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ACADEMIC PROGRAM REVIEW REPORT FORM AY2025-2026

Program(s) in the review: Geographic Information Systems OEC, Geomatics AAS/BS

Specialized Accrediting Agency (if applicable): Applied and Natural Science Accreditation Commission of ABET

Campuses where the program is delivered: ☒ Anchorage ☐ KOD ☐ KPC ☐ MSC ☐ PWSC

Year of last review: AY2023-2024

Final decision from last review: Continued Review

PROGRAM SECTION (Due on March 1)

Program Review Committee:

Caixia Wang, Professor, UAA

David Brock, Term Assistant Professor, UAA

1. Demonstrate that the program has responded to previous recommendations.

Recommendation 1: *Monitor enrollment, [REDACTED] and efficiency metrics carefully, in particular, the need to increase enrollment.*

How do you know the recommendation has been successfully achieved? (2500 characters or less)

The program assesses progress using key program metrics related to enrollment, student success, and instructional efficiency through its regular assessment and planning processes. Indicators include the number of declared majors and degrees awarded, average course enrollments, and efficient course delivery as reflected in instructional productivity measures. The program also monitors [REDACTED] indicators, including junior graduation rates and course success across demographic groups.

Actions taken to date (2500 characters or less)

The program has undertaken extensive recruitment and outreach efforts on campus, across the state, and throughout the Pacific Northwest region to increase awareness of geomatics career opportunities, strengthen program visibility, and attract prospective students, despite reduced full-time faculty resources. Recruitment and outreach have remained a key program priority, with faculty dedicating significant effort to developing partnerships, engaging communities, and promoting pathways into the profession. Several initiatives have been developed and implemented, and the following examples highlight some of these efforts.

One involved outreach to local professionals in the geomatics field. The program organized video interviews with industry professionals who shared their career experiences, discussed the value of the profession, and highlighted the high demand for geomatics expertise in Alaska. These interviews were recorded and developed into short videos highlighting professional experiences and career pathways in geomatics, which are used in recruitment and outreach activities.

The program has also expanded outreach to local high schools. During this academic year, faculty participated in the whole visit schedule of the Anchorage School District (ASD) Freshman Academy College Experience to introduce high school freshmen to geomatics and related career pathways early in their

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academic journeys. Through these visits, the program has reached more than 2,900 high school students across the Anchorage Borough.

In addition, the program participated in Journey into Engineering and Middle College Orientation events, engaging over 130 participants and 320 middle college students through hands-on geomatics demonstrations and activities designed to introduce students to geomatics technologies and their applications.

The program has also partnered with Residence Life to increase program visibility among current UAA students. In addition, it has strengthened workforce development engagement with Alaska Native communities through collaborations with ANSEP Middle School Academy, UAA Community and Belonging, and Alaska Native Corporations to raise awareness of geomatics education and related career opportunities.

The program has also expanded its digital outreach through targeted social media campaigns designed to promote the program and increase recruitment visibility among prospective students.

Evidence of success to date (2500 characters or less)

Review data provide several indicators of positive outcomes to date. Enrollment has increased from its low point in 2022 during the review period, and the five-year degree awards show an upward trend beginning after 2021. Student success indicators are also strong, with both lower- and upper-division course pass rates consistently exceeding the institutional average. Although average course enrollment has remained relatively stable, the available junior graduation rate data are higher than the institutional average in most years, except for 2023, when the rate was slightly lower.

Across racial and ethnic groups, more than 50% of students successfully passed lower- and upper- division courses in most years, with the majority of pass rates exceeding 89%. Two isolated outliers appear for specific groups and years, likely due to small cohort sizes. Program productivity indicators for the BS degree also show an increase in degree completion after 2021 within the review period. In addition, instructional efficiency metrics demonstrate an overall upward trend, with the exception of a high outlier in 2023.

Recommendation 2: *Increase course offerings and opportunities for student engagement.*

How do you know the recommendation has been successfully achieved? (2500 characters or less)

Progress toward this recommendation is assessed using several indicators. These include the accessibility of geomatics courses through multiple delivery formats, students' ability to enroll in required courses without scheduling conflicts, and continued progress toward timely degree completion. Additional indicators include participation in applied and experiential learning opportunities such as field exercises, job shadowing, internships, and undergraduate research experiences. The program also monitors student participation in professional development activities, including workshops, industry presentations, and professional conferences, as well as the enrollment trends and course pass rates in program courses.

Actions taken to date (2500 characters or less)

The program has taken several steps to increase access to courses and expand opportunities for student engagement within existing faculty resource constraints. To improve course accessibility and reduce scheduling barriers, the program has expanded instructional delivery approaches by providing recorded lectures in addition to regular in-person and online formats. This approach allows students who

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experience work scheduling conflicts to access course content and remain engaged in required coursework.

The program continues to integrate experiential learning opportunities throughout the geomatics curriculum. Surveying and GIS courses incorporate applied projects, laboratory work, and field exercises that provide hands-on learning experiences for students. The program also encourages participation in internships, job shadowing opportunities, student club activities, capstone project showcases, and undergraduate research activities that expose students to real-world applications of geomatics.

In addition, the program supports and encourages student engagement through professional development opportunities that connect students with industry and professional communities. These activities include workshops, such as the UAA VDatum workshop organized through collaboration between the program and NOAA; industry presentations, including the monthly talks hosted by the Alaska Arc User Group; and participation in professional conferences, such as the ASPLS 2025 conference and the Alaska GeoSummit.

Evidence of success to date (2500 characters or less)

Available review data indicate positive outcomes associated with efforts to increase access to courses and expand student engagement opportunities. The junior graduation rate reached 100% in 2024, exceeding the institutional average for the same year. Course pass rates for part-time students in both lower- and upper-division geomatics courses are consistently above 80%, indicating strong student success in program coursework. Another indicator of student success is the proportion of program graduates who continue their education, which averages 35% during the review period, excluding 2024 when the reported data was zero and considered an outlier. These outcomes suggest that current course delivery approaches and experiential learning opportunities support student progression, engagement, and preparation for further education and careers in geomatics.

