

**BA Physics - 4 year plan**

|               |                   | <b>Fall</b>                            | <b>Pre-req courses</b>  | <b>units</b> | <b>Term offered</b>      |  | <b>Spring</b>     | <b>Pre-req courses</b>  | <b>units</b>   | <b>Term offered</b> |                          |
|---------------|-------------------|--|---|--------------|--------------------------|--|-------------------|---|--|---------------------|--------------------------|
| <b>Year 1</b> | MATH 2210         | Calculus I                             | MATH 1401 or satisfactory score on placement exam   | 4            | Fall & Spring            |  | MATH 2220         | Calculus II   | Math 2210 with grade of C- or higher   | 4                   | Fall & Spring            |
|               | <b>PHYS 1500</b>  | <b>Tools for Physicists</b>            | none  | <b>3</b>     | <b>Fall</b>              |  | <b>PHYS 2500</b>  | <b>General Physics I</b>  | MATH 2210 and co-req of MATH 2220  | <b>4</b>            | <b>Fall &amp; Spring</b> |
|               | CHEM 2100         | General Chemistry I                    | 1 yr HS chemistry or equivalent AND pre- or co-req of one of Math 1301, 1401, 1601, 2210, or 2220                                 | 4            | Fall & Spring            |  | <b>PHYS 2500L</b> | <b>General Physics I Lab</b>  | MATH 2210 and co-reqs of MATH 2220 & PHYS 2500   | <b>1</b>            | <b>Fall &amp; Spring</b> |
|               | CHEM 2100L        | General Chemistry I Laboratory         | co-req of CHEM 2100   | 1            | Fall & Spring            |  |                   | GE courses  |  | 6                   | Fall & Spring            |
|               |                   | GE courses                             |   | 3            | Fall & Spring            |  |                   |   |  |                     |                          |
|               |                   | Total units                            |   | <b>15</b>    |                          |  |                   | Total units   |  | <b>15</b>           |                          |
| <b>Year 2</b> | MATH 2310         | Applied Linear Algebra                 | Math 2210 with grade of C- or higher, and Math 2220 as pre- or co-req   | 4            | Fall & Spring            |  | MATH 2320         | Multivariable Calculus  | Math 2220 and Math 2310 both with grade of C- or higher  | 4                   | Fall & Spring            |
|               | <b>PHYS 2510</b>  | <b>General Physics II</b>              | PHYS 2500 & MATH 2220   | <b>4</b>     | <b>Fall &amp; Spring</b> |  | <b>PHYS 2600L</b> | <b>Introduction to Electronics</b>                                  | PHYS 2210 & MATH 2310  | <b>1</b>            | <b>Spring</b>            |
|               | <b>PHYS 2510L</b> | <b>General Physics II Lab</b>          | PHYS 2500, MATH 2220, & MATH 2220 and co-req of PHYS 2510   | <b>1</b>     | <b>Fall &amp; Spring</b> |  | <b>PHYS 2700</b>  | <b>Modern Physics</b>   | MATH 2310, PHYS 1500, PHYS 2510, PHYS 2510L & a co-req of MATH 2320                                    | <b>3</b>            | <b>Spring</b>            |
|               |                   | GE courses                             |   | 6            | Fall & Spring            |  |                   | GE courses  |  | 6                   | Fall & Spring            |
|               |                   | Total units                            |   | <b>15</b>    |                          |  |                   | Total units   |  | <b>14</b>           |                          |
| <b>Year 3</b> | <b>PHYS 3100</b>  | <b>Mathematical Methods of Physics</b> | MATH 2320 with a grade of C (2.0) or higher, MATH 2310, PHYS 100, PHYS 2510, and a combined 2.0 GPC in 2000-level physics courses | <b>4</b>     | <b>Fall</b>              |  | <b>PHYS 3400</b>  | <b>Electricity &amp; Magnetism</b>                                  | PHYS 3100 with a grade of C- or better & PHYS 2700 with a grade of C- or better or co-req of PHYS 2700 | <b>3</b>            | <b>Spring</b>            |
|               | <b>PHYS 3200</b>  | <b>Classical Mechanics</b>             | PHYS 2510, PHYS 2510L, and a co-req of PHYS 3100  | <b>4</b>     | <b>Fall</b>              |  | <b>PHYS 3500</b>  | <b>Statistical and Thermal Physics</b>                              | PHYS 2700 and PHYS 3100 both with a grade of C- or better  | <b>4</b>            | <b>Spring</b>            |
|               | <b>PHYS 3300</b>  | <b>Computational Physics</b>           | PHYS 2510, PHYS 2510L, and a co-req of PHYS 3100  | <b>3</b>     | <b>Fall</b>              |  | <b>PHYS 3800</b>  | <b>Intermediate Physics Laboratory</b>                              | PHYS 2600L, PHYS 2700, PHYS 3300 AND a co-req of PHYS 2700 & PHYS 2600L                                | <b>2</b>            | <b>Spring</b>            |
|               |                   | GE courses                             |   | 3            | Fall & Spring            |  |                   | GE course   |  | 3                   | Fall & Spring            |
|               |                   | Total units                            |   | <b>14</b>    |                          |  |                   | Total units   |  | <b>12</b>           |                          |
| <b>Year 4</b> |                   | <b>PHYS Elective</b>                   |   | <b>3</b>     | <b>Fall &amp; Spring</b> |  | <b>PHYS 4800</b>  | <b>Senior Thesis (W)*</b>   | PHYS 3200, PHYS 3400, and PHYS 3800  | <b>2</b>            | <b>Spring</b>            |
|               |                   | GE courses                             |   | 9            | Fall & Spring            |  |                   | <b>PHYS Elective</b>  |  | <b>3</b>            | <b>Fall &amp; Spring</b> |
|               |                   |  |   |              |                          |  |                   | GE course   |  | 9                   | Fall & Spring            |
|               |                   | Total units                            |   | <b>12</b>    |                          |  |                   | Total units   |  | <b>14</b>           |                          |
|               |                   |  |   |              |                          |  |                   | <b>*Can be substituted by ASTR 4000 Observational Astronomy (W)</b> |  |                     |                          |

