

Mathematical Sciences, Minor

The Minor in Mathematical Sciences

Overview

The minor includes six courses. 21-127 Concepts of Mathematics is a prerequisite for 21-228 and recommended for 21-241. The minimum preparation required for 21-355 Principles of Real Analysis I is 21-122 and 21-127 or equivalent courses.

Please see below (http://coursecatalog.web.cmu.edu/schools-colleges/melloncollegeofscience/departmentofmathematicalsciences/mathematical-sciences-minor/#Computational_Finance) if you are a Computational Finance major.

Course Requirements (non-Computational Finance majors)

Required Courses

		Units
21-127	Concepts of Mathematics	12
or 21-128	Mathematical Concepts and Proofs	
or 15-151	Mathematical Foundations for Computer Science	
21-228	Discrete Mathematics	9-12
or 15-251	Great Ideas in Theoretical Computer Science	
21-241	Matrices and Linear Transformations	11
or 21-242	Matrix Theory	
21-355	Principles of Real Analysis I	9
or 21-373	Algebraic Structures	

Mathematical Sciences Electives

21-xxx	Mathematical Sciences Elective (300-level or higher)	9-12
21-xxx	Mathematical Sciences Elective (300-level or higher)	9-12

Double Counting

To avoid excessive double-counting, the two (2) Mathematical Sciences electives may not also count toward any other major or minor requirement.

Course Requirements (Computational Finance majors)

Required Courses

Computational Finance majors who declare a minor in Mathematical Sciences should take the following six (6) courses:

		Units
21-127	Concepts of Mathematics	12
or 21-128	Mathematical Concepts and Proofs	
or 15-151	Mathematical Foundations for Computer Science	
21-228	Discrete Mathematics	9-12
or 15-251	Great Ideas in Theoretical Computer Science	
21-241	Matrices and Linear Transformations	11
or 21-242	Matrix Theory	
21-355	Principles of Real Analysis I	9
21-325	Probability *	9-12
or 21-425	Probability and Martingales	
or 15-259	Probability and Computing	
or 36-218	Probability Theory for Computer Scientists	

Mathematical Sciences Electives

Nine (9) units of Mathematical Sciences Electives, to be chosen from the following list:

21-300	Basic Logic	9
21-301	Combinatorics	9
21-329	Set Theory	9
21-373	Algebraic Structures	9
21-484	Graph Theory	9

* Students who take 21-325 (or 15-259 or 36-218 or 21-425) to fulfill their BSCF requirements should take an additional 21-3xx elective to avoid excessive double counting.