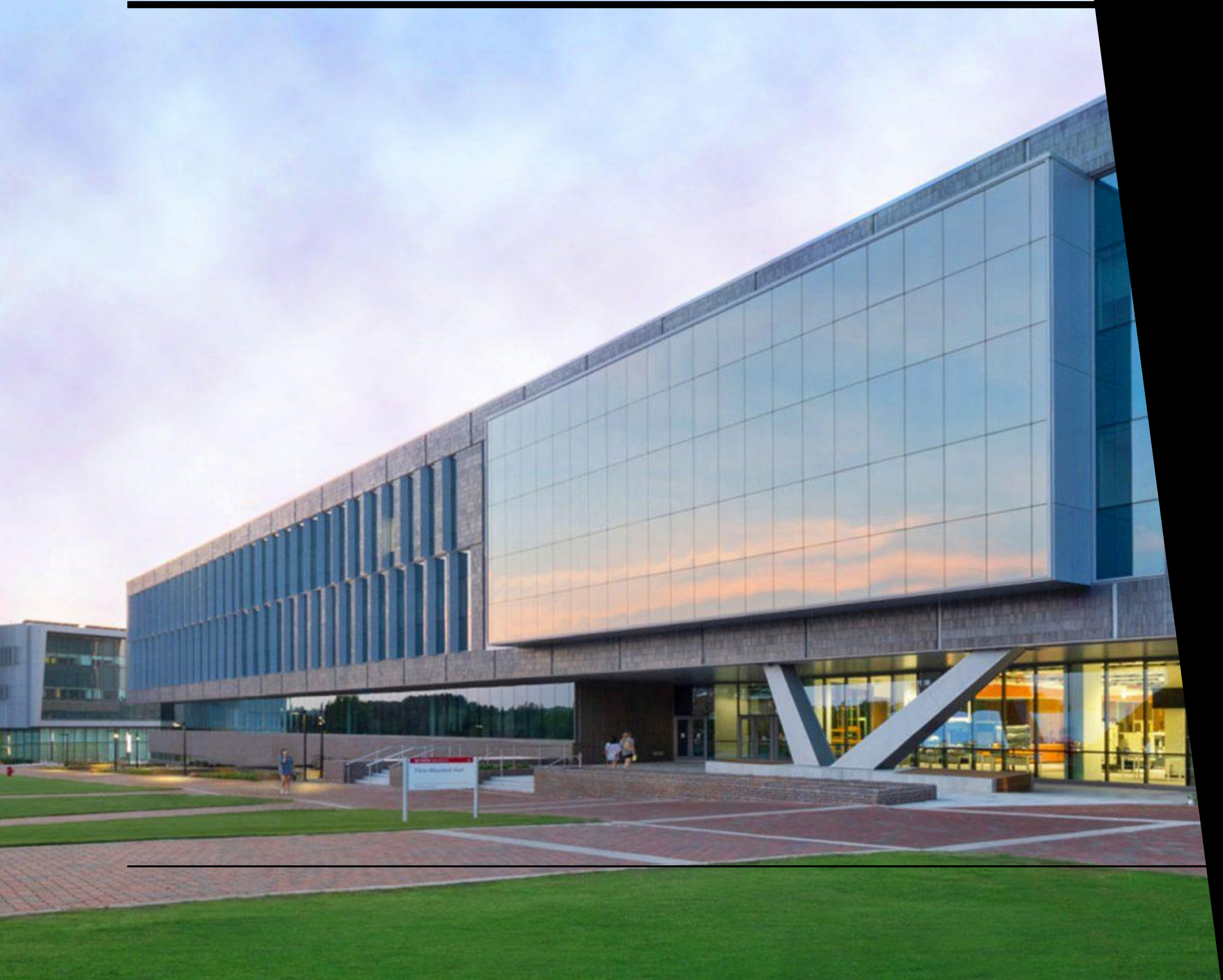
NC STATE UNIVERSITY | OPERATIONS RESEARCH GRADUATE PROGRAM



OPERATIONS RESEARCH GRADUATE PROGRAM

What is Operations Research?

Operations Research is a discipline of problem-solving and decision-making that uses advanced analytical methods to help management run an effective organization. Problems are broken down, analyzed and solved in steps.

