

Columbia University Pre-Combined Plan Curriculum Guide (2012-2013) for Middlebury College

Requirements consolidated by field with translation into Middlebury courses

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MATHEMATICS

[Midd course listings at <http://www.middlebury.edu/academics/math/courses>]

FOUNDATION COURSES REQUIRED OF ALL MAJORS:

* The full sequence of Calculus I, II, III, IV (V1101, V1102, V1201, V1202).

Midd MATH 121 - Calculus I

Midd MATH 122 - Calculus II

Midd MATH 223 - Multivariable Calculus

(Note: unlike for Dartmouth, Midd PHYS 212 CANNOT be substituted for Midd MATH 223)

REQUIRED MAJOR SPECIFIC COURSES

* Linear Algebra (MATH V2010 or APAM E3101)

Midd MATH 200 - Linear Algebra

* Ordinary Differential Equations (E1210)

Midd MATH 225 - Topics in Linear Algebra and Differential Equations

* Introduction to applied mathematics Ordinary Differential Equations & Linear Algebra (APMA E2101).

Students who take an ODE course must also take a Linear Algebra course.

Midd MATH 200 AND MATH 225

* Probability (IEOR E3658)

Midd MATH 310 - Probability

* Statistical Inference (W3659 -> renumbered W3107??)

Please note that the course must have calculus as a pre-requisite.

Midd MATH 311 - Statistics

(Note: Midd ECON 210 or Midd PSYC 201 cannot be substituted)

* Introduction to Probability and Statistics (W3600)

Please note that the course must have calculus as a pre-requisite.

The Department strongly suggests taking two separate courses: one in Probability and one in Statistics.

Midd MATH 310; and MATH 311 strongly recommended

PHYSICS

[Midd course listings at <http://www.middlebury.edu/academics/physics/courses>]

FOUNDATION COURSES REQUIRED OF ALL MAJORS:

* Mechanics and Thermodynamics (C1401)

* Electricity, Magnetism, and Optics (C1402)

Midd PHYS 109 - Newtonian Physics

Midd PHYS 110 - Electricity and Magnetism

strongly recommended:

Midd PHYS 111 - Thermodynamics, Fluids, Wave Motion, and Optics (a winter-term course)

REQUIRED MAJOR SPECIFIC COURSES

* Classical and Quantum Waves (C1403)

Midd PHYS 111 - Thermodynamics, Fluids, Wave Motion, and Optics

Midd PHYS 202 - Quantum Physics Applications

CHEMISTRY

[Midd course listings at <http://www.middlebury.edu/academics/chem/courses>]

FOUNDATION COURSES REQUIRED OF ALL MAJORS:

* General Chemistry I (C1403)

Midd CHEM 103 - General Chemistry I

REQUIRED MAJOR SPECIFIC COURSES

* General Chemistry II (C1404)

* General Chemistry Lab (C1500)

Midd CHEM 104 - General Chemistry II

or: CHEM 107 - Advanced General Chemistry

* Organic Chemistry I (C3443)

* Organic Chemistry Lab (C3543)

Midd CHEM 241 - Organic Chemistry I

COMPUTER SCIENCE

[Midd course listings at <http://www.middlebury.edu/academics/cs/courses>]

FOUNDATION COURSES REQUIRED OF ALL MAJORS:

* Introduction to computer science and programming in C++, JAVA, or MATLAB (W1003, W1004, W1005, W1007 or W1009)

Midd CSCI 150 - Computing for the Sciences (covers Python and some MATLAB)

or: Midd CSCI 101/150/190 AND CSCI 201 - Data Structures (in Java)

REQUIRED MAJOR SPECIFIC COURSES

* Introduction to Computer Science and Programming in MATLAB (COMS W1005) preferred

Midd CSCI 150 - Computing for the Sciences

* Data Structures and Algorithms (COMS W3137)

Midd CSCI 201 - Data Structures

* Discrete Mathematics (COMS W3203)

Midd CSCI 200 - Mathematical Foundations of Computing

* Scientific Computation (COMS W3210)

Midd: not offered

COMPUTER SCIENCE (choose one set of courses below)

- * Computer Programming in JAVA (W1007)
 - * Data Structures in JAVA (W3134)
- The Department strongly recommends JAVA over C.

Midd CSCI 150 (preferred) or CSCI 101
Midd CSCI 201 - Data Structures (in Java)

BIOLOGY

[Midd course listings at <http://www.middlebury.edu/academics/bio/courses>]

- * Environmental Biology: Molecules to Cells (EEEB W2001)
- Midd BIOL 145 - Cell Biology and Genetics

- * Introduction to Molecular and Cellular Biology (BIOL C2005)
- Midd BIOL 145 - Cell Biology and Genetics

ECONOMICS

[Midd course listings at <http://www.middlebury.edu/academics/econ/courses>]

- * Principles of Economics (ECON W1105)
- Midd ECON 150 - Intro Macroeconomics **OR**
Midd ECON 155 - Intro Microeconomics

- * Introduction to Accounting and Finance (E2261 / ACCT 001)
- Midd ECON 316 - Corporate Finance

EARTH AND ENVIRONMENTAL SCIENCES

[Midd course listings at <http://www.middlebury.edu/academics/geol/courses>]

(choose one course listed below)

- * Advanced General Geology (EESC W4001) [may be taken while at Columbia.]
- * The Climate System (EESC V2100) [may be taken while at Columbia.]
- * The Solid Earth System (EESC V2200) [may be taken while at Columbia.]

One of:

Midd GEOL 112 - Environmental Geology
Midd GEOL 170 - The Dynamic Earth
Midd GEOL 221 - Geology of Climate Change

EARTH AND ENVIRONMENTAL ENGINEERING

- * Alternative Energy Resources (EAEE E2002) [may be taken at Columbia]
- Midd: not offered

ELECTRICAL ENGINEERING

- * Introduction to Electrical Engineering (ELEN E1201) [may be taken the summer before entering or while at Columbia]
- Midd: not offered

ENGINEERING MECHANICS

- * Mechanics (ENME E3105) [may be taken the summer before entering or while at Columbia]

Midd: not offered

WRITING

* English Composition (ENGL C1010 University Writing).

Midd: covered by the college writing course (CW) requirement