

Submission date: February 10, 2020

Program/s in this review: Limited Radiography OEC, Diagnostic Medical Sonography AAS, Radiologic Technology AAS

Specialized accrediting agency (if applicable): N/A

Campuses where the program is delivered: Anchorage

Members of the program review committee:

- Bridgett Mayorga, Diagnostic Medical Sonography Program Director, Assistant Professor (chair), Anchorage
- Kathryn Slagle, Radiologic Technology Program Director, Assistant Professor, Anchorage

1. Centrality of Program Mission and Supporting Role (700 words or less)

Program Relevancy

The mission of the University of Alaska Anchorage (UAA) is to discover and disseminate knowledge through teaching, research, engagement and creative expression. UAA's School of Allied Health's (SAH) mission is "to educate and develop allied health professionals to serve all Alaskans," while the College of Health's mission is "advancing the health and well-being of people and communities."

The mission of the Radiologic Technology (RADT) program and Diagnostic Medical Sonography (DMS) program is to prepare competent, caring professionals to meet Alaska's medical imaging needs while promoting excellence in the imaging professions through advocacy, education, and community partnerships. The programs support UAA's commitment to serving the higher education needs of the state and its communities by providing training in highly technical and skilled medical occupations to meet the healthcare needs of the people of Alaska. The programs directly support the Board of Regents' goal of doubling the number of health graduates by 2025 through partnerships with regional campuses within the University of Alaska.

The Occupational Endorsement Certificate (OEC) in Limited Radiography is designed to teach non-imaging health care professionals such as Community Health Aides (CHAs), Certified Nurse Aides (CNAs), Medical Assistants (MAs), and Registered Nurses (RNs) to take radiologic images.

Support for Other Academic Programs

In addition to general education courses, the RADT program supports the MA program by teaching an elective course (RADT A101 Fundamentals for Limited Radiography) and the DMS program by teaching a required course (RADT A151 Radiographic Physics). Both the RADT and DMS programs also support other university programs, e.g., Mathematics, Medical Assisting and Biological Sciences. Students have two prerequisite MA classes (MA A101 Medical Terminology and MA A104 Essentials of Human Disease) and two classes in Biology (BIOL A111/L and BIOL A112/L Anatomy and Physiology I and II).

Partnerships

The RADT program is delivered statewide with all courses offered either as a hybrid face-to-face/distance-delivery or delivered completely online. Courses taught in the traditional face-to-face format have the instructor in either Anchorage or Fairbanks and connect to all other students via distance delivery through video conferencing. A strong and cooperative working relationship has developed over time between UAA, the University of Alaska Fairbanks (UAF) and the University of Alaska Southeast (UAS) to ensure access to local advising for the program and the continued success of a statewide program.

The distance option for the program was developed with the specific intent to recruit and train students in their local communities, with the goal of having students stay and practice in their local communities. The above-mentioned

strong and collaborative working relationships between the program and regional campuses, regardless of affiliation, are the only way the program survives as a statewide program. The DMS program currently utilizes a traditional face-to-face classroom delivery method.

Hands-on clinical experiences are required components of both programs, and clinical education sites provide students the opportunity to observe and practice, then demonstrate skill level competency on all age groups in a safe and supportive environment. This can only be accomplished through partnerships with industry, specifically medical imaging departments and medical practices in both urban and rural communities. Both programs are heavily reliant on these partnerships throughout the state to support the clinical practicums required in the curriculum, as both have minimum requirements for the types and numbers of procedures needed to demonstrate competency prior to graduation/eligibility for certification examinations.

The DMS program also serves as an in-state resource for all aspects of sonography, and provides expert advice, specific requests for training assistance, and most recently facilitating the revitalization of a state professional society for sonography. Program faculty provide continuing education for community sonographers with seminar presentations.

