Curriculum for Software and Scientific Applications Concentration

Freshman Year
- ENGR 1020 - Connections to Engineering and Technology Credit: 1. ¹
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.
- Social/Behavioral Sciences Elective Credit 3. ²
- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- HIST 2010 - American History I Credit: 3.
- HIST 2020 - American History II Credit: 3.

Sophomore Year
- CSC 2400 - Design of Algorithms Credit: 3.
- CSC 2500 - Unix Lab Credit: 1.
- CSC 2700 – Discrete Structures for Computer Science Credit: 3.
- CSC 2710 - Foundations of Computer Science Credit: 3.
- SPCH 2410 - Introduction to Speech Communication Credit: 3. or
  PC 2500 - Communicating in the Professions Credit: 3.
- ENGL 2130 - Topics in American Literature Credit: 3. or
  ENGL 2230 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- First Science Sequence Credit 8. ³

Junior Year
- CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3300 - Database Management Systems Credit: 3.
- CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
- CSC Upper-Division Elective Credit 3.
- CSC Elective Credit 3.
- CSC 4320 - Computer Architecture Credit: 3.
- Humanities/Fine Arts Elective Credit 6. ²
- Second Science Credit: 4. ³
- MATH 3070 - Statistical Methods I Credit: 3. or
  MATH 3470 - Introductory Probability and Statistics Credit: 3.

Senior Year
- CSC 4100 - Operating Systems Credit: 3.
- CSC 4200 - Computer Networks Credit: 3.
- CSC 4610 - Software Engineering I Credit: 3.
- CSC 4620 - Software Engineering II Credit: 3.
- 4000-level CSC Elective Credit: 3.
- Electives Credit 9.
- Social/Behavioral Sciences Elective Credit: 3.

Note:
¹ Not required for transfer students with more than 12 hours.
² See TBR General Education Core Requirements.
³ Take at least one science sequence from BIOL 1105 - BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The two sequences must be in different disciplines.
⁴ Take any additional 3000- or 4000-level CSC course except CSC 4990.
⁵ At least three elective hours need to be upper division.
Curriculum for Software and Scientific Applications Concentration

Computer Science
- CSC 2400 – Design of Algorithms Credit: 3.
- CSC 2500 – Unix Lab Credit: 1.
- CSC 2700 – Discrete Structures for Computer Science Credit: 3.
- CSC 2710 – Foundations of Computer Science Credit: 3.
- CSC 3040 – Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3300 – Database Management Systems Credit: 3.
- CSC 3410 – Computer Organization and Assembly Language Programming Credit: 3.
- CSC 4100 – Operating Systems Credit: 3.
- CSC 4200 – Computer Networks Credit: 3.
- CSC 4320 – Computer Architecture Credit: 3.
- CSC 4610 – Software Engineering I Credit: 3.
- CSC 4620 – Software Engineering II Credit: 3.
- CSC Elective Credit 3.
- CSC Upper-Division Elective Credit 3.
- 4000-level CSC Elective Credit: 3.

Mathematics
- MATH 1910 – Calculus I Credit: 4.
- MATH 1920 – Calculus II Credit: 4.
- MATH 2010 – Introduction to Linear Algebra Credit: 3.
- MATH 3070 – Statistical Methods I Credit: 3. or
  MATH 3470 – Introductory Probability and Statistics Credit: 3.

General Education
- ENGL 1010 – English Composition I Credit: 3.
- ENGL 1020 – English Composition II Credit: 3.
- SPCH 2410 – Introduction to Speech Communication Credit: 3. or
  PC 2500 – Communicating in the Professions Credit: 3.
- ENGL 2130 – Topics in American Literature Credit: 3. or
  ENGL 2230 – Topics in British Literature Credit: 3. or
  ENGL 2330 – Topics in World Literature Credit: 3.
- Humanities/Fine Arts Elective Credit 6.  
- Social/Behavioral Sciences Elective Credit 6.  
- HIST 2010 – American History I Credit: 3.
- HIST 2020 – American History II Credit: 3.
- First Science Sequence Credit 8.  

Other
- ENGR 1020 – Connections to Engineering and Technology Credit: 1.  
- Second Science Credit: 4.  
- Electives Credit 9.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take at least one science sequence from BIOL 1105 -BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The two sequences must be in different disciplines.
4 Take any additional 3000- or 4000-level CSC course except CSC 4990.
5 At least three elective hours need to be upper division.
Curriculum for Cyber-Security Concentration

Freshman Year
- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.
- HIST 2010 - American History I Credit: 3.
- HIST 2020 - American History II Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.
- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- CSC 1310 - Data Structures and Algorithms Credit: 4.
- ENGR 1020 - Connections to Engineering and Technology Credit: 1.

