BYU Computer Science Major

Fall 2025 Requirements

Major (74-75 Hours)

Grades below C- are not allowed in major courses.

1. Complete the following courses: CS 111, 191, 224, 235, 236, 240, 252, 260, 291, 312, 324, 340, 404
2. Complete the following supporting courses: WRTG 316, Math 112, 213, 215, and PHSCS121,
3. Complete one of the following: Math 431, Stat 121 or Stat 201
4. Complete one of the following: Math 113, Math 290 or STAT 220
5. Complete 21 hours from the following options
   a. 12 hours **must** be from the following courses, but may take up to 21 hours: CS 329, 330, 345, 355, 356, 393, 401R**,412, 416, 428, 430, 431, 450, 452, 453, 455, 456, 460, 462, 465, 466, 470, 471, 473, 474, 479, 486, 501R**, 513, 556, 574, 575, 580
   b. Up to 6 hours from the following CS 180, 202, 203, 204, 256, 270, 405, EC EN 220, MATH 113, Math 290, STAT 220
   c. Up to 8 hours from the following courses: EC EN 330, EC EN 427, IS 567, or Math 485
   d. Up to 9 hours from the following courses: CS 480, 481, 482, 483, 493R**, 494, 495, 497R**, 498R** (If CS, 493R, 497R, 498R, or 501R is chosen, it must be taken for three credit hours)

Guide only---please consult MyMap for full requirements.

CORE

Freshman

Semester 1
- Stat 121 or 201 or Math 431 — Stats or Prob Theory
- Math 112 — Calculus 1
- CS 111 — Intro to CS

Semester 2
- Math 113, or Math 290 or STAT 220
- CS 235 — Data Structures — Req.142 or cs 111
- CS 191 — Exploring CS (.5)
- CS 260 — Web Programming — Req: CS 142 or 111

Sophomore

Semester 3
- PHSCS 121 — Newtonian Mechanics
- CS 291 — Careers in CS (.5) — Req: 111 & 191
- CS 236 — Discrete Structures — Req. CS 235

Semester 4
- Math 213 — Elem Linear Algebra — Req. Math 112
- Math 215 — Comp Linear Algebra — Reg. Math 112
- CS 240 — Adv Software Cons. — Req. 235
- CS 224 — Intro to Comp Sys — Reg. CS 235
- CS 252 — Intro Comp Theory — Reg. 236

Junior

Semester 5
- WRTG 316 — Technical Writing
- CS 312 — Algorithm Analysis — CS 236
- CS 340 — Software Design — Req. CS 240 & 260

Semester 6
- CS 404 — Ethics in Comp — Req. WRTG CS 240 & 316
- Elective A
- CS 324 — Sys Programming — Req.CS 224

Senior

Semester 7
- Elective A
- Elective A
- Elective A, B C or D

Semester 8
- Elective A
- Elective A
- Elective A,B C or D
- Elective A, B C or D

Key

- Core class
- Minor Class
- Elective Class
- Prerequisite
- May be taken concurrently

Elective Information:
At least 12 hours **must** come from elective group A. The remaining 9 hours can be taken from any of the elective groups A (up to 9), B (up to 6), C (up to 8), or D (up to 9).

Elective A

Complete 12 (required) up to 21 hours)

- CS 329 — QA & DevOps — Req: 240 & 260
- CS 412 — Convex Optimization — Req: 240, Math 213 or 313
- CS 453 — Info Retrieval — Req: 240
- CS 470 — Artificial Intelligence — 312,Math 215,Stat 121
- CS 330 — Prog Languages — Req: CS 236 & 260 or 224
- CS 416 — Adv. Algorithms — Req:CS 240 & CS 312
- CS 455 — Comp Graphics — CS 355,Math 213,215
- CS 471 — Voice User Interfaces
- CS 513 — Robust Control — Req: Math 213, 215
- CS 345 — Operating Sys Dsgn — Req: 224 & 240
- CS 428 — Software Engineer — Req: 340
- CS 456 — UI Software — Req: 240,& CS 356
- CS 473 — Avd. Machine Learning — CS 270 & Math 213&215
- CS 556 — Inter Soft Systems
- CS 355 — Interactive Graphic — Req: 240,Math 213,215
- CS 430 — Formal Verification — Req: CS 330 or Math 290
- CS 460 — Networks — Req: 235
- CS 474 — Deep Learning — CS 270 or CS 312
- CS 574 — Transformers for NLP — Req: 270, 312
- CS 356 — Adv.Tech in HCI — Req: 256 & 260
- CS 431 — A. Lang & Compilers — Req: 240
- CS 462 — Distributed Systems — Req: 260, & 324
- CS 479 — Machine Translation — CS 240
- CS 575 — Intro toNetwork Science — Req: 312
- CS 393 — Collaborative Problem Solving — Req:CS 240 & 312
- CS 450 — Computer Vision — Req: 312, &Math 313
- CS 465 — Security — Req: 324
- CS 486 — Verification & Valid — Req: 312
- CS 580 — Theory of Predictive Modeling
- CS 401R** — Topics in CS
- CS 452 — Database Modeling — Req: 240
- CS 466 — Blockchain Tech — CS 312
- CS 501R** — Adv CS Topics

