

Submission date: 1/31/2020

Program/s in this review: Aviation Technology BS

Specialized accrediting agency (if applicable): Federal Aviation Regulation Part 141

Campuses where the program is delivered: Anchorage

Members of the program review committee:

<u>Name</u>	<u>Title</u>	<u>Campus</u>
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1. Centrality of Program Mission and Supporting Role (700 words or less)

Aviation is the only year-round transportation mode available in much of rural Alaska; often aircraft are the only way to get to some locations. In order to maintain those rural areas, it takes logistics, pilots, aircraft, and coordination. That is the purpose of the Bachelor of Science in Aviation Technology (BSAT), to provide a solid foundation in all areas of aviation, a well-rounded overall education, and a focused level of specialization to individuals in each of the emphases. There are three emphases in the degree: Professional Piloting, Aviation Management, and Aeronautical Studies. All three of the emphases support the ‘disseminate knowledge’ mission of UAA and are focused on growing the aviation workforce in Alaska.

The Professional Piloting emphasis is focused on creating pilots, which are in critical need in Alaska and the world. During the Alaska Air Carriers annual convention in March 2015, many Alaskan aviation industry leaders indicated they must recruit from the lower 48 to fill their pilot rosters but they prefer graduates of our program as pilots from and for Alaska. This reflects the difficulty the industry faces due to an overall pilot shortage. Additionally, the UAA Professional Piloting program (AAS and BSAT) is the only such program within the state. The Aviation Management emphasis provides a foundation that allows a graduate to enter any aviation leadership position that does not require a pilot, mechanic or dispatch certificate but does prefer a knowledge base gained through the degree. The Aeronautical Studies emphasis provides students that have some college or an Associate’s Degree a pathway to a BS enhancing their knowledge to work in the aviation industry. Graduates of the BSAT in Aviation Management or Aeronautical Studies fill the niche that pilots, controllers, and maintainers do not; specifically, the knowledge needed for management of airports, airlines, and corporate flight departments.

Our graduates fill positions that are experiencing a growing shortage of qualified entry level aviation professionals. A Professional Piloting student will graduate with qualifications to fly for hire, understand and use safety systems while understanding the basics of airline management and finances. Aviation Management students have a well-rounded education, having advanced understanding of the management processes used in aviation industry. Graduates skills include finances, aircraft selection, governmental regulations, and corporate law. It should be noted that we are the only institution in the state of Alaska that offers specialized aviation management instruction.

There are several outside partnerships with the Division. We have articulation agreements with Anchorage School District providing high school students a pathway to post-secondary education. We also have an active industry advisory board that includes several local airlines and other aviation industry partners. We also have an

excellent working relationship with the Federal Aviation Administration (FAA) who regulates many of our programs such as our flight training which is taught under 14 CFR Part 141. This means that students have a rigorous training program overseen by the FAA for quality and consistency. UAA has one of only four FAA Part 141 pilot schools in Alaska but is the only one that offers a comprehensive education as well as pilot certificates. Pilot graduates of our programs are able to receive the Restricted Airline Transport Pilot (R-ATP) certificate, needed to fly for an airline, up to 500 flight hours before a non-UAA graduate. This allows the graduate to begin working for an airline sooner and less expensively than a non-UAA graduate.

The Aviation Division works closely with the FAA and as a Part 141 certificated school we are inspected in a process similar to an accreditation. We also work closely with local air carriers to provide pathways for our students to transition to positions in all of our degree emphases. Currently we have internships with Ravn Airlines and a flow-through program with Horizon Airlines. Additionally, UAA Aviation has received well over \$1,000,000 in cash and in-kind contributions over the last five years. Examples include a Boeing 727 aircraft donated by FedEx, \$207,000 scholarship endowment, \$100,000 aviation scholarship donation (2015), \$20,000 contribution to the Aviation General Support fund.

Commercial pilots (transportation workers) are classified as high demand and all of our piloting graduates possess FAA Commercial Pilot Certificates with Instrument Ratings. Additionally, transportation managers and other aviation workers are in demand or have higher classifications based on the department of labor statistics.

