# BIOLOGICAL AND ENVIRONMENTAL ENGINEERING (MENG)

College of Agriculture and Life Sciences, College of Engineering

Program Website (https://cals.cornell.edu/biological-environmental-engineering/)

**CIP:** 14.0301 | **HEGIS:** 0903.00 | **NYSED:** 13236

## Program Description

The Master of Engineering degree builds on an engineering B.S. or quantitative science degree to prepare candidates for a professional career. The program integrates technical engineering with environmental science and/or with biological and life sciences to enable graduates to solve technical problems on a size scale ranging from molecular to whole organism to ecosystem, to global depending on their interests. Graduates gain positions in industry, consulting, government and/or public service sectors. The degree can also pave a path to advanced study in science, engineering, business, law, and/or medicine.

The program is flexible allowing students to choose courses and projects that meet their individual goals. Students may start in the fall or spring semester and although the program is usually completed in two semesters, students have up to four years to complete requirements so they can take advantage of industry internships, MBA programs, etc. In addition to advanced courses in the Department of Biological and Environmental Engineering, students have access to all courses in the College of Engineering and throughout Cornell University. The M.Eng. program is designed to foster a close student–faculty mentoring relationship. Cornell Engineering undergraduates may apply early if they have 8 or fewer credits remaining in their bachelor's program.

## Program Information

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

## Program Requirements

All M.Eng. students must complete:

- BEE 5951—BEE 5952 Master of Engineering Design Project (6 to 9 credits).
- A total of 30 credits approved by their M.Eng. faculty advisor (>= 28 credits for a letter grade).
- All courses counting towards the 30 credits need to be at the 5XXX level or higher.
- Any 5xxx level Independent Study course (e.g. BEE 6970 Graduate Individual Study in Biological and Environmental Engineering) should not exceed 3 credits towards the required 30 credits.

Students work with their graduate faculty advisor to develop their individual or group design project and schedule appropriate courses in one of the following concentrations:

- Bioenergy and integrated energy systems
- Bioenvironmental engineering
- Biological engineering
- Bioprocess engineering
- Ecohydrology
- Environmental engineering
- Environmental management (M.P.S.[ALS] only)
- Food engineering
- Industrial biotechnology
- Nanobiotechnology
- Sustainable systems
- Synthetic biology

To apply directly please visit the Graduate School admissions page (https://gradschool.cornell.edu/).

### Additional Details

1. At least 30 semester hours, of which at least 24 credit hours must be in the College of Engineering. All courses towards the 30 credits must be 5xxx level or higher. Overall 30 credits includes up to 9 credits of BEE 5951-BEE 5952. No more than 4 credits of BEE 6970 can be used.
2. At least 28 hours must be taken for letter grade, with no grades below C-.
3. A minimum of 6 credits to a maximum of 9 credits of BEE 5951-BEE 5952, Master of Engineering Design Project, completed for letter grade. The design project requires a final report.
4. A minimum of 9 credits must be taken in the Biological and Environmental Engineering Department (no more than 6 credits of design project can be used for these credits).
5. The remaining credits are approved by the faculty advisor. Courses covering subject matter previously taken may not be repeated for credit.
6. Maximum of 9 credits transferred into the program with prior approval (courses need to be 5xxx level or above).

Special requirements for students without an undergraduate engineering degree:

Graduating MEng students are required to have taken the following courses to graduate:

- differential equations (equivalent of Cornell's MATH 2930)
- physics (equivalent of Cornell's PHYS 1112)
- chemistry (equivalent of Cornell's CHEM 2070)
- college level biology course

These courses will not count towards the credits students need for their MEng degree at Cornell. These courses may be taken at Cornell or elsewhere.

## 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 hours[1] each semester.
- Students may not enroll in more than 20 credit-bearing hours per semester.
- Students must complete two full-time residency units[1] (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.