Workforce Development and High Demand Designation

The UAA RADT and DMS programs are high demand programs. The Alaska Department of Labor statistics describes outlook for both programs as “robust,” with anticipated 2026 vacancies of 24% and 23% respectively. Graduates meet workforce demand and fill employment positions that benefit Alaskan economies. Graduates help reduce the cost to healthcare facilities for temporary non-resident staffing while promoting accessibility to imaging services in all regions of Alaska.

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

Seven Year Degree Trend and Major Enrollment

While neither program is externally accredited, both programs are designed according to external accreditation / certification standards for curriculum, as well as for faculty and clinical preceptor to student ratios. Given current faculty, space and equipment availability, both programs have limited capacities. For example, RADT students must begin all clinical practicums under the direct one-to-one supervision of a technologist, and must successfully demonstrate competency in order to advance to indirect supervision. DMS students are required to complete a minimum of 1680 hours and document 1500 completed patient examinations (30% abdominal procedures and 30% Obstetric/Gynecological (OB/GYN) procedures), and also require a student to technologist ratio of one-to-one.

For both the AAS in RADT and DMS programs, clinical placement limitations, i.e., size, patient volume, variety of procedures available, staffing, etc., are the primary impediment to increasing the number of enrolled students. One student per site is often the limit as not all clinical sites are able to provide the necessary patient volumes and variety of procedures required for student competency. Another factor that contributes to low enrollments is available on-campus resources. While there is potential to increase enrollments in the RADT program by increasing the number of distance sites, given the current face-to-face delivery method for the DMS program, increasing numbers of students enrolled in this program would require significant investment in space allotted and equipment available.

This OEC is very specific to a very small population of students, and enrollments are thus limited by demand. This is not a stand-alone career path and a high level of program advising is done to ensure students have the adequate background to take the courses. Faculty often accept reduced workload units in these courses in order to provide the training. Given enrollment trends for this program and the fact that it is offered completely online, the program and the SAH are considering changing the way this program is offered, for example as a continuing education certification, as opposed to an OEC.

Credits per degree

As with many programs in the School of Allied Health and at UAA, Limited Radiography, RADT and DMS students are considered non-traditional students and enter the program after a change in careers, being discharged from the military, or having raised their children. They often possess associate or bachelor's degrees prior to applying to their desired program. These changes add credits and time to their program of study. Another explanation would be the competitive application process(es) for the programs, and students may need to repeat courses in order to meet minimum GPA and prerequisite grade requirements. Successful applications then lead to a required interview and not all students who apply will be accepted. Many students who are not selected after an interview continue to take classes at UAA with the plan to reapply the following year or pursue a different field of study. Both situations would add to the overall number of credits spent required for degree completion.

For the OEC in Limited Radiography, average credits per certificate is 15.5 (range of 10.7 to 48.5) with an average of 1.9 years (range of 1.5 to 3.0) required to complete the certificate. For the AAS in RADT, the average credits per degree is 79.7 (range of 71.8 to 86.2) and an average of 4 years (range of 3.5 to 5.2) is required to complete the degree.

The average credits for degree for the DMS program is 78, with highest number of credits at 107. Years per degree range from 2.0 to 9.7, with an average of 5.3. Several factors that affect these numbers. Commission on Accreditation of Allied Health Programs (CAAHEP) DMS accreditation standards require all students to complete 20-23 credits of college level coursework prior to the beginning of the core curriculum of the program. These prerequisite courses include College Algebra, General Physics or Radiation Physics, Communication Skills, Human Anatomy and Physiology I & II, Medical Terminology and Pathophysiology. The clinical education requirements also affect credit hours per degree. CAAHEP mandates a year of full-time work equivalent (35 hours a week for a year), or a minimum of 1680 clinical hours. Credit hours assigned to clinical coursework increases overall program credits. The technical portion of the program requires 70 credits and 6 semesters. Several options are being considered by the program to address the high number of credits, including conversion of the program to an entry-level bachelor's degree or a revision to the current curriculum. Discussions with program advisory committee members have made it clear that while they understand that the numbers of credits and years to degree are high, they are adamant that students entering the profession do so with the same knowledge and skills as current graduates.

