

**Major/Program of Study Assessment Report  
Rocky Mountain College (updated 3/25/19)**

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**Major/Program of Study:** Aeronautical Science

**Academic Year:** 2023-2024

**Date Submitted:** May 6, 2024

**Contact person:** Dan Hargrove, Director of Aviation

**Note:** All rubrics are based on 4 point scale. See document “Rubric for Major/Program of Study Assessment Report”  
 1-6 are AABI CORE Outcomes.  
 7-17 are AABI General Outcomes  
 18 is AABI Program Criteria  
 19 is other criteria.

Sample sizes

All data is gathered from students only in the aeronautical science major, except AVS 405  
 Senior Exit survey: 26  
 AVS 405: 35 (not separated by major because of teams)  
 Internship eval: 35  
 CRM LOFT: 29  
 AVS 400 interview and ethics paper: 29  
 AVS 312 Aviation Law: 35  
 AVS 308 Safety: 26

Student Learning Outcome	Evaluation Methods/Tools (include course number)	Performance Standard	Assessment Results (include sample size and averages)	Recommendations: Intended Use of Results
1. Graduates will demonstrate attributes of an aviation professional, career planning and understanding of certification.	Feedback from “outsider” aviation professional conducting mock interviews of seniors in AVS 400 course, a capstone course.	3.0 score on AVS 400 interview (rubric)	3.2 on interview	Feedback from graduates remains strong. This is in our mission statement and certainly one of the greatest strengths of the program. We must

	<p>Internship supervisor eval</p> <p>Senior exit survey</p> <p>Informal feedback from graduates</p>	<p>3.0 score on internship eval</p> <p>3.0 score on exit survey</p> <p>Overall positive</p>	<p>3.7 on internship eval</p> <p>3.9 on exit survey 3.4 on exit survey for career planning</p> <p>Overall very positive</p>	<p>continue to model professionalism and take the time to give students the feedback they need. Interviews are stronger and exit survey remains unchanged. “Professionalism” was #2 strongest response on exit survey.</p>
<p>2. Graduates will demonstrate understanding of aircraft design, performance, operating characteristics and maintenance.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.4 CRM LOFT</p> <p>3.6 on internship eval</p> <p>3.8 on exit survey</p>	<p>CRM LOFT assessment down slightly. AVS 410 Advanced Aero teaches aircraft design and will be offered at least two years in a row, which is an increase from the past when it was every other year. Though it is elective, most students take it and even more will in spring 2025.</p>

<p>3. Graduates will demonstrate understanding of aviation operations in terms of aviation safety and human factors.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.5 CRM LOFT</p> <p>3.5 on internship eval</p> <p>4.0 on exit survey</p>	<p>Feedback from 5-year AABI visit is strong about overall Safety Program. New Director of Safety has been strong addition. This is the only outcome to score 4.0 on senior exit survey. Perceptions about program and culture are very strong.</p>
<p>4. Graduates will demonstrate understanding of national and international aviation law, regulations and labor issues.</p>	<p>AVS 312 Aviation Law tests: Exam 1: Q 1,2,3,6,7. Exam 2: Q 1,5. Exam 3: Q1,2,5,9. Exam 4: Q1,2,9,11.</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>75% average on questions on AVS 312 exams. Scaled to 3.0 from professor.</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>AVS 312 Exams: 85% (3.4)</p> <p>3.5 on internship eval</p> <p>3.4 on exit survey</p>	<p>New AVS 312 professor has been a great addition. We'll need a couple of years of data to see trends but real world issues have been a significant part of this course. New material includes case law, EID v. Alaska Airlines and U.S. v. Spellman.</p>
<p>5. Graduates will demonstrate understanding of design and operations of airports, airspace, and the air traffic control system.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.6 CRM LOFT</p> <p>3.6 on internship eval</p> <p>3.8 on exit survey</p>	<p>Professor in AVS 203 ATC continues to improve the course and develop teaching skills. No turnover expected, which is huge. AVS 310 Airport Planning is offered every other year. 14 Aero Sci majors took it this year as elective. Impactful. Promote more in two years.</p>

