**2026 – 2027 DEGREE WORKSHEET**
**Bachelor of Science in Aerospace Engineering**

**The Bachelor of Science Degree in Aerospace Engineering obtained through the engineering partnership program is conferred by the University of Colorado Boulder. Lower-division coursework is completed through Western Colorado University before applying for admission to the University of Colorado Boulder. The entire program is completed on the campus of Western Colorado University. A student may apply for admission to the Western-University of Colorado Boulder Partnership Program when they have satisfied all criteria of one of the following scenarios:**

**Scenario One**

- Complete a college-level, two-course sequence in calculus with a grade of "B-" or higher
- Complete one college-level physical science course (calculus-based physics and/or college-level chemistry) with a grade of "B-" or higher
- Maintain a college-level cumulative GPA of 3.0 or higher

**Scenario Two**

- Complete the first- and second-year course sequence listed on the current Program Sheet/Degree Plan for the Engineering Partnership Program
- Maintain a college-level cumulative GPA of 3.0 or higher

**Student Outcomes. Graduates of this program will have...**

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

**Program Educational Objectives. During their first few years after the completion of their degrees, graduates of the Ann and H.J. Smead Aerospace Engineering Sciences Departments will have:**

- Established themselves in professional careers or received a graduate degree;
- Demonstrated ethical leadership, project management, and/or innovation; and
- Played significant roles in the analysis, design, and implementation of engineering systems and products.

**2026 – 2027 DEGREE WORKSHEET**
**Bachelor of Science in Aerospace Engineering**

**The Bachelor of Science Degree in Aerospace Engineering requires:**

- The official transfer of all coursework listed on the plan of study to the University of Colorado Boulder
- At least 45 credits earned from the University of Colorado Boulder (residency requirement)
- A minimum of 128 cumulative credits earned to the degree program
- Student knowledge and adherence to course prerequisites as listed in the course catalog
- A cumulative and major GPA of at least 2.00 (from entirely CU Boulder coursework as a student's Western GPA will not continue in the CU Boulder portion of the program)
- Satisfactory completion of all HEAR requirement deficiencies related to high school coursework

**AP & IB Credit**

**Partnership students are to adhere to CU Boulder standards for AP and IB Scores (not Western standards).** These scores are often higher than the score required for credit from Western (particularly those listed below).

- An AP score of 5 is required on **Physics C: Mechanics** to receive credit for General Physics I (4 credits) at CU Boulder (CU PHYS 1110, Western PHYS 190 + 185).
- An AP score of 5 is required on **Physics C: Electricity & Magnetism** to receive credit for General Physics II (4 credits) at CU Boulder (CU PHYS 1120, Western PHYS 191 + 186).
- An AP score of 4 or higher is required on **Calculus AB** to receive credit for Calculus I (5 credits) at CU Boulder (CU MATH 1300, Western MATH 151)
- An AP score of 4 or higher is required on **Calculus BC** to receive credit for Calculus I (5 credits) and Calculus II (5 credits) at CU Boulder (CU MATH 1300 and 2300, Western MATH 151 and 251)
    - Additionally, a **Calculus BC** score of 3 or higher with an AB sub score of 4 or higher is required to receive credit for Calculus I (5 credits) at CU Boulder (CU MATH 1300, Western MATH 151)
- An AP score of 5 is required on **Chemistry** to receive credit for General Chemistry I with lab (5 credits) at CU Boulder (CU CHEM 1113 and 1114, Western CHEM 121)
- An AP score of 5 is required on either **Computer Science A** or **Computer Science Principles** to receive credit for Computer Science 1 (4 credits) at CU Boulder (CU CSCI 1300, Western CS 191)

**2026 – 2027 DEGREE WORKSHEET**
**Bachelor of Science in Aerospace Engineering**

**REQUIRED COURSES**

Western coursework is in red font, while CU Boulder coursework is in black font.

