The 3-2 Pre-Engineering Program Guide

Whether you are a freshman just starting at Queens College (QC) or a transfer student coming into QC, if you are interested in the Pre-Engineering Program, this document is for you. It will get you oriented with the Program and introduce you to the important first steps you should take to get started with the Program on the right foot.

First, read through the Overview section, and then go through the Onboarding process outlined in Section B. Finally, there are some tidbits in Section C that may be of interest to you.

NOTE: If you already have a bachelor's degree that is recognized by the US, you are NOT eligible for this Program.

A. Overview

The 3-2 Pre-Engineering Program is a dual-degree program. At the end of the whole Program, you will receive two bachelor's degrees: a BA from QC and a BS in Engineering from Columbia University. It is called the "3-2" plan because you spend the first three years at QC and the latter two years at Columbia.

In the first three years at QC, there are three sets of courses you will need to complete:

1. The course requirements for a QC major of your choice;
2. The Pathways Requirements; and
3. The Pre-Engineering Prerequisites.

All these requirements must be completed by the end of the spring semester in the year you are applying for transfer to Columbia. It is important that you schedule your courses wisely so that they can be completed on time (I am here to help you with that!). Any course(s) left over in the summer can delay your transfer by a whole year!

1. The QC Major

You will need to declare a major at QC, see the onboarding process below. You are then required to complete the course requirements for that major.

Note that you do not need to accumulate the 120 credits needed for a bachelor's degree at QC. After you finish your two years at Columbia, you will be able to transfer the Columbia credits to QC and graduate.

2. The Pathways Requirements

Pathways Requirements are outlined in detail on https://www.qc.cuny.edu/academics/gened/. Make sure you complete them all, including the two writing intensive courses. If you are not sure what writing intensive courses to take, I recommend either PHYS 320W or ENGL 203W. These courses will introduce you to writing in the sciences.

Also, for the Pathways Requirements, avoid performance-based courses like acting and music-instrument performance. Columbia may not accept these courses. Your Pathways courses should be writing-based.

3. The Pre-Engineering Prerequisites

The pre-engineering prerequisites are listed in the Pre-Engineering document, see the onboarding process listed below. There are two parts to these prerequisites: the foundational and the major-specific. You must complete all the foundational requirements and the major-specific requirements that are relevant to your engineering field.

4. Residency Requirement

Columbia requires you to accumulate at least six full-time semesters at QC before you can apply for transfer to Columbia. These six full-time semesters do not need to be continuous: They can be separated by breaks or part-time semesters. The residency requirement requires you to just accumulate a total of six full-time semesters.

If you are transferring in from other post-secondary institutions, you can use the full-time semesters from those institutions to meet the residency requirement. However, if you are a transfer student, we require you to spend at least three full-time semesters at QC. For example, you can NOT meet the residency requirement by spending four full-time semesters at a previous school and just two full-time semesters at QC; however, you can satisfy the requirement by spending four full-time semesters at a previous school and three full-time semesters at QC.

NOTE: Columbia allows you to transfer at any point after you meet the residency requirement, as long as you do not obtain a bachelor's degree. Therefore, some students apply for transfer, not after three years, but after four, say if they want to do a double major at QC. So, you have some flexibility.

B. Onboarding

1. You are a new incoming student at Queens College and you are not transferring into Queens College from another post-secondary institution

(i) Determine your cohort year.

Your first full-time semester at QC will determine your cohort year. For example, if you start full-time in the fall or spring of the 2022-2023 academic year, you are considered a 2022 cohort.

(ii) Carefully read through the Pre-Engineering document corresponding to your cohort year. To download the document, visit http://www.physics.qc.edu/undergraduate-programs/.

(iii) Transfer all your AP credits.

If you have any AP credits from high school, please contact the Undergraduate Office of Admissions (admissions@qc.cuny.edu, (718) 997-5600, Jefferson Hall Lobby) to figure out what QC courses should be awarded to you. Then make sure that all these courses appear as official credits on your QC transcript. Even with valid AP credits, if the equivalent QC courses do not appear on your QC transcript, Columbia will not recognize them.

(iv) Decide on what engineering field you want to pursue at Columbia.

This decision must be made right at the start because your course requirements will be different for different engineering majors. Think carefully because it is hard to change this later. You can choose from the following list:

- Applied Math
- Applied Physics
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Earth and Environmental Engineering
- Electrical Engineering
- Engineering Mechanics
- Industrial Engineering, Engineering Management Systems or Operations Research
- Materials Science and Engineering
- Mechanical Engineering

(v) Declare your major.

You can declare your major by first downloading the Major Declaration Form through the pre-engineering homepage (go to http://www.physics.qc.edu/undergraduate-programs/). Fill out the box labeled "Student Information." If you intend on pursuing, Applied Math, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Mechanics, Materials Science and Engineering, or Mechanical Engineering, you will be declaring your major as BA Applied Physics. Please put "BA Physics" under "Department" and "Applied" under "Concentration." Email the scanned form to the undergraduate physics advisor, Prof. Almeida (Euclides.Almeida@qc.cuny.edu). Once he returns the form to you with his signature, submit the form in-person at the QC Hub in Dining Hall Room 128.

