

## Curriculum

### ☐ Undergraduate Course

| Classification            | Subject No.               | Subject Name                            | Lecture:Lab.:Credit<br>(Assignment) | Semester    | Remark |
|---------------------------|---------------------------|---|-------------------------------------|-------------|--------|
| Mandatory Major<br>Course | PH221                     | Classical Mechanics I                   | 3:0:3(6)                            | spring      |        |
|                           | PH231                     | Electromagnetism I                      | 3:0:3(6)                            | spring      |        |
|                           | PH252                     | Physics Laboratory II                   | 1:4:2(3)                            | fall        |        |
|                           | PH301                     | Quantum Mechanics I                     | 3:0:3(6)                            | spring      |        |
|                           | PH302                     | Quantum Mechanics II                    | 3:0:3(6)                            | fall        |        |
|                           | PH311                     | Thermal Physics                         | 3:0:3(4.5)                          | spring      |        |
|                           | PH351                     | Physics Laboratory III                  | 1:3:2(3)                            | spring      |        |
| Elective Major<br>Course  | PH211                     | Mathematical Methods in Physics I       | 3:0:3(6)                            | fall        |        |
|                           | PH212                     | Mathematical Methods in Physics II      | 3:0:3(6)                            | spring      |        |
|                           | PH222                     | Classical Mechanics II                  | 3:0:3(6)                            | fall        |        |
|                           | PH232                     | Electromagnetism II                     | 3:0:3(6)                            | fall        |        |
|                           | PH241                     | Modern Physics                          | 3:0:3(4.5)                          | spring      |        |
|                           | PH243                     | Introductory Modern Physics             | 3:0:3(4.5)                          | fall        | *      |
|                           | PH251                     | Physics Laboratory I                    | 1:4:2(3)                            | spring      |        |
|                           | PH312                     | Statistical Physics                     | 3:0:3(6)                            | fall        |        |
|                           | PH352                     | Physics Laboratory IV                   | 1:3:2(3)                            | fall        |        |
|                           | PH361                     | Solid State Physics I                   | 3:0:3(4.5)                          | fall        |        |
|                           | PH391                     | Optics I                                | 3:0:3(4.5)                          | fall        |        |
|                           | PH392                     | Optics II                               | 3:0:3(4.5)                          | spring      |        |
|                           | PH401                     | Atomic and Molecular Physics            | 3:0:3(4.5)                          | spring/fall |        |
|                           | PH413                     | Computational Physics                   | 2:3:3(4.5)                          | spring/fall | **     |
|                           | PH421                     | Chaos & Nonlinear Dynamics              | 3:0:3(4.5)                          | fall        | **     |
|                           | PH441                     | Introduction to Plasma Physics          | 3:0:3(4.5)                          | fall        | **     |
|                           | PH450                     | Nuclear and Elementary Particle Physics | 3:0:3(4.5)                          | fall        |        |
|                           | PH451                     | Special Topics in Experimental Physics  | 2:3:3(4.5)                          | fall        |        |
|                           | PH462                     | Solid State Physics II                  | 3:0:3(4.5)                          | spring      |        |
|                           | PH471                     | Theory of Relativity and Cosmology      | 3:0:3(4.5)                          | spring      | **     |
| PH481                     | Astrophysics              | 3:0:3(4.5)                              | fall                                | **          |        |
| PH489                     | Special Topics in Physics | 3:0:3(4.5)                              | spring/fall                         | **          |        |
| Research                  | PH490                     | B.S. Thesis Research                    | 0:6:3                               | spring/fall |        |
|                           | PH495                     | Individual Study                        | 0:6:1                               | spring/fall |        |
|                           | PH496                     | Seminar                                 | 1:0:1                               | spring/fall |        |

\* Courses for majors other than physics.

\*\* Courses mutually recognized in the bachelor's and master's programs.

