

DEPARTMENT OF  
**COMPUTER SCIENCE**

COLORADO SCHOOL OF MINES  
EARTH • ENERGY • ENVIRONMENT



**B.S. Computer Science + Computer Engineering 2017-18**

Advances in engineering revolve around automation, computerization, and digitization. In partnership with the Department of Electrical Engineering, CS +Computer Engineering retains the CS Core and focuses electives to help students identify the way hardware and software concepts such as programming, digital circuit design, and embedded systems transform any tech field.

| Freshman Year        |  |              |                     |                 |  |              |                     |
|----------------------|--|--------------|---------------------|-----------------|--|--------------|---------------------|
| Fall Semester        | Course Title   | Credit Hours | Semester(s) Offered | Spring Semester | Course Title   | Credit Hours | Semester(s) Offered |
| PAGN1XX-2XX          | Physical Ed  | .5           | F, Sp               | PAGN1XX-2XX     | Physical Ed  | .5           | F, Sp               |
| LAIS100              | Nature & Human Values                                    | 4            | F, Sp, Su           | PHGN100         | Physics I<br><i>Pre: MATH111, Co: MATH112</i>            | 4.5          | F, Sp, Su           |
| CSM101               | Freshman Seminar   | .5           | F                   | CSCI261         | Prog. Concepts   | 3            | F, Sp, Su           |
| CSCI101              | Intro to Computer Science                                | 3            | F, Sp               | MATH112         | Calculus II<br><i>Pre: MATH111 (≥C)</i>                  | 4            | F, Sp, Su           |
| CHGN121              | Principles of Chem.                                      | 4            | F, Sp, Su           | EPIC151         | Design I   | 3            | F, Sp, Su           |
| MATH111              | Calculus I   | 4            | F, Sp, Su           |                 |  |              |                     |
| <b>Total Credits</b> |  | <b>16</b>    |                     |                 |  | <b>15</b>    |                     |
| Sophomore Year       |  |              |                     |                 |  |              |                     |
| Fall Semester        |  |              |                     | Spring Semester |  |              |                     |
| PAGN1XX-2XX          | Physical Ed  | .5           | F, Sp               | PAGN1XX-2XX     | Physical Ed  | .5           | F, Sp               |
| CSCI262              | Data Structures<br><i>Pre: CSCI261(≥C-)</i>              | 3            | F, Sp, Su           | CSCI358         | Discrete Math<br><i>Pre: MATH213</i>                     | 3            | F, Sp               |
| PHGN200              | Physics II<br><i>Pre: PHGN100 (≥C-), Co: MATH213</i>     | 4.5          | F, Sp, Su           | EBGN201         | Principles of Econ                                       | 3            | F, Sp, Su           |
| MATH213              | Calculus III<br><i>Pre: MATH112 (≥C)</i>                 | 4            | F, Sp, Su           | CSCI250         | Python-Based Comp.<br><i>Co: MATH213, PHGN200</i>        | 3            | F, Sp               |
| DS Elective*         | Dist. Science  | 4            | F, Sp, Su           | MATH225         | Diff. Equations<br><i>Pre: MATH112 (≥C)</i>              | 3            | F, Sp, Su           |
|                      |  |              |                     | LAIS200         | Human Systems<br><i>Pre: LAIS100</i>                     | 3            | F, Sp, Su           |
|                      |  |              |                     | CSCI274         | Intro to Linux<br><i>Pre: CSCI261</i>                    | 1            | F, Sp               |
| <b>Total Credits</b> |  | <b>16</b>    |                     |                 |  | <b>16.5</b>  |                     |
| Junior Year          |  |              |                     |                 |  |              |                     |
| Fall Semester        |  |              |                     | Spring Semester |  |              |                     |
| EENG281              | Intro to Circuits<br><i>Pre: PHGN200</i>                 | 3            | F, Sp, Su           | EENG284         | Digital Logic<br><i>Pre: CSCI261, Co: EENG281</i>        | 4            | F, Sp               |
| CSCI306              | Software Engineering<br><i>Pre: CSCI262(≥C-)</i>         | 3            | F, Sp               | CSCI406         | Algorithms<br><i>Pre: CSCI262(≥C-), MATH213, CSCI358</i> | 3            | F, Sp               |
| CSCI341              | Computer Organization<br><i>Pre: CSCI261, Co:CSCI262</i> | 3            | F, Sp               | H&SS Mid        | LAIS/EBGN I  | 3            | F, Sp, Su           |
| MATH332              | Linear Algebra<br><i>Pre: MATH213</i>                    | 3            | F, Sp, Su           | MATH201         | Prob & Statistics<br><i>Pre: MATH112</i>                 | 3            | F, Sp, Su           |
| Free Elective        |  | 3            | F, Sp, Su           | CSCI442         | Operating Systems<br><i>Pre: CSCI262(≥C-),CSCI341</i>    | 3            | F, Sp               |
| <b>Total Credits</b> |  | <b>15</b>    |                     |                 |  | <b>16</b>    |                     |

