The 3-2 Combined Plan Program with Columbia University

This five-year program results in a Loyola BS in Physics with the Applied Science track and a Columbia BS in Engineering. The first three years of the program are spent at Loyola, followed by two years at Columbia. The Columbia University transcript will list a major in one of the following areas:

|  |  |
| --- | --- |
| Applied Mathematics | Electrical Engineering |
| Applied Physics | Engineering Mechanics |
| Biomedical Engineering | Engineering Management Systems |
| Chemical Engineering | Financial Engineering |
| Civil Engineering | Industrial Engineering |
| Computer Engineering | Materials Science and Engineering |
| Computer Science | Mechanical Engineering |
| Earth and Environmental Engineering | Operations Research |

Certain majors require additional Loyola coursework. See table at the end.

For freshmen entering Loyola in 2018 or prior, admission to the Columbia program is **guaranteed** after fulfillment of the requirements shown in the tables below with the following stipulations:

* All required courses must appear on the Loyola transcript either by taking the courses at Loyola or by transferring the credits to Loyola.
* The cumulative grade point average must be 3.30 or better.
* The minimum grade in each science and mathematics prerequisite course must be a B or better the first time the course is taken.
* All applicants must demonstrate English proficiency.

Admission to the Columbia program is possible, but not guaranteed, even if the above stipulations are not fully met.

For freshmen entering Loyola in 2019 or later, admission to the Columbia program will not be guaranteed. Students who attend affiliated liberal arts schools, such as Loyola, will receive priority in admission review. Columbia expects that applicants will fulfill all of the requirements shown in the tables below in order to be considered for admission. We highly recommend that the above bullet points be met.

A sample schedule for the first three years at Loyola is shown below. The Loyola Diversity requirement must be fulfilled at Loyola. Microeconomics and at least one semester of general chemistry are required by Columbia.

|  |  |
| --- | --- |
| **Freshman - Fall** | **Freshman – Spring** |
| MA 251 Calculus I | MA 252 Calculus II |
| PH 201 General Physics I | PH 202 General Physics II |
| EC 102 Microeconomics | CS 151 Computer Science through Programming |
| WR 100 Effective Writing | HS 101 History of Modern Western Civilization |
| Language Core | Elective |
| PH 291 General Physics Lab I (1 credit) | PH 292 General Physics Lab II (1 credit) |
|  |  |
| **Sophomore – Fall** | **Sophomore – Spring** |
| MA 351 Calculus III | MA 304 Differential Equations |
| PH 307 Math Methods in Physics | PH 317 Thermal Physics |
| PH 312 Modern Physics | PH 316 Classical Mechanics |
| EN 101 Understanding Literature | English 200-Level core |
| PL 201 Foundations of Philosophy | PL 200-Level Philosophical Perspectives |
| PH 293 Intermediate Laboratory I (1 credit) | PH 294 Intermediate Laboratory II (1 credit) |

|  |  |
| --- | --- |
|  |  |
| **Junior – Fall** | **Junior – Spring** |
| PH 415 Quantum Mechanics I | Fine Arts core |
| PH 417 Electricity and Magnetism I | History 300-level core |
| TH 201 Introduction to Theology | Theology core (TH 202-280) |
| Ethics core | Soc. Science core |
| CH 101 General Chemistry I CH 105 General Chemistry I Lab (1 credit) | Physics Track Course – chosen to satisfy Requirements for Columbia major (see below). |
| PH 397 Experimental Methods I (2 credits) | PH 398 Experimental Methods II (2 credits) |

**Additional courses required for specific Columbia majors:**

Note that one of these courses will be part of the Applied Science Track. Others must be taken as electives. Please refer to the Combined Plan Program at Columbia University for the most recent set of requirements:

<https://undergrad.admissions.columbia.edu/sites/default/files/2016-17_combined_plan_curriculum_guide.pdf>

<https://undergrad.admissions.columbia.edu/sites/default/files/2016-17_combined_plan_curriculum_course_descriptions.pdf>

The following table will give you an idea of what must be taken while at Loyola, but you should check the links above for the definitive version. Also consult with your physics advisor.

|  |  |
| --- | --- |
| **Columbia Major** | **Extra Loyola Courses** |
| Applied Mathematics | None |
| Applied Physics | None |
| Biomedical Engineering | CH 102/106: General Chemistry & Lab IIBL 118/119 Intro to Cell and Molecular Biology & LabBL 121/126 Organismal Biology & LabCS 151 (Python) |
| Chemical Engineering | CH 102/106: General Chemistry & Lab IICH 301/307: Organic Chemistry & Lab I |
| Civil Engineering | EG 120 (1 credit) *preferred* |
| Computer Engineering | CS 295: Discrete Structures |
| Computer Science | CS 295: Discrete Structures CS 312: Object-Oriented Software DesignMA 427: Numerical Analysis |
| Earth and Environmental Engineering | CH 102/106: General Chemistry & Lab IIEESC W4001, V2100 or V220 (taken at Columbia)EAEE E2002 (taken at Columbia) |
| Electrical Engineering | None |
| Engineering Management Systems | MA 301: Introduction to Linear AlgebraCS 212: Object-Oriented Data StructureAC 201: Financial AccountingST 381: Probability & Statistics (or ST461/462 *preferred*) |
| Financial Engineering | MA 301: Introduction to Linear AlgebraCS 212: Object-Oriented Data StructureAC 201: Financial AccountingST461: Elements of Statistical Theory I: DistributionsST462: Elements of Statistical Theory II: Inference |
| Industrial Engineering | MA 301: Introduction to Linear AlgebraCS 212: Object-Oriented Data StructureAC 201: Financial AccountingST 381: Probability & Statistics (or ST461/462 *preferred*) |
| Operations Research | MA 301: Introduction to Linear AlgebraCS 212: Object-Oriented Data StructureAC 201: Financial AccountingST 381: Probability & Statistics (or ST461/462 *preferred*) |
| Engineering Mechanics | None  |
| Materials Science and Engineering | CH 102/106: General Chemistry & Lab II |
| Mechanical Engineering | None |

Between Jan. 1 and March 1 of the junior year, the student must submit application materials to Columbia University for admission in the subsequent fall semester (4th year).

Additional information may be found at Columbia University’s websites:

<http://www.studentaffairs.columbia.edu/admissions/engineering/combined>

<http://undergrad.admissions.columbia.edu/apply/combined-plan>