

Radiology PUR 2023-2024

Radiologic Technology:**Date: 09-11-2024**

- Radiologic Technology PUR 2023-24 Self Study

Sorted by: Section

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1.A. Program or Unit Description

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Briefly describe (1 paragraph) the program/unit, including but not limited to the following: academic division that the program/unit belongs to, the academic area(s) represented, degrees/certificates offered, average student enrollment, number of full-time faculty, type of curriculum or pedagogical approaches, and any other pertinent aspect of the program/unit.

The Radiologic Technology Program has been in existence since 1965. It started on the campus of Reno High School under the General University Extension Program. It then moved to the Stead Air Force Base, eventually to the Dandini Campus and now resides at the Pennington Health Science Center. In the 58 years since its inception, the program has had only 4 directors. The Program is a part of the Life Science, Allied Health and Public Safety Division and has three full-time faculty; one director, one tenure track FT faculty member, and one temporary FT faculty member (this position will be searched spring 2024). The Radiologic Technology Program offers an AAS degree in Radiologic Technology and two online Advanced Medical Imaging (AMI) Skills Certificates: CT (computed Tomography) and MRI (magnetic resonance imaging). The AAS degree is an application based competitive entry degree with a maximum of 48 students (one cohort of 24 students each year) and is limited only by clinical education site availability. The Skills Certificates have a maximum of 20 students per year and have suffered low enrollment. The AMI Skills Certificates are only accessible to students who already hold a degree in radiologic technology and have

passed their national certification board. The AAS degree and certificates follow curriculum as suggested by the American Society of Radiologic Technologists (ASRT) in order for graduates to qualify to take the national certification board of the American Registry of Radiologic Technologists (ARRT). The pedagogical approaches are lecture, hands-on laboratory, and clinical education. The Radiologic Technology AAS degree graduates participate in five semesters of didactic learning and 1,680 clinical education hours. The future of the Rad Tech Program includes a three-semester online BAS degree program, a change to the current AMI Skills Certificates, additional online modality courses (Interventional Radiology, Mammography) and possibly an AAS degree in Sonography.

1.B. Program or Unit Mission

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State the department's or unit's mission. Describe how it aligns to the College's Mission, and how program learning outcomes (PLOs) for degrees and certificates offered, or for the unit, align to the department/unit mission. If your department or unit does not currently have a mission statement, please discuss among your colleagues and develop one.

RT Program Mission Statement

The mission of the Radiologic Technology program is to provide general and basic science education, combined with a sound foundation in the theory and art of radiologic technology to meet the educational needs of the students. This is evidenced by a competency-based program employing various teaching methodologies and technologies delivered through quality instruction. The graduates will have the knowledge and skills necessary to successfully take the American Registry of Radiologic Technologist's Examination for radiographers and become a member of the healthcare team. (Reviewed 2022 by the RT advisory board)

AMI Programs Certificate Mission Statement

The mission of TMCC's AMI programs is to provide general and basic science education, combined with a sound foundation in the theory and art of MRI or CT to meet the educational needs of the student. This is evidenced by a competency-based program employing various teaching methodologies and technologies delivered through quality education. Graduates will have the knowledge and skills necessary to successfully take the American Registry of Radiologic Technologist's (ARRT) examination for MRI or CT and practice as a member of the health care team.

The mission statement of Truckee Meadows Community College is to create a future you will love with accessible, innovative educational opportunities at TMCC. The TMCC, RT and AMI mission statements align to the TMCC mission through focus on student success and innovative quality instruction. The AAS degree in Radiologic Technology is an application, points-based program that is accessible to all students. The online AMI certificates are available to any radiology technologist who has passed their national ARRT licensure exam and provides opportunities for future professional growth. Evaluation of the two program mission statements leads to the question if they need to be different or could be combined for consistency.

1.C. Program Learning Outcomes

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Program Learning Outcomes (PSLOs or PLOs)
Radiologic Technology
AAS Radiologic Technology (94)
PSLO1: Demonstrate a working knowledge of positioning, technical factors, and imaging critique. (Active from Spring 2019)
PSLO2: Practice radiation safety in accordance with the ALARA principle. (Active from Spring 2019)
PSLO3: Prepare a written communication project. (Active from Spring 2019)
PSLO4: Apply effective oral communication skills. (Active from Spring 2019)
PSLO5: Determine necessary adjustments for trauma examinations. (Active from Spring 2019)
PSLO6: Evaluate radiographic images for diagnostic quality. (Active from Spring 2019)
PSLO7: Apply the ARRT Code of Ethics. (Active from Spring 2019)
PSLO8: Demonstrate Professionalism in the clinical setting. (Active from Spring 2019)
Magnetic Resonance Imaging (MRI) Skills Certificate (96)
PSLO1: Learn patient screening procedures, safety issues, and biological considerations, MRI terminology, and imaging principles and physics. (Active from Spring 2019)
PSLO2: Learn cross-sectional anatomy and pathology to cover the entire human body. (Active from Spring 2019)
PSLO3: Learn imaging techniques of the entire human body to include patient positioning, protocols, pulse sequences, advanced imaging, and post processing procedures. (Active from Spring 2019)
Computed Tomography (CT or Cat Scan) Skills Certificate (176)
PSLO1: List and describe patient safety issues for CT scanning. (Active from Spring 2019)
PSLO2: Identify cross-sectional anatomy and pathology to cover the entire human body. (Active from Spring 2019)
PSLO3: Define and describe imaging techniques for the entire human body to include patient positioning, protocols, scan sequences, advanced imaging, and post processing procedures. (Active from Spring 2019)