**College Writing Requirement: 3 credit hours**

| | | |
|---|---|---|
| ENG 302 | Technical Writing | 3 |

**Humanities and Social Sciences: 15 credit hours**, 6 of which must be upper-division

Upper-division Humanities & Social Science:

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_____

Remaining (Lower-division) Humanities & Social Sciences:

_____

_____

_____

**Mathematics and Sciences: 30 credit hours**

| | | |
|---|---|---|
| MATH 151 | Calculus I | 4 |
| MATH 251 | Calculus II | 4 |
| MATH 252 | Calculus III | 4 |
| MATH 358 | Differential Equations w/ Linear Algebra | 4 |
| CHEM 121 | General Chemistry for Engineers | 3 |
| PHYS 190 | General Physics I | 3 |
| PHYS 185 | Laboratory Physics I | 1 |
| PHYS 191 | General Physics II | 3 |
| PHYS 186 | Laboratory Physics II | 1 |
| | Math & Science Elective | 3 |

**Basic Engineering: 6 credit hours**

| | | |
|---|---|---|
| ENGR 130 | Intro to Engineering Computing | 3 |
| ENGR 131 | Intro to Engineering Design | 3 |

**Aerospace Engineering: 61 credit hours**

| | | |
|---|---|---|
| ENGR 161 | Computer-Aided Design | 3 |
| ENGR 162 | Fabrication | 1 |
| ENGR 231 | Intro to Astronautics | 3 |
| ENGR 232 | Intro to Aeronautics | 3 |
| PHYS 250 | Statics | 3 |
| ENGR 251 | Dynamics | 3 |
| ENGR 363 | Mechanics of Solids | 3 |
| ASEN 3403 | Aerodynamics | 3 |
| ASEN 3404 | Aerospace Dynamics & Controls | 3 |
| ASEN 3405 | Astrodynamics -or- | |
| ASEN 3406 | Aircraft Dynamics | 3 |
| ASEN 4013 | Foundations of Propulsion | 3 |
| ASEN 4018 | Senior Projects 1: Design Synthesis | 4 |
| ASEN 4028 | Senior Projects 2: Design Practicum | 4 |
| ASEN 4401 | Aerospace Comm. Systems -or- | |
| ASEN 4402 | Aerospace Materials & Structural Analysis | 3 |
| MCEN 3012 | Thermodynamics I | 3 |
| MCEN 3017 | Circuits & Electronics | 3 |
| MCEN 3021 | Fluid Mechanics | 3 |
| MCEN 3022 | Heat Transfer | 3 |
| MCEN 3030 | Computational Methods | 3 |
| MCEN 3047 | Data Analysis & Experimental Methods | 4 |

**Aerospace Engineering Electives: 3 credit hours** of ASEN 4000-level or higher not already in degree

_____

**Technical Electives: 6 credit hours** of selected engineering, science, math, computer science, or engineering management courses at 3000-level or higher not already in degree (subject to departmental approval)

_____

_____

**Free Electives: Credit hours variable**

Complete enough electives to bring the total credit hours toward the degree to 128. Normally this is 4 credit hours but could vary (for example due to transfer credits). Please consult with your Academic Advisor with questions.

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**TOTAL CREDITS** **128**

Updated 08-03-2026

**2026 – 2027 DEGREE WORKSHEET**
**Bachelor of Science in Aerospace Engineering**

**ADDITIONAL DEGREE INFORMATION**

**Acceptable Course Substitutions:**
CHEM 111 + 112 (General Chemistry I with lab, 4 credits) for CHEM 121 (General Chemistry for Engineers, 3 credits). CS 191 (Computer Science II, 3 credits) for ENGR 130 (Introduction to Engineering Computing, 3 credits).
To investigate additional course substitutions from Western or another institution, check www.transferology.com to verify how applicable courses will transfer to CU Boulder and discuss options with an Academic Advisor.

**Approved Humanities & Social Sciences**
At least 15 credit hours in humanities and social sciences are required in order to graduate. A list of acceptable humanities and social sciences with Western can be found on the "Humanities and Social Science Requirements" PDF.

**Approved Math & Science Electives**
Undergraduate students pursuing the Bachelor of Science in Aerospace Engineering degree through CU Boulder are required to complete a Math & Science Elective as part of their curriculum. Western courses are currently being evaluated by the CU Boulder Aerospace Engineering Sciences department for approval.

Please refer to the Math & Science Electives list for a complete list of CU Boulder courses that have been pre-approved to satisfy this requirement, as students may also choose to take one of those courses directly from CU Boulder.

**Aerospace Engineering Electives**
4000-level ASEN courses not otherwise required for the major are considered *Aerospace Engineering Electives*.