Recommendation 3: *Continue to think about how the program supports all students, regardless of their backgrounds. In particular, ensure that all students have access to high quality, highly-engaged learning opportunities, such as internships, practicums, clinicals, study away, and undergraduate research, regardless of modality or location.*

How do you know the recommendation has been successfully achieved? (2500 characters or less)

Progress toward this recommendation is assessed using indicators related to equitable access to engaged learning opportunities and student success across different learning modalities and locations. These indicators include the levels of student engagement and communication across learning modalities, ensuring that all students, whether participating in person or remotely, receive timely information about experiential learning and professional development opportunities. The program also monitors student success outcomes, such as course pass rates, progression toward degree completion, and graduation rates, to ensure that students from different backgrounds and learning contexts are able to succeed in the program.

Actions taken to date (2500 characters or less)

The program has implemented several strategies to ensure that all students, regardless of modality or location, have access to high-quality and highly engaged learning opportunities. To support online students, the program has developed creative approaches to provide learning experiences comparable to those available to in-person students. For example, the program collaborates with local licensed

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geomatics professionals to facilitate field-based learning experiences for students who are unable to attend in-person field activities on campus.

To improve communication and ensure that all students are informed of available opportunities, the program has established a Geomatics Team through Microsoft Teams that serves as a centralized communication hub for students and faculty. Through this shared platform, students across different locations and learning modalities receive timely information about internships, study away opportunities, undergraduate research, and other professional development activities. The platform also provides a virtual space for students to organize club activities, form study groups, and interact with peers.

In addition, all program courses have been developed to be delivered in hybrid formats to support flexible participation by both in-person and remote students. Course recordings are also provided to accommodate students who may have work scheduling conflicts with scheduled class sessions.

Evidence of success to date (2500 characters or less)

Available data indicate that students across different learning modalities and locations are able to successfully progress toward degree completion. Course pass rates in both lower- and upper-division geomatics courses remain consistently above 84%, indicating strong student performance in program coursework. In addition, five-year degree awards show an increasing trend beginning after 2021.

- 2. Demonstrate the centrality of the program to the mission, needs, and purposes of the university and the college/community campus. Include how the program is integrating (or planning to integrate) intentionally designed opportunities for students to develop the four core competencies (Effective Communication; Creative and Critical Thinking; Intercultural Fluency; and Personal, Professional, & Community Responsibility). (3000 characters or less)**

The Geomatics programs, including the Occupational Endorsement Certificate (OEC) in Geographic Information Systems (GIS), the Associate of Applied Science (AAS) in Geomatics, and the Bachelor of Science (BS) in Geomatics, play an important role in supporting the university as a dual mission institution. Consistent with this mission, the Geomatics programs provide flexible educational pathways that allow students to advance their education step by step while developing transferable skills relevant to the geospatial workforce. Students may begin with the OEC in GIS to gain foundational geospatial skills, continue into the AAS in Geomatics for applied technical training, and progress to the BS in Geomatics for advanced professional preparation. These stacked credentials allow students to enter the workforce, return to continue their education, and build their careers over time. This structure supports UAA's commitment to providing accessible education and preparing graduates who can meet the evolving workforce and infrastructure needs of Alaska.

The BS in Geomatics is the only program of its type in Alaska and provides the level of education required by the State of Alaska for obtaining professional land surveying licensure. As a result, the program plays a critical role in developing the state's workforce in surveying, mapping, and geospatial technologies. Graduates and students are routinely recruited by state and federal agencies, municipalities, and private companies across Alaska for internships and entry-level professional positions. Through this workforce preparation role, the program contributes directly to Alaska's infrastructure development, land management, construction, and natural resource industries. In addition to meeting Alaska's workforce needs, the program also contributes to addressing the national shortage of qualified geospatial professionals. This shortage, documented in the Geodesy Crisis white paper (see reference), is driven by an aging workforce and low replacement rates in a multi-billion-dollar geospatial industry.

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The four core competencies have been integrated throughout the BS program, with which the OEC in GIS and AAS are stacked. Effective communication and professional responsibility are emphasized across the curriculum through assignments that require clear documentation and presentation of spatial data, maps, and technical analyses. Creative and critical thinking are developed through coursework and field activities that require students to analyze spatial data, evaluate mapping accuracy, and design solutions to complex geospatial problems. Intercultural fluency and community responsibility are addressed through projects and discussions that consider the broader social and community contexts in which geospatial data and land information are used.

Reference:

American Association for Geodetic Surveying. (2022). The geodesy crisis. https://aagsmo.org/wp-content/uploads/2022/02/TheGeodesyCrisis_Final.pdf

3. Demonstrate program quality and improvement through assessment and other indicators.

i. OEC Geographic Information Systems

- 1) Effectively manage databases and visualize results of geospatial analysis; 2) Apply programming skills in order to advance analysis with GIS; 3) Address planning, decision-making, and operational needs with geospatial skills.

Describe your key findings for these outcomes. (3500 characters or less)

These student learning outcomes are assessed through distributing a questionnaire to graduating students in their final semester. Because the OEC in GIS is a relatively new program, its first cohort graduated in 2025, and the number of graduates is small. The program will continue to monitor upcoming graduates and collect data to assess student learning outcomes accordingly.

Describe actions taken to improve student learning for these outcomes. (3500 characters or less)

N/A

Describe evidence that these actions are working. (3500 characters or less)

N/A

ii. AAS Geomatics

- 1) Operate industry standard field surveying equipment; 2) Keep surveying records; 3) Perform basic surveying computations; 4) Produce surveying drawings; 5) Apply knowledge of basic boundary law in the field; 6) Utilize basic geographic information systems in an engineering context.

Describe your key findings for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

See below. Although the wording of the student learning outcomes for the AAS in Geomatics differs from that of the BS program, the AAS outcomes represent a subset of the competencies addressed in the BS curriculum. Therefore, assessment results from the BS program are used to demonstrate achievement of the corresponding AAS student learning outcomes.