2.A. Progress on Previous Findings and Recommendations

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Describe your progress on the major findings and recommendations for the program/unit from the last PUR, any annual progress reports (APRs), and if applicable, external reviews, (e.g. advisory boards, articulation committees, and program accreditors).

- **Which findings and recommendations have the program/unit addressed?**
- **Which have yet to be accomplished? Which are no longer relevant, and why?**
- **Has the program/unit undergone any major changes as a result or that would impact the findings and recommendations since the last PUR?**

The following are the 2018 TMCC PUR Recommendations:

Curriculum:

1- Evaluate course SLOs for alignment to JRCERT requirements over the next 2 academic years (2018-2020) and establish a curriculum map of course SLO to program SLOs.

The SLO's have been mapped at the program and course level according to the JRCERT accreditation recommendations.

2- Determine the most feasible of the three modalities identified: CT, mammography, or ultrasound to add to the program offerings (AY 2018-19).

CT was added in 2018, the mammography curriculum is built and in progress and ultrasound is 3-5 years away from fruition.

3- Continue to research the need for a pathway for a bachelor's degree relevant to the program.

New BAS has gone through the CRC and is planned to start fall 2024 if NSHE and NWCCU approve.

4- Spring through Fall 2020 - Evaluate the need for the Certificate of Achievement - Medical Imaging for Re-Entry Radiographers in its current form. As "the certificate of achievement requirements [are] more extensive than these students need in order to become registry eligible," investigate the possibility of skills certificates designed to make radiographers registry-eligible in lieu of the Certificate of Achievement.

The certificate of achievement was eliminated in 2020. The ARRT discontinued the advanced placement option which made the certificate obsolete.

Demographics and Enrollment:

1- Continue and expand recruitment efforts.

Recruitment efforts have expanded significantly to high school fairs and TMCC events.

Katrina Bolton and Manuela Dobbert attend most outreach and often bring current radiology students to offer a unique perspective to interested students. The Rad Tech program has also started information nights once a semester. These nights invite prospective students and their family to learn about the radiology profession, the application process and includes representatives from academic advising, financial aid and veterans services. We have seen 25-30 students at each information night since it was started in 2022.

Resources:

1- Hire a Masters-level Program Director immediately following the anticipated retirement of the current Program Director in order to continue program accreditation.

The current program director has a Masters of Curriculum and Instruction and is starting a PhD program in the next 5 years.

2- Establish an equipment repair fund according to vendor recommendations (\$20-25,000) and a life-cycle replacement plan for major pieces of equipment by Spring 2019.

New Equipment has been installed (2023) through a RAP request and lab/workshop funds are available if needed for repair/or to maintain

3- Submit Innovation (Foundation) grants for lower-cost items such as wall-mounted view boxes (\$500) or a lower cost (\$5000) film printer beginning Fall 2018. Submit RAP and/or Perkins funding requests for higher cost items such as a higher end film printer (\$15,000) and "Pixy" radiographic phantom (\$35,000) beginning Spring 2019.

New LED View boxes, a full human bone phantom "Pixy", and an X-ray digitizer have all been installed in the radiology lab through grant funding and RAP request.

4- Follow through on plans to build a program display case in the Dandini student center to increase visibility of the program on the main campus. This was done, but it was recently emptied and is in search of a new location. I do not think this is still relevant, a poster with a QR code to the rad tech website could be a better option.

5- Look into other clinical rotation sites for future increase in enrollment.

Many additional clinical sites have been added since the new program director was hired. These include Swift, ROC, Carson Valley hospital, Tahoe Fracture, NNMC Sierra, CTH Eagle Valley, and Tahoe Forest, with more in the works. These new clinical sites have allowed the Rad Tech program to comfortably reach our cohort goal of 24 students per year.

The four-year report that was submitted to the JRCERT came back with only one finding.

JRCERT Accreditation Recommendation 01/20/2022

The program is advised to update the "Radiation Monitoring Report - Student Dose" policy to specify the length of time associated with the program's radiation exposure threshold dose. This was updated during the annual program handbook revision in June 2022. It was a recommendation and did not need to be reviewed by the JRCERT, but I am sure it will be looked at during the 8 year report in 2025.