Course Pass Rate and Withdrawal Rate

The seven-year course pass rate for the RADT program is excellent. Program policy allows for a leave of absence without removal or dismissal from program. Through support of academic and program advising once admitted to the program, most students who request a leave of absence do so before registration in the next semester of classes, though there have been several students who have withdrawn from current courses and the program in the middle of a semester. In these cases, students may return to complete coursework in a later semester. The seven-year course pass rate is also high for Diagnostic Medical Sonography. Since 2015, few students have failed to meet academic requirements in the 100-299 level courses. In addition to academic failure, withdrawals sometimes happen for medical conditions and family reasons. Students who must withdraw from the program may be readmitted and graduate with another cohort. Because the DMS program admits a small number of students, one failure or withdrawal drastically affects program retention and pass rates.

Internal Demand

The RADT program provides one class for the Medical Assisting program and two classes for the DMS program, which accounts for the student credit hours (SCHs) taken by non-RADT majors. With those two exceptions, only students selected into the program can take courses denoted as RADT. The high numbers found in this area may be attributed to those that have declared this as their major or are pre-majors, but who have not been formally admitted to the program.

The DMS program requires students to be accepted into the program prior to taking any DMS designated courses. Reported SCHs are representative of the students that have declared DMS as their major.

Credit Hour Production and Funding

Radiologic Technology and DMS programs are funded by tuition, fees and general funds (GF) through the College of Health. The DMS program has also received TVEP funds to partially fund the program director's salary since the inception. SCH production has trended upwards over the past seven years, along with associated tuition and instructional costs.

External Demand

This an area that needs to be further explored and perhaps evaluated and reported on in annual assessments for the program. There are graduates of both programs that have earned subsequent degrees, certifications and professional license but the program currently has no process in place to evaluate.

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

Specialized Accreditation

None of the programs included in this review are externally accredited. That said, both the RADT and DMS programs utilize competency-based curricula aligned with external accrediting body or certification standards. For the RADT AAS, students are qualified to sit for the national certification exam after graduating from a regionally accredited institution.

The DMS program would like to seek CAAHEP accreditation through the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS). CAAHEP accreditation is a priority for the program; it allows immediate access to American Registry of Diagnostic Medical Sonography certification examinations for students in the program prior to graduation. This early access would position graduates of the program to enter the workforce already possessing the necessary credentials employers are seeking. The specialized program accreditation has been identified by the program advisory board and community healthcare organizations as essential to the program's future development. CAAHEP has introduced several changes that will need to be addressed from the clinical aspect but the program is well positioned to undertake the accreditation process at this point. The current program curriculum is structured to meet CAAHEP standards. The standards are specific as to prerequisites and courses, as well as course content that must be covered in the sonography program. In addition, the standards also detail the required number of patient exams, types of exams and clinical hours necessary to provide students adequate hands-on experience to enter the profession. The curriculum was most recently updated in 2018 and will continue to be elevated to guarantee compliance with CAAHEP requirements.

Currently, all students are only eligible to sit for the ARDMS Sonography Physics and Instrumentation exam. As a part of program improvement, the program has made successful completion of the ARDMS Sonography Physics and Instrumentation (SPI) exam a prerequisite to the summer Practical Sonography Laboratory (DMS A219). This change is designed to promote student success on the examination and better position students for job placement after graduation. Currently, students receive an AAS from UAA and are eligible to sit for the national registry in sonography through the American Registry of Radiologic Technologists (ARRT). This is the only primary pathway for graduates that exists without CAAHEP accreditation. Successfully passing the ARRT exam allows students to be eligible to sit for the American Registry of Diagnostic Medical Sonography (ARMDS) content exams. Successful programmatic accreditation by CAAHEP would allow students to seek the professionally preferred ARDMS registry directly. Students would be eligible to sit for the ARDMS content exams prior to graduation and improve employment opportunities for the graduates. The advisory board and healthcare partners strongly recommend programmatic accreditation.