Elective B

(Choose up to 6 hours)

- CS 180 — Intro to Data Science
- CS 405 — Software Business — Req: 240 & WRTG 316
- CS 202 — SE Lab 1 (1 credit) — Req: CS 142 or 111
- ECEN 220 — Fund of Digital sys — CS 142 or 111
- CS 203 — SE Lab 2 (1 credit) — Req: CS 202 & 235
- MATH 113 — Calculus 2 — Req: MATH 112
- CS 204 — SE Lab 3 (1 credit) — Req: CS 203 & 240
- MATH 290 — Fundamentals of Math — Req: MATH 112
- CS 256 — Intro to HCI
- STAT 220 — Stat Modeling for DS — Req: MATH 121 & CS 111
- CS 270 — Intro to ML — CS 111 or 142 & Math 112

Elective C

(Choose up to 8 hours)

- EC EN 330 — Embedded Program — Req: CS 235 & ECEN 220 or 224
- EC EN 427 — Embedded systems — Req: EC EN 323 or 330
- IS 567 — Cybersecurity & Pen — Req: CS 465 or IT 366
- MATH 485 — Cryptography — Req: MATH 213

Elective D

(Choose up to 9 hours)

- CS 480 — Software Eng Cap 1 — Req: 240, 340, 329
- CS 495 — Capstone 2 — Req: 240, 494
- CS 481 — Software Eng Cap 2 — Req: CS 480
- CS 493R** — Comp. Competitions — Req: 240
- CS 482 — Data Science Cap 1 — Req: 240
- CS 497R** — Research
- CS 483 — Data Science Cap 2 — Req: 282
- CS 498R** — Special Projects — Req: 240
- CS 494 — Capstone 1 — Req: 240