Describe actions taken to improve student learning for these outcomes. Programs may enter "See above" if there is a significant overlap of outcomes. (3500 characters or less)

See below.

Describe evidence that these actions are working. Programs may enter “See above” if there is a significant overlap of outcomes. (3500 characters or less)

See below.

iii. BS Geomatics

- *1) Identify, formulate, and solve broadly-defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline; 2) Formulate or design a system, process, procedure or program for the intended purpose; 3) Develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions; 4) Communicate effectively with a range of audiences; 5) Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts; 6) Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.*

Describe your key findings for these outcomes. Programs may enter “See above” if there is a significant overlap of outcomes. (3500 characters or less)

Assessment of student learning outcomes reported here begins in Fall 2022, following the program’s ABET review cycle to maintain consistency. During this time, student performance was measured using both direct and indirect assessment methods. Direct measures include evaluation of student work collected from designated courses aligned with each student learning outcome, while indirect measures include results from the Graduate Exit Survey completed by students in their final semester. For the direct measures, student work from the identified courses was evaluated using a rubric with four performance levels as used the ABET self-study report: Unsatisfactory, Developing, Satisfactory, and Excellent. Overall attainment for each student learning outcome was calculated using a weighted average consisting of 80% course-level assessment and 20% Graduate Exit Survey results.

Based on available data collected, the average levels of attainment for student learning outcomes 1-6 are 75%, 80%, 92%, 88%, 84%, and 89%. Overall, the results indicate that students are meeting or exceeding faculty expectations across most student learning outcomes. Outcomes related to experimental design and data analysis, effective communication, professional and ethical responsibility, and teamwork (Outcomes 3-6) demonstrate particularly strong levels of attainment, with scores ranging from 84% to 92%. Outcome 1 showed comparatively lower performance, though still within an acceptable range. Faculty discussions during annual course-level assessment meetings suggest that students sometimes struggle to apply mathematical concepts when solving discipline-specific problems.

Describe actions taken to improve student learning for these outcomes. Programs may enter “See above” if there is a significant overlap of outcomes. (3500 characters or less)

To address this issue, instructors have incorporated additional guided examples and exercises within relevant courses to help students strengthen their ability to apply these concepts in geospatial contexts. In addition, the program developed a new course, GEO A346 Advanced Geomatics Computations, to provide more focused learning on the math topics required in upper-division geomatics coursework. The course is designed to reinforce quantitative problem-solving skills and better prepare students for advanced courses within the program. GEO A346 is being offered for the first time in Spring 2026.

Describe evidence that these actions are working. Programs may enter “See above” if there is a significant overlap of outcomes. (3500 characters or less)

Because student learning outcomes are evaluated using a three-year aggregation of assessment data, it is currently too early to determine the effectiveness of the recently implemented actions. These measures will be evaluated during the next three-year assessment review window as additional course-level assessment data and Graduate Exit Survey results become available.

- b. Demonstrate program quality and improvement through other means, for example, maintaining specialized accreditation, using guidance from advisory boards/councils, responding to community partners and local needs, maintaining currency of the curriculum, implementing innovative program design, intentionally integrating high-impact teaching and learning practices into the program, and meeting indications of quality in distance education, such as the C-RAC Standards. (3500 characters or less)**

A key indicator of program quality is the continued accreditation of the Bachelor of Science in Geomatics by ABET. The program has maintained continuous ABET accreditation since 1995. This accreditation requires the program to meet rigorous standards related to curriculum quality, student learning outcomes, faculty qualifications, facilities, and continuous improvement. For example, ABET requires programs to maintain a contemporary curriculum that prepares students to succeed in a rapidly evolving technological environment and to demonstrate ongoing assessment and improvement of student learning outcomes. The most recent ABET review occurred in Fall 2022, and accreditation was renewed for the next six-year cycle. Because the OEC in GIS and the AAS in Geomatics programs share core coursework with the BS program, they benefit from the same curriculum review, assessment practices, and continuous improvement processes.

Industry and community engagement also contribute to program quality. The programs receive regular input from an active advisory board composed of representatives from surveying, engineering, and geospatial organizations across Alaska, including agencies such as the National Oceanic and Atmospheric Administration, the Alaska Department of Natural Resources, and the Bureau of Land Management, as well as private-sector firms. The advisory board meets with faculty to review curriculum relevance, discuss emerging technologies and workforce trends, and recommend program improvements. Their feedback has informed curriculum updates, equipment investments, and the development of new course content to ensure that graduates possess skills aligned with current professional practice.

The programs also maintain strong partnerships with state and federal agencies, municipalities, and private-sector employers throughout Alaska. These partners provide internship opportunities, contribute to advisory discussions, and help identify the skills needed by graduates entering the geospatial workforce. As the only geomatics programs in Alaska that provide pathways from technical training to a bachelor’s degree, the OEC, AAS, and BS programs play an important role in supporting the state’s workforce needs in surveying and geospatial technologies.

In addition, the programs incorporate high-impact educational practices that support student learning and professional development. Field-based coursework, undergraduate research, capstone projects, and term projects provide students with opportunities to apply technical knowledge to real-world problems. Students also engage with the professional community through activities such as participation in the Alaska Surveying and Mapping Conference, where they interact with practicing professionals and gain exposure to current issues and emerging technologies in the field.

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- c. **Demonstrate program quality and improvement through other means, for example, maintaining specialized accreditation, using guidance from advisory boards/councils, responding to community partners and local needs, maintaining currency of the curriculum, implementing innovative program design, intentionally integrating high-impact teaching and learning practices into the program, and meeting indications of quality in distance education, such as the C-RAC Standards. (3500 characters or less)**

This is duplicative of Part B.

