

# BS in Computer Science & General Education Requirements\*

## General Education (GE) (15 courses)

### Foundation Requirements (6 courses)

FND 101 Freshman Seminar 1  
FND 102 Freshman Seminar 2  
FND 103 Armenian Language &  
Literature 1  
FND 104 Armenian Language &  
Literature 2  
FND 121 Armenian History 1  
FND 122 Armenian History 2

*All undergraduate students must take these six courses*

### Quantitative Sciences Requirements (3 courses)

Any 3 quantitative sciences courses forming a cohesive cluster coded as GE-QS

### Arts & Humanities Requirements (3 courses)

Any 3 humanities courses forming a cohesive cluster coded as GE-AH

### Social Sciences Requirements (3 courses)

Any 3 social sciences courses forming a cohesive cluster coded as GE-SS

### Physical Education, First Aid, and Civil Defense Requirements\*\*

FND 110 Physical Education – Four (4) semesters in the first two years  
FND 152 First Aid – One course. First semester.  
FND 153 Civil Defense One course. First semester.

*For complete information about AUA's General Education program visit <http://aua.am/gened/>*

**AND**

## CS Core Requirements (17 courses)

CS 100 Calculus 1  
CS 101 Calculus 2  
CS 102 Calculus 3  
CS 103 Real Analysis  
CS 104 Linear Algebra  
CS 111 Discrete Mathematics  
CS 107 Probability  
CS 108 Statistics  
CS 110 Introduction to Computer Science  
CS 120 Introduction to Object Oriented Programming  
CS 121 Data Structures  
CS 211 Introduction to Algorithms  
CS 112 Numerical Analysis  
CS 213 Optimization  
CS 130 Computer Organization  
ENGS 121 Mechanics  
CS 296 Capstone

**AND**

## CS Tracks (5 courses)

### **Mathematical Modeling Track** (Minimum 5 courses)

#### Track Requirements (3 courses)

CS 105 Ordinary Differential Equations  
CS 205 Partial Differential Equations  
CS 226 Math Modeling Applications

#### Track Electives (2 courses from following)

CS 202 Functional Analysis  
CS 214 Finite Element Methods  
CS 215 Cryptography#  
CS 246 Artificial Intelligence#  
CS 251 Machine Learning#  
CS 260 Image Processing#

**OR**

### **Applied Computer Science Track** (Minimum 5 courses)

#### Track Requirements (3 courses)

CS 132 Theory of Communication Networks  
CS 220 Parallel and High Performance Computing  
CS 222 Databases

#### Track Electives (2 courses from following)

CS 131 Human-Computer Interaction  
CS 217 Computer Graphics  
CS 215 Cryptography  
CS 221 Distributed Systems##  
CS 232 IT Security  
CS 236 Compiler Design  
CS 245 Bioinformatics  
CS 246 Artificial Intelligence (AI) ##  
CS 252 Data Science

**OR**

### **General Track** (Minimum 5 courses)

Students may choose a combination from Mathematical Modeling Track and Computer Science Track. The combination should be approved by the program chair

**AND**

## Free Electives (Min. 3 courses)

Any 3 additional courses offered at AUA

\* All courses are three credits unless otherwise noted.

\*\*To complete the BS in Computer Science program, students must complete a total of 40 courses, including 15 General Education courses, 17 CS Core Requirements, 5 CS Track courses, and a minimum of 3 Free Elective courses. In addition to these 40 courses, students are also required to complete the physical education (PHED 110), first aid (PHED 152), and civil defense (PHED 153) requirements as dictated by Armenian Law.

# Also satisfies CS Track elective requirement.

## Also satisfies MM Track elective requirement.