Bachelor of Science Degree (BS)
Computer Science

Program Planning Sheet (Scope & Sequence)

The BS in Computer Science degree will cover a wide range of critical knowledge and skill-building areas including, the design and usability for software and computing systems, effective team collaboration, information technology leadership and preparation for advanced learning in computing, science, engineering and other professional fields.

Computer Science degree graduates will be able to obtain positions related, but not limited to:
- Software Developer
- Software Quality Assurance Analysts and Testers
- Web Developers and Digital interface Designers
- Computer Systems Analyst
- Network and Computer Systems Administrators

Prerequisites: Prerequisites are classes that prove eligibility by testing out of a class or having satisfied prior course work. Course work earned at other institutions must be unofficially evaluated or approved by a program advisor or faculty before registering. Courses in this degree with pre-requisite requirements are marked with an (*). View course details for more information.

Prerequisites for BS CS Admission:
- Applicants must have an associate degree (or equivalent credits) from a regionally accredited institution with a minimum cumulative 2.5 GPA and a 2.5 GPA or higher in all CS pre-requisite courses. Any General Education Requirements taken as part of the associate degree can be transferred into the requirements below.
- The following courses are prerequisites (equivalent courses may be substituted):

<table>
<thead>
<tr>
<th>Example Course Numbers</th>
<th>PREREQUISITES</th>
<th>CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Central</td>
<td>South</td>
</tr>
<tr>
<td>CSC 110*, CSC 142*, CSC 143*</td>
<td>CSC 110*, CSC 142*, CSC 143*</td>
<td>CSC 110*, CSC 142, CSC 143*</td>
</tr>
<tr>
<td>Engl&amp; 101*</td>
<td>Engl&amp; 101*</td>
<td>Engl&amp; 101*</td>
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</tbody>
</table>
**Typically, 15 or more of the following credits must be completed before beginning BS CS degree**

### Prerequisite Courses

- Communication skills (ENGL& 101)
- Quantitative Symbolic Reasoning Course

### Communication Skills

- Composition, writing-intensive, or basic speaking skills course. Eng& 235 recommended.

### The Natural World

- At least one 5-credit lab class required.
- Natural World (non-lab) may include 5 credits of either CSC 110, CSC 142, CSC 143

### Visual, Literary, and Performing Arts *

- 110 lecture hours
- 10 credit hours

### Individuals, Cultures, and Societies*

- 110 lecture hours
- 10 credit hours

### Gen Ed Courses suited for BS CS Degree:

- Speak with Program Advisor for examples

- 110 lecture hours
- 10 credit hours

### TOTAL

- 60 credit hours

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### Core Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Core Degree Requirements</th>
<th>Lecture Hours</th>
<th>Lab Hours</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSB 301</td>
<td>Logic and Problem Solving for Computer Science</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CSB 302</td>
<td>Analysis of Algorithms</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CSB 305</td>
<td>Fundamentals of Computer Science</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CSB 310</td>
<td>Programming Languages</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CSB 430</td>
<td>Software Design and Implementation</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CSB 440</td>
<td>Computer Science Practicum Internship</td>
<td>275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD 325</td>
<td>Data Structures &amp; Algorithms</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>AD 350</td>
<td>Relational Database Technology</td>
<td>55</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>AD 400</td>
<td>Project Management in Software Development</td>
<td>55</td>
<td>5</td>
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<tr>
<td>TOTAL</td>
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<tr>
<td></td>
<td><strong>45 lecture hours</strong></td>
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</table>

### Information Science Pathway Elective Options

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Information Science Pathway Elective Options</th>
<th>Lecture Hr.</th>
<th>Lab Hr.</th>
<th>Credit Hr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD 320</td>
<td>Web Development</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>AD 420</td>
<td>Cloud Computing SaaS</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>AD 450</td>
<td>Data Science Development</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>IBN 330</td>
<td>Data Analytics in Business and Accounting</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>IBN 402</td>
<td>Management of Information Systems</td>
<td>55</td>
<td></td>
<td>5</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

### Computer Science Pathway Elective Options

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Computer Science Pathway Elective Options</th>
<th>Lecture Hr.</th>
<th>Lab Hr.</th>
<th>Credit Hr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD 320</td>
<td>Web Development</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>AD 420</td>
<td>Cloud Computing Software as a Service</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>CSB 330</td>
<td>Computer Architecture &amp; Network</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>CSB 340</td>
<td>Operating Systems</td>
<td>55</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>CSB 435</td>
<td>Secure Software Development</td>
<td>55</td>
<td></td>
<td>5</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

### Electives (Credits)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Electives (Credits)</th>
<th>Lecture Hrs.</th>
<th>Lab Hrs.</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varies</td>
<td>Includes any credits taken towards the associate degree and/or computer science prerequisites (CSC 110, CSC 142, CSC 143)</td>
<td>varies</td>
<td>varies</td>
<td><strong>50</strong></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>
## Suggested Sequence for the Full-Time Student: Computer Science Pathway

### Fall, Year 1
- **Data Structures and Algorithms (5) - AD 325**  
  Prereq: CSC 143, Program entry
- **Fundamentals of Computer Science (5) – CSB 305**  
  Prereq: CSC 143 or equivalent
- **Logic and Problem Solving for Computer Science (5) – CSB 301**  
  Prereq: CSC 143, Program entry
- **Gen Ed or Elective (5)**

### Winter, Year 1
- **Programming Languages (5) – CSB 310**  
  Prereqs: Program entry
- **Analysis of Algorithms (5) – CSB 302**  
  Prereq: AD 325
- **Computer Architecture & Networking (5) – CSB 330**  
  Prereq: Program entry
- **Operating Systems (5) – CSB 340**  
  Prereq: CSB 330

