

# COMPUTER SCIENCE BA/BS

The Computer Science program is designed to prepare students for industry or graduate work in Computer Science or Management Information Systems. The Computer Science major uses a traditional computer science curriculum, with requisite mathematical rigor, and is based on the Association of Computing Machinery (ACM) core curricula recommendations. The curriculum is designed to be very flexible and allow students to use credits from the Associates of Information Systems and Information Systems Analysis towards this degree. The degree is also designed to allow students to use Biology courses towards the degree for students who are interested in pursuing a Bioinformatics degree in graduate school.

The goals of the Computer Science program are to provide students with learning experiences in both the classroom and laboratory so that they will be well-prepared to:

1. Think critically and apply knowledge in novel contexts;
2. Design and implement object-oriented and imperative programs;
3. Understand algorithms and data structures;
4. Understand relational databases, operating system kernels, and network software development;
5. And, perform basic laboratory analysis.

## General Education Requirements

Code	Title	Credits
<b>Written Communication</b>		
Select one of the following:		6.00
ENGL-101 & ENGL-102	WRITING AND RHETORIC I and WRITING AND RHETORIC II	
ENGL-109	COLLEGE WRITING AND RESEARCH	
<b>Oral Communication</b>		
Select one from the following:		3.00
COMM-101	FUNDAMENTALS OF ORAL COMMUNICATION	
COMM-203	SMALL GROUP COMMUNICATION	
COMM-204	PUBLIC SPEAKING	
<b>Mathematical Ways of Knowing</b>		
Select one of the following:		3.00-5.00
MATH-143	COLLEGE ALGEBRA	
MATH-147	COLLEGE ALGEBRA AND TRIGONOMETRY	
MATH-170	CALCULUS I	
<b>Humanistic &amp; Artistic Ways of Knowing</b>		
Select one course from two categories:		6.00-8.00
<b>Literature</b>		
ENGL-175	LITERATURE AND IDEAS	
ENGL-257	WORLD CLASSICS	
ENGL-258	INTERNATIONAL LITERATURE	
ENGL-260	NATIVE AMERICAN LITERATURE	
ENGL-261	MYTHOLOGIES	
<b>Arts</b>		
ART-100	INTRODUCTION TO ART	
HUM-101	THE ART AND HISTORY OF THE MOTION PICTURE	
HUM-150	INTRODUCTION TO THE ARTS	
MUS-101	SURVEY OF MUSIC	
MUS-102	MUSIC IN AMERICA	
MUS-150	WORLD MUSIC	
MUS-151	HISTORY OF MUSICAL THEATER	
MUS-152	HISTORY OF JAZZ AND POPULAR MUSIC STYLES	
THEA-101	SURVEY OF THE THEATER	

**Language**

NP-101	NEZ PERCE LANGUAGE AND CULTURE	
NP-102	NEZ PERCE LANGUAGE AND HISTORY	
SPAN-101	ELEMENTARY SPANISH I	
SPAN-102	ELEMENTARY SPANISH II	

**Scientific Ways of Knowing**

CS-108	INTRODUCTION TO COMPUTER SCIENCE	4.00
Select one of the following:		3.00-4.00
BIOF-100	INTRODUCTION TO BIOINFORMATICS	
BIOL-100	CONCEPTS OF BIOLOGY	
BIOL-120	PLANTS AND PEOPLE	
BIOL-123	BIOLOGY IN FILM	
BIOL-175	HUMAN BIOLOGY	
BIOL-227	HUMAN ANATOMY AND PHYSIOLOGY I	
CHEM-100	CONCEPTS OF CHEMISTRY	
CHEM-105	GENERAL, ORGANIC AND BIOCHEMISTRY	
CHEM-111	PRINCIPLES OF CHEMISTRY I	
FSCI-101	INTRODUCTION TO FORENSIC SCIENCE	
GEOL-101	PHYSICAL GEOLOGY	
GEOL-120	INTRODUCTION TO EARTH SYSTEMS	
GIS-271	GEOGRAPHIC INFORMATION SYSTEMS	
ID-240	INTEGRATED SCIENCE II	
NS-140	INTEGRATED SCIENCE I	
NS-150	INTRODUCTION TO NATURAL SCIENCES <sup>1</sup>	
NS-174	NATURAL SCIENCE FOR ELEMENTARY EDUCATOR	
PHYS-111	GENERAL PHYSICS I	
or PHYS-112	GENERAL PHYSICS II	
PHYS-171	PHYS SCIENCES FOR ELEMENTARY EDUCATORS	
PHYS-205	DESCRIPTIVE ASTRONOMY	
PHYS-211	PHYSICS FOR SCIENTISTS AND ENGINEERS I	