Program Student Learning Outcomes Assessment

For the RADT program, Student Learning Outcomes (SLOs) are assessed by three means: ARRT certification exam reports (received as three-year pass rates), student clinical evaluations (calculated as three-year average) and student exit surveys. The following was reported in the program's AY2018/2019 annual assessment report: The AART 3-year pass rate from January 2016 through August 2019 was 92%. Three-year average scores for clinical evaluations ranged from 3.43-3.91 on a 4.0 scale, with a 3.0 benchmark. Exit survey results ranged from 85-96%, with a 75% benchmark. Faculty have determined that the program is meeting benchmarks in regard to all assessment measures.

In the most recent student exit survey (implemented for the class of 2019), concerns were raised about the delivery of laboratory instruction for distance students. Students mentioned a disconnect between the instructor of the course (typically a UAA faculty member) and the lab instructor, a designated employee at the imaging department in their community. The program continues to investigate and invest in more multimedia presentations of laboratory instruction for distance students, which will allow for improved standardization of how imaging techniques are taught across the state.

The faculty is committed to program evaluation, and has recently implemented methods to more effectively assess student performance. For example, advisory board members and clinical staff representatives were tasked to review program SLOs, and feedback indicated that industry partners support current SLOs. After three years of data collection using the recently revised plan, faculty will review the outcomes, and then after five years of data collection in all areas, the assessment plan will be updated to indicate a five-year collection cycle. Student exit survey questions need to be more specific as to which learning outcome is being evaluated. For example, a student's opinion of how well the program supported the mission statement is asked only once, but the question is used for two student learning outcomes. In order to ensure the student is answering with a specific learning outcome in mind, the outcome itself should be noted in the question. Questions will be updated for the class of 2020.

The DMS program is currently redesigning its assessment plan to better meet the needs of the program. The current plan does not reveal relevant data that the program needs to assess student learning or areas for improvement. Given the limited nature of the previous plan, no actions have been taken to date. The redesigned plan would be submitted for implementation in 2020. The program conducts course evaluations as well as clinical site and clinical instructor evaluations to support student success. Students complete a monthly self-evaluation for clinical rotations. The self-evaluation allows for reflection on student progress and achievement of learning outcomes. Clinical staff complete evaluations of student performance that in conjunction with the student self-evaluation provide students with an accurate picture of clinical performance. The process identifies areas of success as well as areas for improvement and growth. A successful clinical externship correlates directly to student employment after graduation.

Sonography ARRT exam program statistics demonstrate a three-year average pass rate of 86%, compared to a national 3-year examination pass rate of 65.8%. Seven students applied for the examination, 6 students successfully passed. The program had a 100% pass rate on the ARDMS SPI in AY2018/2019. Program enrollment has varied from 10 students in the initial 2012 cohort to a minimum of 6 students. Retention rates range from 82% to 100%. With the admission of the recent cohort (2021), enrollment was increased to 9 students and is expected to increase to 10 for the 2022 cohort. The increased enrollment is supported by the increased clinical externships sites and program faculty. This increase represents a 100% increase in enrollment and supports the Board of Regents' goal to increase the number of health graduates by 2025 through partnerships with regional campuses supported by UAA. Challenges presented by increased enrollment include limited access to sonography equipment in laboratory for all students and laboratory space.

Curriculum, Program Design, And Distance Education

The RADT program incorporates didactic instruction, laboratory demonstration, and clinical application in a manner that provides a correlation of theory with practice. As stated previously, this is a statewide program and all didactic and clinical instruction must take into account distance delivered education. Two national organizations provide curriculum in support of a competency based clinical education. The American Society of Radiologic Technologists (ASRT) provides the comprehensive curriculum for the didactic training of students. The American Registry of Radiologic Technologists (ARRT) provides the curriculum for the national registry (which is mirrored in the ASRT curriculum) and the clinical competency requirements to sit for the registry. The UAA RADT program follows guidelines from both of these national organizations in the creation of courses and clinical education. The ASRT and ARRT review and update their curriculum every 5 to 7 years. As these updates occur, the RADT program also updates curriculum. The most recent update of the ASRT curriculum (effective 2017) triggered an entire program curriculum update over the past two years. The ARRT updated clinical competency requirements in 2016/2017 and program clinical requirements for graduation were updated as well.