☐ Graduate Course

| Classification           | Subject No.                | Subject Name                              | Lecture:Lab.:Credit (Assignment) | Semester    | Remark |
|--------------------------|----------------------------|---|----------------------------------|-------------|--------|
| Mandatory General Course | CC510                      | Introduction to Computer Application      | 2:3:3(10)                        | spring/fall |        |
|                          | CC511                      | Probability and Statistics                | 2:3:3(6)                         | spring/fall |        |
|                          | CC512                      | Introduction to Materials and Engineering | 3:0:3(3)                         | spring/fall |        |
|                          | CC522                      | Introduction to Instruments               | 2:3:3(8)                         | fall        |        |
| Mandatory Major Course   | PH503                      | Quantum Mechanics I                       | 3:0:3(4.5)                       | spring      | **     |
|                          | PH504                      | Quantum Mechanics II                      | 3:0:3(4.5)                       | fall        | **     |
|                          | PH505                      | Advanced Mechanics                        | 3:0:3(4.5)                       | spring      | **     |
|                          | PH507                      | Advanced Electrodynamics I                | 3:0:3(4.5)                       | fall        | **     |
|                          | PH508                      | Advanced Electrodynamics II               | 3:0:3(4.5)                       | spring      | **     |
|                          | PH509                      | Statistical Mechanics                     | 3:0:3(4.5)                       | spring      | **     |
|                          | PH601                      | Applied Physics Laboratory I              | 0:9:3(4.5)                       | spring      |        |
|                          | PH602                      | Applied Physics Laboratory II             | 0:9:3(4.5)                       | fall        |        |
| Elective Major Course    | PH611                      | Advanced Solid State Physics I            | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH612                      | Advanced Solid State Physics II           | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH613                      | Semiconductor Physics                     | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH614                      | Light Scattering Spectroscopy             | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH615                      | Introduction to Phase Transition          | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH621                      | Advanced Wave Optics                      | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH622                      | Geometrical Optics                        | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH624                      | Laser and Quantum Optics                  | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH625                      | Advanced Spectroscopy                     | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH627                      | Fiber Optics                              | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH641                      | Advanced Plasma Physics                   | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH642                      | Plasma Waves                              | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH643                      | Applied Plasma Physics                    | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH653                      | Advanced Quantum Mechanics I              | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH654                      | Advanced Quantum Mechanics II             | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH692                      | Nonlinear Dynamics                        | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH711                      | Physics of Magnetism                      | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH713                      | Physics of Superconductivity              | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH716                      | Topics in Solid State Physics I           | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH717                      | Topics in Solid State Physics II          | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH721                      | Nonlinear Optics                          | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH724                      | Laser Plasma Interactions                 | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH726                      | Semiconductor Optics                      | 3:0:3(4.5)                       | spring/fall |        |
|                          | PH741                      | Topics in Plasma Physics                  | 3:0:3(4.5)                       | spring/fall |        |
| PH742                    | Plasma Confinement Theory  | 3:0:3(4.5)                                | spring/fall                      |             |        |
| PH754                    | Advanced Particle Physics  | 3:0:3(4.5)                                | spring/fall                      |             |        |
| PH757                    | Topics in Particle Physics | 3:0:3(4.5)                                | spring/fall                      |             |        |
| PH880                    | Topics in Physics          | 3:0:3(4.5)                                | spring/fall                      |             |        |
| Research                 | PH960                      | M.S. Thesis                               |                                  | spring/fall |        |
|                          | PH965                      | Independent Study in M.S.                 |                                  | spring/fall |        |
|                          | PH966                      | M.S. Seminar                              | 1:0:1                            | spring/fall |        |
|                          | PH980                      | Ph.D. Thesis                              |                                  | spring/fall |        |
|                          | PH986                      | Ph.D. Seminar                             | 1:0:1                            | spring/fall |        |
|                          | PH990                      | Physics Colloquium                        | 1:0:0                            | spring/fall |        |

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