Sophomore Year
- ENGL 2130 - Topics in American Literature Credit: 3. or
  ENGL 2230 - Topics in British Literature Credit: 3. or
  ENGL 2330 - Topics in World Literature Credit: 3.
- SPCH 2410 - Introduction to Speech Communication Credit: 3. or
  PC 2500 - Communicating in the Professions Credit: 3.
- First Science Sequence Credit: 8.
- CSC 2310 - Object Oriented Programming and Design Credit: 4.
- CSC 2400 - Design of Algorithms Credit: 3.
- CSC 2500 - Unix Lab Credit: 1.
- CSC 2560 - Networks for Information Technologists Credit: 3.
- CSC 2700 - Discrete Structures for Computer Science Credit: 3.
- CSC 2710 - Foundations of Computer Science Credit: 3.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.

Junior Year
- Humanities/Fine Arts Elective Credit: 6.
- CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3300 - Database Management Systems Credit: 3.
- CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
- Cyber-Security Elective Credit: 3.
- CSC 4200 - Computer Networks Credit: 3.
- CSC 4320 - Computer Architecture Credit: 3.
- Lab Science Credit: 4.
- MATH 3070 - Statistical Methods I Credit: 3. or
  MATH 3470 - Introductory Probability and Statistics Credit: 3.

Senior Year
- Social/Behavioral Sciences Elective Credit: 3.
- CSC 4100 - Operating Systems Credit: 3.
- CSC 4570 - IT Security Credit: 3.
- CSC 4575 - Information Assurance and Cryptography Credit: 3.
- CSC 4610 - Software Engineering I Credit: 3.
- CSC 4620 - Software Engineering II Credit: 3.
- CSC Elective Credit: 3.
- Electives Credit: 3.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take your science sequence from BIOL 1105-BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other science must be in a different discipline.
4 Select from one of the following: CSC 3220, CSC 4220, CSC 4580, CSC 4760, CSC 4770, DS 4125, or CJ 3640
Curriculum for Cyber-Security Concentration

Computer Science
- CSC 2400 – Design of Algorithms Credit: 3.
- CSC 2500 – Unix Lab Credit: 1.
- CSC 2700 – Discrete Structures for Computer Science Credit: 3.
- CSC 2710 – Foundations of Computer Science Credit: 3.
- CSC 3040 – Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3300 – Database Management Systems Credit: 3.
- CSC 3410 – Computer Organization and Assembly Language Programming Credit: 3.
- CSC 4100 – Operating Systems Credit: 3.
- CSC 4200 – Computer Networks Credit: 3.
- CSC 4320 – Computer Architecture Credit: 3.
- CSC 4610 – Software Engineering I Credit: 3.
- CSC 4620 – Software Engineering II Credit: 3.
- CSC Elective Credit: 3.

Cyber Security
- CSC 2560 – Networks for Information Technologists Credit: 3.
- CSC Security Elective Credit: 3.
- CSC 4570 – IT Security Credit: 3.
- CSC 4575 – Information Assurance and Cryptography Credit: 3.

Mathematics
- MATH 1910 – Calculus I Credit: 4.
- MATH 1920 – Calculus II Credit: 4.
- MATH 2010 – Introduction to Linear Algebra Credit: 3.
- MATH 3070 – Statistical Methods I Credit: 3 or MATH 3470 – Introductory Probability and Statistics Credit: 3.

General Education
- ENGL 1010 – English Composition I Credit: 3.
- ENGL 1020 – English Composition II Credit: 3.
- SPCH 2410 – Introduction to Speech Communication Credit: 3 or PC 2500 – Communicating in the Professions Credit: 3.
- ENGL 2130 – Topics in American Literature Credit: 3 or ENGL 2230 – Topics in British Literature Credit: 3 or ENGL 2330 – Topics in World Literature Credit: 3.
- Humanities/Fine Arts Elective Credit 6.
- Social/Behavioral Sciences Elective Credit 6.
- HIST 2010 – American History I Credit: 3.
- HIST 2020 – American History II Credit: 3.
- First Science Sequence Credit 8.

Other
- ENGR 1020 – Connections to Engineering and Technology Credit: 1.
- Lab Science Credit: 4.
- Electives Credit: 3.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take your science sequence from BIOL 1105-BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other science must be in a different discipline.
4 Select from one of the following: CSC 3220, CSC 4220, CSC 4580, CSC 4760, CSC 4770, DS 4125, or CJ 3640
Curriculum for Data Science Concentration

Freshman Year

- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.
- Social/Behavioral Sciences Elective Credit: 3. (ECON 2010 or ECON 2020 recommended)
- HIST 2010 - American History I Credit: 3.
- HIST 2020 - American History II Credit: 3.
- ENGR 1020 - Connections to Engineering and Technology Credit: 1.

