NEW JERSEY CENTER
FOR TEACHING & LEARNING

MATH-6407: Learning and Teaching Algebra II

Instructor: Katie Johnson

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Course Credit: 6.0 NJCTL credits

Dates & Times:

This is a 6-credit, self-paced course, covering 13 modules of content. The exact number of hours that you can expect to spend on each module will vary based upon the module coursework, as well as your study style and preferences. You should plan to spend 12-20 hours per module, completing the module slides, readings, short answer assignments, labs, mastery exercises, practice problems, and module exams.

COURSE DESCRIPTION:

This course is designed for those who are learning to teach Algebra II and Precalculus for high school students. It provides teachers with an introduction to college-level algebra in preparation for calculus. This course includes topics taken from the high school Common Core State Standards for Mathematics (CCSS). The focus is on understanding the connections among the numerical, algebraic, and graphical relationships of various nonlinear functions, as well as concepts of sequences and series and probability and statistics.

STUDENT LEARNING OUTCOMES:

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

1. Apply the principles of mathematics in the areas of function analysis, graphing functions, solving equations, and probability and statistics.
2. Apply student-centered pedagogy to teach mathematics to students.
3. Apply mathematical tools commonly used in algebra including arithmetic operations, inverse operations, problem solving, function analysis, probability, and data analysis.
4. Identify, understand, and communicate the elements, representations, and models of equations and functions to solve word problems.
5. Examine, investigate, and assess the relationships between various mathematical models and their variables.

TEXTS, READINGS, INSTRUCTIONAL RESOURCES:

Required Texts:
* This course uses a free digital textbook accessible at:

https://njctl.org/courses/math/algebra-ii/

- Participants will download SMART Notebook presentations, homework files, labs, and teacher resources from the PMI Algebra II course

Recommended Readings:

- Related articles within discussion prompts

Consistent attendance in your online courses is essential for your success. Failure to verify your attendance within the first 7 days of this course may result in your withdrawal. If for some reason you would like to drop a course, please contact the Dean of Students.

Online classes have assignments and participation requirements just like on-campus classes. Budget your time carefully. If you are having technical problems, problems with your assignments, or other problems that are impeding your progress, let your instructor know as soon as possible.

GRADE DISTRIBUTION AND SCALE:
In order to receive a Passing grade, the participant must complete the following course requirements: all short answer assignments, mastery exercises, labs, exams, and the reflection paper outlined in the *Assignments* section of the Class Schedule (below).

Grade Distribution:

Module Exams	70%
Final Exam	10%
Labs	6%
Short Answer Assignments	6%
Mastery Exercises	6%
Reflection Paper	2%

Grade Scale:

A	93 – 100
A-	90 – 92
B+	86 – 89
B	83 – 86
B-	80 – 82
C+	77 – 79
C	73 – 76
C-	70 – 72
D	60.0 – 69.9
F	59.9 or below

ACADEMIC STANDING:
NJCTL has established standards for academic good standing within a student's academic program. Students enrolled in any NJCTL online course must receive an 80 or higher to successfully complete a course and receive credit for that course. An 80 is equivalent to a GPA of 2.7 or B-. Additionally,

students in an endorsement program must receive a cumulative GPA of 3.0 for all courses combined in order to successfully complete the program.

ACADEMIC INTEGRITY:
Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Academic dishonesty includes cheating, fabrication, facilitating academic dishonesty, plagiarism, reusing /re-purposing your own work, unauthorized possession of academic materials, and unauthorized collaboration.

CITING SOURCES WITH APA STYLE:
All students are expected to follow proper writing and APA requirements when citing in APA (based on the APA Style Manual, 6th edition) for all assignments.

DISABILITY SERVICES STATEMENT:
We are committed to providing reasonable accommodations for all persons with disabilities. Any student with a documented disability requesting academic accommodations should contact the Dean of Students, Dr. Jamie Korns, additional information to coordinate reasonable accommodations for students with documented disabilities (Jamie@njctl.org).

NETIQUETTE:
Respect the diversity of opinions among the instructor and classmates and engage with them in a courteous, respectful, and professional manner. All posts and classroom communication must be conducted in accordance with the student code of conduct. Think before you push the Send button. Did you say just what you meant? How will the person on the other end read the words?

Maintain an environment free of harassment, stalking, threats, abuse, insults or humiliation toward the instructor and classmates. This includes, but is not limited to, demeaning written or oral comments of an ethnic, religious, age, disability, sexist (or sexual orientation), or racist nature; and the unwanted sexual advances or intimidations by email, or on discussion boards and other postings within or connected to the online classroom.

If you have concerns about something that has been said, please let your instructor know.
CLASS SCHEDULE:

Module	Required Readings	Assignments
1 – Overview of Functions	• PDFs of presentations within the module.	• Short Answer • Lab • Mastery Exercise • Module Exam
2 – Linear & Absolute Value Functions	• PDFs of presentations within the module.	• Short Answer • Lab • Mastery Exercise • Module Exam

Module	Readings	Assessments
3 – Quadratic Equations & Complex Numbers	• PDFs of presentations within the module. • Article embedded in short answer assignment.	• Short Answer • Lab • Mastery Exercise • Module Exam
4 – Quadratic Functions	• PDFs of presentations within the module.	• Short Answer • Lab • Mastery Exercise • Module Exam
5 – Polynomial Functions	• PDFs of presentations within the module.	• Short Answer • Lab • Mastery Exercise • Module Exam
6 – Rational Functions	• PDFs of presentations within the module.	• Short Answer • Lab • Mastery Exercise • Module Exam
7 – Radical Functions & Rational Exponents	• PDFs of presentations within the module.	• Short Answer • Lab • Mastery Exercise • Module Exam
8 – Exponential & Logarithmic Functions	• PDFs of presentations within the module.	• Short Answer Assignment • Lab • Mastery Exercise • Module Exam
9 – Sequence & Series	• PDFs of presentations within the module.	• Short Answer Assignment • Lab • Mastery Exercise • Module Exam
10 – Trigonometry	• PDFs of presentations within the module.	• Short Answer Assignment • Lab • Mastery Exercise • Module Exam
11 – Probability & Statistics	• PDFs of presentations within the module.	• Short Answer Assignment • Lab • Mastery Exercise • Module Exam
12 – Reflection & Final Exam	• N/A	• Reflection Paper • Final Exam