2. Program Demand (including service to other programs), Efficiency, and Productivity (7 year trend; 1400 words or less)

The BSAT program is in a strong position. We have had our largest degree awards over the last two years and our credits per degree average around the 120 credits for most BS degrees at UAA and this is in part due to the recent revisions of the curriculum. While we have removed one area of concentration, Air Traffic Control, from the degree we have added a complete degree option, known as Aeronautical Studies, that allows students with some college or an AAS to complete an aviation degree. We have also refined the courses required for Piloting and Management students to make the degree as streamlined as possible. These changes have also increased the number of students enrolling in the program, though we are not back up to our 2013 level, we are improving. We also have a high course pass rate for all of our students, maintaining above a 90% average pass rate in ATA and ATP courses.

Our overall student credit hour production has followed the university's decreasing trend although a contributing factor may be, in part, due to our decreasing the amount of credits necessary to complete the degree. As numbers were decreasing the college/program did not refill a vacated faculty line, which is now being felt as numbers are beginning to recover as seen by the increase in SCH/FTEF, peaking last year at 459.5. It should also be noted that the flight fees charged to students cover the majority of all costs associated with the flight training and the adjunct instructors used to fly with the students. This is shown in our decreasing costs per student credit hour. We have also been constantly increasing our tuition revenue verses SCH which in part follows the university tuition increases.

The Enrollment verse FTEF has been on a slight positive trend since 2011, in 2019 we were at 152.6. However, it should be noted that there are several confounding variables. Many of our faculty are teaching courses that are used in our AAS programs and across disciplines in the division. As our majors have increased, our FTES/FTEF has been increasing as well. This number is also difficult to quantify however, since many of our students are not full time the number of FTES may be inaccurate. Our average class sizes are also increasing even with the requirement of one-on-one instruction for the flight courses and our non-flight courses associated with

management or operations are also increasing. This is due to improved course scheduling and different pedagogic methods of newer faculty. Our demand remains primarily internal, this being the nature of such a specialized program.

3. Program Quality, Improvement and Student Success (1500 words or less)

Our program has three distinct areas of emphasis, Aviation Management, Professional Piloting, and Aeronautical Studies, the newest, which is designed to be a complete degree and is also our fastest growing option. The other options were changed last year in response to our findings from previous reviews and to remove courses that were no longer applicable. We have also made room for the new Alaskan Studies requirement. All of the programs now have elective options but still meet the needs of the students. This removed a number of barriers to student success. A next step is to transition our Aviation Management program to an online offering. We expect to also transition many of the classes in the Aeronautical Studies option as well. This has been delayed until this coming year due to the lower number of faculty over the last several years, yet we hope to have the Aviation Management online curriculum available in the near future.

To improve the student educational experience, we have a number of support systems in place. Our Academic Advisor runs registration workshops as well as one-on-one advising. We host industry days where students interact with employers that help make critical connections. Our BSAST students also participate in our capstone course which is one of a number of experiential learning opportunities. Our capstone course, ATA A492, has the students address an aviation topic that could impact Alaska and beyond. ATA A492 requires an exhaustive literature review, basic recommendations, and the dissemination to industry in a public forum. This forum has included representatives from the FAA, the FBI, and various local aviation businesses. Several times the students have been asked by participants for input on such issues as Aviation Security and Airline Sustainability. Our piloting students experience a realistic environment as the flight courses require flights in actual aircraft and are tested against FAA standards. We consistently maintain a high pass rate of our flight students on FAA tests, above 80%.

We have a very high employment rate and our students are regarded as some of the most knowledgeable in Alaska. This creates one of our points of pride as many of our students gain employment even before they graduate. All of our students are sought out by the aviation industry throughout Alaska and beyond. As such we monitor our Student Learning Outcomes closely, any changes that are indicated in our assessments are promptly addressed. Our Program Student Learning Outcomes are:

All students (& Aeronautical Studies):

- Demonstrate technical knowledge of aircraft operating limitations and performance.
- Demonstrate knowledge of aviation law and regulations, and of the legal issues affecting the aviation industry.
- Demonstrate knowledge of the issues affecting aviation safety and safety management.
- Demonstrate a broad knowledge of the aviation industry.