Sophomore Year

- SPCH 2410 - Introduction to Speech Communication Credit: 3. or PC 2500 - Communicating in the Professions Credit: 3.
- Science Sequence Credit: 8.
- ENGL 2130 - Topics in American Literature Credit: 3. or ENGL 2230 - Topics in British Literature Credit: 3. or ENGL 2330 - Topics in World Literature Credit: 3.
- CSC 2400 - Design of Algorithms Credit: 3.
- CSC 2500 - Unix Lab Credit: 1.
- CSC 2700 – Discrete Structures for Computer Science Credit: 3.
- CSC 2710 - Foundations of Computer Science Credit: 3.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.

Junior Year

- Humanities/Fine Arts Elective Credit: 3.  
- Lab Science Credit: 4.
- MATH 3070 - Statistical Methods I Credit: 3. or MATH 3470 - Introductory Probability and Statistics Credit: 3.
- CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3220 - Fundamentals of Data Science Credit: 3.
- CSC 3300 - Database Management Systems Credit: 3.
- CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
- CSC 4320 - Computer Architecture Credit: 3.
- CSC Elective Credit: 3.
- Data Science Application Elective Credit: 3.

Senior Year

- Humanities/Fine Arts Elective Credit: 3.  
- Social/Behavioral Sciences Elective Credit: 3. (ECON 2010 or ECON 2020 recommended)
- CSC 4100 - Operating Systems Credit: 3.
- CSC 4200 - Computer Networks Credit: 3.
- CSC 4220 - Data Mining and Machine Learning Credit: 3.
- CSC 4610 - Software Engineering I Credit: 3.
- CSC 4620 - Software Engineering II Credit: 3.
- Data Science Technical Elective Credit: 3.
- CSC 4040 - Undergraduate Computing Research Experience Credit: 3. or CSC 4990 - Computer Science Internship (Data Science only) Credit 3.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take your science sequence from BIOL 1105 - BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other science must be in a different discipline.
4 Select from one of the following: CSC 3230, CSC 4575, GEOG 4510 (5510), MET 4650 (5650), MKT 3400 or BIOL 3810.
5 Select from one of the following: CSC 4240 (5240) or CSC 4760 (5760).
Curriculum for Data Science Concentration

Computer Science
- CSC 2400 – Design of Algorithms Credit: 3.
- CSC 2500 – Unix Lab Credit: 1.
- CSC 2700 – Discrete Structures for Computer Science Credit: 3.
- CSC 2710 – Foundations of Computer Science Credit: 3.
- CSC 3040 – Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3300 – Database Management Systems Credit: 3.
- CSC 3410 – Computer Organization and Assembly Language Programming Credit: 3.
- CSC 4100 – Operating Systems Credit: 3.
- CSC 4200 – Computer Networks Credit: 3.
- CSC 4320 – Computer Architecture Credit: 3.
- CSC 4610 – Software Engineering I Credit: 3.
- CSC 4620 – Software Engineering II Credit: 3.
- CSC Elective Credit 3.

Data Science
- CSC 3220 – Fundamentals of Data Science Credit: 3.
- CSC 4220 – Data Mining and Machine Learning Credit: 3.
- CSC 4040 – Undergraduate Computing Research Experience Credit: 3 or CSC 4990 – Computer Science Internship (Data Science only) Credit 3.
- Data Science Application Elective Credit: 3.
- Data Science Technical Elective Credit: 3.

Mathematics
- MATH 1910 – Calculus I Credit: 4.
- MATH 1920 – Calculus II Credit: 4.
- MATH 2010 – Introduction to Linear Algebra Credit: 3.
- MATH 3070 – Statistical Methods I Credit: 3 or MATH 3470 – Introductory Probability and Statistics Credit: 3.

General Education
- ENGL 1010 – English Composition I Credit: 3.
- ENGL 1020 – English Composition II Credit: 3.
- SPCH 2410 – Introduction to Speech Communication Credit: 3 or PC 2500 – Communicating in the Professions Credit: 3.
- ENGL 2130 – Topics in American Literature Credit: 3 or ENGL 2230 – Topics in British Literature Credit: 3 or ENGL 2330 – Topics in World Literature Credit: 3.
- Humanities/Fine Arts Elective Credit: 6.
- Social/Behavioral Sciences Elective Credit: 6. (ECON 2010 or ECON 2020 recommended)
- HIST 2010 – American History I Credit: 3.
- HIST 2020 – American History II Credit: 3.
- Science Sequence Credit: 8.