**Social & Behavioral Ways of Knowing**

Select one course from two disciplines:		6.00
ANTH-102	CULTURAL ANTHROPOLOGY	
ANTH-120	WORLD PREHISTORY	
ANTH-170	INTRODUCTION TO NATIVE AMERICAN STUDIES	
ECON-201	PRINCIPLES OF MACROECONOMICS	
ECON-202	PRINCIPLES OF MICROECONOMICS	
GEOG-102	INTRODUCTION TO GEOGRAPHY	
HIST-101	WORLD HISTORY I	
HIST-102	WORLD HISTORY II	
HIST-111	UNITED STATES HISTORY I	
HIST-112	UNITED STATES HISTORY II	
HRPT-184	DIVERSITY IN ORGANIZATIONS	
HRPT-185	HUMAN RELATIONS IN ORGANIZATIONS	
POLS-101	AMERICAN NATIONAL GOVERNMENT	
POLS-237	INTERNATIONAL POLITICS	
POLS-285	COMPARATIVE GOVERNMENT	
PSYC-101	INTRODUCTION TO GENERAL PSYCHOLOGY	
PSYC-205	LIFESPAN DEVELOPMENTAL PSYCHOLOGY	
SOC-101	INTRODUCTION TO SOCIOLOGY	
SOC-102	SOCIAL PROBLEMS	
SS-184	DIVERSITY IN ORGANIZATIONS	

SS-185	HUMAN RELATIONS IN ORGANIZATIONS	
<b>Diversity</b>		
Select one of the following:		3.00-4.00
ANTH-102	CULTURAL ANTHROPOLOGY	
ANTH-120	WORLD PREHISTORY	
ANTH-170	INTRODUCTION TO NATIVE AMERICAN STUDIES	
ANTH-360	RACE AND ETHNICITY	
COMM-345	INTERCULTURAL COMMUNICATION	
ENGL-258	INTERNATIONAL LITERATURE	
ENGL-474	NATIVE AMERICAN WRITTEN LITERATURE	
GEOG-102	INTRODUCTION TO GEOGRAPHY	
HIST-101	WORLD HISTORY I	
HIST-102	WORLD HISTORY II	
HIST-111	UNITED STATES HISTORY I	
HIST-112	UNITED STATES HISTORY II	
HRPT-184	DIVERSITY IN ORGANIZATIONS	
ID-300C	ETHICS AND IDENTITY	
KIN-220	SOCIAL-CULTURAL ASPECTS OF SPORTS	
NP-101	NEZ PERCE LANGUAGE AND CULTURE	
NP-102	NEZ PERCE LANGUAGE AND HISTORY	
POLS-285	COMPARATIVE GOVERNMENT	
SOC-101	INTRODUCTION TO SOCIOLOGY	
SPAN-101	ELEMENTARY SPANISH I	
SPAN-102	ELEMENTARY SPANISH II	
SPAN-201	INTERMEDIATE SPANISH I	
SPAN-202	INTERMEDIATE SPANISH II	
SS-184	DIVERSITY IN ORGANIZATIONS	
<b>Integrative Seminar: Ethics &amp; Values</b>		
Select one of the following:		3.00
ID 300A - 300Z (see course descriptions for options)		
ID-301A	HELLS CANYON INSTITUTE	
<b>Foreign/Heritage Language</b>		
Select 16 credits of language if selecting Bachelor of Arts Degree		16.00
<b>Total Credits</b>		<b>37.00-43.00</b>

## Program Requirements

Code	Title	Credits
<b>Major Courses</b>		
CS-101	COMPUTER SCIENCE SEMINAR	1.00
CS-111	FOUNDATIONS OF PROGRAMMING	4.00
CS-211	COMPUTER SCIENCE II	4.00
CS-226	SQL: STRUCTURED QUERY LANGUAGE	3.00
CS-250	COMPUTER ORGANIZATION AND ARCHITECTURE	4.00
CS-253	INTRO TO SYSTEMS PROGRAMMING	4.00
CS-311	ALGORITHMS AND DATA STRUCTURES	4.00
CS-360	SOFTWARE ENGINEERING	3.00
CS-401	FUTURE PROFESSIONALS SEMINAR	1.00
CS-430	OPERATING SYSTEMS	3.00
CS-435	COMPUTER NETWORKS	3.00
CS-480	CAPSTONE DESIGN PROJECT	4.00
MATH-170	CALCULUS I (Required if not completed as core)	
MATH-186	DISCRETE MATHEMATICS	3.00