**Must be taken for 3 hours to fill the requirement

BYU Computer Science Major

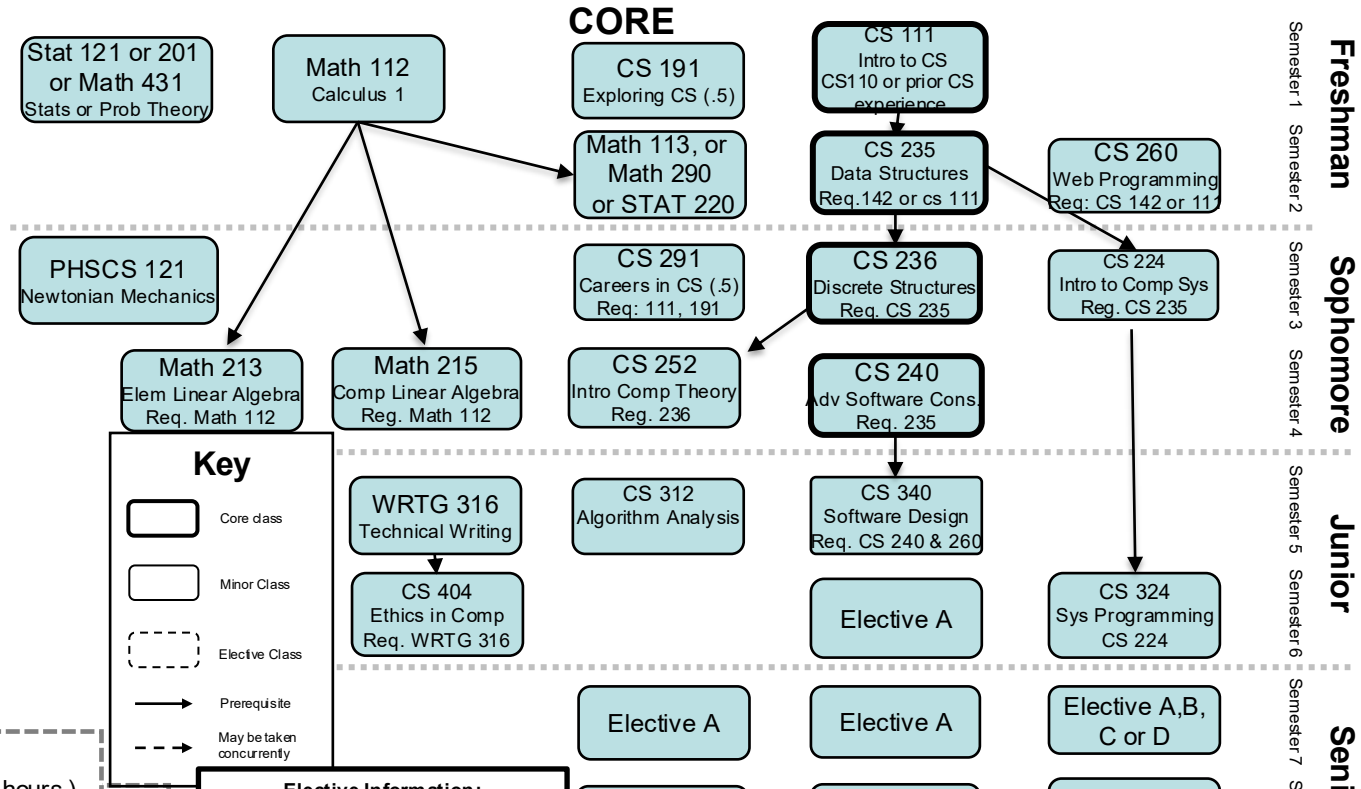
Fall 2024 Requirements

Major (74-75 Hours)

Grades below C- are not allowed in major courses.

1. Complete the following courses: CS 111, 191, 224, 235, 236, 240, 252, 260, 291, 312, 324, 340, 404
2. Complete the following supporting courses: WRTG 316, Math 112, 213, 215, and Phscs 121, 3
3. Complete one of the following: Math 431, Stat 121 or Stat 201
4. Complete one of the following: Math 113, Math 290 or STAT 220
5. Complete 21 hours from the following options
   a. 12 hours **must** be from the following courses, but may take up to 21 hours: CS 329, 330, 345, 355, 356, 393, 401R**,412,428, 431, 450, 452, 453, 455, 456, 460, 462, 465, 466, 470, 471, 473, 474, 479, 486, 501R**, 513, 556, 574, 575, 580
   b. Up to 6 hours from the following CS 180, 202, 203, 204, 256, 270, 405, EC EN 220, MATH 113, Math 290, STAT 220
   c. Up to 8 hours from the following courses: EC EN 330, EC EN 427, IS 567, or Math 485
   d. Up to 9 hours from the following courses: CS 480, 481, 482, 483, 493R**, 494, 495, 497R**, 498R** (If CS, 493R, 497R, 498R, or 501R is chosen, it must be taken for three credit hours)

Guide only---please consult MyMap for full requirements.



Elective Information:
At least 12 hours **must** come from elective group A. The remaining 9 hours can be taken from any of the elective groups A (up to 9), B (up to 6), C (up to 8), or D (up to 9).

