Articulation Agreement by Major
Effective during the 16-17 Academic Year

| To: **CSU Fullerton** | | | From: **Fullerton College** | | |
|---|---|---|---|---|---|
| 16-17 General Catalog | | Semester | 16-17 General Catalog | | Semester |

**====Computer Science====**

The degree program for the B.S. in Computer Science assumes that students have already obtained a working knowledge of personal computing fundamentals and applications, including word processing, spreadsheets, database systems, e-mail systems, and presentation graphics. Each Computer Science major is required to complete a minimum of 120 units, including general education. A maximum of 6 units of a grade of "D-"(.7) through "D+"(1.3) can count towards the elective track, mathematics and science courses only. A "C" average (2.0) and a grade of "C-"(1.7) or better is required in all courses applied to the major.

All Computer Science students must select an elective track aimed at your specific career goals. There are five tracks to choose from: **Multimedia & Digital Game Technologies Track; Internet & Enterprise Computing Technologies Track; Software Engineering Track; Scientific Computing Track; and Customized Track.**

**COMPUTER SCIENCE PLACEMENT EXAMINATION**

The curriculum begins with a three-course sequence covering concepts of programming and data structures. Students may have knowledge of these topics, but do not have the courses to transfer, nor AP scores to submit; thus, may take the Computer Science Placement Examination to waive one or more of these courses. The test may be taken only once, and scores are valid for two consecutive semesters.

**LOWER-DIVISION CORE COURSES**

| | | | | | |
|---|---|---|---|---|---|
| CPSC 120 | Intro to Programming | (3) | NO ARTICULATION | | |
| CPSC 121 | Programming Concepts | (3) | CSCI 123 F | Introduction to Programming Concepts in C++ | (4) |
| CPSC 131 | Data Structures Concepts | (3) | CSCI 133 F | Data Structures in C++ | (4) |
| CPSC 223C | C Programming | (3) | No Course Articulated | | |
| | **OR** | | | **OR** | |
| CPSC 223H | Visual Basic Programming | (3) | CIS 217 F | Visual Basic Programming I | (3) |
| | **OR** | | | **OR** | |
| CPSC 223J | Java Programming | (3) | CIS 226 F | Java Programming I | (3) |
| | **OR** | | | **OR** | |
| CPSC 223N | Visual C# Programming | (3) | CIS 221 F | Introduction to C# Programming | (3) |
| | **OR** | | | **OR** | |
| CPSC 223P | Python Programming | (3) | No Course Articulated | | |

| | | | | | |
|---|---|---|---|---|---|
| **Computer Science (continued)** | | | | | |
| CPSC 240 | Comp Org & Assembly Lang | (3) | CSCI 241 F | Computer Organization and Assembly Language Programming | (4) |
| CPSC 254 | Software Dev with Open Source Sys | (3) | NO ARTICULATION | | |
| **MATHEMATICS REQUIREMENTS (18 UNITS)** | | | | | |
| Lower-Divsion Courses: | | | | | |
| MATH 150A | Calculus I | (4) | MATH 150AF<br>Fall of 2016<br>MATH 151HF<br>Fall of 2017<br>MATH 151F | Calculus I | (4) |
| MATH 150B | Calculus II | (4) | MATH 150BF<br>Starting Fall of 2016<br>MATH 152HF<br>Starting Fall of 2017<br>MATH 152F | Calculus II | (4) |
| MATH 270A | Mathematical Structures I | (3) | MATH 171 F | Discrete Mathematics | (4) |
| MATH 270B | Mathematical Structure II | (3) | MATH 172 F | Graph Theory and Linear Algebra | (4) |
| **Additional Lower Division Math Requirements for "Scientific Computing Track"** | | | | | |
| MATH 250A | Calculus III | (4) | MATH 250AF<br>Starting Fall of 2017<br>MATH 251F | Multivariable Calculus | (4) |
| | **AND** | | | **AND** | |
| MATH 250B | Intro to Linear Algebra and Diff. Equations | (4) | For 2017-2018 Catalog Year<br>MATH 252F and MATH 253F<br>---<br>MATH 250BF<br>---OR---<br>MATH 250BF **&**<br>MATH 250CF | Linear Algebra and Differential Equations<br><br>Linear Algebra and Differential Equations<br>Additional Topics in Linear Algebra | (4)<br><br>(4)<br>(2) |

