

# MATH AND COMPUTER & INFORMATION SCIENCES MAJOR

## Requirements

A minimum grade of C- is required for each course counting toward this joint major. An overall average of 2.0 must be separately maintained in mathematics and computer and information sciences courses.

Required courses and sufficient electives to fulfill the major are available on both campuses. Course descriptions are available from each department.

Majors in this program are eligible for honors at graduation in mathematics and computer & information sciences.

The major requires 14 total courses: 10 common required courses, two courses in one concentration, and two electives. *Students must declare a concentration in mathematics or computer and information sciences.* The 10 common required courses are identified below.

| Course                  | Title  | Credits |
|-------------------------|--|---------|
| <b>Required Courses</b> |  |         |
| CISC 1600 & CISC 1610   | Computer Science I and Computer Science I Lab <sup>1</sup> | 4       |
| CISC 2000 & CISC 2010   | Computer Science II and Computer Science II Lab            | 4       |
| CISC 2200               | Data Structures  | 4       |
| CISC 4080               | Computer Algorithms  | 4       |
| CISC 4090               | Theory of Computation                                      | 4       |
| MATH 1207               | Calculus II  | 4       |
| MATH 2004               | Multivariable Calculus I                                   | 4       |
| MATH 2001               | Discrete Mathematics                                       | 4       |
| MATH 2006               | Linear Algebra I   | 4       |
| MATH 4006               | Numerical Analysis   | 4       |

### Electives

Select two electives in mathematics (four credit courses numbered above 2000) or computer and information sciences (numbered above 2000, possibly including 5000-level graduate courses) <sup>2</sup>

### Concentration

Select one of the following:

Mathematics Concentration

Computer and Information Sciences Concentration

Cyberspace: Issues and Ethics, and CISC 4660 Minds, Machines, and Society.

## Concentrations

Each student must also take two courses from one of the following two concentrations. Courses from the concentration not chosen may be used as electives.

### Mathematics Concentration

| Course                       | Title                          | Credits |
|------------------------------|--------------------------------|---------|
| Select two of the following: |                                | 8       |
| MATH 3006                    | Probability                    |         |
| MATH 3007                    | Statistics                     |         |
| MATH 3002                    | Differential Equations         |         |
| MATH 4022                    | Partial Differential Equations |         |

### Computer and Information Sciences Concentration

| Course                       | Title                            | Credits |
|------------------------------|----------------------------------|---------|
| Select two of the following: |                                  | 8       |
| CISC 3500                    | Database Systems                 |         |
| CISC 3593                    | Computer Organization            |         |
| CISC 3595                    | Operating Systems                |         |
| CISC 4597                    | Artificial Intelligence          |         |
| CISC 4615                    | Data Communications and Networks |         |
| CISC 4631                    | Data Mining                      |         |

## Availability

The major in math and computer & information sciences is available at Fordham College at Rose Hill and Fordham College at Lincoln Center. Students in Fordham's School of Professional and Continuing Studies may major in math and computer & information sciences only if they receive the approval of their advising dean and/or department, and their schedules are sufficiently flexible to permit them to take day courses at the Rose Hill or Lincoln Center campuses.

**Fordham College at Rose Hill students:** The requirements above are in addition to those of the Core Curriculum.

**Fordham College at Lincoln Center students:** The requirements above are in addition to those of the Core Curriculum.

**Professional and Continuing Studies students:** The requirements above are in addition to those of the PCS Core Curriculum and any additional electives that may be required to earn a minimum of 124 credits.

<sup>1</sup> Students who take CISC 1600 during Fordham's Summer Session do not take CISC 1610, as the summer lecture and lab are offered in a combined format.

<sup>2</sup> At least one elective must be from mathematics if the computer and information sciences concentration is chosen and at least one elective must be in computer and information sciences if the mathematics concentration is chosen. The following courses may not count toward this requirement: CISC 4001 Computers and Robots in Film, CISC 4650