

OPERATIONS RESEARCH AND INFORMATION ENGINEERING (ORIE-MENG)

College of Engineering

Program Website (<https://www.engineering.cornell.edu/orie/meng/>)

CIP: 14.3701 | HEGIS: 0913.00 | NYSED: 13331

Program Description

This professional degree program stresses applications of operations research. The centerpiece of the program is a team-based project on a significant real-world problem. The course work centers on additional study of analytical techniques, with particular emphasis on the design or improvement of systems and processes in manufacturing, information, finance, and service organizations.

The ORIE M.Eng. program is designed to serve two groups of students: graduates of the undergraduate major in ORE who wish to deepen their practical knowledge of the field, and qualified undergraduates from other fields who want to complement their engineering or technical backgrounds with a solid foundation in operations research and information engineering.

For admission, all entering students must have completed a calculus-based course in probability and statistics, an intermediate-level programming course in computer science, as well as four semesters of mathematics: differential and integral calculus, linear algebra, and multivariate calculus.

Specific concentrations have additional prerequisites:

- For the data analytics concentration, the entering student must have completed a second semester of calculus-based probability and statistics.
- For the financial engineering concentration, the entering student must have completed:
 - A second semester-long course of calculus-based probability and statistics
 - A basic mathematics-focused finance course (e.g., not an accounting course)
 - Additional proficiency in differential equations and more advanced knowledge of Python or R are strongly recommended, but not required.

There are several concentrations, which empowers students to pursue the aspect of Operations Research that they find most interesting: applied operations research (AOR), data analytics (DA), financial engineering (FE), information technology (IT), and manufacturing and industrial engineering (MIE).

All concentrations except for financial engineering can typically be completed in two semesters. For scheduling reasons, and depending on the student's preparation, an additional summer or semester may be needed.

The financial engineering concentration is designed to be completed in three semesters. This permits an industry internship in the summer

between semesters as well as a third semester of study in New York City, referred to as Cornell Financial Engineering Manhattan (CFEM).

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 30

Program Requirements

Program requirements include a core of ORIE courses plus technical electives chosen from a broad array of offerings. To aid in professional development, students also complete an intensive project course, a colloquium, and a career practicum.

The manner in which the M.Eng. project requirement is met depends on the chosen concentration. Common elements in all project experiences include working as part of a team of students on an engineering design problem, meeting with a faculty advisor and project partner organization on a regular basis, and presenting the final results to the project partner. Most projects have industrial client sponsors and address relevant, practical problems. FE concentrators complete their project in Manhattan, as part of CFEM, while all other students complete their project in the Spring semester.

Cornell Tech in New York City also offers a Master in Operations Research and Engineering (<https://catalog.cornell.edu/programs/operations-research-information-engineering-nyor-meng/>). This program is entirely separate from Cornell Ithaca's M.Eng program. The FE concentration is only offered by the Ithaca program, and the Credits earned while participating in the Early M.Eng Credit program cannot be counted towards the M.Eng. degree at Cornell Tech.

University Graduation Requirements Requirements for All Students

In order to receive a Cornell degree, a student must satisfy academic and non-academic requirements.

Academic Requirements

A student's college determines degree requirements such as residency, number of credits, distribution of credits, and grade averages. It is the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing their chosen program of study. See the individual requirements listed by each college or school or contact the college registrar's office (<https://registrar.cornell.edu/service-resources/college-registrar-directory/>) for more information.

Non-academic Requirements

Conduct Matters. Students must satisfy any outstanding sanctions, penalties or remedies imposed or agreed to under the Student Code of Conduct (Code) or Policy 6.4. Where a formal complaint under the Code or Policy 6.4 is pending, the University will withhold awarding a degree otherwise earned until the adjudication process set forth in those procedures is complete, including the satisfaction of any sanctions, penalties or remedies imposed.

Financial Obligations. Outstanding financial obligations will not impact the awarding of a degree otherwise earned or a student's ability to access their official transcript. However, the University may withhold

issuing a diploma until any outstanding financial obligations owing to the University are satisfied.

Graduation Requirements for Master of Engineering Degree (M.Eng.) Programs

Requirements

The following are general requirements for graduation that apply to all Master of Engineering degrees offered on the Ithaca campus. The individual program pages provide additional information about discipline-specific requirements.

Credits and Residency Units

- Satisfactory completion of 30 technical credits, of which:
 - At least 21 credits must be earned at Cornell. (Some M.Eng. programs allow up to 9 transfer credits of letter-graded coursework completed outside of Cornell to be applied to the M.Eng. degree.)
 - At least 12 credit hours must be in coursework from the home M.Eng. program (as determined by the program).
 - A maximum of two credit hours graded on an S/U basis may be included.
- The credit hours of any course in which a student receives a grade below C- will not count toward the Master of Engineering degree.
- Students must maintain a course load of at least 12 credit-bearing hours¹ each semester.
- Students may not enroll in more than 20 credit-bearing hours per semester.
- Students must complete two full-time residency units¹ (semesters) as registered M.Eng. students. Winter and summer sessions do not count as residency units.

¹ Course load and residency unit exceptions apply for Distance Learning program students, employee degree program students, and Industrial Partnership Program students. The residency unit requirement is one full-time registered semester for Early Admit M.Eng. students and certain Cornell MPS/MS/PhD student transfers.

Courses

- Only program-approved courses at the 5000 level and above may count toward the M.Eng. degree.
- Courses covering subject matter previously taken at Cornell may not be repeated for credit.
- Satisfactory completion of an engineering design project bearing 3 or more credit hours and including a formal written report.

Other Requirements

- A grade-point average of 2.50 or above is required across all Cornell courses which count for credit towards the M.Eng. degree.
- Students must complete all degree requirements within four calendar years of their first enrollment in the M.Eng. program (six years for distance learning students), inclusive of any leaves of absence.
- Students must complete the M.Eng. Exit Survey prior to graduation.