

Physics Major: Foundation

(August 2018)

For students enrolling in Math 110, 114, or above in the fall of the first year

| | <u>Fall</u> | <u>Spring</u> |
|---------|--|--|
| Year 1: | Physics 110 CSP Seminar Core Distribution (Math 110, 114) CS 165 ^{*†} | Physics 117 CSP Seminar Core Distribution (Math 120, 128) CS 165 ^{*†} |
| Year 2: | Physics 120 Foreign Language 1 Core Distribution (Math 212, 214) [‡] | Physics 240 Foreign Language 2 CS 131 [#] (Math 212, 214) [‡] |

See *Physics Major: Options* for required and suggested coursework in Years 3 and 4

* Students are strongly encouraged to take this course by the end of their sophomore year.

† Two-credit course

‡ These courses may be taken in either order.

(...) One of the courses given in parentheses should be taken.

Recommended, but not required for the Major.

1. Students who wish to take courses without the prerequisites must petition the Physics Department.
2. If language proficiency is met with fewer courses than shown, additional electives may be chosen.

Physics Major: Options

(August 2018)

Note: All Options require Senior Seminar: Physics 490 and 491 (two credits each)

Physics: Physics 310, 315, 316, 320, 330, 340, 350; one Selective*

| | | |
|---------|--|--|
| Year 3: | Physics 310 Physics 320 | Physics 330 Physics 340 |
| Year 4: | Physics 315 [†] Physics 350 Physics 490 | Physics 316 [†] [Physics Selective] Physics 491 |

Mathematics: Physics 310, 320, 350; one Selective*; 8 units in both Physics and Math above 300 (excl. Senior Seminar)

| | | |
|---------|--|--|
| Year 3: | Physics 310 {Physics 320/Math-CS} | [Physics Selective] {Physics 330/ Math-CS} |
| Year 4: | {Math-CS/Physics 320} Physics 315 ^{††} Physics 350 Physics 490 | {Math-CS/Physics 340 [‡] } Physics 316 ^{††} [Physics Selective] Physics 491 |

Chemistry: Physics 310, 320; 330 or 350; 340; Chemistry 120 or 130; 220, 221, and 240

| | | |
|---------|--|--|
| Year 3: | Physics 310 Chem I {Physics 320} | {Physics 330} Chem II Physics 340 |
| Year 4: | Chem III Physics 490 {Physics 320} (Physics 350/Physics 330)* | Chem IV Physics 491 (Physics 330/Physics 350)* |

Geology: Physics 310; Two of 320, 330, or 350; Geo 105, 225, 235; 245 or one 300-level Geology course

| | | |
|---------|--|---|
| Year 3: | Physics 310 [Physics 320] Geology 105 | [Physics 330] [Physics Selective] Geology 235 |
| Year 4: | [Physics 350] Physics 490 Geology 225 [Geology 245] | [Physics Selective] Physics 491 [Geology 300-level] |

Computer Science: Physics 310; Two of 320, 330, 340, 350; Math 210; CS 131, 229, 239, and one 300-level (excl. Practicum and Senior Seminar)

| | | |
|---------|---|---|
| Year 3: | Physics 310 [Physics 320] CS 131 | [Physics 330] CS 229 |
| Year 4: | [Physics 350] Physics 490 CS 239/CS 300-level | [Physics 330] Physics 491 CS 300-level/CS 239 |

Education: Physics 320, three Selectives*; Ed 201; Ed 207; and 4 units of Ed 300

| | | |
|---------|--|--|
| Year 3: | Physics 320 Ed 201 | [Physics Selective] Ed 207 |
| Year 4: | Ed 300 Physics 490 [Physics Selective] | Ed 300 Physics 491 [Physics Selective] |

*A "Physics Selective" is a course from the 260/360 series, or any 300-level physics course not otherwise required for the Option.

†A two-credit course.

‡Recommended courses for the eight Physics units above 300 required for the Math Option.

*Physics 350 is only offered in the fall; Physics 330 is only offered in the spring

†Strongly recommended course, but not required for the Option.

(...) Only one of the courses given in parentheses is required for the Option.

{...} Course sequences listed in curly brackets may be taken in either junior or senior year.

[...] A course listed in square brackets may be taken at any time.

Combined Plan (3-2 Program)

Physical Sequence

(August 2018)

The Physical Sequence is appropriate for all areas of engineering. Prospective 3-2 students are urged to meet with the 3-2 Liaison Officer before the end of sophomore year to identify any additional required courses specific to their chosen field.

| | <u>Fall</u> | <u>Spring</u> |
|---------|---|--|
| Year 1: | CSP Seminar Core Distribution (Math 110, 114) Physics 110 | CSP Seminar Core Distribution (Math 120, 128) Physics 117 |
| Year 2: | Core Distribution Physics 120 (Math 212, 214) [#] (Foreign Language 1/Chem 120) | Physics 240 CS 131 (Math 212, 214) [#] (Foreign Language 2/Elective) |
| Year 3: | Physics 310 Physics 320 (Chem 120/Foreign Language 1) [Physics Selective*] | {Physics 330/340} (CS 229/Math 341/Math 342) (Elective/Foreign Language 2) [Physics Selective*] |

Notes:

1. Prospective 3-2 students must place into Math 110 or above. Please consult the Mathematics Department for details.
2. Econ 101 is required to qualify for Columbia's guaranteed admission.
3. Students are encouraged to take Math 340: Ordinary Differential Equations.
4. Students considering Electrical or Biomedical Engineering should take Physics 262: Electronics.

*

A course from the 260/360 series, or any 300-level physics course not otherwise required for the 3-2 Program.

†

Two-credit course

‡

Students should complete both these courses by the end of sophomore year.

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These courses may be taken in either order.

(...) One of the courses given in parentheses should be taken.

{...} Courses in curly brackets are not actually required of 3-2 students, but are strongly recommended since they allow for an easy transition into the physics major should the student decide not to continue in the 3-2 program.