ARCHITECTURAL SCIENCE - MATTER DESIGN COMPUTATION (MS)

Graduate School

Program Website (https://designtech.cornell.edu/academics/designtech/ms-mdc-student-work/)

CIP: 04.0902 | **HEGIS:** 0299.00 | **NYSED:** 43881

Program Description

This program is not currently accepting applications.

The Matter Design Computation (MDC) program is a two-year research degree culminating in a master of science. Students pursue architectural research in areas of material computation, adaptive architecture, and digital fabrication. Two of the most promising technologies are 3D printing and rapid assembly via robotics for manufacturing of individual and continuous component parts. Together, these technologies are geared towards becoming indispensable tools for nonlinear manufacturing and design, automated building construction, as well as complex form making. Students from diverse disciplinary backgrounds investigate the intersections of architecture and science and apply insights and theories from biology and mathematics to the design, fabrication, and production of material structures.

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 48
- Length of Program: 4 semesters; Full-time study

Degree Requirements

First Year

Upon entering the program, students will be assigned a primary advisor from the graduate faculty who represent the MDC concentration and whose interests mirror those of the student. The students will use the first semester to develop a comprehensive research agenda. During the first year, students will also take elective classes in support of their research. These classes will be carefully selected in consultation with the student's primary advisor. At the end of the first year, students are required to produce a comprehensive research plan, with supporting materials, outlining the approach to their thesis. Students also must have a full (two-person) special committee in place no later than the end of the first year.

First Fall Semester		Hours
ARCH 7151	Design Topic Research Studio: Matter Design Computation	6
Minor or open elective		3
Visual Representation elective		3
	Hours	**12**
First Spring Semester		
ARCH 7152	Design Topic Research Studio II: Matter Design Computation	6
Minor or open elective		3
Visual Representation elective		3
	Hours	**12**

Summer Semester

Students will be strongly encouraged to work in faculty labs or on faculty research programs during the summer between their first and second year of study.

Hours	**0**
Total Hours	**24**

Second Year

The second year of the program is devoted to the production of a capstone document — a thesis. Students work closely with their special committee and take electives in support of their research during the fall term as necessary.

Second Fall Semester		Hours
ARCH 8151	Design Topic Research Studio III: Matter Design Computation	9
Minor or open elective		3
	Hours	**12**
Second Spring Semester		
ARCH 8905	Independent Design Thesis: Matter Design Computation	9
Minor or open elective		3
	Hours	**12**
	Total Hours	**24**

Total: 48 credits

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.

Learning Outcomes

- Students of architecture will expand their creative design potential by increasing their knowledge and understanding of material and computational design, digital fabrication, and emerging materials and technologies at the nexus of biology, materials science, and architecture.
- Students who have graduated from other disciplines will explore advanced architectural design, material and computational design, and digital fabrication.
- Students will practice transdisciplinary collaboration and hybrid thinking in design to prepare them for emerging careers in both the academy and in practice and industry.