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.

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 following bullet points be met.

* 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.

A sample schedule for the first three years at Loyola is shown below. The Loyola Diversity and Justice 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 291 General Physics Lab I (1 credit) | PH 202 General Physics II  PH 292 General Physics Lab II (1 credit) |
| EC 102 Microeconomics -fulfills SS core | CS 151 Computer Science through Programming |
| WR 100 Effective Writing | HS 100 Encountering the Past |
| Language Core at 104 level | Elective |
|  |  |
|  |  |
| **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 The Art of Reading |  |
| PL 201 Introduction to Philosophy | TH 201 Theology Matters |
| PH 293 Intermediate Laboratory I (1 credit) | PH 294 Intermediate Laboratory II (1 credit) |

|  |  |
| --- | --- |
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| **Junior – Fall** | **Junior – Spring** |
| PH 415 Quantum Mechanics I | Fine Arts core |
| PH 417 Electricity and Magnetism I | History 200-level core or English 200-level |
| Phil 200-Level or Theology 200-level |  |
| 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) |

Notes:

1. Students must complete at least two courses focused on diversity – justice. Diversity-Justice courses may simultaneously fulfill a core, major, minor, or elective requirement for the student. Diversity-Justice courses may be taught in any discipline and will focus on domestic diversity, global diversity, justice awareness, or some combination of these.

2. To receive a Loyola BS degree, the student must take a minimum of 28 three- or four-credit courses at Loyola and 10 courses at Columbia, provided the Columbia courses are at least three credits each. The total number of credits must be at least 120 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 II  BL 118/119 Intro to Cell and Molecular Biology & Lab  BL 121/126 Organismal Biology & Lab  CS 151 (Python) |
| Chemical Engineering | CH 102/106: General Chemistry & Lab II  CH 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 Design  MA 427: Numerical Analysis |
| Earth and Environmental Engineering | CH 102/106: General Chemistry & Lab II  EESC W4001, V2100 or V220 (taken at Columbia)  EAEE E2002 (taken at Columbia) |
| Electrical Engineering | None |
| Engineering Management Systems | MA 301: Introduction to Linear Algebra  CS 212: Object-Oriented Data Structure  AC 201: Financial Accounting  ST 381: Probability & Statistics (or ST461/462 *preferred*) |
| Financial Engineering | MA 301: Introduction to Linear Algebra  CS 212: Object-Oriented Data Structure  AC 201: Financial Accounting  ST461: Elements of Statistical Theory I: Distributions  ST462: Elements of Statistical Theory II: Inference |
| Industrial Engineering | MA 301: Introduction to Linear Algebra  CS 212: Object-Oriented Data Structure  AC 201: Financial Accounting  ST 381: Probability & Statistics (or ST461/462 *preferred*) |
| Operations Research | MA 301: Introduction to Linear Algebra  CS 212: Object-Oriented Data Structure  AC 201: Financial Accounting  ST 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>