4. Demonstrate student success and the closing of achievement gaps.

- a. **Analyze and respond to the disaggregated data in the data sheet for your program. Provide clarifications or explanations for any positive or negative trends indicated by the data, and discuss what you are doing to close any achievement gaps. The Student Success program review metrics are Junior Graduation Rate, Associate Graduation Rate, Semesters to Degree – Graduate Programs, and Course Pass Rates by Course Level. (3500 characters or less)**

Analysis of student success indicators shows generally strong outcomes for the Geomatics programs relative to institutional averages. From 2021 to 2024 (no junior graduates were recorded in 2025 at the time of reporting), the junior graduation rate exceeded the institutional average in most years. The only exception occurred in 2023, when the rate was slightly lower; however, the data for part-time students during that period are limited, making year-to-year comparisons less reliable.

Course pass rates for both lower-division and upper-division courses consistently exceed institutional averages. Pass rates are also very similar between full-time and part-time students, suggesting that enrollment status does not significantly affect course completion in the program. These consistently strong pass rates across undergraduate courses reflect ongoing efforts to maintain a rigorous and well-supported curriculum, including regular course review and updates to ensure alignment with student preparation and program expectations.

The five-year graduation trends for the AAS in Geomatics have remained relatively stable since the program was reinstated in spring 2022 after a brief suspension. Because a significant portion of AAS students attend part-time, the effects of the suspension are still visible in enrollment and graduation patterns. Faculty advising also indicates that a number of students enrolled in the AAS program continue directly into the BS in Geomatics without formally applying to graduate with the AAS credential. As a result, the reported AAS graduation rate may underestimate the number of students who complete the coursework associated with the degree.

To support student success and minimize potential achievement gaps, faculty provide mandatory advising to help students understand degree requirements and available credential pathways. Advisors also encourage eligible students to apply for the AAS degree when requirements have been met, even if they plan to continue into the BS program.

- b. **Numerous US universities, and a number of programs across UAA, have holistically evaluated their programs and courses to look for unintended barriers to student success. For example, the Purdue IMPACT (Instruction Matters: Purdue Academic Course Transformation) effort between 2011 and 2018 resulted in 325 courses being redesigned to incorporate research-based strategies known to increase student outcomes, while maintaining academic quality and rigor. Other efforts have involved course sequencing and scheduling, resulting in improved success even for [graduate students](#). Please consider your program's graduation rate, course pass rates, and similar data sources to reflect on any barriers to students moving through the curriculum, and describe what steps you have taken (or are planning to**

take) for possible redesign of gateway courses, course sequence changes, course scheduling, or similar efforts. (3500 characters or less)

The department conducts a mandatory advising process each semester for every student enrolled in the OEC in GIS, AAS, and BS in Geomatics programs. Information collected through these advising sessions provides valuable insight into the challenges students may encounter as they progress through the curriculum and allows faculty to respond promptly to emerging issues. For example, after the program added 200- and 300-level math courses to our curriculum to strengthen students' math preparedness, feedback from mandatory advising revealed several challenges. Primarily, online students outside of Anchorage reported difficulty scheduling required math courses. In addition, many students indicated that they are struggling to connect mathematical theory with its practical applications in geomatics. In response, the program developed a new course, GEO A346 Advanced Geomatics Computations, to provide students with more opportunities to apply advanced mathematics in an expressly geomatics context and strengthen the link between theory and practice. This course is being offered for the first time in Spring 2026 and is currently enrolled over its initial capacity. Faculty advisors will continue to monitor student feedback through mandatory advising sessions and assess whether the course improves students' preparation and performance in upper-division coursework.

Mandatory advising has also informed us of improvements to the OEC in GIS. Feedback from students indicated a need for greater flexibility in the certificate to better align with students' career interests and scheduling constraints. In response, the program revised the OEC in GIS curriculum to include elective options, allowing students to select courses that match their professional goals while maintaining the core competencies of the certificate. This change, currently under review through the curriculum approval process, will provide students with more flexible pathways to complete the program and better support the diverse backgrounds and needs of students pursuing GIS skills.

- c. Provide evidence of the overall success of students in the program. For example, you might talk about the percent of students in post-graduation employment in the field or a related field, the percent of students who go on to graduate school or other post-graduation training, and/or the percent of students who pass licensure examinations. You might also give examples of students who have been selected for major scholarships or other competitive opportunities. [Please do not use personally identifiable information.] (3500 characters or less)**

According to data from graduate exit surveys from AY2023 to AY2026, over 40% of respondents reported successfully securing employment in their final semester, while 22% of respondents reported plans to attend graduate school. This notable trend underscores the high demand for our graduates and reflects the relevance of the curriculum to workforce needs.

Demand for geomatics professionals remains strong at both the state and national levels. Labor market projections further support this trend. The Alaska Department of Labor and Workforce Development projects a 4.76% to 11.21% increase in demand for geomatics occupations such as Surveyors, Cartographers, and Photogrammetrists between 2020 and 2030. These projections align with the continued need for geospatial data, land surveying, infrastructure development, and resource management across Alaska.

The program also prepares students for professional licensure, an important milestone for surveying professionals. Data reported by the National Council of Examiners for Engineering and Surveying (NCEES) show that UAA Geomatics graduates taking the Fundamentals of Surveying (FS) Exam from 2021 to 2025 are competitive with or exceed those graduates of peer institutions. Our graduates achieved a 100% pass

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rate in both 2021 and 2023, outperforming the national pass rates that include all examinees from ABET-accredited programs.

Reference:

Department of Labor and Workforce Development - Research and Analysis. (2022). Alaska Occupational Forecast 2020 to 2030.

