Program Overview
Mason Engineering offers a Master of Science in Operations Research through its Department of Systems Engineering and Operations Research. Operations Research (OR) is the field that uses analytical methods for making decisions—especially for the best allocation of limited resources. The MS in Operations Research Program prepares students for professional practice associated with the formulation, analysis, and computational solution of mathematical models for decision making. Students are expected to gain the skills to model and analyze decision problems, recommend solutions, and apply these skills to real problems. Major components of the program are modeling, simulation, optimization, and stochastic systems, and the application of OR techniques to problems in business, government, and science. OR faculty at Mason study the development, solution, and application of models, with particular emphasis on computation in large-scale applied systems. Individuals with special interests in optimization, stochastic modeling, decision analysis, or military operations research may concentrate in these areas and earn a separate certificate on graduation. In addition, the department offers graduate certificates in military operations research and computational modeling.

Program Requirements
The Master of Science in Operations Research requires a minimum of 30 credits of graduate-level course work. The program contains four core courses that provide students with a comprehensive understanding of the basic techniques and applications of operations research, as well as a capstone project course in which students work in teams on an applied project. Students must also select at least one deterministic methods and one stochastic methods course. The remaining five courses are chosen by the student and faculty advisor to reflect the student’s interests.

Core courses include:
- Operations Research: Deterministic Models
- Operations Research: Stochastic Models
- Applied Predictive Analytics
- Discrete System Simulation

Concentrations include:
- Optimization
- Stochastic Models
- Decision Analysis
- Military Operations Research
- Financial Engineering
- Data Analytics

Related Program:
- Systems Engineering, MS
- Systems Engineering and Operations Research, PhD
- Data Analytics Engineering, MS (with concentration in Predictive Analytics)
Operations Research (M.S.)

Refer to our website for more information on program course offerings and details on program requirements.

Distance education courses may be available for select programs. Graduate Certificate degree programs may also be offered. Visit our website for details.

Admission Requirements

In addition to meeting the university general admission requirements, desirable academic backgrounds for entering the program include an undergraduate degree from a regionally-accredited institution in engineering, mathematics, computer science, physical sciences, economics, or a related field. Students also must have completed courses in calculus, matrix algebra, differential equations, applied probability and statistics, and a scientific programming language. Students with minor deficiencies in preparation may be accepted conditionally pending removal of the deficiencies.

Required application materials include:
- Online application and non-refundable fee
- Transcripts showing all post-secondary study
- Professional and Educational Goals Statement
- Two letters of recommendation from professors or senior officials at place of employment
- GRE scores (for applicants who have not earned at least a Bachelor’s degree from a U.S. institution)
- Resume

Additional application materials, including English proficiency examination scores (e.g., TOEFL, IELTS), are required if the applicant holds a degree from an international institution and/or requires an F-1 or J-1 visa. Visit http://admissions.gmu.edu/grad for details.

Special admission programs are available for Volgenau School students and alumni.

Visit our website for details: http://seor.gmu.edu
Apply online: http://admissions.gmu.edu/grad/applynow