

Physics Major-Astronomy Concentration

I. MAJOR COURSES (44 hours)

Group A: Required courses

| <u>Course</u> | <u>Hrs</u> | <u>Subject</u> |
|------------------|------------|-----------------------------|
| PHYS 1051, 1081 | 3+1 | Planetary Astronomy + Lab |
| PHYS 1061, 1091 | 3+1 | Stars and Galaxies + Lab |
| *PHYS 2311, 2341 | 3+1 | Physics 1 + Lab |
| *PHYS 2321, 2351 | 3+1 | Physics 2 + Lab |
| PHYS 3011 | 2 | Advanced Physics Lab |
| PHYS 3051 | 3 | Modern Physics |
| PHYS 3451 | 3 | Math Methods |
| PHYS 3471 | 3 | Introductory Astrophysics |
| PHYS 3731 | 3 | Analytical Mechanics |
| PHYS 3751 | 3 | Quantum Mechanics |
| PHYS 3951 | 1 | Independent Research |
| PHYS 4111 | 3 | Electricity and Magnetism 1 |
| PHYS 4121 | 3 | Electricity and Magnetism 2 |
| PHYS 4951 | <u>1</u> | Senior Thesis Seminar |
| | 41 hrs | |

* PHYS 2111, 2121 can be substituted for Phys 2311, 2321.

Group B: Electives

Choose one additional course from the list below to complete the hours required for the Astronomy Major, that is, an additional 3 hours.

| <u>Course</u> | <u>Hrs</u> | <u>Subject</u> | <u>Course</u> | <u>Hrs</u> | <u>Subject</u> |
|---------------|------------|-----------------------|---------------|------------|---------------------------|
| PHYS 3111 | 3 | Nuclear Physics | PHYS 3551 | 3 | Electronics |
| PHYS 3411 | 3 | Optics | PHYS 3571 | 3 | Computational Physics |
| PHYS 3511 | 3 | Solid State | PHYS 4151 | 3 | Plasma Physics |
| PHYS 3531 | 3 | Statistical Mechanics | PHYS 4901 | 3 | Special Topics in Physics |

Substitutions: A maximum of 3 external credit hours may be substituted provided a grade of C or better is earned in the corresponding course. Substitutions which may be allowed are:

ENGR 2131 for PHYS 3731, or
ECCS 3111 for PHYS 4111, or
CHEM 3421 for PHYS 3531.

II. OTHER REQUIRED COURSES

Math 1631, 1641, 2631 Calculus 1, 2, 3
Math 2651 Differential Equations

III. CAPSTONE PROJECT

PHYS 3951 and PHYS 4951

The student is required to complete a capstone project. This project will consist of research on a physics topic in consultation with a physics professor. In general, PHYS 3951 will be taken in the fall semester of the senior year and PHYS 4951 will be taken in the spring semester of the senior year.