**Technical Electives**
A *Technical Elective* is generally a course in math, engineering, or science at the 3000-level or above. Any ASEN course at the 4000-level or above that is not a required course can be used as a Technical Elective if it is not used to satisfy the Aerospace Engineering Elective requirement. A full listing of approved Technical Elective courses can be found in the degree audit. Independent study is allowable for up to six (6) Technical Elective credits.

**Senior Capstone**
A two-semester senior capstone (beginning in fall and ending in spring) is required for 6 credit hours. This sequence must be taken contiguously and may not be taken before senior year.

**Grade Requirements**
**The minimum passing grade for a course that is considered a prerequisite for another course is C-**, allowing a student to progress through the curriculum and apply these courses towards degree requirements. This includes all Western, CU Boulder, and transfer courses. **The minimum passing grade for standalone classes is a D–.** Per CEAS Academic Expectations and Policies, if the minimum required grade in a prerequisite course is not achieved, the student is required to repeat the course until the minimum acceptable grade has been earned (maximum of 3 graded attempts total to master the subject content at the required level). If a student takes the advanced (post-requisite) course, it does not remove the obligation to meet the prerequisite course minimum grade requirement, even if the grade earned in the advanced course is acceptable. To remain in good academic standing, students must maintain a **cumulative CU Boulder**

**2026 – 2027 DEGREE WORKSHEET**
**Bachelor of Science in Aerospace Engineering**

**GPA of 2.00.** In addition, students need to have a cumulative and **major GPA of at least 2.00** to graduate from the CU Boulder College of Engineering and Applied Science.

**Free Electives**
College-level coursework accepted by CU Boulder not used otherwise to satisfy degree requirements will apply as free electives towards the total 128 credits required for degree completion. Aerospace engineering does allow courses counting as free electives to be taken on a pass/fail basis (however the college limits use to 6 per semester and 16 cumulative and students must first submit a petition prior to choosing this option). Use www.transferology.com to verify that courses will transfer to CU Boulder as appropriate equivalencies.

**Petition Process**
Students seeking an exception to a policy or practice (including transfer coursework policies) should first talk to their Academic Advisor and then submit a petition.

**Coursework Not Accepted for Transfer Credit**
All courses will undergo a transfer evaluation and the credit be transferred to CU Boulder as applicable. The following coursework will not be accepted for transfer credit and will not count toward a degree at CU Boulder, as described in the Campus Transfer Credit Policy:

- any courses in which the grade earned is below a C- (1.70)
- courses identified by CU Boulder as remedial, such as remedial English, mathematics, science and developmental reading
- vocational-technical courses that are offered at two-year and proprietary institutions (exceptions may be granted only by the CU Boulder dean responsible for the student's curriculum)
- courses in religion that constitute specialized religious training or that are doctrinal in nature
- credits earned for work experience or through a cooperative education program
- outdoor leadership education coursework
- credits earned in physical education activity courses
- courses or programs identified as college orientation

Credit hours required for graduation that were earned more than ten years prior to transferring into an undergraduate program at CU Boulder may not apply to the completion of a student's graduation requirements.

Students are responsible for making up any difference in credit hours between the transfer credit received and the CU Boulder course. This can happen when students transfer in coursework from an institution on a quarter-system, for example. Furthermore, students must have their Academic Advisor approve how the credit shortfall is made up (based on ABET and other departmental requirements). Students need to have a minimum of 128 unique non-duplicative, degree applicable credit hours, along with meeting the specified course and other requirements for a specific bachelor's degree program per CEAS Transfer Credit Policy.

**2026 – 2027 DEGREE WORKSHEET**
**Bachelor of Science in Aerospace Engineering**

**Academic Standing**
To remain in good academic standing with the College of Engineering and Applied Science, a student must maintain satisfactory academic performance as measured by GPA and progress toward completion of a Bachelor of Science degree. Failure to meet these requirements (including the 2.00 GPA) results in the student being placed on Academic Alert, Academic Recovery, and/or Academic Suspension. Students in this situation should consult their Academic Advisor and review the Academic Standing Policies.

**Academic Calendar**
Western partnership students adhere to the same calendar as Western students (for holiday breaks, etc.). However, add, drop and withdrawal dates for coursework may differ and can be found on the CU Boulder Registrar's Website.

