

Saint Leo University School of Arts and Sciences
MAT 151
COLLEGE ALGEBRA

Course Description:

Topics include solving higher order polynomial and rational equations and inequalities, logarithmic as well as exponential equations. Graphs and zeros of functions, operations on functions, graph transformations, graphing and understanding the properties of polynomial, rational, inverse, logarithmic and exponential functions.

Prerequisite:

A grade of C- or better in MAT 128 or Mathematics Placement

Textbook:

David Cohen, Precalculus: with Unit Circle Trigonometry, 978-0840069429, Brooks Cole, cengage.com.

Additional approved textbooks (IOR): Robert F. Blitzer, Algebra and Trigonometry, 978-0321837240, Prentice Hall, prenticehall.com.

Learning Outcomes:

Upon completion of the course, you will be able to:

1. Solve higher order polynomial and rational equations and inequalities as well as exponential and logarithmic equations in homework and exams;
2. Perform the operations of addition, subtraction, multiplication, division and composition on functions and determine the domains of these newly formed functions in homework and exams;
3. Discover which functions are invertible and find the inverse of some of these functions in homework and exams;
4. Construct the graphs of elementary functions and their transformations as well as general polynomials, rational functions, exponential functions and logarithmic functions in homework, group project(s) as well as exams;
5. Explain the properties of the above mentioned functions in homework, group projects as well as exams; and
6. Demonstrate the ability to include within writing assignments and discussion how the Saint Leo University core value of responsible stewardship is used in the modeling of data and using these models to make recommendations in daily decision making for individuals, companies, schools as well as the government.

Core Value:

Responsible Stewardship: This course will emphasize the Core Value of Responsible Stewardship. We will demonstrate how the SLU core value of responsible stewardship is used in the modeling of data and using these models to make recommendations in daily decision making for individuals, companies, schools as well as the government.

Item	Weight
Tests (3)	36%
Assignments (8)	16%
Discussion (8)	8%
Final Project (1)	10%
Final Exam (1)	30%
Total	100%

Assignments:

8 Assignments will be selected from the textbook, and completed on MyMathlab.

Discussions:

Discussions will relate to the mathematical topics, but allow students to explore the concepts from a problem solving and critical thinking perspective.

Tests:

3 tests will be given throughout the semester to reinforce the material covered. Questions will be based on the assignments prepared by the students as well as the problems discussed in class.

Final Exam

A final exam will be given which is a comprehensive exam. The final exam will determine how well students mastered the various topics covered during the semester.

Final Project

A final course assessment will be submitted by students at the end of the course. The final course assessment will require the application knowledge and skills learned in MAT 151.

Grading Scale:

Grade	Percentage
A	94% to 100%
A-	90% to 93%
B+	87% to 89%
B	84% to 86%
B-	80% to 83%
C+	77% to 79%
C	74% to 76%
C-	70% to 73%
D+	67% to 69%
D	60% to 66%
F	Below 60%

Course Schedule:

Module 1 Foundation Skills

Objectives When you complete this module, you should be able to:

- Solve polynomial and rational equations.
- Solve linear and absolute value inequalities.

Readings Chapters P and 1 in our textbook: Blitzer Algebra and Trigonometry 6th Edition

Assignments

Items to be Completed:	Due No Later Than:
Post an introduction to the class	Thursday 11:59 PM EST/EDT
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 1</i>	Sunday 11:59 PM EST/EDT

Module 2 Introduction to Functions

Objectives When you complete this module, you should be able to:

- Determine properties of the function.
- Construct linear functions.

Readings Read Chapter 2 Sections 1 – 4 in our Textbook Blitzer Algebra and Trigonometry, 6th edition

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 2</i>	Sunday 11:59 PM EST/EDT

Module 3 Polynomial Functions

Objectives When you complete this module, you should be able to:

- Perform the operations of addition, subtraction, multiplication, division, and composition on functions and determine the domains of these newly formed functions.
- Construct the graphs of elementary functions and their transformations.
- Discover which functions are invertible and find the inverse of some of these functions.

Readings Read Chapter 2 Sections 5 – 8 in our Textbook Blitzer Algebra and Trigonometry 6th

edition

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 3</i>	Sunday 11:59 PM EST/EDT
Complete <i>Test 3</i>	Sunday 11:59 PM EST/EDT

Module 4 Polynomial Functions

Objectives When you complete this module, you should be able to:

- Construct graphs of polynomial functions.
- Explain the properties of polynomial functions.

Readings Read Chapter 3 Sections 1 – 4 in our Textbook Blitzer Algebra and Trigonometry 6th edition

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 4</i>	Sunday 11:59 PM EST/EDT

Module 5 Rational Functions

Objectives When you complete this module, you should be able to:

- Construct rational functions.
- Explain properties of rational functions.
- Solve polynomial and rational inequalities.

Readings Read Chapter 3 Sections 5 & 6 in our Textbook Blitzer Algebra and Trigonometry 6th edition

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 5</i>	Sunday 11:59 PM EST/EDT
Complete <i>Test 2</i>	Sunday 11:59 PM EST/EDT

Module 6 Exponential and Logarithmic Functions

Objectives When you complete this module, you should be able to:

- Construct exponential functions.
- Explain the properties of exponential functions.
- Construct Logarithmic functions.
- Explain the properties of logarithmic functions.

Readings Read Chapter 4 Sections 1 & 2 in our Textbook Blitzer Algebra and Trigonometry 6th edition

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 6</i>	Sunday 11:59 PM EST/EDT

Module 7 Applications of Exponential and Logarithmic Functions

Objectives When you complete this module, you should be able to:

- Solve exponential and logarithmic equations.
- Use exponential and logarithmic models to solve applications problems.

Readings Read Chapter 4 Sections 3-5 in our Textbook Blitzer Algebra and Trigonometry 6th Edition

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 7</i>	Sunday 11:59 PM EST/EDT
Complete <i>Test 3</i>	Sunday 11:59 PM EST/EDT

Module 8 Compare and Contrast all the Functions

Objectives When you complete this module, you should be able to:

- Demonstrate the ability to include within writing assignments and discussion how the Saint Leo University core value of responsible stewardship is used in the modeling of data.
- Utilizing these models, analyze within writing assignments and discussion how the Saint Leo University core value of responsible stewardship effectively makes recommendations in daily decision making for individuals,

companies, schools and the government.

Readings No readings for Module 8

Assignments

Items to be Completed:	Due No Later Than:
Post an initial response to the discussion question	Thursday 11:59 PM EST/EDT
Post responses to at least one classmate	Sunday 11:59 PM EST/EDT
Complete Assignment for <i>Module 8</i>	Sunday 11:59 PM EST/EDT
Complete <i>Final Exam</i>	Sunday 11:59 PM EST/EDT
Complete <i>Final Project</i>	Sunday 11:59 PM EST/EDT