# Computer Science (120 Hours)

Effective F2022

| Freshman | | Sophomore | | Junior | | Senior | |
|---|---|---|---|---|---|---|---|
| CIS 115 (3)<br>Intro. Comp. Sci | CIS 200 (4)<br>Programming Fund.<br>PR: CIS 111, or 115 or ECE 241<br>PR/CO: Math 205 or 220 | CIS 300 (3)<br>Data & Pgm Strucures<br>PR: CIS 200<br>PR: Math 205 or 220 | CIS 400 (3)<br>Object-Oriented Design, Imp., & Testing<br>PR: CIS 300 | CIS 501 (3)<br>SW Arch. & Design<br>PR: CIS 400 | CIS 575 (3)<br>Intro to Alg. Analysis<br>PR: CIS 300 and 301<br>PR: Math 510 | CIS 505 (3)<br>Intro. to Programming Languages | CIS 520 (3)/<br>CIS 625 (3)<br>*CIS 520 is offered in Spring & CIS 625 in the Fall |
| Math 220 (4)<br>Calculus I | CIS 221 (4)<br>Calculus II<br>PR: Math 220 | CIS 301 (3)<br>Log. Found of Prog.<br>PR: CIS 200 | CIS 308 (1)<br>C/C_++ Lang. Lab<br>PR: CIS 300 | CIS 415 (3)<br>Ethics & Conduct<br>PR: CIS 300 | CIS 450 (3)<br>Comp. Arch & Ops<br>PR: ECE 241<br>PR/CO: CIS 308 | Tech Elective (3) | Tech Elective(3) |
| ENGL 100 (3)<br>Writing 1 | ECE 241 (3)<br>Intro. Com. Engg.<br>PR: Math 220 | ENGL 200 (3)<br>Writing 2<br>PR: ENGL 100 | Math 510 (3)<br>Discrete Math<br>PR: Math 221 | Unrestricted Elective (3) | CIS 560 (3)<br>Database System<br>PR: CIS 300, 301<br>PR: Math 312, 510 | Tech Elective (3) | Unrestricted Elective (3) |
| ECON 110 (3)<br>Princ. of Mac. Econ | 1 Natural Science Choose Seq.<br>1 out of 2 | 2 Natural Science Choose Seq.<br>2 out of 2 | 1 Math/ Natural Sci. Elective<br>* 300 Level & above | Human/Soc Sci. Elective (3) | STAT 510 (3)<br>Intro. to Prob. & Stats<br>PR: Math 221 | 2 Math/ Natural Sci. Elective | 3 Math/ Natural Sci. Elective |
| COMM 105 (2)/<br>COMM 105 (3)<br>Public Speaking | | Human/Soc Sci. Elective (3) | Communications Elective | Human/Soc Sci. Elective (3) | ENGL 516 (3)/<br>ENGL 415 (3)<br>Writing Comm. for Sci./Engg.<br>PR: ENGL 200 | Unrestricted Elective (3/4) | Human/Soc Sci. Elective (3) |
| CIS 015 (0)<br>Undergrad Seminar | CIS 018 (0)<br>Professional Development Seminar | CIS 018 (0)<br>Professional Development Seminar | CIS 018 (0)<br>Professional Development Seminar | CIS 018 (0)<br>Professional Development Seminar | CIS 018 (0)<br>Professional Development Seminar | CIS 018 (0)<br>Professional Development Seminar | CIS 018 (0)<br>Professional Development Seminar |

This course is part of the Pre-Professional Program

This course is part of the Prof. Program

* 018 required every sem.

