

# COMPUTER SCIENCE, BACHELOR OF SCIENCE WITH A CONCENTRATION IN ARTIFICIAL INTELLIGENCE IN DATA SCIENCE (B.S.)

## Program Objectives

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

### Summary Checklist for General Education

Code	Title	Hours
<b>Element 1</b>		
A:	Written Communication ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/</a> )	3
B:	Written Communication ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/</a> )	3
C:	Oral Communication ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-1/</a> )	3
<b>Element 2</b>		
	Quantitative Reasoning ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-2/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-2/</a> )	3
<b>Element 3</b>		
A:	Arts ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/</a> )	3
B:	Humanities ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-3/</a> )	3
<b>Element 4</b>		
	Natural Sciences ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-4/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-4/</a> )	6
<b>Element 5</b>		
A:	Historical Science ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/</a> )	3
B:	Social Behavioral Science ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-5/</a> )	3
<b>Element 6</b>		
	Diversity of Perspectives Experiences ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-6/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/element-6/</a> )	6
<b>Total Hours</b>		<b>36</b>

Students are expected to complete Elements 1 and 2 within their first 60 hours of college credit.

## Major

Code	Title	Hours
<b>University Graduation Requirements</b>		
General Education		36
<i>Student Success Seminar</i>		
SCO 100	Student Success Seminar	1
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
<b>Concentrations</b>		
Students must select one of the following Concentrations:		
Computer Science (General)		
Computer Technology		
Interactive Multimedia		
Artificial Intelligence in Data Science		54
<i>Free Electives</i>		
Choose from 1 hour of free electives		1
<b>Total Hours</b>		<b>120</b>
<b>1</b>		
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.		
<b>Concentration</b>		
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>	

MAT 244	Calculus II	4	2
STA 270	Applied Statistics	4	
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	
STA 585	Experimental Design	3	
Choose from one of the following sequences:		6	
Applied Engineering Mgt:			
AEM 202	Introduction to Quality		
Choose from one of the following:			
AEM 332	Process Control and Auditing		
AEM 336	Reliability and Sampling		
AEM 506	Six Sigma Quality		
Biology:			
BIO 315	Genetics <sup>1</sup>		
BIO 533	Bioinformatics: Principles and Applications		
Economics:			
ECO 230	Fundamentals of Microeconomics		
ECO 231	Fundamentals of Macroeconomics (Element 5B) <sup>G</sup>		
Insurance:			
INS 370			
Choose from one of the following:			
INS 372			
INS 374			
INS 378			
Statistics:			
STA 520	Mathematical Statistics I		
STA 521	Mathematical Statistics II		
Computer Science:			
CSC 332	Digital Storage Device Forensics		
Choose from one of the following:			
CSC 542	Internet Forensics		
CSC 547	Network Forensic and Investigation		
CSC 548	Personal Electronic Device Forensics		
Geography:			
GEO 353	Geographic Information Systems <sup>2</sup>		
GEO 453	Advanced GIS		
Homeland Security:			
Choose from two of the following:			
HLS 401	Intelligence Process		
HLS 402	Counterintelligence		
HLS 403	Intelligence Analysis		
<b>Total Hours</b>		<b>54</b>	

**G**

Course also satisfies a General Education element. Hours are included within the 36 hr. General Education requirement above.

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BIO 315 Genetics has a prerequisite of BIO 111 Cell and Molecular Biology or BIO 112 Ecology and Evolution.

GEO 353 Geographic Information Systems has a prerequisite of one course from: AGR 216 Principles of Soils Laboratory, GEO 100 Regions and Nations of the World, GEO 210 Introduction to Physical Geography, GEO 220 , GLY 102 Earth Science for Elementary Teachers, GLY 107 Gold and Diamonds, or GLY 108 Earthquakes and Volcanoes.