# Articulation Agreement by Major

*Effective during the 2022-2023 Academic Year*

## Computer Science, B.S.

### COMPUTER SCIENCE

The degree program for the Bachelor of Science 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.

The curriculum begins with a three-course sequence covering concepts of programming and data structures. If students have knowledge of these topics, but do not have the courses to transfer, nor AP scores to submit, they 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.

*General Education*

All students at Cal State Fullerton are expected to complete prescribed units of General Education that are made up of courses outside of their chosen disciplines. Students seeking a degree in Engineering have been provided exceptions from some of the General Education requirements. For this reason, it is important that students take the approved G.E. courses for Engineering majors that are found in their Titan Degree Audit (TDA). Additionally, they should confirm the G.E. courses that are required within their specific programs with their respective advisers.

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### LOWER DIVISION CORE

#### Select 15 Semester Unit(s) from the following

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|---|---|
| **CPSC 120** - Introduction to Programming (3.00) | ← No Course Articulated |
| **CPSC 121** - Object-Oriented Programming (3.00) | ← **CS 105** - Theory and Practice I (3.00) |
| **CPSC 131** - Data Structures (3.00) | ← **CS 106** - Theory and Practice II (3.00) |
| **CPSC 240** - Computer Organization & Assembly Language (3.00) | ← **CS 107** - Computer Architecture & Organization (3.00) |
| **CPSC 253** - Cybersecurity Foundations and Principles (3.00) | ← No Course Articulated |

#### --- And ---

#### Select 1 Course(s) from the following

| | |
|---|---|
| **CPSC 223C** - C Programming (3.00) | ← No Course Articulated |
| **CPSC 223J** - Java Programming (3.00) | ← No Course Articulated |
| **CPSC 223N** - Visual C# Programming (3.00) | ← No Course Articulated |
| **CPSC 223P** - Python Programming (3.00) | ← No Course Articulated |

### MATHEMATICS REQUIREMENTS

#### Select 18 Semester Unit(s) from the following

| | |
|---|---|
| **MATH 150A** - Calculus I (4.00) | ← **MATH 150** - Calculus with Analytic Geometry I (5.00) |
| **MATH 150B** - Calculus II (4.00) | ← **MATH 160** - Calculus with Analytic Geometry II (5.00) |

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|---|---|
| **MATH 170A** - Mathematical Structures I (3.00) | ← No Course Articulated |
| **MATH 170B** - Mathematical Structure II (3.00) | ← No Course Articulated |
| **MATH 338** - Stat Appl to Natural Sci (4.00) | ← No Course Articulated |