**Internship for Credit**
Students may receive up to 12 credits of free electives (COEN 3930) for an internship or co-op experience. Students must secure the position prior to completing the application (with sufficient information about the engineering/technical nature of your position and duties), and have (as well as maintain) a 2.00 GPA. All internships for credit must be full-time (40 hours per week) and a minimum of 300 contact hours are required to receive the 3 credits of free elective. Students can apply online and questions can be directed to their Academic Advisor or Sharon Anderson (CEAS Director of Active Learning).

WESTERN COLORADO UNIVERSITY

University of Colorado Boulder

**2026 – 2027 DEGREE WORKSHEET**

**Bachelor of Science in Aerospace Engineering**

**RECOMMENDED SEQUENCE OF COURSEWORK**

Students are responsible for knowing and adhering to course prerequisites as listed in the course catalog. Certain courses may only be offered during the fall or spring semester. Western coursework is in red font, while CU Boulder coursework is in black font.

**First Year**

| | FALL SEMESTER | | | SPRING SEMESTER | |
|---|---|---|---|---|---|
| MATH 151 | Calculus I | 4 | MATH 251 | Calculus II | 4 |
| PHYS 190 | General Physics I | 3 | PHYS 191 | General Physics II | 3 |
| PHYS 185 | Laboratory Physics I | 1 | PHYS 186 | Laboratory Physics II | 1 |
| ENGR 130 | Intro to Engineering Computing | 3 | ENGR 131 | Intro to Engineering Design | 3 |
| ENG 102 | Writing and Rhetoric I (free elective) | 3 | CHEM 121 | General Chemistry for Engineers | 3 |
| WWGE 100 | Headwaters (free elective) | 2 | | H&SS Elective (Lower-Division) | 3 |
| | TOTAL Semester hours | 16 | | TOTAL Semester hours | 17 |

**Sophomore Year**

| | FALL SEMESTER | | | SPRING SEMESTER | |
|---|---|---|---|---|---|
| MATH 252 | Calculus III | 4 | MATH 358 | Diff Equations w/ Linear Algebra | 4 |
| PHYS 250 | Statics | 3 | ENGR 232 | Intro to Aeronautics | 3 |
| ENGR 161 | Computer-Aided Design | 3 | ENGR 251 | Dynamics | 3 |
| ENGR 162 | Fabrication | 1 | ENGR 363 | Mechanics of Solids | 3 |
| ENGR 231 | Intro to Astronautics | 3 | | Math & Science Elective | 3 |
| | H&SS Elective (Lower-Division) | 3 | | | |
| | TOTAL Semester hours | 17 | | TOTAL Semester hours | 16 |

**Junior Year**

| | FALL SEMESTER | | | SPRING SEMESTER | |
|---|---|---|---|---|---|
| ASEN 3404 | Aerospace Dynamics & Controls | 3 | ASEN 3403 | Aerodynamics | 3 |
| MCEN 3012 | Thermodynamics 1 | 3 | ASEN 3405 | Astrodynamics -or- ASEN 3406 Aircraft Dynamics | 3 |
| MCEN 3017 | Circuits & Electronics for MEs | 3 | MCEN 3021 | Fluid Mechanics | 3 |
| MCEN 3030 | Computational Methods | 3 | MCEN 3047 | Data Analysis & Experimental Methods | 4 |
| ENG 302 | Technical Writing | 3 | | H&SS Elective (Lower-Division) | 3 |
| | TOTAL Semester hours | 15 | | TOTAL Semester hours | 16 |

**Senior Year**

| | FALL SEMESTER | | | SPRING SEMESTER | |
|---|---|---|---|---|---|
| ASEN 4018 | Senior Projects 1: Design Synthesis | 4 | ASEN 4028 | Senior Projects 2: Design Practicum | 4 |
| ASEN 4013 | Foundations of Propulsion | 3 | ASEN 4401 | Aerospace Comm Systems -or- ASEN 4402 Aerospace Materials & Structural Analysis | 3 |
| MCEN 3022 | Heat Transfer | 3 | | Technical Elective | 3 |
| | Aerospace Engineering Elective | 3 | | Technical Elective | 3 |
| | H&SS Elective (Upper-Division) | 3 | | H&SS Elective (Upper-Division) | 3 |
| | TOTAL Semester hours | 16 | | TOTAL Semester hours | 16 |

Updated 08-03-2026