### Spring, Year 1

### Fall, Year 2
- **Project Management in Software Development (5) – AD 400**  
  Prereqs: Program entry
- **Software Design and Implementation (5)–CSB 430**  
  Prereq: CSB 302
- **Cloud Computing SaaS (5) – AD 420**  
  Prereqs: Program entry
- **Gen Ed or Elective (5)**

### Winter, Year 2
- **Computer Science Practicum/Internship (5) – CSB 440**  
  Faculty permission
- **Web Application Development (5) – AD 320**  
  Prereqs: Program entry
- **Gen Ed or Elective (5)**
- **Gen Ed or Elective (5)**

### Spring, Year 2
- **Secure Software Development (5) – CSB 435**  
  Prereq: CSB 430
- **Data Science Development (5) – AD 450**  
  Prereq: Program entry
- **Cloud Computing SaaS (5) – AD 420**  
  Prereqs: Program entry
- **Gen Ed or Elective (5)**

### Suggested Sequence for the Full-Time Student: Information Science Pathway

### Fall, Year 1
- **Data Structures and Algorithms (5) - AD 325**  
  Prereq: CSC 143
- **Fundamentals of Computer Science (5) – CSB 305**  
  Prereq: CSC 143 or equivalent
- **Logic and Problem Solving for Computer Science (5) – CSB 301**  
  Prereq: CSC 143
- **Gen Ed or Elective (5)**

### Winter, Year 1
- **Programming Languages (5) – CSB 310**  
  Prereqs: Program entry
- **Analysis of Algorithms (5) – CSB 302**  
  Prereq: AD 325
- **Data Analytics in Business and ACC (5) – IBN 330**  
  Prereq: Program entry
- **Data Science Development (5) – AD 450**  
  Prereq: IBN 330

### Spring, Year 1

### Fall, Year 2
- **Project Management in Software Development (5) – AD 400**  
  Prereqs: Program entry
- **Software Design and Implementation (5)–CSB 430**  
  Prereq: CSB 302
- **Cloud Computing SaaS (5) – AD 420**  
  Prereqs: Program entry
- **Gen Ed or Elective (5)**

### Winter, Year 2
- **Computer Science Practicum/Internship (5) – CSB 440 or Data Science Practicum (5) - AD 470**  
  Faculty permission
- **Web Application Development (5) – AD 320**  
  Prereqs: Program entry
- **Gen Ed or Elective (5)**
- **Gen Ed or Elective (5)**

### Spring, Year 2
- **Management of Information Systems (5) – IBN 402**  
  Prereq: Program entry

Note: Taking a general education or elective course each quarter is only needed if a student needs the additional credits to graduate and/or needs to complete a specific general education category.
### Areas of Knowledge Distribution Requirements for BS degree

Note: Not all courses are offered each quarter. Please check class schedule each quarter for what courses are being offered.

#### VISUAL, LITERARY, AND PERFORMING ARTS (Humanities and Arts) 10 CREDITS
You are required to complete 10 credits.

- American Sign Language: ASL &121, &122, &123, 210, &221, &222, &223
- Chinese: CHIN &121, &122, &123, &221, &222, &223

#### INDIVIDUALS, CULTURES, AND SOCIETIES (Social Sciences) 10 CREDITS
You are required to complete 10 credits.

- American Ethnic Studies: AME 150, 151, 160, 201
- Anthropology: ANTH &100, &105, 113, &126, 130, 135, 201, &206, &210, 211, 212, 213, &216, &227, &228, 275
- American Sign Language: ASL 120, 125
- Biology: BIOL 150
- Economics: ECON 100, 102, &201, &202, 240
- Environmental Science: ENV 150, 160, 170, 200, 202, 206, 208, 214, 294
- Environmental Science: ENVS &101
- Geography: GEOG 100*, 105, 200*, 205, 207, 230, 260
- International Studies: ISP 101, 105, 110, 120, 160, 170, 201, 205, 210, 220, 234, 251, 255, 260, 261, 270
- Political Science: POLS &101, 111, 112, 170, &200, &202, &203, 205, 206, 213, 220, 255
- Psychology: PSYC &100, 120, &200, 205, 207, 209, 210, 217, &220, 230, 235, 245, 250, 255, 257, 294
- Religion: REL 150, 151
- Sociology: SOC &101, 102, 105, 106, 107, 120, 130, 150, 170, &201, 220, 230, 245, 250, 255, 263, 275, 280
- Social Science: SSC 101, 103, 187
- Social Welfare: SFW 200
- STEM: STEM 118
- Women's Studies: WMN 140, 200, 205, 213, 257

#### THE NATURAL WORLD (Natural and Physical Sciences) 10 CREDITS
You are required to complete 10 credits. At least five credits must be in a lab science (*asterisked below).

- Anatomy & Physiology: BIOL 128*, &241*, &242* Astronomy: ASTR &100, 102, 104, &110*, 201
- Anthropology: ANTH &204, &205, 275
- Computer Science: CSC 110, 111, 142, 143
- Engineering: ENGR 110, &111, 140, 142, &214, &215, &224, &225, 240, 271
- Geography: GEOG 205
- Health: HEA 125, 150, 160, 225, 228
- Math: All MATH college courses number 102 and above.
- Meteorology: MEY 100
- Material Science: MSCI 101
- Nanotechnology: NANO 101* Nutrition: NTR 105*, 150, 155
- Oceanography: OCEA 100, 101*
- Philosophy: PHIL &106, &120
- Psychology: PSYC 222
- Sustainability: SUST 101

Courses with “&” are associated with the statewide common course numbering system.