<p>6. Graduates will demonstrate understanding of meteorology and environmental issues.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.6 CRM LOFT</p> <p>3.6 on internship eval</p> <p>3.8 on exit survey</p>	<p>Seasoned professor continues teaching AVS 150. Application in AVS 404 is strong and steady.</p>
<p>7. Graduates will apply mathematics, science, and applied sciences to aviation related disciplines.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.5 CRM LOFT</p> <p>3.6 on internship eval</p> <p>3.5 on exit survey</p>	<p>Exit survey dropped 0.1 after two year increase. Feedback from MAT 131 professor continues to be strong.</p>
<p>8. Graduates will analyze and interpret data.</p>	<p>AVS 405 Air Transportation Management airline simulation evaluation</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score AVS 405 evaluation tool (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.57 AVS 405 eval</p> <p>3.6 on internship eval</p> <p>3.7 on exit survey</p>	<p>AVS 405 evaluation is up. AVS 410 Advanced Aero will be offered two years in a row. Data analysis is heavily emphasized. Keeping this elective course offered every year is important in the future, if manpower allows.</p>
<p>9. Graduates will work effectively on multi-disciplinary and diverse teams.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>AVS 405 Air Transportation Management airline simulation evaluation</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 score AVS 405 evaluation tool (rubric)</p>	<p>3.6 CRM LOFT</p> <p>3.86 AVS 405 eval</p>	<p>Better. AVS 405 is up and CRM is up. These are our best assessment tools. The ultimate team for an aeronautical science major is a crew, which is strong. Two students commented that “diverse” to them means by</p>

	<p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.6 on internship eval</p> <p>3.4 on exit survey</p>	<p>race, which is confusing. More definition next year on exit survey will help clarify.</p>
<p>10. Graduates will make professional and ethical decisions.</p>	<p>Ethics paper, AVS 400</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 on ethics paper</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.7 on ethics paper</p> <p>3.6 on internship eval</p> <p>3.8 on exit survey</p>	<p>Strong. No change. Very strong scores by internship supervisors remains encouraging. Ethics was tied for #2 positive response out of 26 students on senior exit survey. Awesome!</p>
<p>11. Graduates will communicate effectively, using both written and oral communication skills.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>AVS 405 Air Transportation Management airline simulation evaluation</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p> <p>Oral presentation AVS 308</p>	<p>WRITTEN:</p> <p>3.0 score AVS 405 evaluation tool (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p> <p>ORAL:</p> <p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p> <p>3.0 on AVS 308 presentation</p>	<p>WRITTEN:</p> <p>4.0 AVS 405 eval</p> <p>3.3 on internship eval</p> <p>3.8 on exit survey</p> <p>ORAL:</p> <p>3.5 CRM LOFT</p> <p>3.5 on internship eval oral</p> <p>3.8 on exit survey</p> <p>3.3 AVS 308 presentation</p>	<p>AVS 405 final report assessment remains 4.0. Continue to emphasize across curriculum.</p> <p>Oral communication in CRM is steady, which is probably our most important assessment tool since that is what they will do after graduation—for a career. We must continue to emphasize this type of oral communication. Formal briefing skills in AVS 308 are down slightly for second year in a row. New AVS 308 professor, so standardization across years is possibly a factor.</p>

