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
- Data Scientist
- Data Engineer

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):

Example Course Numbers			PREREQUISITES	CREDIT HOURS
North	Central	South	PREREQUISITES – Course Titles:	
CSC 110*, CSC 142*, CSC 143*	CSC 110*, CSC 142*, CSC 143*	CSC 110*, CSC 142,* CSC 143*	**Programming:** - Intro to Programming - Computer Programming I - Computer Programming II	15
Math& 141*, Math& 146*, Math 211*, BUS 210*	Math& 141*, Math& 146*, BUS 210*	Math& 141*, Math& 146*, BUS 210*	**Quantitative/Symbolic Reasoning (QSR)** - Statistics and Pre-Calculus Required - Business Statistics Recommended for DS Pathway - Pre-Calculus II and Calculus I recommended	10
Engl& 101*	Engl& 101*	Engl& 101*	**Communication Skills:** - English Composition	5

COURSE NUMBER	GENERAL EDUCATION/RELATED INSTRUCTION REQUIREMENTS (60 CREDITS MINIMUM)	LECTURE HOURS	LAB HOURS	CREDIT HOURS
	Typically, 15 or more of the following credits must be completed before beginning BS CS degree			
Engl& 101 Statistics & Pre-Calc	**Prerequisite Courses** - Communication skills (ENGL& 101) - Quantitative Symbolic Reasoning Course	165		15
English / Communication Courses	**Communication Skills** - Composition, writing-intensive, or basic speaking skills course. Engl& 235 recommended.	55		5
Any Natural World Course (5 credits must be a lab)	**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	Varies	Varies	10
Humanities	**Visual, Literary, and Performing Arts ***	110		10
Social Sciences	**Individuals, Cultures, and Societies***	110		10
Other General Education Credits	**Gen Ed Courses suited for BS CS Degree:** - Speak with Program Advisor for examples	110		10
TOTAL	* SEE LIST ON PAGE 4 FOR ACCEPTABLE COURSE IDEAS			60

COURSE NUMBER	SHARED CORE DEGREE REQUIREMENTS *Students can choose either DS pathway or CS pathway*	LECTURE HOURS	LAB HOURS	CREDIT HOURS
CSB 302	- Analysis of Algorithms	55		5
CSB 430	- Software Design and Implementation	55		5
CSB 440	- Computer Science Practicum Internship		275	5
AD 325	- Data Structures & Algorithms	55		5
AD 350	- Database Technology	55		5
AD 400	- Project Management in Software Development	55		5
AD 420	- Cloud Computing Software as a Service	55		5
TOTAL				35
Course Number	Data Science Pathway Option	Lecture Hr.	Lab Hr.	Credit Hr.
AD 315	- Discrete Math	55		5
CSB 303	- AI & Ethics	55		5
AD 450	- Data Science Development	55		5
IBN 330	- Data Analytics in Business and Accounting	55		5
CSB 320	- Machine Learning Concepts	55		5
CSB 425	- Big Data Analytics	55		5
CSB 410	- Deep Learning	55		5
TOTAL				35
Course Number	Computer Science Pathway Option	Lecture Hr.	Lab Hr.	Credit Hr.
AD 320	- Web Development	55		5
CSB 330	- Computer Architecture & Network	55		5
CSB 340	- Operating Systems	55		5
CSB 435	- Secure Software Development	55		5
CSB 310	- Programming Languages	55		5
CSB 305	- Fundamentals of Computer Science	55		5
CSB 301	- Logic and Problem Solving for Computer Science	55		5
TOTAL				35

COURSE NUMBER	ELECTIVES (CREDITS)	LECTURE HOURS	LAB HOURS	CREDIT HOURS
Varies	Includes any credits taken towards the associate degree and/or computer science prerequisites (CSC 110, CSC 142, CSC 143)	varies	varies	**50**
TOTAL CREDITS FOR DEGREE				**180**

