



NEW JERSEY CENTER
FOR TEACHING & LEARNING

**Progressive Mathematics Initiative® (PMI®)
MATH6467: High School Mathematics Capstone & Praxis Preparation**

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Course Credit: 3.0 NJCTL credits

Dates & Times:

This is a 3-credit, self-paced course, covering 10 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 15-20 hours per module, completing the module slides, readings, short answer assignments, labs, mastery exercises, practice problems, and module exams.

LMS Link: <https://moodle.njctl.org/course/view.php?id=104>

COURSE DESCRIPTION:

This course is for teachers to review and extend their prior study of mathematics in the realms of number & quantity; algebra; functions; calculus; geometry; probability & statistics; and discrete mathematics. This capstone course also serves as a review for the Mathematics Content Knowledge Praxis Test (5161).

STUDENT LEARNING OUTCOMES:

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

1. Understand and work with mathematical concepts, to reason mathematically, to make conjectures, see patterns, and to justify statements using informal, logical arguments.
2. Demonstrate the ability to solve problems by integrating knowledge of different areas of mathematics.
3. Implement the use of various representations of concepts.
4. Solve problems that have several solution paths.
5. Effectively demonstrate the use of technology in mathematics education.
6. Develop mathematical models and use them to solve real-world problems.
7. Construct viable arguments to write simple proofs.

TEXTS, READINGS, INSTRUCTIONAL RESOURCES:

Required Texts:

- HS Mathematics Praxis Preparation uses a free, digital textbook that is available within the course modules as PDFs. Readings are derived from the secondary math courses located at:
<https://njctl.org/courses/math/>

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Recommended Readings:

- Related articles within short answer prompts

COURSE REQUIREMENTS:

In order to receive a Passing grade, the participant must complete the following course requirements:

1. Activities: A number of different learning activities will ensure participant engagement and learning in the course. These include:
 - Engage in video module lessons which demonstrate minimized direct instruction followed by frequent formative assessment
 - Completion of formative assessments aligned to learning objectives which include detailed analysis when answered incorrectly.
 - Interaction with module discussion boards that allow conversation with peers and course instructors about the module's content, delivering that content to students. Discussion boards also serve as a place to ask and answer questions related to the module's content.
2. Short Answer Assignment: Each module requires one (1) original response to a given prompt. These prompts are typically based upon course lessons and require teachers to analyze, reflect, and make connections between the module's content and their own classroom practice.
3. Mastery Exercises: For each module, these multiple-choice question quizzes assess the content knowledge gained in a module. Participants have the opportunity to retake; random questions are pulled from a larger question bank on each attempt ensuring varied questions.
4. Virtual Labs: Virtual labs are interactive lab simulations that are aligned to further prepare participants for the Praxis exam covering topics about the On-Screen Calculator, as well as Geometric Constructions.
5. Module Exam: One is completed at the end of each module. It is a culminating exam consisting of praxis-like multiple-choice questions aligned to the exam objectives.
6. Reflection Paper: At the end of the course, participants are required to reflect on the knowledge taught in the course, make connections, and compare/contrast their current pedagogy with new strategies gained in this assignment.
7. Final Exam: At the end of the course, a comprehensive exam consisting of Multiple-Choice questions assesses the content knowledge learned throughout the course in preparation for the praxis exam.

GRADE DISTRIBUTION AND SCALE:

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. Rosemary Knab, additional information to coordinate reasonable accommodations for students with documented disabilities (rosemary@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 – Numbers and Quantity	<ul style="list-style-type: none"> PDFs of presentations within the module. 	<ul style="list-style-type: none"> Short Answer Mastery Exercise Module Exam

2 - Algebra	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
3 - Functions	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
4 - Geometry	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Lab • Mastery Exercise • Module Exam
5 – Probability & Statistics	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
6 – Discrete Math	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
7 – Calculus: Limits & Continuity	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
8 – Calculus: Derivatives	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
9 – Calculus: Integration	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Short Answer Assignment • Mastery Exercise • Module Exam
Calculator Lab	<ul style="list-style-type: none"> • PDFs of presentations within the module. 	<ul style="list-style-type: none"> • Lab
10 – Reflection and Final Exam	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Reflection Paper • Final Exam

