



**B.S. Computer Science  
Big Data Concentration  
2020-2021 Catalog**

**University of Wyoming  
B.S. Computer Science  
Big Data Concentration**

	<b>cr</b>	<b>Min Grade</b>	<b>Notes</b>
<b>USP - University Studies Program Requirements</b>			
<b>USP: First Year Seminar</b>	3	C	FYS
<b>USP: Communications I</b>	3	C	C1
<b>USP: Communications II</b>	3	C	C2
<b>USP: Communications III</b>	3	C	C3
<b>USP: US &amp; Wyoming Constitutions</b>	3		V
<b>USP: Human Culture</b>	3		H
<b>USP: Quantitative</b> (STAT course part of Computer Science Core courses)		C	Q
<b>USP: Physical &amp; Natural World</b> (Science courses in Computer Science Core)			PN PN
<b>Credit hours subtotal:</b>			18
<b>Computer Science Core Courses</b>			
COSC 1010 Intro to Computer Science	4	C	
COSC 1030 Computer Science I	4	C	
COSC 2030 Computer Science II	4	C	
COSC 2150 Computer Organization	3	C	
COSC 3011 Software Design	3	C	
COSC 3015 Functional Programming	3	C	
COSC 3020 Algorithms & Data Structures	4	C	
COSC 3050 Ethic in Computer Professional	1	C	
COSC 4950 Senior Design I	1	C	
COSC 4955 Senior Design II	2	C	
<b>Operating Systems Course: Choose one:</b>			
COSC 3750 Linux Programming for System Applications OR			
COSC 4740 Operating Systems Design	3	C	
<b>Systems Course: Choose one:</b>			
COSC 4760 Networks OR			
COSC 4820 Database Systems	3	C	
<b>Program Language Course: Choose one:</b>			
COSC 4780 Principles of Programming Languages OR			
COSC 4785 Computer Construction	3	C	
<b>Theory Course: Choose one:</b>			
COSC 4100 Foundations of Computing OR			
COSC 4200 Computability & Complexity	3	C	
<b>Mathematics &amp; Science courses:</b>			
MATH 2200 Calculus I	4	C	
MATH 2205 Calculus II	4	C	

MATH 2250 Linear Algebra	3	C	
MATH/COSC 2300 Discrete Structures	3	C	
<b>Statistics Course:</b>			
STAT 2050 Fundamentals of Statistics OR			
STAT 2070 Introductory Statistics for the Social Sciences	4	C	Q
<b>Science Courses</b>			
Two, 4-credit hour lab science courses outside of Computer Science	8		See Department Approved List
<b>Math/Science Electives</b>			
Must meet ABET minimum Math/Science requirement of 30 credit hours.	4	C	

**Credit hours subtotal: 71**

**Big Data Courses (requires minor in Statistics)**

<b>Computer Science Courses</b>			
COSC 4550 Intro to Artificial Intelligence	3	C	
COSC 4570 Data Mining	3	C	
COSC 4450 Computer Graphics	3	C	
COSC 4555 Machine Learning	3	C	
<b>Minor in Statistics:</b>			
COSC 3050 Statistical Methods			
3 STAT courses from approved list.	12	C	
General Electives (if needed)	6		

**Credit hours subtotal: 30**

**B.S. Computer Science total credit total: 119**

**Computer Science Major Notes:**

- A minimum of 120 hours is required. A minimum of 42 hours must be upper division. A minimum of 30 hours must be math/science.
- All COSC, MATH & STAT courses require a minimum grade of C.
- Students must simultaneously complete a Minor in Statistics
- Math and Science Electives must be selected with advisor's approval from Department list. Science courses must have a lab. Math courses must be at or above MATH 2205 or STAT 3000. Cannot count MATH 2350/2355/4000, STAT 4220 or any variable credit course. Four hours of Math/Science Electives are required. Two 3-credit courses can also be used.
- General Electives cannot meet any other requirement for the major and should be selected to satisfy the 42-credit upper division requirement.
- Courses for requirements with options (Systems, Programming Language, Theory, O/S) are offered in alternating semesters. See advisor for clarification.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.

**University of Wyoming Requirements**

- Students must have a minimum cumulative GPA of 2.0 to graduate.
- Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming.
- Courses must be taken for a single letter grade unless offered only for S/U.

• University Studies Program (USP), Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

The University of Wyoming Office of the Registrar provides final approval of degree completion requirements prior to the awarding of any degree.