5. Demonstrate demand for the program.

- a. **Analyze and respond to the data in the data sheet for your program. Provide clarifications or explanations for any positive or negative trends indicated by the data, and discuss what you are doing to improve. The Demand program review metrics are Ratio of Out-of-Discipline Credit Hours to Total Credit Hours, Number of Program Graduates Who Continue Education, and Number of Program Graduates Who Return to UAA to Pursue an Additional Program. (3500 characters or less)**

The Ratio of Out-of-Discipline Credit Hours to Total Credit Hours increased to 27% in 2025 after declining from 35% in 2021 to 19% in 2024. While the ratio fluctuated during this period, the data consistently show that approximately one-quarter to one-third of students enrolled in Geomatics courses are from outside the major. This indicates that Geomatics courses play an important service role in supporting other academic programs within the UA system and contribute to interdisciplinary education across the university. It is important to note that some courses taught by Geomatics faculty that serve students in other programs are not included in the calculation of this ratio. As such, the metric likely understates the full level of demand for Geomatics instruction. For example, the Civil Engineering BS degree requires:

- GEO A155 Introduction to Surveying

Additionally, both the AAS and BS programs in Construction Management require:

- GEO A181 Construction Surveying

Because these service courses are not included in the ratio calculation, they represent additional instructional demand needed by students outside the geomatics major. These courses provide essential surveying and mapping skills for students preparing for careers in civil engineering, construction, and infrastructure development.

The number of Program Graduates Who Continue Education or Who Return to UAA to Pursue an Additional Program shows an overall upward trend during the review period, with a notable increase in 2023. However, the data indicates that both metrics were reported as zero in 2024. This temporary decrease is likely influenced by a small cohort of graduates who may not have immediately enrolled in additional programs during the reporting period. The increase observed in the subsequent year suggests that this decrease represents a short-term fluctuation rather than a sustained trend. Notably, the Number of Program Graduate Who Return to UAA to Pursue an Additional Program exceeds the Institutional benchmark in all years except for 2024.

Workforce data further demonstrate strong demand for graduates of the Geomatics program. A study conducted by the University of Alaska Workforce Development, UA Data Strategy, and Institutional Research identified the Geomatics program as an important contributor to workforce development in Alaska's construction and oil and gas industries. The study found that employment rates within one year of graduation in Alaska were strong across geomatics programs: 75% for the OEC in GIS, 79.3% for the Geomatics AAS, and 77.8% for the Geomatics BS. The analysis also found that graduates of both the

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Geomatics AAS and BS programs earned significantly higher wages than the statewide average for Alaska graduates.

Reference:

University of Alaska. (2025). UA Workforce Development 2025 Reports.
<https://www.alaska.edu/research/wd/reports.php>

6. Demonstrate program productivity and efficiency.

Analyze and respond to the data in the data sheet for your program. Provide clarifications or explanations for any positive or negative trends indicated by the data, and discuss what you are doing to improve. The Productivity and Efficiency program review metrics are Five Year Degree and/or Certificate Awards Trend, Student Credit Hours per Full-Time Equivalent Faculty, and Full-Time Equivalent Student per Full-Time Equivalent Faculty. (3500 characters or less)

Data for the Five-Year Degree and/or Certificate Awards Trend for OEC GIS are limited for this review period due to the recent launch of the program and the relatively small number of graduates to date. For the Geomatics AAS, the number of graduates has remained relatively consistent despite the suspension of admissions to the program in AY2022-21. This may be due to the relatively high proportion of part-time students enrolled in the program, which can extend the time required for degree completion.

The Five-Year Degree Awards Trend for the Geomatics BS has shown an upward trajectory since 2023. The declines observed in 2022 and 2023 may be partially related to the earlier suspension of admissions to the AAS program, which historically served as an important pathway into the BS program. The decline in enrollment from 2021 to 2022 may also reflect broader challenges experienced during the post-COVID period. However, we are pleased to observe an upward trend in the BS enrollment in 2023 compared to 2022. While it is too early to draw firm conclusions, we are optimistic that this upward trend will continue. Contributing factors may include the reinstatement and strengthening of the AAS pathway, expanded faculty outreach and recruitment efforts, and collaboration with university partners such as ANSEP. The program has also increased outreach to K-12 schools in Anchorage, across the state, and throughout the Pacific Northwest region to raise awareness of career opportunities and education in geomatics.

Positive trends are also evident in the program's productivity and efficiency metrics. Student Credit Hours (SCH) per Full-Time Equivalent Faculty (FTEF) increased by approximately 23% from 2021 to 2025, while the Full-Time Equivalent Student (FTES) per FTEF increased by about 25% over the same period. These increases indicate improved instructional productivity and growing student engagement in Geomatics courses.

Optional: Discuss the extent to which, if any, extramural funding supports students, equipment, and faculty in the program. (3000 characters or less)

Faculty in the Geomatics program actively engage in research and workforce development activities and have successfully secured extramural funding from a variety of federal agencies and industry partners, including the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration's National Geodetic Survey (NOAA NGS), the U.S. Geological Survey (USGS), ConocoPhillips, and Hilcorp. These externally funded projects support applied research activities and create opportunities for undergraduate students to participate in research and gain hands-on experience with geospatial technologies and surveying methods.

In addition, the program has secured funding through the Alaska Technical and Vocational Education Program (TVEP) to purchase state-of-the-art surveying equipment. These investments enhance the program's instructional and research capabilities by ensuring that students are trained using modern industry-standard instruments and technologies.

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Overall, extramural funding plays an important role in supporting undergraduate research experiences, maintaining and upgrading specialized equipment, and advancing faculty scholarship and professional development. These resources strengthen the program's ability to provide high-quality, hands-on training that aligns with current industry practices and workforce needs.

- 7. Assess program distinctiveness, as well as any duplication resulting from the existence of a similar program or programs elsewhere in the University of Alaska System. Is duplication justified, and, if so, why? How are you coordinating with UAA's community campuses and the other universities in the system? (2500 characters or less)**

There is no duplication of Geomatics programs within the UA system

- 8. Assess the strengths of your program and propose one or two action steps to address areas that need improvement. (4000 characters or less)**

The Geomatics program is a distinctive and strategically important program for the State of Alaska. It provides the educational foundation required by the State of Alaska for professional surveying licensure and serves as the primary pathway for training geomatics professionals in the state. As a result, the program plays a critical role in supporting Alaska's workforce needs in surveying, mapping, and geospatial data analysis and management across key sectors, including construction, mining, oil & gas, and transportation.

