



## Physics Major with Joint Colmubia Program

Total Credits: 43

REQUIRED COURSES (43 CREDITS)		Term	Credits	Resid
Subj/Course #	Title			(O/R)
PHY 1051	General Physics 1, Fall		4	
PHY 1052	General Physics 2, Spring		4	
PHY 2051	General Physics 3, Fall		4	
PHY 2052	General Physics 4, Spring		4	
MAT 1412	Calculus 1		4	
MAT 1413	Calculus 2		4	
MAT 1510	Multivariable Calculus		4	
MAT 2105	Linear Algebra		3	
MAT 2601	Differential Equations		3	
CHE 1045	Gen Chemistry 1, Fall		3	
CHE 1046	Gen Chemistry 2, Spring		3	
CHE 1047	Gen Chemistry Lab Spring		2	
COM 1300	Intro to Computer Science		4	
ECO 1010	Principals of Economics		3	

RECOMMENDED COURSES				
PHY 1120	Modern Physics		3	
PHY 1621	Intro to Quantum Mechanics		3	

### Engineering Major Specific Courses, Depending Upon Chosen Field

#### 1. Applied Math/ Applied Physics

MAT 1412, MAT 1413, MAT 1510, MAT 2601

PHY 2051, PHY 2052, PHY 1061L/ 2061L

Choose one: CHE 1045 OR BIO 3038C OR both BIO 3207C and BIO 3521C

#### 2. Biomedical Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601

PHY 2051, PHY 2052, PHY 1061L/ 2061L

CHE 1045, CHE 1046R/ CHE 1047L

BIO 1011R/L, BIO 1012R/L

COM/MAT 1504

\*\*Electrical Engineering (ELEN E1201 may be taken summer before entering or while at Columbia)

#### 3. Chemical Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601, COM/MAT 1504

PHY 1061L/ 2061L

CHE 1046R/1047L, CHE 1213R, CHE 1215L

4. Civil Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601

PHY 1221, PHY 1222

COM 1300

\*\*Geology Course (consult with Pre-Engineering Advisor as to how/ when to take this)

5. Computer Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601, MAT/COM 1504

COM 1300, COM 1320

\*\*Electrical Engineering (ELEN E1201 may be taken summer before entering or while at Columbia)

6. Computer Science

MAT 1412, COM 100, COM 1320, COM/MAT 1504

7. Earth and Environmental Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601, MAT 2461, MAT 2462

CHE 1045, CHE 1046R, CHE 1047L

*Choose one: CHE 1213R and CHE 1215L, OR PHY 2051 and PHY 2052R*

*BIO 3207C, BIO 3521C*

*\*\* Earth and Environmental Sciences (EESC UN2100 OR EESC UN2200, AND E AEE E2100), may be taken while at Columbia*

8. Electrical Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601

PHY 2051, PHY 2052, PHY 1061L/ 2061L

COM 1300

\*\*Electrical Engineering (ELEN E1201 may be taken summer before entering or while at Columbia)

9. Engineering Mechanics

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601

PHY 1221, PHY 1222

10. Industrial Engineering, Engineering Management Systems, or Operations Research

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2461, MAT 2462

COM 1300, COM 1320, COM 1504/MAT 1504

ACC 1001, ACC 1002

11. Materials Science and Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2601

PHY 2051, PHY 2052, PHY 1061L/ 2061L

CHE 1045, CHE 1046R/ CHE 1047L

12. Mechanical Engineering

MAT 1412, MAT 1413, MAT 1510, MAT 2105, MAT 2601

Choose one: PHY 2051 and PHY 2052 OR BIO 3038C OR both BIO 3521C BIO and 3207C

PHY 1221, PHY 1222

\*\* Electrical Engineering (ELEN E1201 may be taken summer before entering or while at Columbia)

**\*\*There is no current YC course that meets this requirement.  
Students should meet with the Pre-Engineering Advisor to obtain direction from  
Columbia as to how and when these courses should be taken**