Elective A
Complete 12 (required) up to 21 hours)

- CS 329 Test, Analysis,Verify Req: 240
- CS 330 Prog Languages Req: 240
- CS 345 Operating Sys Dsgn Req: 224 & 240
- CS 355 Interactive Graphic Req: 240,Math 213,215
- CS 356 Adv.Tech in HCI Req: 256 & 260
- CS 393 Algorithms & Problem Solving Req: 312
- CS 401R** Topics in CS
- CS 412 Convex Optimization Req: 240, Math 213 or 313
- CS 428 Software Engineer Req: 340
- CS 431 A. Lang & Compilliers Req: 240
- CS 450 Computer Vision Req: 312, 355,Math 313
- CS 452 Database Modeling Req: 240
- CS 453 Info Retrieval Req: 240
- CS 455 Comp Graphics Req: 355,Math 213,215
- CS 456 UI Software Req: 240 ,356
- CS 460 Networks Req: 324
- CS 462 Distributed Systems Req: 260, 324
- CS 465 Security Req: 324
- CS 466 Blockchain Tech CS 312
- CS 470 Artificial Intelligence 312,Math 215,Stat 121
- CS 471 Voice User Interfaces
- CS 473 Avd. Machine Learning 312,Math 215,Stat 121
- CS 474 Deep Learning 312,Math 213, 215
- CS 479 Machine Translation CS 240
- CS 486 Verification & Valid Req: 312
- CS 501R** Adv CS Topics
- CS 513 Robust Control Req: Math 213, 215
- CS 556 Research Methods in HCI
- CS 574 Transformers for NLP Req: 270, 312
- CS 575 Intro toNetwork Science Req: 312
- CS 580 Theory of Predictive Modeling

Elective B
(Choose up to 6 hours)

- CS 180 Intro to Data Science
- CS 202 SE Lab 1 (1 credit) Req: CS 142 or 111
- CS 203 SE Lab 2 (1 credit) Req: CS 202 & 235
- CS 204 SE Lab 3 (1 credit) Req: CS 203 & 240
- CS 256 Intro to HCI
- CS 270 Intro Machine Learning
- CS 405 Software Business Req: 240 & Engl 316
- ECEN 220 Fund of Digital sys CS 142 or 111
- MATH 113 Calculus 2 Req: MATH 112
- MATH 290 Fundamentals of Math Req: MATH 112
- STAT 220 Stat Modeling for DS Req: MATH 334

Elective C
(Choose up to 8 hours)

- EC EN 330 Embedded Program Req: EC EN 323 & 330
- EC EN 427 Embedded systems Req: MATH 213
- IS 567 Cybersecurity & Pen Req: CS 465 or IT 366
- MATH 485 Cryptography Req: MATH 213

Elective D
(Choose up to 9 hours)

- CS 480 Softwre Eng Cap 1 Req: 240, 340, 329
- CS 481 Software Eng Cap 2 Req: CS 480
- CS 482 Data Science Cap 1 Req: 240
- CS 483 Data Science Cap 2 Req: 282
- CS 494 Capstone 1 Req: 240
- CS 495 Capstone 2 Req: 240, 494
- CS 493R** Comp. Competitions Req: 240
- CS 497R** Research
- CS 498R** Special Projects Req: 240

**Must be taken for 3 hours to fill the requirement

Updated 8/14/2023

BYU Computer Science Major

Fall 2023 Requirements

Major (74 Hours)

1. Grades below C- are not allowed in major courses.
2. Complete the following courses: CS 111, 224, 235, 236, 240, 252, 260, 312, 324, 340, 404
3. Complete the following supporting courses: WRTG 316, Math 112,, 213, 215, and Phscs 121,
4. Complete one of the following: Math 431, Stat 121 or Stat 201
5. Complete one of the following: Math 113, Math 290 or STAT 220
6. Complete 21 hours from the following options
   a. 12 hours **must** be from the following courses, but may take up to 21 hours: CS 329, 330, 345, 355, 356, 393, 401R**,412,428, 431, 450, 452, 453, 455, 456, 460, 462, 465, 466, 470, 471, 472, 474, 479, 486, 501R**, 513, 575, 580
   b. Up to 6 hours from the following CS 180, 202, 203, 204, 256, 405, CS 478, EC EN 220,MATH 113, Math 290, STAT 220
   c. Up to 8 hours from the following courses: EC EN 330, EC EN 427, IS 567, Math 485
   d. Up to 9 hours from the following courses: CS 480, 481, 482, 483, 493R**, 494, 495, 497R**, 498R**

(If CS, 493R, 497R, 498R, or 501R is chosen, it must be taken for three credit hours)

Guide only---please consult MyMap for full requirements.

