The Combined Plan Program at Columbia University

The Combined Plan Program is founded on articulation agreements between Columbia University and over 100 affiliate institutions nationwide. Admission to the program is possible if a student successfully meets all of the following requirements:

- Full-time enrollment at an affiliate institution for at least the past three years
- Minimum overall GPA of 3.30, inclusive of all coursework taken for credit
- Minimum pre-engineering GPA of 3.30, inclusive of all science and mathematics prerequisite coursework. Additionally, a minimum grade of B (3.0) must be obtained on the first attempt in all science and mathematics prerequisite coursework.
- Successful completion of both the foundational and major-specific prerequisite coursework by the end of the spring semester of application
- Successful completion of the degree and major requirements of the affiliate institution by the end of the spring semester of application
- Favorable recommendation letters: one each from the Combined Plan liaison, a science instructor and a math instructor
- Proficiency in English as directed by Columbia on our website

Applicants who do not meet the above criteria are welcome to apply as part of our competitive review process, where admission is not guaranteed.
Prerequisite Coursework
A student must successfully complete the equivalents of the following Columbia courses at their home institution. Liaisons at each school are responsible for determining which classes fulfill these Columbia prerequisite courses and will advise students accordingly.

Foundational Courses Required of All Majors
Note that some majors may require additional specific courses replacing or adding to the following requirements, detailed in the major-specific course lists.

Mathematics
DPU MATH 151, 152, and 251
Calculus I, II and Multivariable Calculus for Engineers and Applied Scientists (Math UN1101, MATH UN1102, and APMA E2000)

Physics
DPU PHYS 120 and PHYS 130
Introduction to Mechanics and Thermodynamics (PHYS UN1401)
Introduction to Electricity, Magnetism and Optics (PHYS UN1402)

Chemistry
DPU CHEM 130
General Chemistry I Lecture (CHEM UN1403)

Lab Requirement (choose one of the following two)
- Introduction to Experimental Physics Lab (PHYS UN1493/4)
- General Chemistry Lab (CHEM UN1500) PHYS 120,130 or CHEM 130

Note that some majors require a specific lab in either chemistry or physics, or both.

Major-Specific Coursework
Courses noted with a * may be taken either before or during enrollment at Columbia.

Applied Mathematics or Applied Physics
Mathematics
MATH 363
Ordinary Differential Equations (MATH UN2030)

Physics
PHYS 220 PHYS 280
Introduction to Classical and Quantum Waves (PHYS UN1403)
Introduction to Experimental Physics Lab (PHYS UN1493/4)

Additional
Choose one of the following three:
- General Chemistry I Lecture (CHEM UN1403) BIO 101 or 102
- Environmental Biology I: Elements to Organisms (EEEB UN2001)
- Introductory Biology I: Biochemistry, Genetics and Molecular Biology (Biol UN2005)

The department strongly recommends Java, Python or MATLAB.

Biomedical Engineering
Mathematics
MATH 363 and MATH 270
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)

Or, students must take both an ODE and a Linear Algebra course.

Physics
PHYS 220
Introduction to Classical and Quantum Waves (PHYS UN1403)

Chemistry
CHEM 120
General Chemistry II Lecture (CHEM UN1404)

Computer Science
CS 121
Introduction to Computer Science and Programming (ENG 1006)

The department strongly recommends Python, but will accept C/C++, Java or MATLAB on a case by case basis.

Chemical Engineering
Mathematics
MATH 363
Ordinary Differential Equations (UN2030)

Chemistry
CHEM 120
General Chemistry I Lecture (CHEM UN1404)

Computer Science
CS 121
Introduction to Computing for Engineers and Applied Scientists

Civil Engineering
Mathematics
MATH 363
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)

Or, students must take both an ODE and a Linear Algebra course.

Computer Science
CS 121
Introduction to Computer Science and Programming in MATLAB (COMS W1005)

The department strongly recommends MATLAB over other languages, though it will accept any language.
Major-Specific Coursework
Courses noted with a * may be taken either before or during enrollment at Columbia.

Civil Engineering (continued)

Additional
GEO 110
Earth: Origin, Evolution, Processes and Future (EESC UN1011) or an equivalent introductory course in Geology/Geosciences
*Mechanics (ENME E3105)

Computer Engineering
Mathematics
MATH 363 and MATH 270
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)
Or, students must take both an ODE and a Linear Algebra course.

Computer Science
Mathematics
MATH 123
Discrete Mathematics (COMS W3203)
Introduction to Computer Science and Programming in Java (COMS W1004) or CS 121
Please note that sufficient knowledge of computer programming is needed in order to take Data Structures in Java (COMS W3134) or Data Structures and Algorithms (COMS W3137) at Columbia.

Additional
Introduction to Electrical Engineering (ELEN E1201) Not offered

Additional
Introduction to Electrical Engineering (ELEN E1201) Not offered

Engineering Mechanics
Mathematics
MATH 363
Ordinary Differential Equations (MATH UN2030)
Additional
*Mechanics (ENME E3105) PHYS 231 and PHYS 351
The department strongly recommends MATLAB over other languages, though it will accept any language.

Industrial Engineering, Engineering Management Systems or Operations Research
Mathematics
MATH 363
*Ordinary Differential Equations (MATH UN2030)
This course must be taken prior to Columbia for any student with interests in the Financial Engineering major. Students cannot apply to this major until they are already enrolled at Columbia (after the first semester in Columbia Engineering).

