BYU Computer Science Major

**Data Science Emphasis**

**Fall 2021 Requirements**

**Major (74 Hours)**

1. Grades below C are not allowed in major courses.
2. Complete the following courses: CS 142, 224, 235, 236, 240, 324, 404, 452, 472, 474
3. Complete the following supporting courses: WRTG 316, Math 112,113, 213, 215, and PHSCS 121
4. Complete one of the following: Stat 121 or Stat 201
5. Complete one of the following: Stat 330 or Econ388
6. Complete a total of 6 elective courses from the following groups:

   - **A.** 1 course must be from the following courses:
     - Stat 240, Stat 340, Stat 251, Econ 378, Econ 488, Econ 588, Ling 581, Math 314, Math 413
   - **B.** 4 courses must be from the following courses:
   - **C.** 1 additional course from a list that includes all classes from elective A and B.

   1. If a class is taken in A or B, it may not double count in C.
   2. Students are strongly encouraged to take the DS capstone courses (CS 482 and 483)
      (If CS 401R, 497R, or 501R is chosen, it must be taken for three credit hours)

**Elective A**

- Complete 1 course

  - CS 412 Linear Programming
    - Req: Math 240, Math 113
  - Math 314 Multi-variable Calculus
    - Req: Math 240
  - Econ 378 Stats for Econ
    - Req: Econ 378, Math 113
  - Math 413 Adv. Linear Algebra
    - Req: Math 213
  - Econ 488 Intro Econometrics
    - Req: Econ 378, Econ 110
  - Stat 240 Probability and Infer. 1
    - Req: Math 213, Math 112
  - Econ 488 Bayesian Stats
    - Req: Econ 378, Econ 110, Math 113
  - Econ 588 Adv. Econometrics
    - Req: Econ 378, Econ 110
  - Stat 340 Probability and Infer. 2
    - Req: Stat 240, Math 213
  - Econ 281 Applied Econometrics
    - Req: Econ 378, Econ 110
  - Econ 340 Design & Testing
    - Req: Stat 240

**Elective B**

- Complete 4 courses

  - CS 180 Intro to Data Science
    - Req: Econ 378, Econ 110
  - CS 252 Intro Comp Theory
    - Req: Econ 378, Econ 110
  - CS 260 Web Programming
    - Req: Econ 378, Econ 110
  - CS 329 Testing, Analysis, Verif
    - Req: Econ 378, Econ 110
  - CS 330 Prog Languages
    - Req: Econ 378, Econ 110
  - CS 340 Design & Testing
    - Req: Econ 378, Econ 110
  - CS 345 Operating Sys Design
    - Req: CS 224, CS 240
  - CS 355 Interactive Graphic
    - Req: Econ 378, Econ 110
  - CS 356 User Experience
    - Req: Econ 378, Econ 110
  - CS 465 Intro to Network
    - Req: Econ 378, Econ 110
  - CS 470 Artificial Intelligence
    - Req: Econ 378, Econ 110
  - CS 471 Voice User Interfaces
    - Req: Econ 378, Econ 110
  - CS 482 DS Capstone 1
    - Req: Econ 378, Econ 110
  - CS 483 DS Capstone 2
    - Req: Econ 378, Econ 110
  - CS 486 Verification & Valid
    - Req: Econ 378, Econ 110
  - CS 497R** Adv CS Topics
    - Req: Econ 378, Econ 110

**Elective C**

- Complete 1 course

  - CS 412 Linear Programming
    - Req: Econ 378, Econ 110
  - Math 314 Multi-variable Calculus
    - Req: Math 240
  - Econ 488 Intro Econometrics
    - Req: Econ 378, Econ 110
  - Stat 240 Probability and Infer. 1
    - Req: Math 213, Math 112
  - Econ 588 Adv. Econometrics
    - Req: Econ 378, Econ 110
  - Math 413 Adv. Linear Algebra
    - Req: Math 213
  - Econ 281 Applied Econometrics
    - Req: Econ 378, Econ 110
  - Econ 340 Design & Testing
    - Req: Stat 240
  - CS 252 Intro Comp Theory
    - Req: Econ 378, Econ 110
  - CS 260 Web Programming
    - Req: Econ 378, Econ 110
  - CS 329 Testing, Analysis, Verif
    - Req: Econ 378, Econ 110
  - CS 330 Prog Languages
    - Req: Econ 378, Econ 110
  - CS 340 Design & Testing
    - Req: Econ 378, Econ 110
  - CS 345 Operating Sys Design
    - Req: CS 224, CS 240
  - CS 355 Interactive Graphic
    - Req: Econ 378, Econ 110
  - CS 356 User Experience
    - Req: Econ 378, Econ 110
  - CS 465 Intro to Network
    - Req: Econ 378, Econ 110
  - CS 470 Artificial Intelligence
    - Req: Econ 378, Econ 110
  - CS 471 Voice User Interfaces
    - Req: Econ 378, Econ 110
  - CS 482 DS Capstone 1
    - Req: Econ 378, Econ 110
  - CS 483 DS Capstone 2
    - Req: Econ 378, Econ 110
  - CS 486 Verification & Valid
    - Req: Econ 378, Econ 110
  - CS 497R** Adv CS Topics
    - Req: Econ 378, Econ 110

**Core**

- Math 112 Calculus 1
- Math 113 Calculus 2
- Phscs 121 Physics
- Math 213 Elem Linear Algebra
- Math 215 Comp Linear Algebra
- Stat 121 or 201 Statistics
- CS 452 Database Modeling
- CS 474 Deep Learning
- Elective A
- Elective B
- Elective B
- Elective B
- Elective B
- Elective B

**Guide only — please consult MyMap for full requirements.**

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**Semester 1**
- Freshman
- Sophomore
- Junior
- Senior