Other
- ENGR 1020 – Connections to Engineering and Technology Credit: 1.
- Lab Science Credit: 4.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take your science sequence from BIOL 1105 -BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other science must be in a different discipline.
4 Select from one of the following: CSC 3230, CSC 4575, GEOG 4510 (5510), MET 4650 (S650), MKT 3400 or BIOL 3810.
5 Select from one of the following: CSC 4240 (5240) or CSC 4760 (5760).
Curriculum for High Performance Computing Concentration

Freshman Year
- ENGR 1020 - Connections to Engineering and Technology Credit: 1.
- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- CSC 1310 - Data Structures and Algorithms Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.
- HIST 2010 - American History I Credit: 3.
- HIST 2020 - American History II Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.

Sophomore Year
- CSC 2310 - Object Oriented Programming and Design Credit: 4.
- CSC 2400 - Design of Algorithms Credit: 3.
- CSC 2500 - Unix Lab Credit: 1.
- CSC 2700 - Discrete Structures for Computer Science Credit: 3.
- CSC 2710 - Foundations of Computer Science Credit: 3.
- ENGL 2130 - Topics in American Literature Credit: 3.
- ENGL 2230 - Topics in British Literature Credit: 3.
- ENGL 2330 - Topics in World Literature Credit: 3.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- Science Sequence Credit: 8.
- SPCH 2410 - Introduction to Speech Communication Credit: 3.
- PC 2500 - Communicating in the Professions Credit: 3.

Junior Year
- CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3220 - Fundamentals of Data Science Credit: 3.
- CSC 3300 - Database Management Systems Credit: 3.
- CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
- CSC 4200 - Computer Networks Credit: 3.
- CSC 4320 - Computer Architecture Credit: 3.
- CSC Elective Credit: 3.
- MATH 3070 - Statistical Methods I Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.
- Lab Science Credit: 4.

Senior Year
- CSC 4100 - Operating Systems Credit: 3.
- CSC 4610 - Software Engineering I Credit: 3.
- CSC 4620 - Software Engineering II Credit: 3.
- CSC 4760 - Parallel Programming Credit: 3.
- CSC 4770 - Distributed and Cloud Computing Credit: 3.
- PDH Technical Elective Credit: 3.
- Humanities/Fine Arts Elective Credit: 6.
- Electives Credit: 3.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take your science sequence from BIOL 1105 - BIOL 1114, BIOL 1105-1110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other science must be in a different discipline.
4 Select from one of the following: CSC 4010, CSC 4420, and CSC 4400.
Curriculum for High Performance Computing Concentration

Computer Science
- CSC 2400 - Design of Algorithms Credit: 3.
- CSC 2500 - Unix Lab Credit: 1.
- CSC 2700 – Discrete Structures for Computer Science Credit: 3.
- CSC 2710 - Foundations of Computer Science Credit: 3.
- CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
- CSC 3300 - Database Management Systems Credit: 3.
- CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
- CSC 4100 - Operating Systems Credit: 3.
- CSC 4200 - Computer Networks Credit: 3.
- CSC 4320 - Computer Architecture Credit: 3.
- CSC 4610 - Software Engineering I Credit: 3.
- CSC 4620 - Software Engineering II Credit: 3.
- CSC Elective Credit: 3.

Parallel, Distributed, and High Performance
- CSC 3220 - Fundamentals of Data Science Credit: 3.
- CSC 4760 - Parallel Programming Credit: 3.
- CSC 4770 - Distributed and Cloud Computing Credit: 3.
- PDH Technical Elective Credit 3. 4

Mathematics
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- MATH 3070 - Statistical Methods I Credit: 3. or
- MATH 3470 - Introductory Probability and Statistics Credit: 3.

General Education
- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- SPCH 2410 - Introduction to Speech Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.
- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2230 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.
- Humanities/Fine Arts Elective Credit 6.2
- Social/Behavioral Sciences Elective Credit 6. 2
- HIST 2010 - American History I Credit: 3.
- HIST 2020 - American History II Credit: 3.
- Science Sequence Credit 8. 3

Other
- ENGR 1020 - Connections to Engineering and Technology Credit: 1. 1
- Lab Science Credit 4.
- Electives Credit 3.

Note:
1 Not required for transfer students with more than 12 hours.
2 See TBR General Education Core Requirements.
3 Take your science sequence from BIOL 1105 -BIOL 1114, BIOL 1105-BIOL 2110, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045 or PHYS 2110-PHYS 2120. The other science must be in a different discipline.
4 Select from one of the following: CSC 4010, CSC 4420, and CSC 4400.