# Computer Science and Physics 2014

## Major: Computer Science & Physics

**Degree Type: B.A. or B.S.**
**Required Degree Credits to Graduate: 134**

### General Education Requirements

**First Year Experience (F):**

| | | |
|---|---|---|
| UNIV 189 | Skills For Academic Success (Students transferring in 24 or more credits do not need to take UNIV 189.) | 1 |
| **Communication (C):** | | |
| ENGL 110 | College Composition I | 3 |
| ENGL 120 | College Composition II | 3 |
| One Course in Upper Level Writing: Select from current general education list | | 3 |
| COMM 110 | Fundamentals of Public Speaking | 3 |
| **Quantitative Reasoning (R):** | | |
| MATH 165 | Calculus I | 4 |
| **Science & Technology (S):** | | |
| PHYS 251 & 251L | University Physics I and University Physics I Laboratory | 5 |
| PHYS 252 & 252L | University Physics II and University Physics II Laboratory | 5 |
| **Humanities & Fine Arts (A): Select from current general education list** | | 6 |
| **Social & Behavioral Sciences (B): Select from current general education list** | | 6 |
| **Wellness (W): Select from current general education list** | | 2 |
| **Cultural Diversity (D): Select from current general education list** | | |
| **Global Perspectives (G): Select from current general education list** | | |
| Total Credits | | 41 |

### College Requirements

**Bachelor of Science (BS) Degree –** An additional 6 credits in Humanities or Social Sciences[*]

**Bachelor of Arts (BA) Degree –** An additional 12 credits Humanities and Social Sciences[*] and proficiency at the second year level in a modern foreign language.

[*] Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major.

### Major Requirements

A grade of 'C' or better is required for all CSCI, PHYS, and AST prefix courses.

| | | |
|---|---|---:|
| **General Education Requirements** | | 40 |
| **College of Science and Mathematics Requirements** | | 6-12 |
| **Computer Science Major Requirements** | | |
| CSCI 160 | Computer Science I | 4 |
| CSCI 161 | Computer Science II | 4 |
| CSCI 213 | Modern Software Development | 3 |
| CSCI 336 | Theoretical Computer Science II | 3 |
| CSCI 366 | Database Systems | 3 |
| CSCI 372 | Comparative Programming Languages | 3 |
| CSCI 374 | Computer Organization and Architechure | 3 |
| CSCI 467 | Algorithm Analysis | 3 |
| CSCI 474 | Operating Systems Concepts | 3 |
| CSCI Electives | CSCI 313 and/or any 400-level CSCI course that is not already used. | 6 |
| **Physics Major Requirements:** | | |
| PHYS 171 | Introductory Projects in Physics | 1 |
| PHYS 251R | University Physics I Recitation | 1 |
| PHYS 252R | University Physics II Recitation | 1 |
| PHYS 350 | Modern Physics | 3 |
| PHYS 360 | Modern Physics II | 3 |
| PHYS 361 | Electromagnetic Theory (or PHYS 370: Electromagnetic Theory - MSUM) | 3-4 |
| PHYS 370 | Introduction to Computational Physics | 3 |
| Select one of the following: | | 3-4 |
| PHYS 455 | Classical Mechanics | |
| PHYS 330 | Intermediate Mechanics (MSUM) | |
| PHYS 462 | Heat & Thermodynamics | 3 |
| PHYS 485 | Quantum Mechanics I | 3 |
| PHYS 486 | Quantum Mechanics II | 3 |
| Physics Electives: Select from the following: | | 6 |
| PHYS 215 | Research For Undergraduates | |
| PHYS 411 | Optics for Scientists & Engineers | |
| PHYS 413 | Lasers for Scientists and Engineers | |
| PHYS 415 | Elements of Photonics | |
| PHYS 463 | Statistical Mechanics | |
| PHYS 481 | Introduction to Solid State Physics | |
| PHYS 489 | Physics Projects (If not used to satisfy project requirement) | |
| MSUM AST | Astronomy courses (300/400-level) with departmental permissionsion | |
| **Related Required Courses** | | |
| MATH 129 | Basic Linear Algebra | 2-3 |
| or MATH 429 | Linear Algebra | |
| MATH 166 | Calculus II | 4 |
| MATH 265 | Calculus III | 4 |
| MATH 266 | Introduction to Differential Equations | 3 |
| CSCI 222 | Discrete Mathematics | 3 |
| or MATH 270 | Introduction to Abstract Mathematics | |
| CSCI 445 | Software Projects Capstone | 3 |
| or PHYS 489 | Physics Projects | |
| Total Credits | | 134-143 |

## Program Notes

- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.