Pilot Emphasis

- Demonstrate proficiency in instrument pilot, commercial pilot knowledge, and flight skills.
- Demonstrate knowledge of aviation weather and of aviation weather services.

Management Emphasis

- Demonstrate a broad knowledge of aviation management functions and techniques.

Most of our students meet or exceed our expectations for understanding the limitations and performance of aircraft. However, our management students had some lower assessments. To address the deficiency, we added a focus on aircraft selection and route analysis in our airline operations course. This improved to students' assessment scores and lead to improved student understanding. For the most part our students maintain a high level of knowledge about the regulations of aviation, as this is reviewed and added to in each flight and ground school. The law aspect of the outcome is slightly lower, around an 80% but meets the expected standards. We noticed that with a consistent adjunct the students have a better understanding of the material. We are focusing on consistency and that has helped the students understanding about legal aspects of aviation.

We have recently expanded (within the last five years) our discussion about current aviation safety theories and practice. We now spend more time on Safety Management Systems and discussions about alternative aspects of aviation safety. These changes have improved our student's knowledge and employability. Aviation safety in Alaska appears to be lagging behind the rest of the nation, but our students are showing the knowledge necessary to improve the industry and bring Alaska in-line with aviation systems across the globe.

All of our students show a high level of knowledge about the aviation industry. Some of the knowledge is a result of our aviation core. Each student takes at least one course from each of our distinct areas of emphasis, including the associated specific specialties. The management students also get a global perspective through a business minor which helps improve their scope which is vital for aviation management functions and techniques. Our piloting students have a very high pass rate on the FAA certification exams. We are over 80% first attempt pass rate and most years it approaches 90%. This is through all seven of our offered certificates and ratings. However, we were not getting quality feedback from the FAA examiners, so we are now measuring the final stage check from our own instructors improving our ability to assess our flight courses. Finally, the students are meeting our expectations for understanding and using aviation weather. The overall assessment of the program shows the students are meeting or exceeding our expectations.

Over the last three years we have done minor adjustments to the BSAT program. We expect one more large change next academic year. Specifically, we have updated a number of the courses and have added room for some expected future adjustments. All of the flight training courses and many of the management courses have been improved. Finally, we have adjusted the curriculum based on student feedback associated with non-aviation courses required for the degree.

4. Program Duplication / Distinctiveness (300 words or less)

We are partners with the FAA in producing certificated pilots. Our authority to operate a pilot school is subject to renewal every two years. While we are one of the four FAA Part 141 Pilot Schools in Alaska we are the only one that offers a comprehensive education as well as pilot certificates. In September 2013, the FAA awarded UAA institutional authority to certify its graduates as eligible for a Restricted Airline Transport Pilot (R-ATP) Certificate with reduced aeronautical experience. This designation means UAA graduates are eligible to earn their R-ATP with as few as 1250 flight hours with the AAS and 1000 flight hours with the BSAT rather than 1500 flight hours required by most pilots before they may serve as first officers for a major airline. This gives our graduates up to a one-year, and thousands of dollars, advantage over most pilots seeking careers with a major airline. While there is a basic piloting program at UAF, they are not a FAA Part 141 school and do not do flight instruction within the program. As such they cannot grant the R-ATP authorization. We are the only comprehensive aviation education provider in the state offering a focused study in aviation management, flight, as well as an aviation completer degree.

5. Summary Analysis (500 words or less)

The faculty and staff of the Aviation Technology Division have been working to improve the BSAT over the last seven years. During that time, we have refined and improved our fee structures, added a complete degree, and modernized our curriculum. These changes are beginning to show great improvements in our student numbers and industry recognition. While we have been the face of Alaska aviation for years, we have created more partnerships and opportunities for our graduates than ever before. We have the Ravn Airlines internships, the flow-through program with Horizon Airlines, as well as management internships with the local airports and business. Our graduation rates are still increasing, and we have most students completing close to the minimal credits required.

Our goal now is to continue examining the program and make continued improvements in each emphasis. A primary goal is to create better ways for piloting students to complete their flight training more efficiently. We expect to have online options for the AAS in Aviation Administration and eventually both the Aviation Management and Aeronautical Studies emphases. Finally, we are planning to improve student recruitment in the local area and make our presence known across Alaska and the nation.