**Computer Science (continued)**

**SCIENCE AND MATHEMATICS ELECTIVES (12 UNITS)**

Minimum number of units required for the Science & Math Electives requirement is 12 units. Students must choose courses from the following list to total 12 units. In addition, the 12 units must include at least one LAB course from this list.

| | | | | | |
|---|---|---|---|---|---|
| BIOL 101 | Elements of Biology | (3) | BIOL 100 F | Principles of Biology | (4) |
| BIOL 101 & BIOL 101L | Elements of Biology<br>Elements of Biology Lab | (3)<br>(1) | BIOL 101 F<br>**OR**<br>BIOL 101HF | General Biology<br><br>Honors General Biology | (5)<br><br>(5) |
| Principle of Biology course w/lab | | | BIOL 170 F | Organismal Biology | (5) |
| CHEM 120A | General Chemistry | (5) | CHEM 111AF | General Chemistry I | (5) |
| CHEM 125 | Gen Chemistry B Lecture | (3) | CHEM 111BF | General Chemistry II | (5) |
| GEOL 101 | Physical Geology | (3) | ESC 100 F | Physical Geology | (3) |
| GEOL 101L | Physical Geology Lab | (1) | ESC 100LF | Physical Geology Lab | (1) |
| GEOL 201 | Earth History | (3) | ESC 103 F | Historical Geology | (4) |
| GEOL 201L | Earth History Suplmtl Lab | (1) | NO ARTICULATION | | |
| MATH 250A | Calculus III | (4) | MATH 250AF<br>Starting Fall of 2017<br>MATH 251F | Multivariable Calculus | (4) |
| MATH 250B | Intro to Linear Algebra and Diff. Equations | (4) | For 2017-2018 Catalog Year<br>MATH 252F and MATH 253F<br>---<br>MATH 250BF<br>---OR---<br>MATH 250BF &<br>MATH 250CF | <br><br>Linear Algebra and Differential Equations<br><br>Linear Algebra and Differential Equations<br>Additional Topics in Linear Algebra | <br><br>(4)<br><br>(4)<br>(2) |

**Computer Science (continued)**

| | | | | | |
|---|---|---|---|---|---|
| PHYS 226 | **&** | Fund Phys.Elect + Magnetism | (3) | PHYS 222 F | General Physics II (4) |
| PHYS 226L | | Fundamental Physics Lab | (1) | | |
| PHYS 225 | **&** | Fundamental Phys; Mechanics | (3) | PHYS 221 F | General Physics I (4) |
| | | | | **OR** | |
| PHYS 225L | | Fundamental Physics Lab | (1) | PHYS 221HF | Honors General Physics I (4) |

*__PLEASE NOTE__: MATH 250A and MATH 250B may not be counted toward both the Scientific Computing Track and Science and Mathematics Electives. Students who apply these courses toward Science and Mathematics electives may substitute advisor-approved 400-level CPSC courses to meet the 15-unit requirement of the Scientific Computing Track.

**GENERAL EDUCATION REQUIREMENTS FOR THE B.S. COMPUTER SCIENCE PROGRAM**

Due to the high unit requirements of the Computer Science major, the following CSUF General Education requirements are waived:

*A.3 Critical Thinking
*B.2 Life Science
*D.2 World Civilizations & Cultures
*D.5 Explorations in Social Sciences
*E. Lifelong Learning & Self Development

Additionally, the General Education upper-division requirements for the B.S. Computer Science degree is 6 units.

**END OF MAJOR**