# Sample Curriculum

# Standard sequence (for abbreviations see below and next page)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year**Freshman | **Fall**PHYS 1901 – Seminar | **SH**1 | **Spring**PHYS 2051 – Intro Physics 1 | **SH**5 |
|  | MATH 2301 – Calculus 1 | 4 | MATH 2302 – Calculus 2 | 4 |
|  | T1-FC | 3 | T2-HL | 3 |
|  | T2-CC | 3 | T2-SS | 3 |
|  | T2-FA | 3 |  |  |
| Total |  | 14 |  | 15 |
| Sophomore | PHYS 2052 – Intro Physics 2 | 5 | PHYS 2053 – Contemp. Physics | 3 |
|  |  |  | PHYS 2701 – Electronics | 2 |
|  | MATH 3300 – Calculus 3 | 4 | MATH 3400 – ODEs | 3 |
|  | FL | 4 | FL | 4 |
|  | A&S-H | 3 | ASTR 3251 – Fund Astrophys | 3 |
| Total |  | 16 |  | 15 |
| Junior | PHYS 3001 – Class Mech | 4 | PHYS 3011 – Thermal Physics | 3 |
|  | PHYS 3701 – Junior Lab 1 | 2 | PHYS 3702 – Junior Lab 2 | 2 |
|  | MATH 3200 – Linear Algebra | 3 | MATH 4410 – PDEs & Fourier Anal. | 3 |
|  | ASTR 4201 – Stellar Astrophys\* | 3 | ASTR 4202 – Galaxies\* | 3 |
|  | A&S-H | 3 | A&S-SS | 3 |
|  |  |  | T1-JC | 3 |
| Total |  | 15 |  | 17 |
| Senior | PHYS 4031 – E&M 1 | 3 | PHYS 4032 – E&M 2 | 3 |
|  | ASTR 4271 – Obs Astrophys\* | 3 | (MATH 3600 – Numerical Methods | 3) |
|  | (PHYS 4021 – Quantum Mech. | 3) | (PHYS 4051\*\* – Modern Physics | (T3)3) |
|  | A&S-SS | 3 | Elective | 3 |
|  | Elective | 3 | Elective | 3 |
| Total |  | 15 |  | 15 |

For the Tier I, Tier II and Arts &Sciences distribution requirements, the order of taking the different areas is flexible. One just has to ensure that each of the areas is checked at some point.

Full course description for all Physics, Astronomy and Math courses are given in the Appendices. Courses in (parentheses) are recommended (but not required) courses.

\*The 4000 level ASTR courses will be taught every other year, so the above schedule will have the ASTR classes swapped for half of the students. 4201 + 4202 will be taught the first year under semesters.

\*\* PHYS 4051 is a Tier III-equivalent course that combines parts of the optional courses PHYS 471 (Solid State Physics) and PHYS 453 (Nuclear & Particle Physics) plus additional material from other areas of physics. This course is not required, but Astrophysics majors are encouraged to take it as their Tier III requirement following the optional (but recommended) Quantum Mechanics (PHYS 4021).

# Abbreviations:

|  |  |  |  |
| --- | --- | --- | --- |
| University Requirements | Abbreviation | College Requirements | Abbreviation |
| Tier I – Freshmen Composition | T1-FC | A&S 200-level or higher | # |
| Tier I – Quantitative Skills | T1-QS | A&S Humanities | A&S- H |
| Tier I – Junior Composition | T1-JC | A&S Social Sciences | A&S- SS |
| Tier II- Applied Science & Math | T2-AS | A&S Natural Sciences | A&S - NS |
| Tier II – Cross-Cultural Perspectives | T2-CP | Foreign Language | FL |
| Tier II – Fine Arts | T2-FA | Elective | E |

|  |  |  |  |
| --- | --- | --- | --- |
| Tier II – Humanities & Literature | T2-HL |  |  |
| Tier II – Natural Sciences | T2-NS |  |  |
| Tier II – Social Sciences | T2-SS |  |  |
| Tier III | T3 or T3E |  |  |

**Required Courses for Major:**

|  |  |
| --- | --- |
| PHYS | 1901, 2051, 2052, 2053, 2701, 3001, 3011, 3701, 3702, 4031, 4032 |
| MATH | 2301, 2302, 3200, 3300, 3400, 4410 |
| ASTR | 3251, 4201, 4202, 4271 |

**Recommended Courses:**

MATH 3600, PHYS 4021, 4051

# For a Bachelor of Science degree under Semesters, students must also complete:

* a minimum 120 semester hours (SH).
* Gen. Ed. Tier I: Freshman English (3 SH) and Junior English (3 SH); the Tier I quantitative requirement are fulfilled for us automatically by calculus.
* Gen. Ed. Tier II: 21 SH with at least 2 credit hours from each of the six current areas:
	+ Applied Science & Math (2AS)
	+ Cross-cultural Perspectives (2CP)
	+ Fine Arts (2FA)
	+ Humanities and Literature (2HL)
	+ Natural Sciences (2NS)
	+ Social Sciences (2SS)].

No more than 8 SH may be taken in the same Department/School and no more than two areas can be

satisfied by the same Department/School. No more than two courses can come from the students' major department.

* Language Requirement: For a B.S. one year of college foreign language is required. Students must pass 1120 or higher (test-outs will be available). For a B.A. this is 2 years
* A&S Distribution Requirements: 27 SH total including a minimum of 9 hours in each domain (Humanities, Social Sciences, and Natural Sciences). For a B.A. this is 33 hours total.
	+ Our students never have a problem with the Natural Science requirement, but they will need ~3 courses each from courses listed on a student’s DARS for A&S Humanities and A&S Social Sciences. It is possible to get some of the

Tier II courses to count towards these numbers.

* 60 SH of Arts & Sciences coursework at 200-level and above.
* No more than 12 SH taken with the grade of CR.

# Q2S conversion rules:

ASTR 3251 = ASTR 305 ASTR 4271 = ASTR 410

ASTR 4201 = ASTR 401 + ASTR 402 ASTR 4202 = ASTR 402 + ASTR 403

PHYS 2051 + 2052 = PHYS 251 + 252 + 253 PHYS 2053 = PHYS 254

PHYS 3001 = PHYS 311 + 312 PHYS 3011 = PHYS 411

PHYS 3701 + 3702 = PHYS 371 + 372 + 373 PHYS 2701 = PHYS 272 + 273

PHYS 4031 + 4032 = PHYS 427 + 428 + 429 (part)

MATH 2301 + 2302 = MATH 263A + B + C MATH 3300 = MATH 263D MATH 3400 = MATH 340 MATH 3200 = MATH 410

MATH 4410 = MATH 441