

# Bachelor of Science Degree – Catalog 143 (2020 – 2021)

## Freshman Year

| First Semester                                      | (Th-Pr) | Cr | Second Semester  | (Th-Pr) | Cr |
|---|---------|----|--|---------|----|
| PHYS 101 Topics in Cont. Physics <sup>1</sup>       | (1-0)   | 1  | PHYS 206 Newtonian Mech. for Engr. and Sci. <sup>1</sup> | (3-0)   | 3  |
| MATH 171 Analytic Geom. and Calculus <sup>1</sup>   | (4-0)   | 4  | PHYS 226 Physics of Motion Lab for Sci. <sup>1</sup>     | (0-1)   | 1  |
| CHEM 107 Gen. Chem. for Engr. Students <sup>1</sup> | (3-0)   | 3  | MATH 172 Calculus <sup>1</sup>                           | (4-0)   | 4  |
| CHEM 117 Gen. Chem. for Engr. Lab <sup>1</sup>      | (0-3)   | 1  | Language, Philosophy and Culture elective <sup>2</sup>   | (3-0)   | 3  |
| ENGL 104 Comp. and Rhetoric                         | (3-0)   | 3  | HIST 106 History of the U.S. <sup>2</sup>                | (3-0)   | 3  |
| HIST 105 History of the U.S. <sup>2</sup>           | (3-0)   | 3  |  |         |    |
|   |         | 15 |  |         | 14 |

## Sophomore Year

| First Semester   | (Th-Pr) | Cr | Second Semester                             | (Th-Pr) | Cr |
|--|---------|----|---|---------|----|
| PHYS 207 Elect. & Mag. for Engr. and Sci. <sup>1</sup> | (3-0)   | 3  | PHYS 225 Electronic Circuits                | (1-4)   | 3  |
| PHYS 227 Elect. & Mag. Lab for Sci. <sup>1</sup>       | (0-3)   | 1  | PHYS 309 Modern Physics <sup>1</sup>        | (3-0)   | 3  |
| PHYS 221 Optics and Thermal Physics <sup>1</sup>       | (3-0)   | 3  | PHYS 331 Theoretical Methods I <sup>1</sup> | (3-0)   | 3  |
| MATH 221 Several Variable Calculus <sup>1</sup>        | (4-0)   | 4  | POLS 207 State & Local Govt.                | (3-0)   | 3  |
| MATH 308 Differential Equations <sup>1</sup>           | (3-0)   | 3  | Communication elective <sup>3</sup>         |         | 3  |
|  |         | 14 |   |         | 15 |

## Junior Year

| First Semester                                       | (Th-Pr) | Cr | Second Semester                               | (Th-Pr) | Cr |
|--|---------|----|---|---------|----|
| PHYS 302 Adv. Mechanics I                            | (3-0)   | 3  | PHYS 303 Adv. Mechanics II                    | (3-0)   | 3  |
| PHYS 304 Adv. Elect. and Magn. I                     | (3-0)   | 3  | PHYS 305 Adv. Elec. and Magn. II              | (3-0)   | 3  |
| PHYS 332 Theoretical Methods II                      | (3-0)   | 3  | PHYS 327 Experimental Physics <sup>4</sup>    | (1-2)   | 2  |
| Social and Behavioral Sciences elective <sup>2</sup> |         | 3  | PHYS 328 Experimental Physics II <sup>4</sup> | (1-1)   | 1  |
| Creative Arts elective <sup>2</sup>                  | (3-0)   | 3  | PHYS 412 Quantum Mechanics I                  | (3-0)   | 3  |
|  |         | 15 | POLS 206 American Nat'l. Govt.                | (3-0)   | 3  |
|  |         |    |   |         | 15 |

## Senior Year

| First Semester                           | (Th-Pr) | Cr | Second Semester                             | (Th-Pr) | Cr |
|--|---------|----|---|---------|----|
| PHYS 408 Thermo. and Stat. Mechanics     | (4-0)   | 4  | PHYS 401 Computational Physics <sup>5</sup> | (3-0)   | 3  |
| PHYS 414/416 Quant. Mech. II/Solid State | (3-0)   | 3  | PHYS 425 Physics Lab                        | (0-6)   | 2  |
| PHYS 426 Physics Lab                     | (0-6)   | 2  | PHYS/ASTR 291/491 <sup>9</sup>              | (0-6)   | 2  |
| PHYS/ASTR 291/491 Research <sup>9</sup>  | (0-6)   | 2  | Science or Technical elective <sup>6</sup>  |         | 3  |
| Physics elective <sup>8</sup>            |         | 3  | Electives <sup>7</sup>                      |         | 8  |
|  |         | 14 |   |         | 18 |

- NOTES:
1. A physics major must complete the foundation courses (PHYS 101, 102, 207/226, 207/227, 221, 309, 331, CHEM 107/117, MATH 171, 172, 221, 308) with a grade of 'C' or better before taking non-foundation upper-level physics courses.
  2. Any course in this category from the approved University Core Curriculum list of courses.
  3. Any approved Communication course, except THAR 407.
  4. PHYS 327 is an approved W course. PHYS 328 is an approved C course.
  5. To register for PHYS 401 a student **must** be able to program in a high level language.
  6. Any upper-division course within the College of Science, College of Geosciences or College of Engineering (except 485/491)
  7. Electives should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity, and three hours must be in the area of Cultural Discourse. These may be in addition to other University Core Curriculum courses, or, if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives can be selected from any 100 - 499 course not used elsewhere, except ENGL 103; MATH 100 - 148, 165-166, 365-366; PHYS 201-202, 208, 218.
  8. Chosen from ASTR 314, PHYS 414/416, PHYS 489, MATH 460, or any graduate ASTR/PHYS course.
  9. A combination of PHYS 291, PHYS 491, ASTR 291 and ASTR 491 must equal 4 hours. Students with U1 or U2 classification should take PHYS/ASTR 291. Students with U3 or U4 classification should take PHYS/ASTR 491.