Select 7 credits of Bioinformatics or Computer Science at the 300 level or above	7.00
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**Upper Division Electives**

Select 26 credits from the following:	26.00
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BIOF-100	INTRODUCTION TO BIOINFORMATICS
BIOL-181	ECOLOGY, EVOLUTION, DIVERSITY OF LIFE
BIOL-182	CONCEPTS IN CELLULAR MECHANISMS
CITPT-111	WEB DEVELOPMENT BASICS
MATH-175	CALCULUS II
MATH-253	STATISTICAL METHODS FOR THE SCIENCES
MATH-275	CALCULUS III
PHYS-211	PHYSICS FOR SCIENTISTS AND ENGINEERS I
PHYS-212	PHYSICS FOR SCIENTISTS AND ENGINEERS II

Select any 300/400 level course
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**Electives**

Select 7 elective credits	7.00
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<b>Total Credits</b>	<b>81.00</b>
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**Notes:**

1. This program has been developed following the guidelines established by the CS 2001 "Computer Science Curriculum," and the CS 2008 "Computer Science Curriculum Interim Update" developed by the Association of Computing Machinery (ACM) and the IEEE Computer Society (IEEE-CS).
2. This program complies with all requirements for a Minor in Mathematics.
3. WBL: Work-based Learning.

## Sequential Plan of Study

Course	Title	Credits
<b>First Year</b>		
<b>Fall</b>		
CORE	MATH-143, MATH-147 or MATH-170	3.00-5.00
CORE	Oral Communication	3.00
CS-101	COMPUTER SCIENCE SEMINAR	1.00
CS-108	INTRODUCTION TO COMPUTER SCIENCE	4.00
ENGL-101	WRITING AND RHETORIC I	3.00
<b>Credits</b>		<b>14.00-16.00</b>
<b>Spring</b>		
CORE	Humanistic & Artistic Ways of Knowing	3.00
CORE	Social & Behavioral Ways of Knowing	3.00
CS-111	FOUNDATIONS OF PROGRAMMING	4.00
CS-226	SQL: STRUCTURED QUERY LANGUAGE	3.00
ENGL-102	WRITING AND RHETORIC II	3.00
<b>Credits</b>		<b>16.00</b>
<b>Second Year</b>		
<b>Fall</b>		
CORE	Social & Behavioral Ways of Knowing	3.00
CORE	Scientific Ways of Knowing	3.00
CS-211	COMPUTER SCIENCE II	4.00
CS-253	INTRO TO SYSTEMS PROGRAMMING	4.00
Program Requirement	BIOF or CS course 300/400 Level	4.00
<b>Credits</b>		<b>18.00</b>
<b>Spring</b>		
CORE	Diversity	3.00
CS-250	COMPUTER ORGANIZATION AND ARCHITECTURE	4.00
CS-311	ALGORITHMS AND DATA STRUCTURES	4.00

MATH-186	DISCRETE MATHEMATICS	3.00
Program Requirement	BIOF or CS course 300/400 Level	3.00
<b>Credits</b>		<b>17.00</b>
<b>Third Year</b>		
<b>Fall</b>		
CORE	Humanistic & Artistic Ways of Knowing	3.00
CS-360	SOFTWARE ENGINEERING	3.00
CS-430	OPERATING SYSTEMS	3.00
Program Requirement	Upper Division Electives	3.00
<b>Credits</b>		<b>12.00</b>
<b>Spring</b>		
CS-401	FUTURE PROFESSIONALS SEMINAR	1.00
CS-435	COMPUTER NETWORKS	3.00
CORE	Integrative Seminar: Ethics & Values	3.00
Program Requirement	Upper Division Electives	3.00
Program Requirement	Upper Division Electives	3.00
<b>Credits</b>		<b>13.00</b>
<b>Fourth Year</b>		
<b>Fall</b>		
Program Requirement	Upper Division Electives	3.00
Program Requirement	Upper Division Electives	3.00
Program Requirement	Upper Division Electives	3.00
Elective	Computer Science Elective Credits	3.00
<b>Credits</b>		<b>12.00</b>
<b>Spring</b>		
CS-480	CAPSTONE DESIGN PROJECT	4.00
Program Requirement	Upper Division Electives	3.00
Program Requirement	Upper Division Electives	3.00
Program Requirement	Upper Division Electives	3.00
Elective	Computer Science Elective Credits	4.00
<b>Credits</b>		<b>17.00</b>
<b>Total Credits</b>		<b>119.00-121.00</b>

Graduates with a BA/BS in Computer Science go on to obtain careers in a variety of fields:

- Programming
- Network Technology
- Consulting
- Non-Technical
- Systems Development
- Internet
- Education