If you want to pursue an engineering field not listed above, please contact me. My contact information is in Section D.

Pre-Engineering is NOT a major. You cannot declare your major as Pre-Engineering.

(vi) Enroll in courses for the first semester.

For the first semester, I recommend the following courses:

Course Number	Course Name	Credits
ENGL 110	College Writing 1	3
ECON 101	Introduction to Macroeconomics	3
CHEM 113.4/113.1	General Chemistry Lecture and Lab	4+1
MATH 151	Calculus 1	4
1 arts course	A Pathway Requirement	3
TOTAL		18

It is important to take all these courses at the beginning. MATH 151 is especially important because it is a pre-requisite for all math and physics courses. Failing to complete this course in the first semester can delay your transfer to Columbia by a whole year.

To take MATH 151, you need to have Precalculus done. If you did Precalculus in high school, that should be sufficient. If CUNYfirst is not allowing you to enroll in MATH 151, even with the precalculus credit, contact the math department (go to https://www.qc.cuny.edu/academics/math/) and sort the issue out immediately. If you cannot enroll in the course for any other reason, get in touch with me as soon as possible. My contact information is in Section D.

(vii) Once you complete this onboarding process, feel free to get in touch with me with any further questions. Please also email me once the semester starts so that I can give you further advice on what courses to take in the following semester. My contact information is in Section D.

2. You are already a full-time student at Queens College and you have not transferred into Queens College from another post-secondary institution

(i) Determine your cohort year.

Your first full-time semester at QC will determine your cohort year. For example, if you start full-time in the fall or spring of the 2022-2023 academic year, you are considered a 2022 cohort.

(ii) Follow steps (ii) to (v) from Section B 1.

(iii) Once you complete these steps, please email me so that I can give you advice on what courses to take. My contact information is in Section D.

3. You are already a full-time student at Queens College and you have transferred into Queens College from another post-secondary institution

(i) Determine your cohort year.

Your first full-time semester at your first post-secondary institution will determine your cohort year. For example, if your first full-time semester at your first post-secondary institution was the fall or spring of the 2022-2023 academic year, you are considered a 2022 cohort.

(ii) Follow steps (ii) to (v) from Section B 1.

(iii) Transfer all courses from your previous schools.

Transfer as many courses as possible from all your previous institutions to QC. Note, the courses transferred must appear as credits on your official QC transcript to be recognized by Columbia. You may not be able to transfer all your courses, but that is okay. But any courses you do transfer MUST appear on your QC transcript. This step must be completed before I can advise you on the Program.

(iv) Once you complete these steps, get in touch with me so that I can give you advice on what courses to take. My contact information is in Section D.

C. Tidbits

- About half of the pre-engineers transfer to Columbia after three years, while the other half transfer after four years. Very few pre-engineers transfer after five or more years.
- Your transfer into Columbia is NOT guaranteed. You will need to send in an application, Columbia will evaluate it, and you will be notified of your results. Your success rate of getting into Columbia very strongly depends on the CGPA on your QC transcript. Based on my experience, you will have a very good chance (almost 100%!) of getting into Columbia if your CGPA, at the time of the application, is greater than 3.7. If your CGPA is somewhere between 3.3 – 3.7, your chance of getting in is fifty-fifty. Your success will depend on factors other than your course performance, like your internship, volunteer, and research experience, as well as any involvement in student clubs, etc. Unfortunately, I have not seen anyone get in with a CGPA of 3.3 or lower. Based on this statistic, it is very important you do well in the courses. If you have a high CGPA, you will be successful!
- If you need any advice on how to get an internship and research experience, email me. My contact information is in Section D. I also try to update any internship opportunities on the Pre-Engineering homepage. See http://www.physics.qc.edu/undergraduate-programs/.
- For all the math and science courses that are part of your Pre-Engineering Prerequisites, you should obtain a letter grade of B or higher *in the first attempt*. Any letter grade below a B in these courses will be flagged by Columbia and may lower your chances of getting into Columbia. The arts courses (e.g., ENGL 110, ECON 101, and your Pathways courses) are NOT subject to this B requirement.
- While at QC, you are subject to the QC tuition. In your last two years at Columbia, you are subject to the Columbia tuition. This, at first, sounds daunting. But all pre-engineering students are eligible for need-based financial aid at Columbia, which is determined by your family income. Based on what I have heard from our alumni, pre-engineers usually end up paying around $20,000 - $25,000 per year at Columbia. To estimate your Columbia tuition, you can visit https://cc-seas.financialaid.columbia.edu/estimate-cost.

D. Contact Information

If you have any questions that are not answered in this document or in the pre-engineering document, feel free to contact me. You can get in touch with me in one of two ways:

1. Drop by my office SB B220 (the best choice).
2. Email me at stakei@qc.cuny.edu.
3. Call me at (718) 997-3379.