The Rad Tech Advisory board has consistently asked for more x-ray, CT and MRI Technologists and a sonography (ultrasound) program. The Rad Tech program was able to raise our x-ray cohort numbers from 18, to 20, to 22 and now 24. Gaps in these numbers are due to clinical limitations during the covid pandemic. The program is trying to find funding to assist working professionals with the CT and MRI skills certificates, but numbers are low due to cost and the clinical sites cross training employees instead of sending them to TMCC. The MRI program has higher enrollment numbers than CT and is viable. The program is holding onto CT because it is the most common modality to cross train into and federal reimbursement regulations could potentially mandate formal CT education in the future. The program also foresees that CT will need to be integrated into the AAS rad tech curriculum in the future.

Which have yet to be accomplished?

Hire an additional FT faculty member in order to bring on an additional modality in CT, mammography, or ultrasound. The search is currently underway for a third FT Faculty. Work with the Dean to identify space in anticipation of an ultrasound component. This has not been done and is part of the program's 3-5 year plan.

Which are no longer relevant, and why?

All recommendations have been addressed and are resolved or are on a list to be resolved in the near future.

Has the program/unit undergone any major changes as a result of the recommendations, or that would impact the findings and recommendations since the last PUR?

Expanding recruitment efforts, information nights, adding clinical sites, and raising enrollment cohort to 24 has helped to grow the program. Regaining JRCERT Accreditation allows students to choose a quality program. The new program director has the masters degree qualification and is involved within the radiology community. The BAS Degree (Fall 2024) will allow local community members to pursue further education while continuing to work full time. The laboratory upgrades (new LED view boxes, adding pixy, new x-ray equipment, x-ray digitizer) are valuable to students hands-on learning experience and bridging didactic, lab and clinical education. The radiology Lambda Nu honor society is a

chance for students to engage and practice professionalism.

2.B. Workforce Needs (AAS degrees and certificates, allied health programs only)

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Describe how your program(s) are meeting workforce needs, especially in the northern Nevada region, by answering the accompanying questions. The following are potential resources for labor market data, though other sources may be referenced.

Nevada Department of Employment Training and Rehabilitation (DETR) (<https://www.nevadaworkforce.com/Home/DS-Results-Projections2>)

Nevada Governor's Office of Economic Development (GOED) Data Portal (<https://goed.nv.gov/why-nevada/data-portal/>)

U.S. Bureau of Labor Statistics (<http://www.bls.gov/>)

- **What is the evidence for the regional need for the program (DETR and EDAWN data)?**
- **What is the evidence that the program curriculum meets the latest industry trends or workforce needs?**
- **What are advisory boards suggesting about workforce needs in your program area(s)?**

According to DETR:

Rad tech/CT 2020-2030 17.9% Increase with 121 annual openings

Current 1274 techs will need 1502 Projected growth of 121

MRI 2020-2030 19.16% Increase with 67 Annual openings

Current 694 techs will need 827 Projected growth of 133

According to the BLS:

2022 Median Pay	\$67,180 per year \$32.30 per hour
Typical Entry-Level Education	Associate's degree
Work Experience in a Related Occupation	See How to Become One
On-the-job Training	None
Number of Jobs, 2022	264,100
Job Outlook, 2022-32	6% (Faster than average)

Employment Change, 2022-32**15,400**

Radiologic and MRI Technologists**Percent change in employment, projected 2022-32****Magnetic resonance imaging technologists 8%****Health technologists and technicians 7%****Radiologic and MRI technologists 6%****Radiologic technologists and technicians 5%****Total, all occupations 3% growth**

Based on the above data the radiology profession is growing. This aligns with healthcare needs in general. The radiology program is limited only by the local community clinical site capacity. At the moment 24 x-ray students per year is our limit, but if community growth added additional imaging centers, the cohort could be larger.

The radiology program uses the ASRT (American Society of Radiologic Technologists) curriculum guide as directed by the JRCERT accreditation body. This curriculum guide is used consistently across the country and ensures industry standards. The TMCC rad tech program SLO's are mapped to the program goals. The program tracks program effectiveness and has the last 5 years of data published on the TMCC rad tech program web site. The rad tech program conducts a survey six months post graduation for graduates and employers. These surveys ask the graduates and employers numerous questions and allows the program to see actual results for industry trends and workforce needs. The return rate is poor, but valuable information is gained from returned surveys.

