

# Computer Science (120 Hours)

## Freshman

## Sophomore

## Junior

## Senior

CIS 115 (3)  
Intro. Comp. Sci

CIS 200 (4)  
Programming Fund.  
  
PR: CIS 115 or ECE 241  
PR/CO: Math 205 or 220

CIS 300 (3)  
Data & Program Structures  
  
PR: CIS 200  
PR: Math 205 or 220

CIS 400 (3)  
Object-Oriented Design, Imp., & Testing  
  
PR: CIS 300

CIS 501 (3)  
SW Arch. & Design  
  
PR: CIS 400

CIS 575 (3)  
Intro to Alg. Analysis  
  
PR: CIS 300 and 301  
PR: Math 510

CIS 505 (3)  
Intro. to Programming Languages  
  
PR: CIS 301 & 400

CIS 520 (3)/  
CIS 525 (3)/ CIS 625 (3)  
  
\*CIS 520 is offered in Spring & CIS 525/625 in the Fall  
CIS 520/625 PR: CIS 400 & 450  
CIS 525 PR: CIS 300 & 308

Math 220 (4)  
Calculus I

CIS 221 (4)  
Calculus II  
  
PR: Math 220

CIS 301 (3)  
Log. Found of Prog.  
  
PR: CIS 200

CIS 308 (1)  
C Lang. Lab  
  
PR: CIS 300

CIS 415 (3)  
Ethics & Conduct  
  
PR: CIS 300

CIS 560 (3)  
Database System  
  
PR: CIS 300, 301  
PR/CO: Math 312 or 510

CIS 598 (3)/  
CIS 642 (3)  
  
CIS 598 PR: CIS 560  
CIS 642 PR: CIS 308 & 501

Tech Elective (3)

ENGL 100 (3)  
Writing 1

ECE 241 (3)  
Intro. Com. Engg.

ENGL 200 (3)  
Writing 2  
  
PR: ENGL 100

Math 510 (3)  
Discrete Math  
  
PR: Math 221

CIS 450 (3)  
Comp. Arch & Ops  
  
PR: ECE 241  
PR: CIS 308

Unrestricted Elective (3)

Tech Elective (3)

Unrestricted Elective (3)

ECON 110 (3)  
Princ. of Mac. Econ

1  
Natural Science Choose Seq. 1 out of 2

2  
Natural Science Choose Seq. 2 out of 2

1  
Math/ Natural Sci. Elective  
  
\* 300 Level & above

Human/Soc.Sci. Elective (3)

STAT 510 (3)  
Intro. to Prob. & Stats  
  
PR: Math 221

2  
Math/ Natural Sci. Elective

3  
Math Elective

COMM 105 (2)/  
COMM 106 (3)  
Public Speaking

Human/Soc.Sci. Elective (3)

Communications Elective

Human/Soc.Sci. Elective (3)

ENGL 516 (3)/  
ENGL 415 (3)  
Writing Comm. for Sci/Engg.  
  
PR: ENGL 200

Unrestricted Elective (3/4)

Human/Soc.Sci. Elective (3)

CIS 015 (0)  
Undergrad Seminar

CIS 018 (0)  
Professional Development Seminar

CIS 018 (0)  
Professional Development Seminar

CIS 018 (0)  
Professional Development Seminar

CIS 018 (0)  
Professional Development Seminar

CIS 018 (0)  
Professional Development Seminar

CIS 018 (0)  
Professional Development Seminar

CIS 018 (0)  
Professional Development Seminar

This course is part of the Pre-Professional Program

This course is part of the Prof. Program  
\* '018 required every sem.

# Rules for Mathematics, Science, and Electives

## 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 Nbr 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)  
 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)

**3** One of the following math courses must be included:

MATH 222 Analytic Geometry and Calc. III (4)  
 MATH 340 Elementary Differential Equ.s (4)  
 MATH 506 Intro. to Number Theory (3)  
 MATH 511 Intro. to Algebraic Systems (3)  
 MATH 512 Intro. 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)

## 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:	OR	Dual Group Project Path:
CIS 598 Computer Science Project (3)		CIS 642 Software Engineering Project I- (3)(F only)
Additional Tech Elective (3)		CIS 643 Software Engineering Project II- (3)(S only)
Additional Tech Elective (3)		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

## 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)  
 THTR 261 Fundamentals of Acting (3)  
 THTR 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)  
[eng.ksu.edu/docs/student-services/hss.pdf](http://eng.ksu.edu/docs/student-services/hss.pdf)