CORE

- Stat 121 or 201 or Math 431 — Stats or Prob Theory
- Math 112 — Calculus 1
- Math 113, or Math 290 or STAT 220
- CS 111 — Intro to CS — CS110 or prior CS experience
- CS 235 — Data Structures — Req.142 or cs 111
- CS 260 — Web Programming — Req: CS 142 or 111
- PHSCS 121 — Newtonian Mechanics
- CS 236 — Discrete Structures — Req. CS 235
- CS 224 — Intro to Comp Sys — Req. CS 235
- Math 213 — Elem Linear Algebra — Req. Math 112
- Math 215 — Comp Linear Algebra — Req. Math 112
- CS 252 — Intro Comp Theory — Req. 236
- CS 240 — Adv Software Cons — Req. 235
- WRTG 316 — Technical Writing
- CS 312 — Algorithm Analysis
- CS 340 — Software Design — Req. CS 240 & 260
- CS 404 — Ethics in Comp — Req. WRTG 316
- Elective A
- CS 324 — Sys Programming — CS 224
- Elective A
- Elective A
- Elective A,B, C or D
- Elective A
- Elective A,B, C or D
- Elective A,B, C, or D

Semester 1 Semester 2 — **Freshman**
Semester 3 Semester 4 — **Sophomore**
Semester 5 Semester 6 — **Junior**
Semester 7 Semester 8 — **Senior**

Key

- Core class
- Minor Class
- Elective Class
- Prerequisite
- May be taken concurrently

Elective Information:

At least 12 hours **must** come from elective group A. The remaining 9 hours can be taken from any of the elective groups A (up to 9), B (up to 6), C (up to 8), or D (up to 9).

Elective A

Complete 12 (required) to 21 hours)

- CS 329 — Test, Analysis,Verify — Req: 240
- CS 412 — Convex Optimization — Req: 240, Math 213 or 313
- CS 456 — UI Software — Req: 240, 356
- CS 472 — Machine Learning — 312,Math 215,Stat 121
- CS 330 — Prog Languages — Req: 240
- CS 428 — Software Engineer — Req: 340
- CS 460 — Networks — Req: 324
- CS 474 — Deep Learning — 312,Math 213, 215
- CS 345 — Operating Sys Dsgn — Req: 224 & 240
- CS 431 — A. Lang & Compilliers — Req: 240
- CS 462 — Distributed Systems — Req: 260, 324
- CS 479 — Machine Translation — CS 240
- CS 355 — Interactive Graphic — Req: 240,Math 213,215
- CS 450 — Computer Vision — Req: 312, 355,Math 313
- CS 465 — Security — Req: 324
- CS 486 — Verification & Valid — Req: 312
- CS 356 — Adv.Tech in HCI — Req: 256 & 260
- CS 452 — Database Modeling — Req: 240
- CS 466 — Blockchain Tech — CS 312
- CS 501R** — Adv CS Topics
- CS 393 — Algorithms & Problem Solving — Req: 312
- CS 453 — Info Retrieval — Req: 240
- CS 470 — Artificial Intelligence — 312,Math 215,Stat 121
- CS 513 — Robust Control — Req: Math 213, 215
- CS 401R** — Topics in CS
- CS 455 — Comp Graphics — Req: 355,Math 213,215
- CS 471 — Voice User Interfaces
- CS 580 — Theory of Predictive Modeling

Elective B

(Choose up to 6 hours)

- CS 180 — Intro to Data Science
- CS 256 — Intro to HCI
- MATH 113 — Calculus 2 — Req: MATH 112
- CS 202 — SE Lab 1 (1 credit) — Req: CS 142 or 111
- CS 405 — Software Business — Req: 240 & Engl 316
- MATH 290 — Fundamentals of Math — Req: MATH 112
- CS 203 — SE Lab 2 (1 credit) — Req: CS 202 & 235
- CS 478 — Tools for Machine Learning
- STAT 220 — Stat Modeling for DS — Req: MATH 334
- CS 204 — SE Lab 3 (1 credit) — Req: CS 203 & 240
- ECEN 220 — Fund of Digital sys — CS 142 or 111

Elective C

(Choose up to 8 hours)

- EC EN 330 — Embedded Program — Req: EC EN 323 & 330
- EC EN 427 — Embedded systems — Req: MATH 213
- IS 567 — Cybersecurity & Pen — Req: CS 465 or IT 366
- MATH 485 — Cryptography — Req: MATH 213