Choose one of the following two:
Linear Algebra (MATH UN2010) or MATH 270
Applied Mathematics I: Linear Algebra (APMA E3101)
Choose one of the following two:
Probability for Engineers (IEOR E3658) or MATH 441
Probability Theory (STAT GU4203)

Choose one of the following:
Applied Statistical Models in Operations Research (IEOR E4307) or
Statistical Inference (STAT GU4204) MATH 247

Computer Science (choose one language pair)
Introduction to Computer Science and Programming in Java (COMS W1004) and Data Structures in Java (COMS W3134) or
CS 121 and 122
Introduction to Computing for Engineers and Applied Scientists in Python (ENGI E1006) and Essential Data Structures in C/C++ (COMS W3136)

The department strongly recommends Java, though it will accept other languages as long as a Data Structures course in that language has also been completed.

Earth and Environmental Engineering
Mathematics
MATH 363 and MATH 270
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)
Or, students must take both an ODE and a Linear Algebra course.
*Introduction to Probability & Statistics (STAT GU4001)
The course must have calculus, including multivariable integration, as a prerequisite.

Chemistry
CHEM 120
General Chemistry II Lecture (CHEM UN1404)
General Chemistry Lab (CHEM UN1500)

Additional
*A Better Planet by Design (EAAE E2100)
Choose one of the following:
*Earth’s Environmental Systems: The Climate System (EESC UN1010)
*Earth’s Environmental Systems: The Solid Earth System (EESC UN2000)

Choose one of the following:
Organic Chemistry I Lecture (CHEM UN2443) or CHEM 240
Introduction to Classical and Quantum Waves (PHYS UN1403) or PHYS 220
Introductory Biology I: Biochemistry, Genetics and Molecular Biology (BIOL UN2005) BIO 101

The department requires Python for the introductory Computer Science requirement. Only students attending affiliates that do not offer Python may substitute another language.

Electrical Engineering
Mathematics
MATH 363 and MATH 270
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)
Or, students must take both an ODE and a Linear Algebra course.

Physics
PHYS 220
Introduction to Classical and Quantum Waves (PHYS UN1403)

Computer Science
CS 121
Sufficient knowledge of computer programming is needed in order to take Data Structures with C/C++ (COMS W3134) or Data Structures in Java (COMS W3134).

Additional
Introduction to Electrical Engineering (ELEN E1201) Not offered

Materials Science and Engineering
Mathematics
MATH 363 and 270
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101) or
students must take both an ODE and a Linear Algebra course.

Physics
PHYS 220
Introduction to Classical and Quantum Waves (PHYS UN1403)

Chemistry
CHEM 120
General Chemistry I Lecture (CHEM UN1403) or
CHEM 130 or 120
General Chemistry II Lecture (CHEM UN1404)

Mechanical Engineering
Mathematics
MATH 363 and MATH 270
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)
Or, students must take both an ODE and a Linear Algebra course.

Additional
*Introduction to Electrical Engineering (ELEN E1201) not offered
*Mechanics (ENME E3105) PHYS 231 and 351
Choose one of the following:
Introduction to Classical and Quantum Waves (PHYS UN1403) PHYS 220
Environmental Biology I: Elements to Organisms (EEEB UN2001) or BIOL 101
Introductory Biology I: Biochemistry, Genetics and Molecular Biology (BIOL UN2005)

Introduction to Computer Science and Programming in Java, MATLAB or Python (CS1004, CS1005 or ENGI E1006) is required.

Courses listed are accurate as of October 2017.
**Important Policies about Prerequisite Coursework**

**All prerequisite coursework must appear on the home institution’s transcript.** Columbia requires all official transcripts, and **liaisons must approve all coursework not taken at the affiliate institution.** We will accept AP/IB or other advanced credit from high school as well as placement exams if the credit or exam clearly appears on the home institution’s transcript and is approved by the liaison. Columbia reserves the right to have the student demonstrate this knowledge and/or retake this course.

The overall GPA will be calculated by Columbia using all postsecondary courses for which a student has received credit on the home institution’s transcript. The pre-engineering GPA will be calculated by Columbia using all of the prerequisite coursework listed, with the exception of the courses fulfilling the lab requirement and humanities and social science requirements.

**Due to the sequential nature of the engineering major coursework, prerequisite coursework cannot be taken while at Columbia** and must be completed by the spring semester of application to qualify for guaranteed admission. Courses noted with * are excluded from this requirement, as they may be taken once at Columbia. Students may present course syllabi to request placement out of these courses once at Columbia.

Major requirements comprise the sequence of courses required to complete a major or primary course of study from the home institution. Degree requirements are courses, as listed in the home institution’s course catalog, that are required to obtain a degree from the home institution. A student does not need to complete the full number of course credits required for the degree (e.g., the full 128 credits), as the home institution will accept course credits from Columbia to complete this degree. Subsequently, 3-2 candidates cannot receive their degree from the home institution until the two years at Columbia are successfully completed.

**Financial Aid Policies**

Financial aid is available for Combined Plan students. Applicants should note:

- Columbia awards no merit scholarships; all financial aid is need-based only.
- Admission to the Combined Plan program is need-blind; financial need does not affect one’s chances of admission.
- We do not guarantee that we can meet 100% of demonstrated financial need for all Combined Plan students.
- Very limited financial aid is available for international students.
- Candidates are not guaranteed the same financial aid package that they may have received at their home institutions.

**Housing at Columbia**

**Housing is guaranteed for Combined Plan students in their first year only;** there is no guarantee that on-campus housing will be available in their second year. Off-Campus Housing Assistance at Columbia can assist students in their search for housing in the New York metropolitan area.