

## Course Listing and Curriculum Map for the Physics Minor

| Requirements   | Semester Course Number | Course Title                           | Semester Units | Quarter Equivalent Course Number | Quarter Credits | Notes  | Relevant Learning Goals Achieved (see below)   |
|--|------------------------|--|----------------|----------------------------------|-----------------|--|--|
| <b>Possible Prerequisite Courses Outside of Physics</b>                                  |                        |  |                |                                  |                 |  |  |
| Introductory Math  | Math 1251              | Calc I                                 | 5              | Math 151                         | 5               | Semester sequence has same content as quarter sequence | 2  |
|  | Math 1258              | Calc II                                | 5              | Math 152                         | 5               |  |  |
|  |                        |  |                | Math 153                         | 5               |  |  |
| Possible prerequisites, depending on courses in the Physics core below which are chosen. | Math 2249              | CalcIII                                | 3              | Math 254                         | 5               | Content of current 254                                 | 2  |
|  | Math 2431              | LinAlg/DiffEq                          | 3              | Math 415                         | 4               | Merges 415 and 568                                     | 2  |
|  |                        |  |                | Math 513                         | 3               |  |  |
|  | CSE 1211               | Intro to C++                           | 2              | CSE 202                          | 4               | Same content   | 3  |
| <b>Physics Courses Which Could be taken to Satisfy the Physics Minor</b>                 |                        |  |                |                                  |                 |  |  |
| Introductory   | Physics 1250/1250H     | Mechanics, Thermal Physics, Waves      | 5              | Physics 131/131H                 | 5               | Semester sequence has same content as quarter sequence | 1,2  |
|  | Physics 1251/1251H     | E&M, Optics, Modern Physics            | 5              | Physics 132/132H                 | 5               |  |  |
|  |                        |  |                | Physics 133/133H                 | 5               |  |  |
| Intermediate   | Physics 2300           | Dynamics of Particles and Waves I      | 4              | Physics 261                      | 4               | Semester sequence has same content as quarter sequence | 1,2,4  |
|  | Physics 2301           | Dynamics of Particles and Waves II     | 4              | Physics 262                      | 4               |  |  |
|  | Physics 2095           | Introductory Seminar                   | 1              | Physics 295                      | 1               |  |  |
| Upper Division   | Physics 5400/5400H     | E&M I                                  | 4              | Physics 555                      | 4               | Semester course has all of 555 and some of 656         | 1,2,4  |
|  |                        |  |                | Physics 656                      | 4               |  |  |
|  |                        | Physics 5500/5500H                     | Quantum I      | 4                                | Physics 631     | 4  | Semester course has all of 631 and some of 632 |
|  |                        |  |                | Physics 632                      | 4               |  |  |
| Physics Labs Core  | Physics 3700           | Methods in Experimental Physics        | 2              | Physics 416                      | 4               | Same content   | 3  |
|  | Physics 4700           | Intro Electronics for Physicists       | 3              | Physics 517                      | 4               | Same content   | 3  |
|  | Physics 5700           | Advanced Laboratory                    | 3              | Physics 616                      | 4               | Same content   | 3  |
|  | Physics 3455H          | Honors Holography                      | 3              | Physics H455                     | 4               | Same content   | 3  |
| <b>Physics Electives:</b>  |                        |  |                |                                  |                 |  |  |
|  | Physics 3470           | Optics                                 | 3              | Physics 570                      | 4               | Same content   | 4  |
|  | Physics 5401H          | E&M II                                 | 4              | Physics 656                      | 4               | Semester course has some of 656 and all of 657         | 1,2,4  |
|  |                        |  |                | Physics 657                      | 4               |  |  |
|  | Physics 5501H          | Quantum II                             | 4              | Physics 632                      | 4               | Semester course has some of 632 and all of 633         | 1,2,4  |
|  |                        |  |                | Physics 633                      | 4               |  |  |
|  | Physics 5600           | Statistical Physics                    | 4              | Physics 621                      | 4               | Semester course has all of 621 and some of 622         | 1,2,4  |
|  |                        |  |                | Physics 622                      | 4               |  |  |
|  | Physics 5300           | Theoretical Mechanics                  | 4              | Physics 664                      | 4               | Enhanced content                                       | 1,2,4  |
|  | Physics 6802           | Topics in Elementary Particle Physics  | 4              | Physics 780.xx                   | 4               | Enhanced content                                       | 4  |
|  | Physics 6803           | Topics in Astroparticle Physics        | 4              | Physics 780.xx                   | 4               | Enhanced content                                       | 4  |
|  | Physics 6804           | Topics in Atomic and Molecular Physics | 4              | Physics 780.xx                   | 4               | Enhanced content                                       | 4  |

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|--|------------------------|--|----------------|----------------------------------|-----------------|------------------|--|
| <b><u>Physics Electives (continued):</u></b> | Physics 6805           | Topics in Nuclear Physics  | 4              | Physics 780.xx                   | 4               | Enhanced content | 4  |
|  | Physics 6806           | Topics in Condensed Matter Physics   | 4              | Physics 780.xx                   | 4               | Enhanced content | 4  |
|  | Physics 6809           | Topics in Biophysics   | 4              | Physics 780.xx                   | 4               | Enhanced content | 4  |
|  | Physics 6810           | Topics in Computational Physics  | 4              | Physics 780.xx                   | 4               | Enhanced content | 4  |
|  | Physics 6820           | Special Topics   | 4              | Physics 780.xx                   | 4               | Enhanced content | 4  |
|  |                        |  |                |                                  |                 |                  |  |
|  |                        |  |                |                                  |                 |                  |  |
| <b><u>Learning Goal</u></b>                  | 1                      | <b>Undergraduate Physics minors will be introduced to the fundamental areas of physics, from classical mechanics, through electricity and magnetism, and finally to modern physics including quantum mechanics and relativity.</b> |                |                                  |                 |                  |  |
|  | 2                      | <b>Undergraduate Physics minors will be exposed to powerful analytical and problem solving techniques in areas involving both physics and mathematics.</b>   |                |                                  |                 |                  |  |
|  | 3                      | <b>Undergraduate Physics minors will be introduced to experimental physics at the intermediate level.</b>  |                |                                  |                 |                  |  |
|  | 4                      | <b>Undergraduate Physics minors will acquire training in at least one area of physics at the intermediate level or beyond.</b>   |                |                                  |                 |                  |  |
|  |                        |  |                |                                  |                 |                  |  |