Elective D

(Choose up to 9 hours)

- CS 480 — Softwre Eng Cap 1 — Req: 240, 340, 329
- CS 495 — Capstone 2 — Req: 240, 494
- CS 481 — Software Eng Cap 2 — Req: CS 480
- CS 493R** — Comp. Competitions — Req: 240
- CS 482 — Data Science Cap 1 — Req: 240
- CS 497R** — Research
- CS 483 — Data Science Cap 2 — Req: 282
- CS 498R** — Special Projects — Req: 240
- CS 494 — Capstone 1 — Req: 240

**Must be taken for 3 hours to fill the requirement

Updated 8/14/2023

BYU Computer Science Major

Fall 2022 Requirements

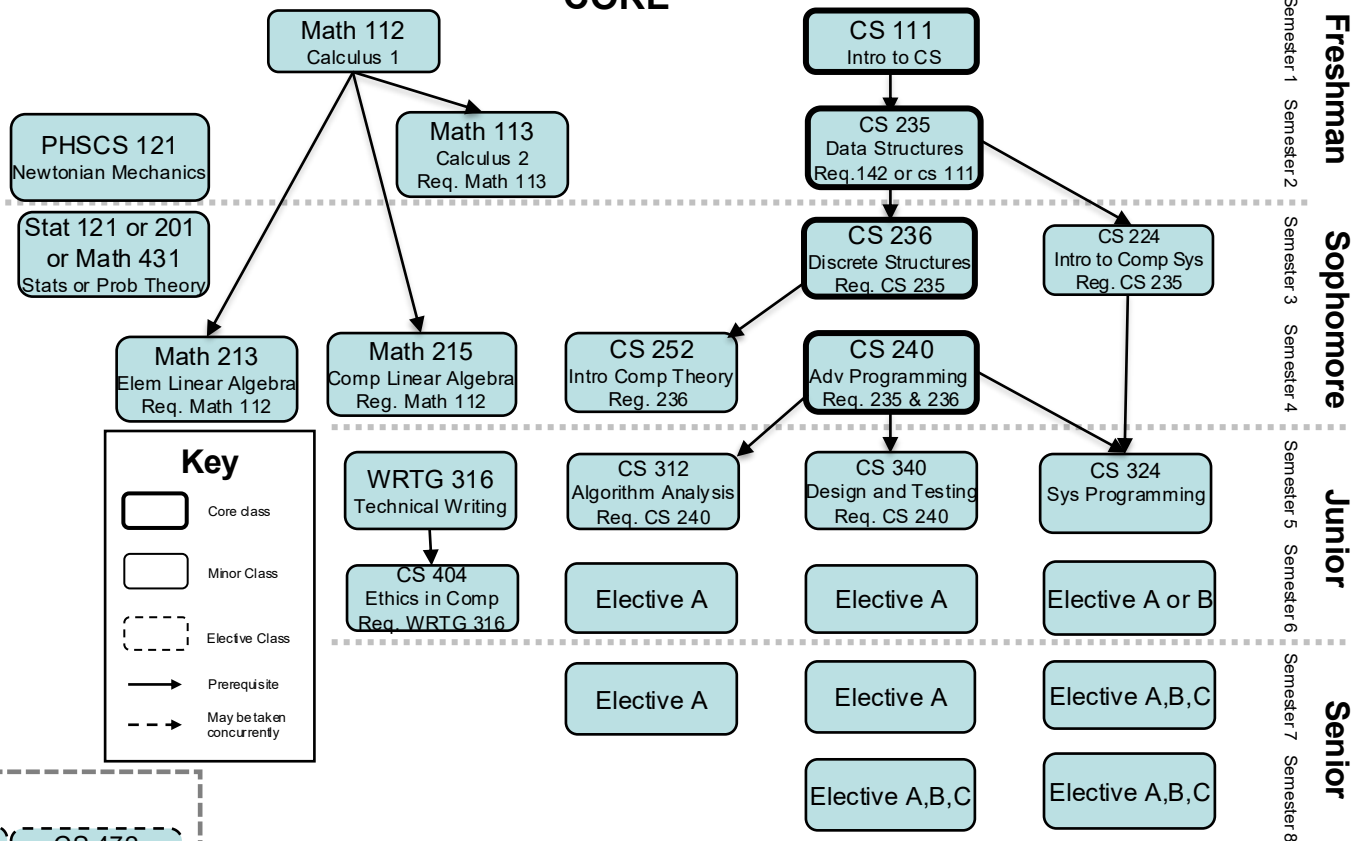
Major (74 Hours)