One key strength of the program is its long-standing ABET accreditation, which has been maintained since 1995. ABET accreditation ensures that the curriculum meets nationally recognized standards for engineering and applied science education and that students develop the technical competencies required for professional practice. The program continuously evaluates and updates its curriculum to align with industry expectations and emerging technologies in geospatial science.

Another strength is the program's strong connection with industry and government partners. An active advisory board composed of professionals from surveying firms, government agencies, and industry provides regular feedback on curriculum relevance and workforce needs. These partnerships support internships, undergraduate research opportunities, and applied learning experiences that prepare students for careers in the geomatics profession.

A third strength is the strong employment outcomes for graduates. Geomatics professionals remain in high demand, and many students secure employment before completing their degrees. The profession offers stable, high-quality career opportunities that rely on technical expertise, problem solving, and professional judgment—skills that remain essential even as geospatial technologies continue to evolve. In addition, since the end of COVID-related disruptions, program enrollment has shown a sustained upward trend, suggesting renewed student interest in geomatics education.

Building on these strengths, the program is continuing to expand efforts to increase awareness of geomatics career opportunities and broaden its recruitment pipeline. Faculty are strengthening outreach activities through partnerships with programs such as ANSEP and increased engagement with local schools and community organizations. These efforts aim to introduce more students to the diverse career opportunities in geomatics and geospatial science and to support continued growth in program enrollment.

- 9. Over the past two years programs and colleges conducted a comprehensive review of all fees. Moving forward, per the [UAA Course Fee Policy](#), programs conduct a comprehensive review and re-approval of all course fees as part of the cyclical Academic Program Review process. The college's strategic budget officer will conduct a review, and the dean will review the results and work with the program on any changes. The**

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authorized lead, per the Course Fee Policy, will submit forms for each fee, whether to delete, retain, or change the fee. Forms are due to OAA by the regular February 15 deadline.

What was the general outcome of the comprehensive fee review? (2500 characters or less)

The costs associated with specialized equipment and software licenses required to support instruction were reviewed. These costs are distributed across the courses that utilize the equipment and licensed software so that fees accurately reflect instructional resource use. Funds collected through these course fees accrue in Fund 7 and support the ongoing maintenance, replacement, and licensing of equipment and software necessary for course delivery. As a result of this review, the course fee for GIS A101 will be removed, while the course fees for all other courses will remain unchanged.

Committee chair first name last name: Caixia Wang

Date: 3/9/2026

END OF PROGRAM SECTION

DEAN SECTION (Due on April 1)

1. Evaluation of Progress on Previous Recommendations

For each recommendation from the last program review, indicate if the recommendation has been met or has not been met and provide commendations and guidance as appropriate. (2500 characters or less for each recommendation)

Recommendation 1: Monitor enrollment, [REDACTED] and efficiency metrics carefully, in particular, the need to increase enrollment. Recommendation has been met.

The program has successfully monitored these facets of the program with a robust process in place that is part of the program's systematic ABET accreditation process. These indicators speak well of the Geomatics faculty's ability to support student success among students with very diverse backgrounds, including a significant number of nontraditional and part-time students. One item for subsequent monitoring and reporting is enrollment from the articulation agreement with Bellingham Technical College.

The biggest challenge for the program right now is the need to increase enrollment, and program faculty are currently (AY26) executing a number of initiatives in that area. These include increased visibility in recruiting events with ASD, including Middle College Orientation, and college events such as Journey into Engineering. The program has worked with ANSEP Middle School Academies to add a Geomatics activity for all participants, and faculty have given mock lectures to local K12 students about topics such as GIS. The program is actively outreaching to various Native corporations and exploring partnerships. The program created a "What is Geomatics" video in the fall that featured in-depth interviews with industry professionals and launched a regional Spotify campaign and targeted social media campaigns this spring. The aim of all of these activities is to increase the visibility of the profession so that more young people know that the field is an option.

Enrollment of first-year Geomatics students has increased this year, and this is hopefully indicative of momentum in this area. While sustained enrollment has not yet been achieved, monitoring and a plan to increase enrollment has been implemented.

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Recommendation 2: Increase course offerings and opportunities for student engagement. Recommendation has been met.

The Geomatics program has successfully transitioned to fully hybridized class offerings, which increase access to the classes for students who are working, living outside of Anchorage, or otherwise unable to attend classes on campus regularly. The program faculty have demonstrated readiness and skill in working with nontraditional and working professional students to progress toward their academic goals. This is evidenced by the success of part-time students in the program. Strong ties to the local community of Geomatics professionals ensures that students have access to numerous internship, professional development, and part-time work opportunities. These relationships also promote a mutually beneficial professional development ecosystem between program faculty and local industry, and a reasonable pool of qualified adjuncts.

The program currently employs only two full-time faculty, one with active funded research projects. The number of course offerings is high with the faculty resources. Any additional increase in course offerings will likely require additional personnel.

Recommendation 3: Continue to think about how the program supports all students, regardless of their backgrounds. In particular, ensure that all students have access to high quality, highly-engaged learning opportunities, such as internships, practicums, clinicals, study away, and undergraduate research, regardless of modality or location. Recommendation has been met.

Data on graduation rates, and especially course pass rates, show that the program is doing a good job of supporting student success among students with very diverse backgrounds, including a significant number of nontraditional and part-time students. The Geomatics program was proactive about embracing multiple modalities and had fully hybridized all GEO- and GIS-prefix courses before COVID. Its tactic of collaborating with local licensed geomatics professionals to facilitate field-based learning experiences for students who are unable to attend in-person field activities on campus has increased access to the programs highly specialized, skills-based labs for students outside of Anchorage. The program has also embraced a remote virtual desktop solution for distance students to access local computing resources.

Strong ties with local industry ensure that internship opportunities for students are numerous. The program's success at supporting part-time students and its nested degree structure (with OEC GIS and AAS Geo classes all counting toward the BS Geo) means that many of its students are already working full- or part-time in the field while pursuing their studies.