<p>12. Graduates will engage in and recognize the need for life-long learning.</p>	<p>Internship supervisor eval  Senior exit survey</p>	<p>3.0 on internship eval  3.0 score exit survey</p>	<p>3.6 on internship eval  3.8 on exit survey</p>	<p>Internship supervisors continue to give strong assessment which in encouraging. Students lean into on-the-job learning. Overall assessment is strong and steady.</p>
<p>13. Graduates will assess contemporary issues.</p>	<p>AVS 312 Aviation Law short answer tests and Socratic instruction—direct questioning.  AVS 308 test questions on contemporary issues—Boeing 737 door plug blowout.  Senior exit survey</p>	<p>75% average on questions on AVS 312 exams. Scaled to 3.0 from professor.  75% on questions on AVS 308 exams.  3.0 score exit survey</p>	<p>AVS 312 Exams and questioning: 90% (3.6)  AVS 308 exams: 84% (3.5)  3.5 on exit survey</p>	<p>A significant change to this assessment has been to include AVS 308 Aviation Safety as a tool for including contemporary issues. Perfect fit for this outcome and course material and critical thinking. New AVS 312 professor has been a great addition. We'll need a couple of years of data to see trends but real world issues have been a significant part of this course.</p>
<p>14. Graduates will use the techniques, skills, and modern technology necessary for professional practice.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.  AVS 405 Air Transportation Management airline simulation evaluation  Internship supervisor eval  Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)  3.0 score AVS 405 evaluation tool (rubric)  3.0 on internship eval  3.0 score exit survey</p>	<p>3.5 CRM LOFT  2.85 AVS 405 eval  3.6 on internship eval  3.7 on exit survey</p>	<p>Still strong except AVS 405 is down significantly. Professor uses the student's Initial Business Strategy grade as the artifact for this outcome. Substantial decline from the previous 3 year average of 3.38. 2 teams (6 total students) received a grade of below 70% this year, which drove down the score. These teams didn't submit complete IBS's, and were missing sections. Monitor for next year.</p>

				<p>Many students take AVS 447 and AVS 449 which are computer based advanced aircraft systems courses. Still awaiting new software for AVS 449. New glass aircraft in the fleet is making this stronger. AVS 325 Advanced Flight Systems (elective course) is very well attended, with 15 this year. Highest enrollment ever.</p>
<p>15. Graduates will assess the national and international aviation environment.</p>	<p>AVS 312 Aviation Law exams chapters: 1,2,3,4,8,9,15.</p> <p>Senior exit survey</p>	<p>75% average AVS 312 exams.</p> <p>3.0 score exit survey</p>	<p>AVS 312 Exams: 85% (3.4)</p> <p>3.3 on exit survey</p>	<p>New AVS 312 professor has been a great addition. We'll need a couple of years of data to see trends. This includes discussion from guest lecturer senior executive with AOPA.</p>
<p>16. Graduates will apply pertinent knowledge in identifying and solving problems.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>AVS 405 Air Transportation Management airline simulation evaluation Senior exit survey</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 score AVS 405 evaluation tool (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.4 CRM LOFT</p> <p>3.91 AVS 405 eval</p> <p>3.6 on internship eval</p> <p>3.8 on exit survey</p>	<p>Results are steady in all areas assessed. No change necessary.</p>