### MATH AND SCIENCE (WITH CORRESPONDING LAB) ELECTIVES- SEE ADDITIONAL INFORMATION UNDER ARTICULATION DETAILS
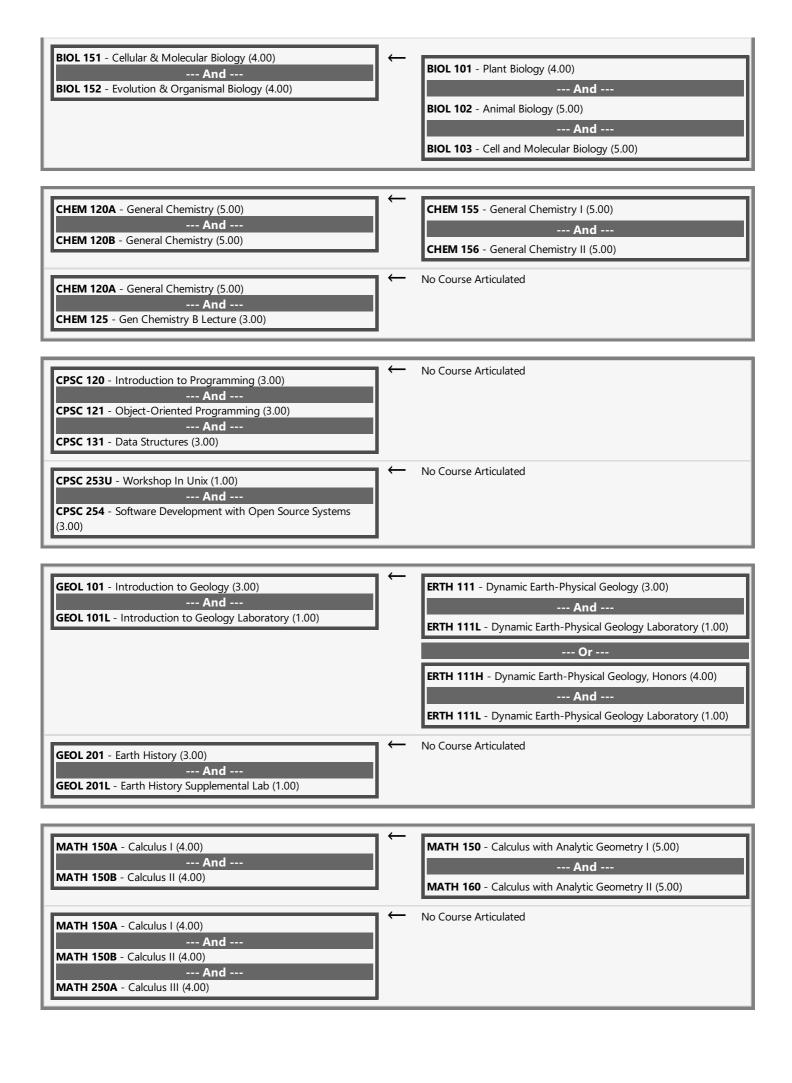
#### Select 12 Semester Unit(s) from the following

| | | |
|---|---|---|
| **BIOL 101** - Elements of Biology (3.00) | ← | No Course Articulated |
| **BIOL 101L** - Elements of Biology Laboratory (1.00) | ← | No Course Articulated |
| **BIOL 151** - Cellular & Molecular Biology (4.00) | ← | **BIOL 103** - Cell and Molecular Biology (5.00) |
| **BIOL 152** - Evolution & Organismal Biology (4.00) | ← | **BIOL 101** - Plant Biology (4.00)<br>--- And ---<br>**BIOL 102** - Animal Biology (5.00) |

| | | |
|---|---|---|
| **CHEM 120A** - General Chemistry (5.00) | ← | **CHEM 155** - General Chemistry I (5.00) |
| **CHEM 120B** - General Chemistry (5.00) | ← | **CHEM 156** - General Chemistry II (5.00) |
| **CHEM 123** - Chemistry for Engineers (3.00) | ← | No Course Articulated |
| **CHEM 125** - Gen Chemistry B Lecture (3.00) | ← | No Course Articulated |

| | | |
|---|---|---|
| **GEOL 101** - Introduction to Geology (3.00) | ← | **ERTH 111** - Dynamic Earth-Physical Geology (3.00)<br>--- Or ---<br>**ERTH 111H** - Dynamic Earth-Physical Geology, Honors (4.00) |
| **GEOL 101L** - Introduction to Geology Laboratory (1.00) | ← | **ERTH 111L** - Dynamic Earth-Physical Geology Laboratory (1.00) |
| **GEOL 201** - Earth History (3.00) | ← | **ERTH 112** - History of the Earth (3.00)<br>--- And ---<br>**ERTH 112L** - Historical Geology Laboratory (1.00) |
| **GEOL 201L** - Earth History Supplemental Lab (1.00) | ← | No Course Articulated |

| | | |
|---|---|---|
| **MATH 250A** - Calculus III (4.00) | ← | No Course Articulated |
| **MATH 250B** - Intro to Linear Algebra and Diff. Equations (4.00) | ← | **MATH 210** - Linear Algebra (4.00)<br>--- And ---<br>**MATH 220** - Differential Equations (4.00) |

| | | |
|---|---|---|
| **PHYS 225** - Fundamental Phys; Mechanics (3.00) | ← | No Course Articulated |
| **PHYS 225L** - Fundamental Physics Lab (1.00) | ← | No Course Articulated |
| **PHYS 226** - Fund Phys.Elect + Magnetism (3.00) | ← | No Course Articulated |
| **PHYS 226L** - Fundamental Physics Lab (1.00) | ← | No Course Articulated |
| **PHYS 227** - Fund Phys: Waves, Optics, & Mod Phys (1.00 - 3.00) | ← | No Course Articulated |
| **PHYS 227L** - Fundamental Physics Lab (1.00) | ← | No Course Articulated |