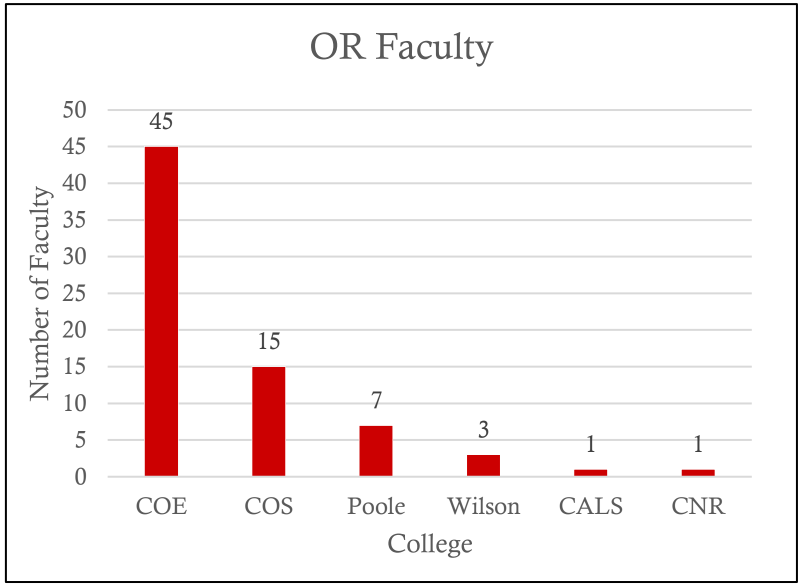
- Identify a problem
- Build a model around the real-world problem
- Use the model and data to arrive at solutions
- Test the solution and analyze its success
- Implement the solution

The Operations Research Graduate Program at NC State University is unique from many other OR programs because of its diverse nature.

- It’s shared by the Colleges of Engineering and Sciences and the Poole College of Management.
- The diversity of its faculty ranges not only from engineering and science but also management, textiles and forestry.

PROGRAM STATISTICS

- Faculty
  - OR faculty have their appointments in other departments
  - 72 faculty (excluding emeriti)
  - Faculty in six colleges and 16 Departments
- Student body
  - Program has about 60-70 students
  - Majority (2/3) are PhD students
  - Master's students are about 50/50 MS/MR



DEGREE PROGRAMS

- MASTER OF OPERATIONS RESEARCH (MOR)
- MASTER OF OPERATIONS RESEARCH (MOR ONLINE)
- MASTER OF SCIENCE (MSOR)
- DOCTOR OF PHILOSOPHY (PH.D.)

DEGREE REQUIREMENTS

MOR

- Minimum of 31 credit hours (no thesis required)
  - Core Classes (15 credit hours)
  - Electives (15 credit hours)
  - Seminar (1 hour)
- Typical duration is 3 or 4 semesters (1.5 or 2 academic years)

MSOR

- Minimum of 31 credit hours
  - Core Classes (15 credit hours)
  - Electives (9-12 credit hours)
  - Thesis (3-6 credit hours)
  - Seminar (1 hour)
- Thesis and final oral exam
- Typical duration is 2 academic years

MOR VS MSOR

The Master of Operations Research (MOR) prepares you for a career as an OR practitioner in either the private or the public sector.

The Master of Science in Operations Research (MSOR) prepares you for a career as a research and development engineer in industry, or for matriculation into a Ph.D. program in Operations Research.

OR MINOR

MASTER OF SCIENCE

Three (3) OR courses (9 credits) are required to minor in operations research as part of MSOR

- Plus having an OR faculty member as part of your committee.

If an OR course is cross-listed with other departments, a student is required to register using the OR prefix.

PH.D.

Four (3) OR courses (12 credits) are required to minor in operations research as part of Ph.D. Plus having an OR faculty member as part of your committee.

If an OR course is cross-listed with other departments, a student is required to register using the OR prefix.

PH.D. REQUIREMENTS

- Minimum of 72 credit hours (4 to 5 years)
- Minimum of 54 credit hours for students with a prior Masters degree
- Written qualifying Exam
- Preliminary Exam (Written and Oral)
- Final Defense

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PH.D. QUALIFYING EXAM S

Written Qualifying Examination

The qualifying examination is intended as a 'screening' mechanism to verify your potential to pursue high-quality, independent research early in your graduate studies.

CONTENT

The OR Ph.D. qualifying examination consists of two written core exams in Linear Programming and Stochastic Modeling and one area-specific requirement.

Core Exam I – Linear Programming (based on **OR 505** course)

Core Exam II – Applied Stochastic Models in Industrial Engineering (based on **OR 760**)

Area-Specific Requirement – The student should satisfy one of the area-specific requirements following

PH.D. QUALIFYING EXAMS

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ADVANCED OR AREA

Choose one of the following exams

- Dynamic Programming (based on **OR 709**)

- Nonlinear Programming (based on **OR 706**)

MATHEMATICS AREA

Choose one of the following sequences, taking both courses in the sequence and then the single exam for the sequence.

