Williams College Supplement to the Pre-Combined Plan Curriculum Guide

This document explains how Williams College courses correspond to the prerequisite coursework required for the Columbia University Combined Plan in Liberal Arts and Engineering (the 3-2 program). Williams and Columbia have different curricula and different systems for counting courses. For our purposes, one semester course at Williams will be considered equivalent to four credit units at Columbia. Curricular differences however sometimes prevent an exact one Williams course to four Columbia units match.

Students should consult Columbia's Pre-Combined Plan Curriculum Guide to understand Columbia's requirements for admission to the program. It is available on the web at:

http://undergrad.admissions.columbia.edu/sites/default/files/2016-17_combined_plan_curriculum_guide.pdf

Students also need to keep in mind the Williams requirements for a degree.

http://web.williams.edu/admin/registrar/catalog/curriculum.html

For Combined Plan students, the required number of semester courses taken at Williams is reduced to 24 and the number of Winter Study courses is reduced to three. Students still need to complete a Williams major, the distribution requirements, the physical education requirement, and the residence requirement. Completing all of these Williams requirements in three years, while also completing the Columbia prerequisite coursework, requires careful planning. Although students apply to the Combined Plan during their third year at Williams, they need to start taking appropriate math and science courses during the first semester of their first year.

The prerequisite courses for the Combined Plan include the following.

Foundation Courses for All Majors:

	Columbia	**Williams**
Mathematics	MATH UN1101 Calculus I MATH UN1102 Calculus II MATH UN1201 Calculus III	MATH 130 Calculus I MATH 140 Calculus II MATH 150 or 151 Multivariable Calculus
Physics	PHYS UN1401 Mechanics & Thermo PHYS UN1402 Electricity, Magnetism, & Optics	PHYS 141 Mechanics & Waves PHYS 201 Electricity & Magnetism
Chemistry	CHEM UN1403 General Chemistry	CHEM 151, 153, or 155
Lab Requirement	1 semester of physics or chemistry lab	Lab is included in all of the physics & chemistry courses listed above
Computer Science	W1004, W1005, W1007, or E1006	CSCI 134 (JAVA) or 135 (Python)
Humanities & Social Sciences	27 credit units, including ECON UN1105 Principles of Economics & ENGL CC1010 English Composition	7 Division I or II courses, including ECON 110 & two writing-intensive courses. These courses should be chosen to satisfy the Williams distribution requirements.

Major-Specific Coursework:

Students applying to the Combined Plan choose one of fifteen engineering majors to pursue at Columbia. Each engineering major has several additional major-specific prerequisite courses. Please see Columbia's Pre-Combined Plan Curriculum Guide (link provided above) for details. The following table lists some of the courses included in the major-specific prerequisites and their closest Williams course matches.

	Columbia	**Williams**
Mathematics	MATH UN1202 Calculus IV APMA E2101 Intro. to Applied Math MATH UN2030 Ordinary Diff. Eqn.	MATH/PHYS 210 Math Methods* MATH 250 Linear Algebra* MATH 309 Differential Equations
Statistics	SEIO W3600 Intro. Prob & Statistics IEOR E3658 Probability IEOR E4307 App. Statistical Models STAT GU4204 Statistical Inference	STAT 201 Stat & Data Analysis MATH 341 Probability STAT 201 Intro Statistical Modeling STAT 360 Statistical Inference
Physics	PHYS UN1403 Classical & Quantum PHYS UN1493/4 Physics Lab	PHYS 142 or 151 Modern Physics Lab is included in PHYS 141, 142, 151, & 201
Chemistry	CHEM UN1404 General Chemistry II CHEM UN1500 General Chem. Lab CHEM UN2443 Organic Chemistry I CHEM UN2943 Organic Chem. Lab	CHEM 156 or 256 Lab is included in CHEM 151, 153, 155, 156, & 256 CHEM 251 or 255 Organic Chemistry Lab is included in CHEM 251 & 255
Biology	BIOL UN2005 Biology I BIOL UN2006 Biology II	BIOL 101 The Cell BIOL 102 The Organism
Geology	EESC UN1011 EESC UN2100 Climate System EESC UN2200 Solid Earth System	GEOS 101 or GEOS 102 GEOS 215 Climate Changes GEOS 201 Geomorphology
Computer Science	COMS W3134 or W3137 COMS W3203 Discrete Math	CSCI 136 Data Structures & Adv Prog MATH 200 Discrete Math

* Together these two Williams courses cover the material in Columbia MATH UN1202 and APMA E2101

Students needing help translating from Columbia courses to Williams courses should consult the pre-engineering advisor at Williams, who serves as the liaison for the Combined Plan.

Advanced Placement:

In its Pre-Combined Plan Curriculum Guide, Columbia states, "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." Williams uses AP scores, IB scores, and sometimes its own placement tests to place students in the most advanced courses for which they are qualified. Courses completed while enrolled in high school do not appear on the Williams transcript and do not receive credit toward a degree. Due to these different policies, students need to document carefully the courses they placed out of at Williams

and wish to count towards the Columbia Combined Plan prerequisite coursework. The liaison will include in a letter of recommendation an accounting of all advanced placement received at Williams. Columbia might also request that AP scores or IB scores be sent directly to them.

In order to facilitate counting advanced placement toward the Combined Plan prerequisites, Williams students should consult Columbia's AP webpage and its IB webpage.

http://bulletin.engineering.columbia.edu/advanced-placement

http://bulletin.engineering.columbia.edu/international-baccalaureate-and-other-national-systems

For example a student who earned a 5 on the Calculus BC AP Exam would place into MATH 150 or 151 at Williams. Upon successful completion of MATH 150 or 151 he or she could count Williams MATH 130 and 140 toward the Calculus I and Calculus II requirements. Similarly a Williams student who received a 4 or 5 on the Physics C Mechanics AP Exam and took Williams PHYS 142, 151, or 201 successfully would count PHYS 141.

Students with questions about counting advanced placement toward the Combined Plan pre-requisites should consult the Williams pre-engineering advisor (the liaison) as early as possible.

For the 2017 – 2018 academic year, the pre-engineering advisor is Professor Tiku Majumder (phone: 413-597-3211; email: pmajumde@williams.edu).