1. Grades below C- are not allowed in major courses.
2. Complete the following courses: CS 111, 224, 235, 236, 240, 252, 312, 324, 340, 404
3. Complete the following supporting courses: WRTG 316, Math 112,113, 213, 215, and Phscs 121
4. Complete one of the following: Math 431, Stat 121 or Stat 201
5. Complete a total of 8 elective courses from the follow three groups:
   a. 4-8 courses **must** be from the following courses: CS 260, 329, 330, 345, 355, 356, 393, 401R**,412,428, 450, 452, 453, 455, 456, 460, 462, 465, 470, 471, 472, 474, 486, 501R**, 513, 580
   b. Up to 3 courses from the following courses: CS 180, 405, EC EN 424, EC EN 425, , IT & C 567, MATH 411, MATH 485
   c. Up to 3 courses from the following courses: CS 480, 481, 482, 483, 493R**, 494, 495, 497R**, 498R**

(If CS 401R, 493R, 497R, 498R, or 501R is chosen, it must be taken for three credit hours)

Guide only---please consult MyMap for full requirements.

CORE



Elective A
(Choose 4-8 courses)

- CS 260 Web Programming Req: CS 142 or 111
- CS 401R** Topics in CS
- CS 455 Comp Graphics Req: 355,Math 213,215
- CS 472 Machine Learning 312,Math 215,Stat 121
- CS 329 Test, Analysis,Verify Req: 240
- CS 412 Convex Optimization Req: 240, Math 213 or 313
- CS 456 UI Software Req: 240, 356
- CS 474 Deep Learning 312,Math 213, 215
- CS 330 Prog Languages Req: 240
- CS 428 Software Engineer Req: 340
- CS 460 Networks Req: 324
- CS 486 Verification & Valid Req: 312
- CS 345 Operating Sys Dsgn Req: 224 & 240
- CS 431 A. Lang & Compilliers Req: 240
- CS 462 Distributed Systems Req: 260, 324
- CS 501R** Adv CS Topics
- CS 355 Interactive Graphic Req: 240,Math 213,215
- CS 450 Computer Vision Req: 312, 355,Math 313
- CS 465 Security Req: 324
- CS 513 Robust Control Req: Math 213, 215
- CS 356 User Experience Req: 240
- CS 452 Database Modeling Req: 240
- CS 470 Artificial Intelligence 312,Math 215,Stat 121
- CS 580 Theory of Predictive Modeling
- CS 393 Algorithms & Problem Solving Req: 312
- CS 453 Info Retrieval Req: 240
- CS 471 Voice User Interfaces

Elective B
(Choose 0-3 courses)

- CS 180 Intro to Data Science
- EC EN 425 Real Time Op Sys Req: EC EN 323 & 330
- CS 405 Software Business Req: 240 & Engl 316
- IT & C 567 Security Testing Req: CS 465 or IT 366
- EC EN 424 Computer Systems Req: EC EN 323 & 330
- MATH 411 Numerical Methods Req: MATH 334
- MATH 485 Cryptography Req: MATH 213

Elective C
(Choose 0-3 courses)

- CS 480 Softwre Eng Cap 1 Req: 240, 340, 329
- CS 483 Data Science Cap 2 Req: 282
- CS 493R** Comp. Competitions Req: 240
- CS 481 Software Eng Cap 2 Req: CS 480
- CS 494 Capstone 1 Req: 240
- CS 497R** Research
- CS 482 Data Science Cap 1 Req: 240
- CS 495 Capstone 2 Req: 240, 494
- CS 498R** Special Projects Req: 240

Elective Information:
Students must complete a total of 8 elective courses. At least 4 electives **must** come from elective group A. The remaining 4 electives can be taken from the elective groups A (up to 4), B (up to 3), or C (up to 2).

**Must be taken for 3 hours to fill the requirement

Updated 6/21/2019