# 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 (120 hours)
FND 152 First Aid (20 hours)
FND 153 Civil Defense (20 hours)

*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 217 Computer Graphics[#]
CS 246 Dynamical Systems
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.