<p>17. Graduates will apply knowledge of business sustainability to aviation issues.</p>	<p>AVS 405 Air Transportation Management airline simulation evaluation</p> <p>Internship supervisor eval</p> <p>Senior exit survey</p>	<p>3.0 score AVS 405 evaluation tool (rubric)</p> <p>3.0 on internship eval</p> <p>3.0 score exit survey</p>	<p>3.49 AVS 405 eval</p> <p>3.7 on internship eval</p> <p>3.2 on exit survey</p>	<p>Slight increase in AVS 405. Enrollment by pilots in AVS AVS 310 elective was 14, which is strong. Continue to encourage.</p>
<p>18. Graduates will meet FAA commercial pilot standards, with instrument and multi-engine ratings and demonstrate the ability to operate in a crew environment.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Check ride pass rates.</p> <p>FAA written exam pass rates.</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>85% pass rate, all syllabi</p> <p>85% written test pass rate</p> <p>3.0 score exit survey</p>	<p>3.5 CRM LOFT</p> <p>100% of graduating seniors have passed all 4 required check rides.</p> <p>Private: 88%</p> <p>Instrument: 61%</p> <p>Commercial: 81%</p> <p>Multi Engine: 94%</p> <p>Written Test Pass Rate:</p> <p>Private: 92%</p> <p>Instrument: 100%</p> <p>Commercial: 100%</p> <p>3.8 on exit survey</p>	<p>Pass rates are nearly identical to last year with no change greater than 2%. Instrument pass rates continue to get focus. One issue we have identified is our mixed fleet of glass cockpit and round dial aircraft. When the variety is good for training, we believe it causes inconsistencies in learning. Two new aircraft to be delivered fall 2024 will then make 100% of the Piper fleet glass. We will sell three older round dial Archers.</p>
<p>19. Graduates will demonstrate knowledge and application of aerodynamic principles.</p>	<p>Score from LOFT flights in AVS 404 CRM conducted by former airline pilot.</p> <p>Senior exit survey</p>	<p>3.0 score on topic from LOFT instructor (rubric)</p> <p>3.0 score exit survey</p>	<p>3.5 CRM LOFT</p> <p>3.7 on exit survey</p>	<p>AVS 410 Advanced Aero, an elective, will be offered two years in a row. If possible, continue to offer every year if professor manpower allows.</p>



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Evaluation metrics:

1. Please include a copy of any rubric(s) that were used to evaluate student data
2. Please provide rationale for the performance standard/benchmark stated above.

In terms of the achievement of student learning outcomes:

1. What are your program's principal strengths?

The new professor hired summer 2023 has been a great addition. He brings deep expertise to the classroom based on his aeronautical engineering knowledge and he has brought industry standards and ideas to the safety program. Manpower and leadership over the safety program are stable and strong.

Safety culture remains a great strength as does professionalism. The AABI visit in March 2024 highlighted both of these as program strengths. Feedback from graduates, particularly about professionalism, remains very strong. Senior exit survey comments confirm this.

We have purchased two new Piper aircraft. Delivery was moved up from May 2025 to fall 2024. The College has been very supportive of new equipment needs and continues to set aside money for future aircraft purchases. Enrollment is at capacity and new aircraft will help us recruit and retain as many students as possible, which of course is good for the college as a whole. The Aviation Program again remains the largest academic program at RMC in terms of numbers of total students enrolled and number of incoming freshmen.

Our best asset is the relationship between the Aviation Program and RMC in general. We must continue to market the well-rounded education and the Core, both based in the liberal arts. Our key focus needs to remain the opportunity our students have to be both well prepared for strong careers and get a strong liberal arts-based education. The most unique and most important draw to our program is the college itself.

**Strengths looking forward:** One particular strength of our program is we do not specifically direct graduates/pilots to careers with the airlines. We do have four Bridge Programs with airlines (SkyWest, Horizon, Cape Air, Republic). We could have more but we limit it to four to maintain personal relationships. We had a drop in enrollment after COVID because we couldn't recruit on high school campuses 2020 – 2021. That smaller class will be seniors starting fall 2024. The subsequent three classes are much larger and put the overall program at its max sustainable enrollment.

In addition to the four Bridge Programs with airlines, we continue to nurture our recruiting partner relationships with Alpine Air Cargo and Bridger Aerospace fire fighting. The CEO of Bridger Aerospace was the speaker at our annual awards banquet in April 2024 an Alpine Air spoke in classes in October 2023.

The Safety Program is a tremendous strength for the overall Aviation Program. In addition to making our operations safer on a day-to-day basis, it develops all of our students, including aviation management majors, as aviation professionals and truly develops them for their careers.

2. How might you help assure that those strengths are maintained?

Continue hiring the right people who fit our professional culture. We have had an opening at Flight Operations for Assistant Chief Pilot that we need to fill.

