

# COMPUTER SCIENCE, BACHELOR OF SCIENCE (B.S.)

## Program Objectives

1. The mission of the Bachelor of Science in Computer Science program is to provide students with an education that will prepare them to develop a career in the fields of computer science or computer forensics.

## Program Requirements

CIP Code: 11.0101

### Major

Code	Title	Hours
<b>University Graduation Requirements</b>		
General Education ( <a href="https://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/">https://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/</a> )		36
Foundations of Learning		
GSD 101	Foundations of Learning	3
Upper division courses (42 hrs. distributed throughout Major/Supporting/Gen Ed/Free Electives categories)		
<b>Major Requirements</b>		
<i>Core Courses</i>		
CSC 185	Discrete Structures I <sup>1</sup>	3
CSC 190	Object- Oriented Programming I <sup>1</sup>	3
CSC 191	Object-Oriented Programming II	3
CSC 195	Discrete Structures II	3
CSC 308	Mobile App Development for Apple iOS	3
CSC 310	Data Structures	3
CSC 313	Database Systems	3
CSC 338	Fundamentals of Cybersecurity	3
CSC 340	Ethics & Software Engineering	3
CSC 499	CS Career Preparation	1
EET 252	Digital Electronics	3
MAT 239	Linear Algebra and Matrices	3
MAT 244	Calculus II	4
STA 270	Applied Statistics	4
<b>Concentrations</b>		
<i>Students must select one of the following Concentrations:</i>		
Artificial Intelligence in Data Science		37
Computer Science (General)		27-29
Interactive Multimedia		27-30
<b>Free Electives</b>		
Artificial Intelligence in Data Science		2
Computer Science (General)		10-12
Interactive Multimedia		9-12
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students without a 25 ACT or 590 SAT will be advised to take CSC 170 Intro to Game Programming as preparation for CSC 185 Discrete Structures I and CSC 190 Object- Oriented Programming I.

## Artificial Intelligence in Data Science Concentration

Code	Title	Hours
<b>Concentration Courses</b>		
CSC 311	Algorithms I	3
CSC 320	Algorithms II	3
CSC 545	Theory of Database Systems	3
CSC 546	Artificial Intelligence	3
CSC 581	Machine Learning	3
CSC 582	Big Data	3
CSC 583	Data Visualization	3
Choose from one hour of the following:		1
CSC 494	Innovative Problem Solving	
CSC 495	Independent Work	
CSC 496	Senior Seminar	
<i>Supporting Course Requirements</i>		
MAT 234	Calculus I (Element 2) <sup>G</sup>	
STA 340	Applied Regression Analysis	3
STA 375	Sampling Methods	3
STA 380	Nonparametric Statistics	3
STA 575	Statistical Methods Using SAS	3
STA 580	R and Introductory Data Mining	3
<b>Total Hours</b>		<b>37</b>

## Computer Science (General) Concentration

Code	Title	Hours
<b>Concentration Courses</b>		
CSC 311	Algorithms I	3
CSC 320	Algorithms II	3
CSC 360	Computer Org & Architecture	3
CSC 400	Operating Systems	3
CSC 440	Applied Software Engineering	3
CSC 460	Computer Network & System Administration	3
CSC 541	Software Testing	3
CSC 545	Theory of Database Systems	3
Choose from one hour of the following:		1
CSC 494	Innovative Problem Solving	
CSC 495	Independent Work	
CSC 496	Senior Seminar	
<i>Supporting Course Requirements</i>		
MAT 234	Calculus I (Element 2) <sup>G</sup>	1
<b>Choose two courses with different prefixes of the following:</b>		<b>1-3</b>
BIO 111 & 111L	Cell and Molecular Biology and Cell and Molecular Biology Lab (Element 4) <sup>G</sup>	
BIO 112 & 112L	Ecology and Evolution and Ecology and Evolution Lab (Element 4) <sup>G</sup>	
CHE 111 & 111L	General Chemistry and General Chemistry Lab I (Element 4) <sup>G</sup>	
GLY 108	Earthquakes and Volcanoes (Element 4) <sup>G</sup>	
GLY 109	Great Moments in Earth History (Element 4) <sup>G</sup>	
PHY 201	University Physics I (Element 4) <sup>G</sup>	
<b>Total Hours</b>		<b>27-29</b>

**Interactive Multimedia Concentration**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
<b>Concentration Courses</b>		
CSC 140	Introduction to Computer Game Design	3
CSC 315	3D Modeling	3
CSC 316	3D Game Engine Design	3
CSC 550	Graphics Programming	3
CSC 520	Multimedia System and Forensics	3
or CSC 555	Topics in Multimedia:___	
CSC 491	Game Design Capstone	3
One CSC course at 300-level or above <sup>1</sup>		3
Choose from one hour of the following:		1
CSC 494	Innovative Problem Solving	
CSC 495	Independent Work	
CSC 496	Senior Seminar	
<i>Supporting Course Requirements</i>		
BEM 200	Mass Media and Society (Element 5B) <sup>G</sup>	
INF 123	Exploring Virtual Worlds	3
MAT 234	Calculus I (Element 2) <sup>G</sup>	
MUS 290	Music for Visual Media	2
PHY 201	University Physics I (Element 4) <sup>G</sup>	
ART 200	Art Appreciation: Orientation	0-3
or ART 100	Drawing I	
<b>Total Hours</b>		<b>27-30</b>

<sup>1</sup> Except CSC 349 Applied Learning in Computer Science

<sup>G</sup> Course also satisfies a General Education element. Hours are included within the 36 hr. General Education requirement above.