| Field Session        |  |           |           |                        |  |           |           |
|----------------------|--|-----------|-----------|------------------------|--|-----------|-----------|
| <b>Summer I</b>      |  |           |           |                        |  |           |           |
| CSCI370              | Field Session<br><i>Pre: CSCI306</i>   | 6         | Su        |                        |  |           |           |
| <b>Total Credits</b> |  | <b>6</b>  |           |                        |  |           |           |
| Senior Year          |  |           |           |                        |  |           |           |
| <b>Fall Semester</b> |  |           |           | <b>Spring Semester</b> |  |           |           |
| CSCI Elective**      |  | 3         | F, Sp     | CPNG Elective***       |  | 3         | F, Sp     |
| CSCI475              | Info Security & Privacy<br><i>Pre: CSCI262, CSCI341</i><br><i>Recommended: CSCI274</i> | 3         | F         | H&SS 400 Level         | LAIS/EBGN III  | 3         | F, Sp, Su |
| CSCI471              | Computer Networks<br><i>Pre: CSCI262, CSCI274</i>                                      | 3         | F         | Free Elective          |  | 3         | F, Sp, Su |
| H&SS Mid             | LAIS/EBGN II   | 3         | F, Sp, Su | Free Elective          |  | 1         | F, Sp, Su |
| Free Elective        |  | 3         | F, Sp, Su | EENG383                | Microcomputer Architecture & Interfacing<br><i>Pre: EENG281, EENG284</i> | 4         | F, Sp     |
| <b>Total Credits</b> |  | <b>15</b> |           |                        |  | <b>14</b> |           |

\*CBEN110, GEGN101, or CHGN122 or CHGN125 may be taken for Distributed Science Elective. **Total Credit Hours 129.5**

\*\*Any 4XX or 5XX level Computer Science course.

\*\*\* Choose from CSCI403, CSCI440, CSCI474

#### Computer Science Electives

| Course  | Course Title                                  | Credit Hours | Semesters(s) Offered |
|---------|---|--------------|----------------------|
| CSCI404 | Artificial Intelligence                       | 3            | Sp                   |
| CSCI422 | User Interfaces                               | 3            | Check Trailhead      |
| CSCI423 | Computer Simulation                           | 3            | F                    |
| CSCI440 | Parallel Computing for Scientists & Engineers | 3            | Check Trailhead      |
| CSCI441 | Computer Graphics                             | 3            | F                    |
| CSCI443 | Advanced Computer Graphics Using Java         | 3            | Check Trailhead      |
| CSCI444 | Advanced Computer Graphics                    | 3            | Sp                   |
| CSCI445 | Web Programming                               | 3            | F                    |
| CSCI446 | Web Applications                              | 3            | Check Trailhead      |
| CSCI447 | Scientific Visualization                      | 3            | Check Trailhead      |
| CSCI448 | Mobile Application Development                | 3            | Sp                   |
| CSCI470 | Machine Learning                              | 3            | F                    |
| CSCI473 | Human-Centered Robotics                       | 3            | Sp                   |
| CSCI474 | Introduction to Cryptography                  | 3            | Sp                   |
| CSCI498 | Special Topics                                | 1-6          | F, Sp                |
| MATH307 | Introduction to Scientific Computing          | 3            | F, Sp, Su            |

Semester(s) Offered based on Spring 2017, Summer 2017, and Fall 2017 course schedules. Future semester offerings are subject to change. Consult Trailhead prior to registration.