- Numerical Analysis (**MA 580** Numerical Analysis I and **MA780** Numerical Analysis II)
- Applied Matrix Theory (**MA 523** Linear Transformations and Matrix Theory and **MA 723** Theory of Matrices with Applications)

PH.D. QUALIFYING EXAMS

INDUSTRIAL AND SYSTEMS ENGINEERING AREA

Choose one of the following ISE SAO/SCL exams:

- Statistical Models for Systems Analytics in Industrial Engineering (based on **ISE 537**)
- Production Planning, Scheduling and Inventory Control (based on **ISE 723**)
- Logistics Engineering (based on **ISE 754**)

OPERATIONS AND SUPPLY CHAIN MANAGEMENT AREA (POOLE COLLEGE OF MANAGEMENT)

Take all **BUS 790** doctoral seminar courses that are offered by the operations & supply chain area faculty in the academic year before the examination (the area typically offers one seminar each semester).

The exam is offered as a single take-home exam.

ADMISSION

Who can apply?

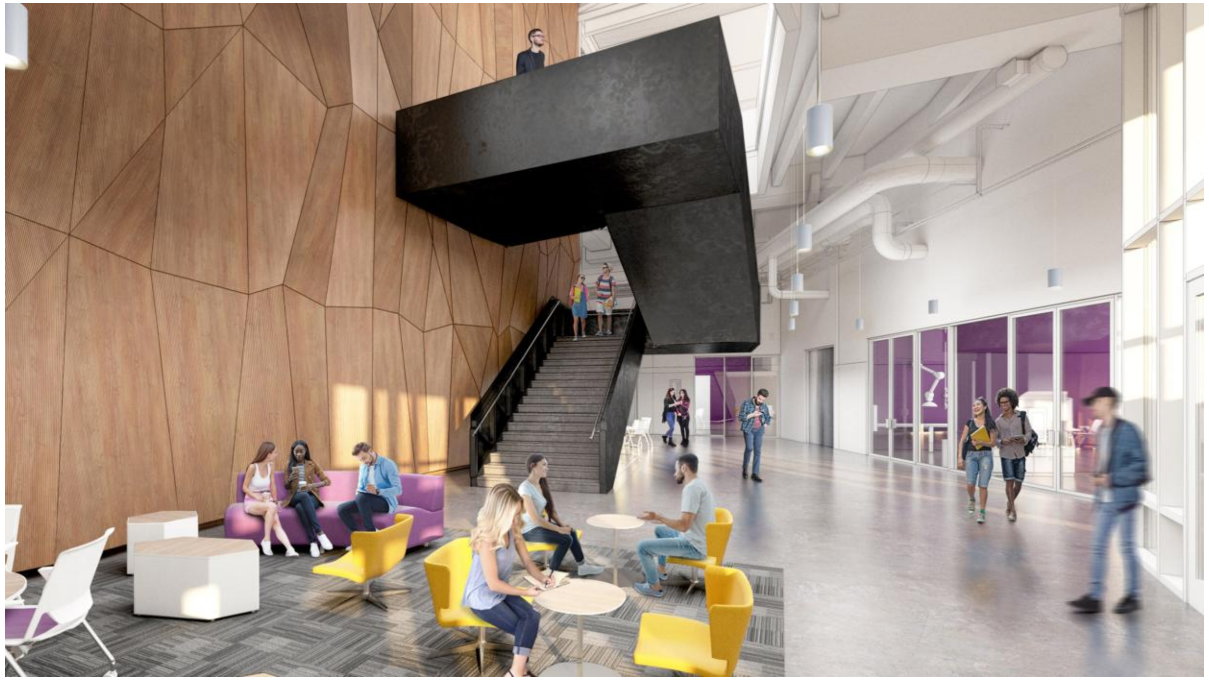
- Undergraduate majors in mathematics and engineering, others

Prerequisite to many entry level graduate courses are:

- Mathematics (calculus and matrix/linear algebra)
- Computer programming
- Probability and Statistics

APPLICATION FAQ'S

- https://www.or.ncsu.edu/admissions/



MATERIALS NEEDED

- Official Transcripts and Diplomas
- Reference Letters (3)
- Statement of purpose
- GRE Scores (May be waived for US applicants based on transcripts)
- TOEFL or IELTS or Duo Lingo Scores (International)

APPLICATION DEADLINES

Fall (for funded first-round Ph.D. offers and an invitation to recruitment weekend)	January 18
Fall (for funded Ph.D. offers)	March 15
Fall (international master's students)	March 15
Fall (master's students and certificate students)	June 1
Spring (master's students and certificate students)	November 25
Summer 1 (certificate only)	March 25
Summer 2 (certificate only)	May 10

CONTACT

NC STATE UNIVERSITY OPERATIONS RESEARCH GRADUATE PROGRAM

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THANKS

For more information visit our website at **https ://www.or.ncs u.edu/future-s tudents/faq/**