



Course Competency Report by Code

Code: C287

Mathematics: Content Knowledge (C287)

Course of Study: C287 - Mathematics: Content Knowledge
 Course Level: Undergraduate
 Course Division: Senior
 Discipline: Mathematics
 Course Type:
 Department: Mathematics

COMPETENCY #	COMPETENCY NAME	COMPETENCY TEXT
209.3.1	Complex Number System	The graduate demonstrates algebraic, geometric, and polar understanding of the complex number system, and demonstrates computational proficiency with the complex number system.
209.3.2	Trigonometric Functions	The graduate understands and applies the principles of trigonometry, identifies important characteristics of trigonometric functions, and graphs them.
209.3.3	Trigonometric Equations & Identities	The graduate solves trigonometric equations and problems and proves trigonometric identities.
209.6.2	Limits	The graduate demonstrates a conceptual understanding of limits and finds limits of functions.
209.6.3	Continuity	The graduate demonstrates a conceptual understanding of and solves problems involving continuity, and defines the relationship of continuity to differentiability and integrability.
209.6.4	Differentiation	The graduate demonstrates a conceptual understanding of differentiation and applies differentiation techniques to solve problems and aid in function graphing.
209.6.5	Applied Differentiation	The graduate applies differentiation in various ways to solve problems.
209.7.1	Integration	The graduate demonstrates a conceptual understanding of integration techniques and correctly applies them.
209.7.2	Applied Integration	The graduate applies integration in various ways in order to solve problems, including differential equations.
209.7.3	Sequences	The graduate demonstrates a conceptual understanding of sequences.
209.8.1	Systems of Equations	The graduate solves systems of equations using matrices.
209.8.2	Matrix Operations	The graduate performs mathematical operations using matrices.



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209.8.3	Matrix Characteristics	The graduate demonstrates understanding of important characteristics and properties of matrices.
210.2.1	Vectors	The graduate demonstrates understanding of vectors and fluency with vector operations and applications.
210.2.4	Infinite Series	The graduate demonstrates understanding of the properties of series and their applications and determines the convergence of series.
210.4.1	Number Theory	The graduate demonstrates an understanding of important number theory principles, their applications, and proofs.
214.1.1	Summarizing Data	The graduate evaluates categorical and quantitative data using appropriate numerical measures and graphical displays.
214.1.2	Examining Relationships	The graduate evaluates the relationship between two variables through the creation and interpretation of numerical summaries and visual displays.
214.1.3	Sampling Methods	The graduate evaluates the sampling methods used in studies including the effect they have on conclusions that can be made.
214.1.4	Designing Studies	The graduate designs and conducts observational studies, controlled experiments, and surveys to explore population characteristics.
214.1.5	Theoretical and Empirical Probability	The graduate applies theoretical or empirical probability to a situation to quantify uncertainty.
214.1.6	Determining Probability	The graduate determines the probability of events using simulations, diagrams, and probability rules.
215.1.1	Random Variables	The graduate analyzes probability distributions of discrete and continuous random variables to determine probabilities and solve expected value problems.
215.1.5	Inferential Methods	The graduate uses appropriate inferential methods and technologies to draw conclusions about populations in context.
218.1.1	Axiomatic Systems	The graduate applies the axiomatic nature of geometry to analyze the fundamental concepts and principles of Euclidean and non-Euclidean geometries.
218.1.2	Properties and Relationships	The graduate applies synthetic and analytic methods to construct proofs and solves problems involving the properties and relationships of two-dimensional objects.
218.1.3	Congruence and Similarity	The graduate proves theorems involving congruence and similarity of geometric objects and applies them to solve problems.
218.1.4	Measurements	The graduate applies measurement formulas and techniques to analyze geometric relationships and solve problems.



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218.1.6

Geometric
Transformations

The graduate applies geometric transformations to explore and analyze objects and solve problems.