Continue to be one of the larger academic programs on campus which helps the whole campus thrive.

3. What are the program's principal challenges?

#### External Environment

CFI turn-over is always a concern, though again this year we have enough CFI applicants. A smaller freshmen class two years ago allowed us to push more students through flight training faster giving us more candidates sooner. CFI manning is healthy now, but we anticipate this could be a problem area eventually. Mentorship of CFI's is critical. We must continue to get them through CFI training as quickly as possible. Some do leave us before they have 1000 hours because of Part 135 opportunities but producing CFI's by the end of their junior year is key so they work for us before graduation.

Feedback from graduates continues to tell us our focus on a well-rounded education and the liberal arts and critical thinking are the right areas on which to focus. Overly focusing on one segment of the industry, such as the airlines as is common and many other collegiate aviation programs, is too narrow and risky.

Within reason, we do not limit the number of students admitted to the program but we do limit the number admitted to flight training. We are very honest about the process with prospective students. Incoming students know for sure at the end of March if they will fly that fall. Once a student starts flying they progress well through flight training because we are careful to not allow too many students into flight training.

#### Internal Environment

- Students: Continue to practice the process of admitting the highest number of new freshmen while maintaining flight training standards and on-time graduation rates. We are at capacity now and expect to limit students entering flight training in January 2025 to less than those who want to start then.
- Relations with Industry: It's been a very good year with several members of Industry Advisory Committee retiring and several new ones being added. Relationships with four airlines and two recruiting partner companies (Bridger Aerospace and Alpine Air cargo) are solid.
- Establishment of a fund for future aircraft purchase has allowed us to secure donations that were not available in the past. Two new planes will be delivered fall 2024.

- Our Women in Aviation, International Chapter is strong and the Military Student Club is alive and well. Both took a big hit following COVID.

4. What programmatic/curricular changes are planned for addressing these challenges, and what is the implementation timeline?

We have purchase two new Piper 100i aircraft for delivery fall 2024. In addition, we have placed an order for a new cockpit-specific sim, to be delivered May 2024.

We have examined how we might change our majors in order to recruit more students who don't need to fly. This past year we looked at creating a major in Uncrewed Aerial Systems, instead of just having a minor. This is a project for summer 2024. We hope to develop the curriculum and present to the entire faculty fall 2024, though that might be too aggressive of a timeline. But the goal is to increase the size of the freshmen class without needing more aircraft and associated support.

Some shorter terms plan for improvement include:

#### Flight Operations

- Fleet Replacement Plan has been executed. This is particularly strong.
- Hire Assistant Chief Flight Instructor.

#### Aviation Campus Program

- Hire half-time professor in next two years.
- Develop major in UAS.

#### Data in 5 – 10 years:

- Entering class each fall of 70 students, which includes five in the new UAS major.
- Retention of 70% or better between freshmen and sophomore years
- Graduation class of 40 each year
- Maintain enrollment of no more than 15% - 20% of the college
- We are currently the largest academic program on campus. This will likely not be the case in future years as the College grows and the Aeronautical Science major remains at capacity. That major will continue to be our biggest recruiter, by far.

#### Please indicate where your assessment artifacts are stored:

- I submit my artifacts to the assessment committee
- I keep hard copy artifacts stored in my office

Other: I keep electronic copies of artifacts on my office computer.

#### Changes to your program's curriculum (optional)

See above. New UAS major.

1. Have you added or revised your learning outcomes since last year's program assessment? If so, please indicate which outcomes have been revised and which outcomes have been added or removed.  
No.
  
2. Have you made changes to the program's mission since last year's assessment? If so, please post the new mission statement here.  
No, however a change is coming. A recommendation for the Aviation Accreditation Board International visit in March 2024 is for us to have a unique mission statement for each major. We will continue to have the overall mission statement for the program, but in the coming months we will get input from staff, faculty, students and Industry Advisory Committee about unique major's mission statements. We will report that next year.