Provide your analysis of #2-8 below, based on the data provided and the program's responses above.

2. Centrality of the Program (2000 characters or less)

The Geomatics program embodies UAA's dual mission of strong regional focus, innovative and flexible credentialing practices, a commitment to open access and affordability, and deep partnerships with local employers and industry (from Dual Mission Institutions as defined by the American Council on Education). By offering credentials of OEC, AAS, BS and MS, the department combines technical and short-term training with traditional bachelor's and graduate programs. The data provided show that the Geomatics undergraduate course pass rates compare positively with institutional metrics, and the fact that pass rates are nearly the same between full-time and part-time students suggests success at providing flexible pathways for students to advance their education. Geomatics is unique in the UA System and the credentials it offers are essential for workforce development in Alaska. UAA's Core Competencies are well-integrated into the BS program.

3. Program Quality and Improvement (2000 characters or less)

The Geomatics program has a robust system of assessment and continuous improvement in place as required to maintain ABET accreditation. Only the BS Geomatics is accredited, but the AAS Geomatics and the OEC Geomatics share all classes with the BS degree and benefit from the process as well. The program has made curricular changes as the result of this process and should evaluate the success of those changes in the next few three-year assessment cycles. It is expected that the OEC GIS assessment survey will provide actionable results when the program has more graduates.

The program is highly engaged with the local geomatics professional community through its advisory board, which is among the most active of the program advisory boards in CoEng, and through broader engagement with the community of geomatics employers in Alaska. The annual Surveying and Mapping Conference is an example of a regular professional event that students are strongly incentivized to attend. The program delivers its applied science curriculum with a strong hands-on component. Students must take a lab in GIS and a lab in surveying techniques, and students in the Surveying track must additionally take three more labs in surveying. These labs utilize modern professional surveying techniques and equipment and give students skills to participate in undergraduate research and internships.

4. Student Success and the Closing of Achievement Gaps (2000 characters or less)

The Geomatics program has been very successful in supporting the academic progress of its enrolled students. The program contains many part-time and many nontraditional students. The provided data show a strong junior graduation rate most years, and course pass rates that are not only higher than the institutional average, but similar between full-time, part-time students, women, and students age 25+. This suggests that the program is successfully providing flexible pathways for students to advance their education. The program's use of mandatory advising does seem to be ensuring success for students navigating a highly specialized degree, often as working professionals.

Mandatory advising seems to be a successful source of indirect assessment for the program's continuous improvement process. By talking to every student regularly, the program has been able to focus attention on true bottlenecks and student success issues.

The Geomatics program seems to be doing a good job of narrowing performance gaps between diverse groups of students, but it is still a small program that could stand to recruit more students from many groups, including women and Alaska Natives. Current recruitment initiatives are targeting both groups.

Many AAS students do transition to the BS and do not wish to pay the fee to graduate from the AAS and collect the credential. It's expected that advising students of the benefits of collecting the AAS in addition to the BS can reduce this issue.

5. Demand (2000 characters or less)

Institutional comparison data for the Ratio of Out-of-Discipline Credit Hours to Total Credit Hours was not available, but it is expected that Geomatics figures are lower than the institutional average. Geomatics is a highly specialized applied science and is a larger consumer than producer of service courses. Geomatics does, however, provide valuable service courses to Civil Engineering and Construction Management. The real indicator of demand for Geomatics is external to the university rather than internal. Analysis by the UA Office of Workforce Development underlines the importance of Geomatics in key state industries including construction and oil and gas, and also reveals that more than 75% of program grads stay to work in Alaska. The program's contributions to the communities served by the university are high.

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Institutional Comparisons provide Program Graduates who Continue Education and Program Graduates who Return to UAA to Pursue an Additional Program by percentages, while the AY26 Program Review Data Sheet for Geomatics reports raw numbers. In order to compare these figures, we must compare the numbers on the Geomatics Data Sheet to the total numbers of grads from the OEC GIS and AAS/BS Geo during the review period. To calculate percentages, we divide each figure by the sum of Five Year Degree and/or Certificate Awards Trend for all three credentials. This makes the percent program grads who continue 55% (2021), 45% (2022), 64% (2023), 0% (2024), and 27% (2025). The percent program grads who return to UAA to continue are 45% (2021), 45% (2022), 73% (2023), 0% (2024), and 18% (2025). The anomaly of 2024 aside, these values compare very well with institutional averages, even given the decline so far in 2025. Advising students enrolled in the AAS to collect that degree when transitioning to the BS is expected to increase both the number of grads and the percentage of grads who continue at UAA. OEC GIS demand is too early to analyze.

6. Productivity and Efficiency (2000 characters or less)

The Five-Year Degree and/or Certificate Awards Trend for both the AAS and the BS declined during the review period, which began with a suspension of admissions to the AAS. The fact that awards for the BS in particular have been on the rise is encouraging. It is expected that the award trend for the AAS can be increased by advising students enrolled in the AAS to collect that degree when transitioning to enrollment in the BS. It is expected that current recruitment initiatives will have a positive effect on degree (and enrollment) trends moving forward.

SCH/FTEF and FTES/FTEF are significantly lower than institutional averages. Geomatics is a highly applied field of study requiring specialized instruction. A peer group of programs that would make for an interesting comparison are other highly specialized technical degrees, many of which reside in the CTC (e.g. Air Traffic Control, Automotive and Diesel Power Technology). The current faculty are quite productive offering and managing all aspects of the programs. It is expected that new recruitment initiatives will increase the numbers of enrolled students. It is hoped that a current initiative to make the OEC GIS more visible to current UAA students in other fields as a desirable technical addition to their major (e.g. natural sciences like biology, social sciences, public health, construction) will increase the number of non-AAS/BS majors who take the program's classes.

The program's ability to bring in extramural funding for research and educational purposes is commended. Given the uniqueness of Geomatics in the UA System and the increasing ubiquity of geospatial components in many fields, it is hoped that adding additional faculty resources will enhance the program's ability to contribute to additional extramurally funded research and workforce development activities.

