OPTIMIZATION AND OPERATIONS RESEARCH GRADUATE CERTIFICATE

Students pursuing a graduate certificate in Optimization and Operations Research need to complete four graduate-level courses (16 credit hours). Below is the list of the three core required courses and elective courses.

Course	Title	Quarter Hours
MAT 468	MATHEMATICS FOR FINANCE	4
MAT 487	OPERATIONS RESEARCH: LINEAR PROGRAMMING	4
MAT 488	OPERATIONS RESEARCH: OPTIMIZATION THEORY	4
Select one of the following:		4
MAT 450	ADVANCED STATISTICAL COMPUTING	
MAT 451	PROBABILITY AND STATISTICS I	
MAT 455	STOCHASTIC PROCESSES	
MAT 459	SIMULATION MODELS AND MONTE CARLO METHOD	
MAT 484	MATHEMATICAL MODELING	
MAT 494	GRAPH THEORY	
MAT 644	DIFFERENTIAL EQUATIONS	

In special circumstances and with approval of the graduate program director, an elective course can be substituted with other relevant courses.

Students in this certificate program must earn a grade of C- or higher in all graduate courses and finish with a cumulative GPA or 2.0 of higher.

The requirements for admission into this certificate program are:

- Bachelor's degree from an accredited institution
- Successful completion (with a grade of C- or higher) of the following undergraduate coursework:
  - A year of single-variable calculus (equivalent of MAT 150-151-152)
  - A course in multivariable calculus (equivalent of MAT 260)
  - A course in linear algebra (equivalent of MAT 262)
  - A course in computer programming (e.g., C++, Python, Java, or R)

The admission process and review of applicants is managed by the Office of Graduate Admission via the online application and follows procedures similar to those used for existing graduate programs offered by the Department of Mathematical Sciences.