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 guaranteed if a student successfully meets all of the following requirements:

- Full-time enrollment at an affiliate institution for at least the past two 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 his/her home institution. Liaisons at each school are responsible for determining which classes fulfill these Columbia prerequisite courses and will advise students accordingly.

Foundation Courses Required of All Majors

Note that some majors may require additional semesters or specific courses for the following requirements.

Mathematics

Calculus I, II, III (V1101, V1102, V1201)

Physics

Mechanics and Thermodynamics (C1401)
Electricity, Magnetism and Optics (C1402)

Chemistry

General Chemistry I (C1403)

Lab Requirement

Either a one-semester physics or chemistry lab is required and may be taken in conjunction with the Introductory Physics and/or Chemistry courses listed above.
Note that some majors require a specific lab in either chemistry or physics.

Computer Science

Introduction to Computer Science and Programming in C++, JAVA, Python or MATLAB (COMS W1004, W1005 or W1007 or ENGI E1006)
Note that some majors require a specific programming language.

Humanities and Social Sciences

Principles of Economics (ECON W1105)
English Composition (ENGL C1010 University Writing)
27 non-technical credit hours (includes courses that fulfill Economics and English Composition)
Non-technical credit hours should help a student to learn perspectives and principles of the humanities and social sciences through discussion, debate and writing. Examples of these courses can be found on our website (bulletin.engineering.columbia.edu/b-elective-nontechnical-courses).

Major-Specific Coursework

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

Applied Mathematics or Applied Physics

Mathematics
Calculus IV (V1202)
Ordinary Differential Equations (E2030)
Physics
Classical and Quantum Waves (C1403)
Physics Lab (C1493/4)
Chemistry/Biology (one of the following; labs not required)
General Chemistry (C1403)
Environmental Biology: Molecules to Cells (EEEB W2001)
Introduction to Molecular and Cellular Biology (C2005)

Biomedical Engineering

Mathematics
Calculus IV (V1202)
Introduction to Applied Mathematics (APMA E2101)
Physics
Classical and Quantum Waves (C1403)
Chemistry
General Chemistry II (C1404)
General Chemistry Lab (C1500)
Additional
Introduction to Biology I and II (BIOL 2005 and 2006)
*Introduction to Electrical Engineering (ELEN 1201)
Computer Science: Python Language (ENGI 1006) Required

Courses listed are accurate as of September 2015.

Chemical Engineering

Mathematics
Calculus IV (V1202)
(choose one)
Ordinary Differential Equations (E2030) *or*
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)
Students must take both an ODE and a Linear Algebra course.
Physics
Physics Lab (C1493/4)
Chemistry
General Chemistry II (C1404)
General Chemistry Lab (C1500)
Organic Chemistry I (C3443)
*Organic Chemistry Lab (C3543)
Computer Science: Python Language (ENGI 1006) Required

Civil Engineering

Mathematics
Introduction to Applied Mathematics: Ordinary Differential Equations and Linear Algebra (APMA E2101)
Students must take both an ODE and a Linear Algebra course.
Geology (choose one)
Earth: Origin, Evolution, Processes Future (EESC V1011)
Advanced General Geology (EESC W4001)
Additional
*Mechanics (ENME E3105)
Computer Science: MATLAB Programming Language Preferred

Major-Specific Coursework

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

Computer Engineering

Mathematics
Calculus IV (V1202)
Introduction to Applied Mathematics - Ordinary Differential Equations and Linear Algebra (APMA E2101)
Students must take both an ODE and a Linear Algebra course.
Computer Science: JAVA Programming Language Required
Discrete Mathematics (COMS W3203)
Additional
*Introduction to Electrical Engineering (ELEN 1201)
Students who do not take or receive transfer credit for ELEN E1201 need to take an additional technical elective course while at Columbia.

Computer Science

Computer Science: JAVA Programming Language Required
Data Structures and Algorithms (COMS W3134 or W3137)
Discrete Mathematics (COMS W3203)

Earth and Environmental Engineering

Mathematics
Introduction to Applied Mathematics - Ordinary Differential Equations and Linear Algebra (APMA E2101)
Students must take both an ODE and a Linear Algebra course.
*Introduction to Probability and Statistics (W3600)
The course must have calculus as a prerequisite.
Chemistry
General Chemistry II (C1404)
General Chemistry Lab (C1500)
Additional Elective (choose one)
Organic Chemistry I (C3443)
Classical and Quantum Waves (C1403)
Introduction to Molecular and Cellular Biology (C2005)
Additional
*Advanced General Geology (EESC W4001)
*The Climate System (EESC V2100)
*The Solid Earth System (EESC V2200)
*Better Planet By Design (EAEE E2100)

Electrical Engineering

Mathematics
Calculus IV (V1202)
Introduction to Applied Mathematics - Ordinary Differential Equations and Linear Algebra (APMA E2101)
Students must take both an ODE and a Linear Algebra course.
Physics
Classical and Quantum Waves (C1403)
Additional
*Introduction to Electrical Engineering (ELEN 1201)
Computer Science
Sufficient knowledge of computer programming is needed in order to take Data Structures (COMS W3134 or W3136) at Columbia

Engineering Mechanics

Mathematics
Ordinary Differential Equations (E2030)
Laboratories (choose one)
Physics Lab (C1493/4)
General Chemistry Lab (C1500)
Additional
*Mechanics (ENME E3105)

IEOR: Industrial Engineering, Engineering Management Systems, or Operations Research

Mathematics
Linear Algebra (MATH V2010 or APAM E3101)
and one of the following options:
Introduction to Probability and Statistics (W3600) **or** Probability (IEOR E3658) and either Applied Statistical Models (IEOR E4307) or Statistical Inference (STAT W3107)
Please note that the statistics class must have calculus as a prerequisite. The department **strongly** *recommends taking separate courses in probability and statistics.*
Laboratories (choose one)
Physics Lab (C1493/4)
General Chemistry Lab (C1500)
Computer Science (choose one language pair)
Introduction to Computing for Engineers and Applied Scientists (ENGI E1006) **or** Introduction to Computer Programming in Java (COMS W1004)
Data Structures in C/C++ (COMS W3136) **or** Data Structures in JAVA (COMS W3134)
The department **strongly** *recommends JAVA over C.*
Economics
*Introduction to Accounting and Finance (E2261)
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).

Materials Science and Engineering

Mathematics
Calculus IV (V1202)
Ordinary Differential Equations (E2030)
Physics
Classical and Quantum Waves (C1403)
Physics Lab (C1493/4)
Chemistry
General Chemistry II (C1404)
General Chemistry Lab (C1500)

Mechanical Engineering

Mathematics
Calculus IV (V1202)
Introduction to Applied Mathematics - Ordinary Differential Equations and Linear Algebra (APMA E2101)
Students must take both an ODE and a Linear Algebra course.
Physics/Biology (choose one)
Classical and Quantum Waves (PHYS C1403)
Environmental Biology: Molecules to Cells (EEEB W2001)
Introduction to Molecular and Cellular Biology (C2005)
Laboratories (choose one)
Physics Lab (C1493/4)
General Chemistry Lab (C1500)
Additional
*Introduction to Electrical Engineering (ELEN 1201)
*Mechanics (ENME E3105)

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. **Columbia requires all official transcripts**. 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 are 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 and 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.

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

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