The RADT program's application process requires specific program advising. Faculty and College of Health program advisors handle program advising. The ASRT and ARRT, in partnerships with program accreditation agencies, recently provided recommendations for distance education standards. The AAS RADT program is currently reviewing these standards.

The DMS program currently provides instruction in the traditional face-to-face classroom design. Laboratory, hands-on scanning is essential to the development of competent sonography students. Healthcare practical sites expect the student sonographers to come to the site already possessing entry level scanning skills. This is not a skill set that can be taught online. However, with the goal of program expansion, a hybrid face-to-face/distance delivery is being developed by program faculty to better serve the needs of the students. The redesigned delivery would allow greater access to the program from students outside of the current campus location, and potentially enable them to complete most of the program from their home communities. DMS A219 – Practical Sonography Lab would still need to be completed on campus. The clinical practicum will still remain the limitation to program expansion. Accreditation standards set forth specific requirements that must be met by each designated clinical site; often clinical sites are receptive to student practical but do not meet accreditation patient volumes or variety of sonography exams.

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

The AAS in Radiologic Technology, Limited Radiography OEC, and AAS in Diagnostic Medical Sonography offered through UAA are the only programs of their kind offered in the state of Alaska.

5. Summary Analysis (500 words or less)

The Limited Radiography OEC is important to rural and remote health care facilities all across the state of Alaska. It provides critical training to providers who are not professionally trained imaging technologists in a nationally recognized RADT program but are required to provide diagnostic imaging to their patients. However, the program has struggled for several years in its current format. The review committee supports program **revision**, transitioning this OEC into a continuing education program.

The review committee recommends **enhancement** of the AAS in Radiologic Technology. It is currently the only SAH program offered in a hybrid distance/face-to-face model, enabling students to complete the majority of the program in their home community. The program currently serves its students, meets its mission and goals, and continues to work with leadership to meet overall college and university goals to increase the number of healthcare graduates. The program is working on adding additional rural clinical sites and other opportunities to increase statewide

graduates of the program. This push for adding clinical sites brings unique considerations when moving forward. For a rural community to be a clinical site, there must be a partnership between (1) UAA, (2) the local campus and (3) the medical imaging department in the local hospital. The imaging department may want students, but if the local campus cannot support distance education needs for didactic classes, then it might not be possible. The reverse is also true, the local campus may want the program, but the imaging department does not. The most important recommendation for moving forward in rural development of our program is to ensure that all parties are well informed of all the relevant expectations, standards and policies.

The review committee recommends **enhancement** of the AAS in Diagnostic Medical Sonography. The program currently contributes to the health workforce' need for qualified sonographers as the only sonography program in the state. The program will actively seek CAAHEP accreditation to better support our healthcare partners need for credentialed sonographers. To address the number of credits and semesters required for this degree, program faculty recommend the development of a bachelor's degree that could accommodate the high number of program credits the current AAS requires. Other opportunities for growth include the development of cardiac and vascular certification options to support the healthcare education needs of sonographers already practicing in Alaska by providing advanced education to support the healthcare needs of the community. This certificate could be incorporated into the proposed bachelor degree.

Additional Recommendations

The RADT and DMS programs want to explore combining duplicate courses within each program to allow for a better use of faculty resources. Courses in patient care, ethics and radiation physics could combine enrollment under one faculty member versus being taught in both programs by two separate faculty members.

The programs would also like to explore a bachelor's degree completion pathway for students already possessing an AAS in Radiologic Technology by adding sonography certification. This option would meet rural healthcare needs to have an individual certified in multiple modalities.