7. Duplication and Distinctiveness (2000 characters or less)

The Geomatics program is unique within the UA System, and provides credentials that are essential to the state's economy (see the answer to question 5, Demand).

8. Strengths and Ideas for Moving Forward (2000 characters or less)

The college agrees with the Geomatics program that major areas of strength include its unique ability to provide credentials that are essential to the Alaskan economy, its longstanding ABET accreditation, and its strong connection with the local professional community. This last item is borne out by a very active advisory board and strong employment outcomes for graduates. The Number of Program Graduates who Continue Education and Number of Program Graduates who return to UAA to Pursue and Additional Program percentages are much higher than the institutional average. This suggests that the program really is providing flexible pathways for first-time students and local professionals to advance their education.

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Geomatics is an essential course of study at UAA and within the UA System. The curriculum is accredited and well-designed, and similar Course Pass Rates among various groups of students indicate that the program faculty are successfully serving their students as both teachers and advisors. The challenge and focus moving forward is recruiting more students. Program faculty are currently executing a number of initiatives in this area, including participation in the ANSEP Middle School Academies this year, increased visibility at campus recruiting events, a local Spotify campaign, outreach to various Native corporations (including CIRI and NANA Works), and more aggressive promotion of the OEC GIS as a good add-on for many majors of study outside CoEng.

9. Comprehensive Fee Review (2000 characters or less)

The Geomatics program has both specialized hardware and software is supported by course fees. The program levies course fees to support only the hardware and software utilized by a specific course. However, these fees have been shared across multiple courses that use the same equipment and software, which does help spread costs across multiple courses. Some funds accrue in a fund 7 account for large expenses that are not possible to purchase on a yearly basis. Our review with the Strategic Budget Officer found that the program has been spending the collected fees responsibly for their intended purpose.

Dean's Final Evaluation

I commend the program for: (number and list the specific commendations in the narrative box, 2000-character limit)

1. Its unique statewide value and strong outcomes: The Geomatics program's unique ability to provide surveying credentials essential to Alaska's economy is reinforced by strong employment outcomes for graduates.
2. Quality and rigor: Geomatics' longstanding ABET accreditation and well-designed curriculum, which includes a nested curriculum from OEC to AAS to BS, support student success.
3. Deep industry connection and support ecosystem: The program has a strong connection with the local professional community, evidenced by a very active advisory board and strong professional engagement, bringing many opportunities to students.
4. Outreach efforts: The program has made an increased effort to promote the Geomatics profession, with multiple activities aimed at pre-college students.

I recommend that the program: (number and list the specific recommendations in the narrative box, 2000-character limit)

1. Prioritize enrollment growth: Continue and expand the current recruitment strategy (K–12 outreach, ANSEP, campus events, targeted marketing, Spotify, Native corporation partnerships, summer camps).
2. Promote the OEC GIS to non-CoEng majors: This is a potential market of existing UAA students that can benefit from Geomatics course offerings.
3. Enhance credential completion: Encourage AAS graduation before transitioning to the BS to increase awards and strengthen continuation metrics.

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Dean's overall recommendation to the provost: Continuation -- Program is successfully serving its students and meeting its mission and goals. No immediate changes necessary, other than regular, ongoing program improvements.

If an Interim Progress Report is proposed, recommended year: N/A

If a Follow-up Program Review is proposed, recommended year: N/A

Proposed next regular Program Review: AY2033

Dean first name last name: Kenrick Mock

Date: 4/1/2026

END OF DEAN SECTION

PROGRAM OPTIONAL RESPONSE SECTION (Due within one week of receiving dean's review)

Are you submitting an optional response? If yes, add your response below, enter your name and date, and follow the guidance below for submission. If no, enter your name and date, and follow the guidance below for submission.

No

Optional Response: *(10,000 characters or less)*

Committee chair first name last name: Caixia Wang

Date: 4/8/2026

END OF PROGRAM OPTIONAL RESPONSE SECTION

PROVOST SECTION (Due on August 1)

Provost's commendations, additional or adjusted recommendations, if any, and other general comments (3500 characters or less):

I agree with the dean's commendations, and would like to call out in particular the program's outreach efforts, which appear to be having an impact. In particular, I encourage the program to focus on high school students and traditional aged college students, given the trends in Alaska and at UAA, through activities and events, such as summer camps, that then connect students with Admissions.

I generally agree with the dean's recommendations, with some changes. I do not support recommendation #2 promoting the OEC to other non-College of Engineering majors, as this does not help UAA overall.

The resulting recommendations are:

- 1) Prioritized enrollment growth;
- 2) Enhance AAS completion.

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In addition, the program will want to address minor curricular issues in the next 2026-2027 academic year, including, but not limited to, full implementation of the catalog templates, addressing any hidden prerequisites, using prerequisites rather than a blanket requirement for a minimum grade of C, listing specific courses in place of a general requirement for courses with a specific prefix, ensuring stacked courses follow current UAA practice, and addressing any issues with contact hour calculation and messaging to students. The program will want to meet with the senior vice provost early in Fall 2026 to map out a plan for these updates.

Finally, I want to thank the program for the comprehensive review of course fees as part of this Program Review process. The program deleted 1 course fee and retained the remaining 17 fees with no change in level. This concluded a multi-year effort to determine how best to calculate fees across multiple courses that use the same resources. Controlling costs to students is a significant part of UAA's affordability initiative, and I wish to thank the program for its efforts in this area.

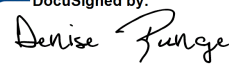
Provost's decision: Continuation -- Program is successfully serving its students and meeting its mission and goals. No immediate changes necessary, other than regular, ongoing program improvements.

Interim Progress Report: Select N/A or Academic Year.

Follow-up Program Review: Select N/A or Academic Year.

Next regular Program Review: AY2032

Provost's signature:

DocuSigned by:

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Date: June 26, 2026