive statistics. Restricted to students in multiple subjects’ credential and education specialist credential programs. **This course satisfies General Education Area B4; it is graded ABC/NC**

**Student learning outcomes:**Students who successfully complete this course will be able to:
1. represent patterns, including relations and functions, through tables, graphs, verbal rules, or symbolic rules, including functions and their graphs, reading and creation of functions, graphs and tables, linear, quadratic and exponential functions, functions defined by more than one formula, practical applications, and modeling including nonlinear models,

2. explain the concept of rational numbers, using both ratio and decimal representations; analyze the arithmetic algorithms for these two representations; and justify their equivalence,

3. analyze the structure and properties of whole, rational, and real number systems; define the concept of rational and irrational numbers, including their decimal representation; and illustrate the use of a number line representation,

4. use mathematics to represent and analyze quantitative relationships between dependent and independent variables in real-world problems,
5. find equivalent expressions for equalities and inequalities, explain the meaning of symbolic expressions (e.g., relating an expression to a situation and vice versa), find the solutions and represent them on graphs, and recognize and create equivalent algebraic expressions, and represent geometric problems algebraically,

6. have a basic understanding of linear equations and their properties (e.g., slope, perpendicularity); the multiplication, division, and factoring of polynomials; and graphing and solving quadratic equations through factoring and completing the square,

7. interpret graphs of linear and quadratic equations and inequalities, including solutions to systems of equations,

8. represent a collection of data through graphs, tables, or charts, incorporating technology as appropriate,

9. understand the mean, median, mode, and range of a collection of data,

10. have a basic understanding of the design of surveys, such as the role of a random sample,

11. interpret a graph, table, or chart representing a data set,

12. investigate patterns of association in bivariate data (e.g., linear associations, goodness of fit) in scatter plots and frequency tables,

13.draw conclusions about a population from a random sample, and identify potential sources and effects of bias,

14. define the concept of probability in terms of a sample space of equally likely outcomes,

15. use their understanding of complementary, mutually exclusive, dependent, and independent events to calculate probabilities of simple events,

16. express probabilities in a variety of ways, including ratios, proportions, decimals, and percents, and

17. find probabilities of compound events using various representations.

**Requirements:**

**Grading system:**

**ADA statement:** Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation.

**Academic honesty statement:** Students are expected to do their own work. Copying the work of others, cheating on exams, and similar violations will be reported to the University Discipline Officer, who has the authority to take disciplinary actions against students who violate the standards of academic honesty.

**Student responsibilities:** Students are responsible for being aware of all announcements that are made in class, such as changes in exam dates, due dates of homework and papers, and cancellation of class due to instructor's absence. Students are responsible for announcements made on days that they are absent **Students must check their CSULA email account regularly** for information from the instructor and the Department Failure to do so may result in missed deadlines or other consequences that might adversely affect students. Note that you can forward this email account to any other account of your choosing.

**Important Dates**