## COMPUTER SCIENCE ELECTIVES

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|---|---|---|
| **CPSC 254** - Software Development with Open Source Systems (3.00) | ← | No Course Articulated |

## REQUIRED FOR GRADUATION

| | | |
|---|---|---|
| **POSC 100** - American Government (3.00) | ← | **POLS 101** - American Government and Politics (3.00) |

## ARTICULATION DETAILS

| | | |
|---|---|---|
| **BIOL 101** - Elements of Biology (3.00)<br>--- And ---<br>**BIOL 101L** - Elements of Biology Laboratory (1.00) | ← | **BIOL 100** - Concepts of Biology (4.00) |

**BIOL 151** - Cellular & Molecular Biology (4.00)
--- And ---
**BIOL 152** - Evolution & Organismal Biology (4.00)

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**BIOL 101** - Plant Biology (4.00)
--- And ---
**BIOL 102** - Animal Biology (5.00)
--- And ---
**BIOL 103** - Cell and Molecular Biology (5.00)

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**CHEM 120A** - General Chemistry (5.00)
--- And ---
**CHEM 120B** - General Chemistry (5.00)

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**CHEM 155** - General Chemistry I (5.00)
--- And ---
**CHEM 156** - General Chemistry II (5.00)

**CHEM 120A** - General Chemistry (5.00)
--- And ---
**CHEM 125** - Gen Chemistry B Lecture (3.00)

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No Course Articulated

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**CPSC 120** - Introduction to Programming (3.00)
--- And ---
**CPSC 121** - Object-Oriented Programming (3.00)
--- And ---
**CPSC 131** - Data Structures (3.00)

←

No Course Articulated

**CPSC 253U** - Workshop In Unix (1.00)
--- And ---
**CPSC 254** - Software Development with Open Source Systems (3.00)

←

No Course Articulated

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**GEOL 101** - Introduction to Geology (3.00)
--- And ---
**GEOL 101L** - Introduction to Geology Laboratory (1.00)

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**ERTH 111** - Dynamic Earth-Physical Geology (3.00)
--- And ---
**ERTH 111L** - Dynamic Earth-Physical Geology Laboratory (1.00)
--- Or ---
**ERTH 111H** - Dynamic Earth-Physical Geology, Honors (4.00)
--- And ---
**ERTH 111L** - Dynamic Earth-Physical Geology Laboratory (1.00)

**GEOL 201** - Earth History (3.00)
--- And ---
**GEOL 201L** - Earth History Supplemental Lab (1.00)

←

No Course Articulated

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**MATH 150A** - Calculus I (4.00)
--- And ---
**MATH 150B** - Calculus II (4.00)

←

**MATH 150** - Calculus with Analytic Geometry I (5.00)
--- And ---
**MATH 160** - Calculus with Analytic Geometry II (5.00)

**MATH 150A** - Calculus I (4.00)
--- And ---
**MATH 150B** - Calculus II (4.00)
--- And ---
**MATH 250A** - Calculus III (4.00)

←

No Course Articulated

**PHYS 225** - Fundamental Phys; Mechanics (3.00)

--- And ---

**PHYS 225L** - Fundamental Physics Lab (1.00)

← **PHYS 121** - Mechanics of Solids and Fluids (5.00)

**PHYS 226** - Fund Phys.Elect + Magnetism (3.00)

--- And ---

**PHYS 226L** - Fundamental Physics Lab (1.00)

← **PHYS 122** - Electricity and Magnetism (5.00)

**PHYS 227** - Fund Phys: Waves, Optics, & Mod Phys (1.00 - 3.00)

--- And ---

**PHYS 227L** - Fundamental Physics Lab (1.00)

← **PHYS 123** - Heat, Light and Modern Physics (5.00)

**END OF AGREEMENT**