Sample Physics or Engineering Physics Curriculum for the 3-2 Program

Updated Fall 2023

Below is a sample schedule for students majoring in physics or engineering physics and pursuing the 3-2 program with Columbia.

Some general notes for all 3-2 students:

1. Specific classes for specific engineering majors are not included here, so be sure to review the Columbia guide for other requirements.
2. Any core courses without numbers below are **attributes**, and thus there are many courses that satisfy those requirements. When searching for such courses, search by the given attributes.
3. One of the core courses during the first year must have the *Eloquentia Perfecta 1* attribute.
4. Some courses can be taken during different semesters, although the major courses are often only offered in the semesters mentioned below.
5. Some courses mentioned below depend upon placement (such as ENGL 1102 or MATH 1206), so be sure to consider this when making your three-year plan.
6. The attributes Global Studies and Pluralism are not explicitly included but must be taken. Be sure these are attributes on core courses you take.
7. Upper-level electives should match with those requirements for the specific engineering major chosen when transfering to Columbia whenever relevant.
8. Requirements for Columbia are similar to, but distinct from, those for Case Western. Students interested in either program should refer to the 3-2 Engineering site for more information.

- During one semester of the second year, all majors should take PHYS 2010, Lab Methods and Techniques, a one-credit course to prepare for upper-level lab classes.
- Physics and Engineering Physics majors follow the same sequence for the first two years, and only in the third year do they diverge.
- Note that PHYS 3211 and PHYS 2011 are two-credit labs, so they don't count towards the five course limit during the third year fall.
- PHYS 3013 may be taken in the fall or the spring.

First year

Fall		Spring	
PHYS 1601	Intro. Physics I	PHYS 1602	Intro. Physics II
PHYS 1603	Intro. Physics I Recitation	PHYS 1604	Intro. Physics II Recitation
PHYS 1511	Physics I Lab	PHYS 1512	Physics II Lab
MATH 1206	Calculus I	MATH 1207	Calculus II
ENGL 1102	Composition II	—	Understanding Historical Change
ECON 1100/1200	Basic Macro/Microeconomics	PHIL 1000	Philosophy of Human Nature
THEO 1000	Faith and Critical Reason	—	Fine and Performing Arts

Second year

Fall		Spring	
PHYS 2005	Intro. to Modern Physics	PHYS 2201	Classical Mechanics I
CHEM 1321	General Chemistry I	CHEM 1322	General Chemistry II
CHEM 1311	General Chemistry I Recitation	CHEM 1312	General Chemistry II Recitation
CHEM 1331	General Chemistry I Lab	CHEM 1332	General Chemistry II Lab
MATH 2004	Multivariable Calculus I	MATH 2005	Multivariable Calculus II
CISC 1600	Computer Science I	—	Sacred Texts & Traditions
CISC 1610	Computer Science I Lab	PHIL 3000	Philosophical Ethics
—	Texts and Contexts (EP 2)		

Third year

Physics

Fall		Spring	
PHYS 3001	Electricity and Magnetism	PHYS 3401	Thermodynamics & Statistical Physics
PHYS 3101	Math Methods in Physics I	PHYS 3102	Math Methods in Physics II
PHYS 4005	Quantum Mechanics I	PHYS 3013	Exp. Methods in Eng. & Physics (EP 3)
PHYS 3211	Computational Physics I	PHYS —	Physics Elective
PHYS 2011	Intermediate Lab	—	Senior Values (EP 4)
PHYS —	Physics Elective		
—	Advanced Core Course		

Engineering Physics

Fall		Spring	
PHYS 3001	Electricity and Magnetism	PHYS 3401	Thermodynamics & Statistical Physics
PHYS 3101	Math Methods in Physics I	PHYS 3013	Exp. Methods in Eng. & Physics (EP 3)
PHYS —	Physics Elective	PHYS —	Physics Elective
PHYS —	Physics Elective	PHYS —	Physics Elective
—	Advanced Core Course	—	Senior Values (EP 4)