Advisor: _____ Student ID: _____

# Rules for Mathematics, Science, and Electives

## Natural Science Sequence

1 2

One of the following two-semester sequences must be included:

BIOL 198 and 401 (9 Hours)
CHM 210 and 230 (8 hours )
PHYS 213 and 214 (10 Hours)
PHYS 223 and 224 (10 Hours)

## Communications Elective Choices

Options:

COMM 322 Interpersonal Communications (9)
COMM 326 Small Group Discussion Methods (3)
MANGT 420 Principles of Management (3)
THTRE 261 Fundamentals of Acting (3)
THTRE 265 Fundamentals of Improvisation (3)

## Humanities/Social Science Electives

Suggestions:

ARCH 301 Appreciation of Architecture (3)
COMM 323 Nonverbal Communication (3)
ENGL 270 American Literature (3)
GWSS 350 Gender in American Film (3)
GWSS 550 Women and Popular Culture (3)
MUSIC 170 History of Rock and Roll (3)

## Math/Science Electives

1 2

All remaining hours, choose from the following:

BIOCH 625 Intro.Organic & Biochemistry (5)
BIOCH 521 General Biochemistry (3)
BIOL 198 Principles of Biology (4)
BIOL 201 Organismic Biology (5)
BIOL 450 Modern Genetics (4)
BIOL 455 General Microbiology (4)
CHM 210 Chemistry I (4)
CHM 230 Chemistry II (4)
CHM 350 General Organic Chemistry (3)
CHM 371 Chemical Analysis (4)
CHM 531 Organic Chemistry I (3)
CHM 550 Organic Chemistry II (3)
GEOL 100 Earth in Action (3)
GEOL 102 Earth in Time (3)
GEOL 103 Geology Laboratory (1)
GEOL 502 Mineralogy (3)
STAT 511 Intro. Probability and Stat. II (3)
MATH 222 Analytic Geo. and Calculus III (4)
MATH 340 Elementary Diff. Equations (4)
MATH 506 Introduction to Nmbr Theory (3)
MATH 511 Introduction to Algebraic Sys. (3)
MATH 512 Introduction to Modern Alg. (3)
MATH 515 Introduction to Linear Alg. (3)
MATH 551 Applied Matrix Theory (3)
MATH 572 Foundations of Geometry (3)
MATH 633 Advanced Calculus I (3)

3

One of the following math courses must be included:

MATH 222 Analytic Geometry and Calculus III (4)
MATH 340 Elementary Differential Equations (4)
MATH 506 Introduction to Number Theory (3)
MATH 511 Introduction to Algebraic Systems (3)
MATH 512 Introduction to Modern Algebra (3)
MATH 515 Introduction to Linear Algebra (3)
MATH 551 Applied Matrix Theory (3)
MATH 572 Foundations of Geometry (3)
MATH 633 Advanced Calculus I (3)
STAT 511 Introductory Probability and Stat. II (3)

PHYS 113 General Physics (4)
PHYS 114 General Physics II (4)
PHYS 213 Engineering Physics I (5)
PHYS 214 Engineering Physics II (5)
PHYS 223 Physics I, Mech., & Thermodynamics (5)
PHYS 224 Physics II, Electromag. & Sound (5)
PHYS 325 Physics III, Relativity, and Quant. Phys. (4)

## BCS Tech Electives

Students are required to complete 12 hours of Tech Electives

Required Tech Elective: 3 hours
CIS 520 Operating Systems I (spring course only)
or CIS 625 Parallel Programming (fall course only)

Capstone Experience: 9hrs
Students get the choice between two different pathways for capstone. They need 9 hours total.

Individual Project Path:
CIS 598 Computer Science Project (3)
Additional Tech Elective (3)
Additional Tech Elective (3)

OR

Dual Group Project Path:
CIS 642 Software Engineering Project I- (3) (fall course only)
CIS 643 Software Engineering Project II- (3) (spring course only)
Additional Tech Elective (3)

Additional Tech Elective Courses (3-6 hours, depending on which capstone sequence was selected). These may be any CIS course at the 500-level or above, or any of the following:
ECE 542 Computer Networking
GEOG 602 Computer Mapping and Geographic Visualization
MATH 615 Digital Image Processing
MATH 655 Elementary Numerical Analysis I
MATH 656 Elementary Numerical Analysis II
MATH 725 The Mathematics of Data and Networks I
MATH 726 The Mathematics of Data and Networks II
MIS 670 Social Media Analytics and Web Mining