Suggested Sequence for the Full-Time Student: Computer Science Pathway

Fall, year 1	Winter, Year 1	Spring, Year 1
Data Structures and Algorithms (5) - AD 325 Prereq: CSC 143, Program entry	**Fundamentals of Computer Science (5) – CSB 305** Prereq: CSB 301	**Programming Languages (5) – CSB 310** Prereqs: CSB 302, CSB 305
Logic and Problem Solving for Computer Science (5) – CSB 301 Prereq: Program entry	**Analysis of Algorithms (5) – CSB 302** Prereq: AD 325	**Database Technology (5) - AD 350** Prereqs: Program entry
Gen Ed or Elective (5)	**Computer Architecture & Networking (5) – CSB 330** Prereq: Program entry	**Operating Systems (5) – CSB 340** Prereq: CSB 330

Fall, Year 2	Winter, Year 2	Spring, Year 2
Project Management in Software Development (5) – AD 400 Prereqs: Program entry	**Software Design and Implementation (5)–CSB 430** Prereq: AD 325, AD 400	**Computer Science Practicum/Internship (5) – CSB 440** Faculty permission
Web Application Development (5) - AD 320 Prereqs: Program entry	**Cloud Computing- Software as a Service (5) - AD 420** Prereqs: Program entry	**Secure Software Development (5) – CSB 435** Prereq: CSB 430, AD 400
Gen Ed or Elective (5)	**Gen Ed or Elective (5)**	**Gen Ed or Elective (5)**

Suggested Sequence for the Full-Time Student: Data Science Pathway

Fall, year 1	Winter, Year 1	Spring, Year 1
Data Structures and Algorithms (5) - AD 325 Prereq: CSC 143, Program entry	**Data Science Development (5) – AD 450** Prereq: AD 325	**AI & Ethics (5) - CSB 303** Prereq: Program entry
Discrete Mathematics (5) - AD 315 Prereq: Program entry	**Analysis of Algorithms (5) – CSB 302** Prereq: AD 325 or equivalent	**Database Technology (5) – AD 350** Prereqs: Program entry
Gen Ed or Elective (5)	**Data Analytics in Business and ACC (5) – IBN 330** Prereq: AD 315	**Machine Learning Concepts (5) – CSB 320** Prereq: AD 450

Fall, Year 2	Winter, Year 2	Spring, Year 2
Project Management in Software Development (5) – AD 400 Prereqs: Program entry	**Software Design and Implementation (5)–CSB 430** Prereq: AD 325, AD 400	**Computer Science Practicum/Internship (5) – CSB 440** Prereq: Faculty permission
Deep Learning (5) - CSB 410 Prereq: CSB 320	**Cloud Computing SaaS (5) – AD 420** Prereqs: Program entry	**Big Data Analytics (5) - CSB 435** Prereq: AD 350, AD 420
Gen Ed or Elective (5)	**Gen Ed or Elective (5)**	**Gen Ed or Elective (5)**

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.

Art: ART &100, 101*, 102*, 103*, 104, 105, 110*, 111*, 112*, 113*, 114*, 115,* 121*, 122*, 123*, 163, 166*, 170, 201*, 202*, 203*, 205*, 206*, 207*, 210*, 211*, 212*, 213*, 214*, 215*, 216*, 217*, 221*, 222*, 223*, 251, 252, 253, 254, 255, 281*, 282*, 283*, 284*, 285*, 290, 291
American Sign Language: ASL &121, &122, &123, 210, &221, &222, &223
Chinese: CHIN &121, &122, &123, &221, &222, &223
Communication: CMST &101, &102, 115, 145, 155, 175, 185, 195, 205, &210, 215, &220, &230, 235, 245, 255, 265, 275, 285, 295
Drama: DRMA &101, 103, 105, 108*, 109*, 110*, 112, 114*, 116*, 120*, 121*, 122*, 123*, 131, 182*, 204*, 205*, 206*, 221*, 222*, 223*, 284, 285, 286
English: ENGL 104, 109, &111, &112, &113, &114, 117, 151, 152, 153, 201, 204, 205, 214, 218, 219, &224, &225, &226, &227, &228, 231, 232, 233, &235, 240, 241, &244, &245, &246, 251, 252, 253, &254, &256, 257, 258, 259, 260, 263, 265, 266, 267, 270, 291, 292, 293