**NOTES:**

1. PHYS courses are in bold.
2. An additional 12 units of coursework of the student's choosing across the university will be required for graduation.
3. Plan averages 14-16 units per term. Taking less than this will require additional terms to graduate
4. Completing the requirements of the BA Physics will simultaneously satisfy the following GE requirements:  
 GE Math (Area B4)  
 GE Physical Science (Area B1)  
 GE lab (Area B-lab)  
 1 out of 2 Writing Intensive courses - upper division (this leaves 1 writing intensive course of the student's choosing upper or lower division)

### Elective Courses

|               | Course                                    | Pre-req courses                                  | units | Term offered  |
|---------------|---|--|-------|---------------|
| PHYS 3600     | Data Acquisition and Control              | PHYS 2600L, PHYS 3100, PHYS 3300                 | 2     | Spring        |
| PHYS 4600     | Electronics                               | PHYS 3600  | 3     |               |
| PHYS 4851-3   | Special Topics in Physics                 | depends on the topic                             | 1-3   |               |
| PHYS 4851L-2L | Special Topics in Physics                 | depends on the topic                             | 1-3   |               |
| PHYS 5100     | Mathematical Methods of Physics II        | PHYS 3100  | 3     |               |
| PHYS 5400     | Optics                                    | PHYS 4400  | 3     | Spring        |
| PHYS 5500     | Solid State Physics                       | PHYS 4700  | 3     | Spring        |
| PHYS 5700     | Quantum Mechanics II                      | PHYS 4700 with grade of C (2.0) or better        | 3     | Spring        |
| PHYS 5751-3   | Internship                                |  | 1-3   | Fall & Spring |
| PHYS 5851-3   | Special Topics in Physics                 | depends on the topic                             | 1-3   |               |
| PHYS 5851L-2L | Special Topics in Physics                 | depends on the topic                             | 1-3   |               |
| PHYS 5951-3   | Independent Study                         |  | 1-3   | Fall & Spring |
| ASTR 2300     | Introduction to Astronomy for Scientists* | PHYS 2510, PHYS 2510L                            | 4     | Spring        |
| ASTR 3300     | Astrophysics of Planetary Systems         | ASTR 2300  | 3     |               |
| ASTR 3310     | Astrophysics of Galaxies and Cosmology    | ASTR 2300  | 3     |               |
| ASTR 4000     | Observational Astronomy (WI)              | ASTR 2300, PHYS 3300 or other programming course | 3     | Fall          |

\* Does not count as an elective towards the BA or BS physics, but is a pre-req for ASTR 3300, ASTR 3310, and ASTR 4000 which are approved electives for those degrees.

\*\* Specific elective courses are not guaranteed to be offered each year, but a selection of electives will be offered each year at the discretion of the department.