French: FRCH &121, &122, &123, 204, 205, 206, 212, &221, &222, &223, 231, 232, 233
German: GERM &121, &122, &123
Humanities: HUM 104, 105, 110, 115, &116, &117, &118, 120, 125, 130, 135, 140, 150, 160, 200, 210, 234, 261, 270
Italian: ITAL 121, 122, 123
Japanese: JAPN &121, &122, &123, &221, &222, &223
Journalism: JRN 101, 102, 103
Linguistics: LAN 101, 110
Literature: LIT 236, 238
Music: MUSC 100, &105, 106, 109, 110, 113, 116, 117, 119*, 120*, 125, 126*, 127*, 128*, 130*, 134 - 140*, &141, &142, &143, 144*, 145*, 146*, 147*, 148*, 150*, 151*, 156*, 157*, 158*, 160, 161, 163, 164*, 165*, 166*, 171*, 172*, 173*, 182*, 185, 204, 205, 213, 221*, 222*, 223*, &231, &232, &233
Russian: RUSS &121, &122, &123
Spanish: SPA &121, &122, &123, &221, &222, &223, 236, 238
Vietnamese: VIET &121, &122, &123

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, &106, 113, &125, 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: GE0G 100&, 155, 200&, 205, 207, 230, 260
History: HIST 105, 106, 108, 120, &126, &127, &128, 131, &136, &137, 138, 140, 145, &146, &147, &148, 150, 191, 200, 208, 210, 211, 212, &214, &219, 221, 230, 241, 242, 251, 268, 269, 273
International Studies: ISP 101, 105, 110, 120, 160, 170, 201, 205, 210, 220, 234, 251, 255, 260, 261, 270

Philosophy: PHIL &101, 102, 110, 111, 118, 160, 215, 220, 240, 245, 250, 255, 267
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, 253, 265, 275, 280
Social Science: SSC 101, 103, 187
Social Welfare: SWF 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
Biology: BIOL &100*, 102*, 106*, 107*, 109, 120*, 125*, 130*, 150, &160*, 161*, 195, 196, &211*, &212*, &213*, 228*, 229*, 239*, &260*, 282*, 285*, 286*, 287*, 290, SPS 201* Botany: BOT 110*, 112*, 113*
Chemistry: CHEM 106*, &110*, &121*, &122*, &123*, &131*, &139, &161*, &162*, &163*, 191*, 192*, 211*, &241, 242, &243, &251*, &252*, 255, 256
Computer Science: CSC 110, 111, 142, 143
Environmental Science: ENV 150, 160, 170, 201, 202*, 203, 204*, 205, 206*, 208, 216*, 221, ENVS &101*
Engineering: ENGR 110, &111, 140, 142, &214, &215, &224, &225, 240, 271
Geography: GEOG 205

Geology: GEOL &101*, &103*, 104, 105*, 106, 108*, &110*, 111*, &115*, 118*, 202*, 207*, &208*
Health: HEA 125, 150, 160 , 225, 228
Math: All MATH college courses number 102 and above.
Meteorology: MEY 100
Material Science: MSC 101
Nanotechnology: NANO 101* Nutrition: NTR 105*, 150, 155
Oceanography: OCEA 100, &101*
Philosophy: PHIL &106, &120
Psychology: PSYC 222
Physics: PHYS &100, 107*, &114*, &115*, &116*, &221*, &222*, &223*
Science: SCI 100, 101*, 104, 107*110*, 111*, 112*, 113*, 114*, 115*, 116*, 117*, 118*, 119*, 121*, 129*, 131*
Sustainability: SUST 101

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

Effective: Winter 2024
Program Code: CSACSBS