The advisory board meets once a semester and is consistently asking for more graduates in x-ray, CT, MRI and Sonography. We have a long way until a sonography program is ready at TMCC, 3-5 years. The current program director reached out to GBC to see if the process could be sped up and if a partnership could be possible with their current sonography program and the answer was no. The frustrating part about our local advisory board is that they ask us for CT and MRI graduates but they continue to cross train their employees into these modalities instead of sending them to TMCC. The advisory board asked the rad tech program to help military trained x-ray technologists. The help was needed because some military trained x-ray techs have passed their ARRT licensure exam before an associates degree was required. Now the military trained techs cannot advance their education. I am happy to report that in the class of 2023 we had our first successful military trained x-ray technologist graduate with an AAS. He is now able to further his education. This was only possible with the help of Admissions and Records and Academic Advising. We currently have our second military student taking courses to hopefully graduate in 2024. We use credit for prior learning. The CPL uses their military training and transcripts to give max credit; they then take TMCC courses to fulfill the GE requirements.

See below links for the ASRT curriculum guide, ARRT didactic clinical requirements and the ARRT national registry content specifications:

https://www.asrt.org/docs/default-source/educators/curriculum/radiography/asrt-radiography-curriculum-2022.pdf?sfvrsn=c3bec8d0_10

[https://assets-us-01.kc-usercontent.com/406ac8c6-58e8-00b3-e3c1-](https://assets-us-01.kc-usercontent.com/406ac8c6-58e8-00b3-e3c1-0c312965deb2/c28cf141-f45c-44ef-acde-984929886e01/RAD_CS_2022.pdf)

[0c312965deb2/c28cf141-f45c-44ef-acde-984929886e01/RAD_CS_2022.pdf](https://assets-us-01.kc-usercontent.com/406ac8c6-58e8-00b3-e3c1-0c312965deb2/c28cf141-f45c-44ef-acde-984929886e01/RAD_CS_2022.pdf)

<https://www.arrt.org/pages/arrt-reference-documents/by-document-type/didactic-and-clinical-competency-requirements>

2.C. Accessibility and Cost of Instructional Materials

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- What are faculty in the department/unit currently doing to help ensure that instructional materials are accessible to students with disabilities? Examples include attending Professional Development accessibility sessions, running accessibility checkers on materials, completing accessibility workshops, and working with publishers to ensure textbooks and materials are accessible.
- What are faculty in the department/unit currently doing to offer more affordable instructional materials to students. Examples include internal development of educational materials or utilization of low cost materials that our TMCC librarians are happy to assist you with finding (e.g. open educational resources (OER), archival materials, journal articles).

To aid in accessibility and affordability the Rad Tech program has a reference section in the HSC library that includes textbooks that can be used by students at any time. The program is expanding the current reference section to include the AMI course material (CT and MRI) and soon the BAS material. The program is also flexible with the use of older editions and digital copies in most courses to help with affordability of materials and is consistently using one text book for multiple classes, making our own content and using academic journal articles. OER is not a viable option for the radiology program at this point in time but we try to use the same publisher, Elsevier, to help students with consistency and accessibility.

Faculty use the accessibility checker found in Canvas and four faculty members have been to professional development classes on creating accessible content. The current FT faculty who have not done the training will attend a relevant professional development course in 2024.

Kimberly Harn	Creating Accessible Content in your online course (SU18)
Cory Neill	Creating Accessible Content in your online course (SU18)
Dara Darbyshire	Creating Accessible Content in Your Course (SU19)
Leah Summy	Creating Accessible Content in your Classes (FA19)

<https://docs.google.com/document/d/13DnAsUqGSQeRwamGjbHY8euiBkx4XWFXa6sW2ogxbPs/edit?usp=sharing>

2.D. Catalog Review

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- Is the program information in the catalog correct, including program descriptions, PLOs, course offerings, course descriptions, and semesters that courses are offered?
- Does the program's suggested course sequence in the catalog allow for completion of degrees within 2 years and/or certificates within 2 semesters for full-time students? Are there any hidden prerequisites?
- Excluding special topics courses, are there any courses that the department has not offered in 4 or more years? Please list them and indicate whether you plan to update and offer, or deactivate the(se) course(s) in the next academic year.

The TMCC catalog has correct information for the rad tech and AMI programs. The course descriptions are accurate except RAD 124 that needs to be updated (see below for new description). The ARRT no longer tests on film and the curriculum has been updated to match the new standards of computed and digital radiography. The PLO's and semester offerings are accurate. The program sequence is mandatory and correct in the catalog. X-ray students follow the consecutive semester sequence and will obtain the AAS in five semesters. The AMI students are currently required to finish in two semesters, but the low enrollment has started a conversation concerning flexibility. The AMI students are working professionals who may take longer to finish a skills certificate and would benefit from a less rigid program. There are no hidden prerequisites.

RAD 250, 198 and 290 will be removed and deactivated in 2024 as they are no longer relevant to the program.

New RAD 124 Course Description

Course will establish guidelines for manipulating radiographic techniques (kVp/mAs) to ensure patient safety and optimal image quality is obtained. Image quality factors that will be discussed in the course include contrast, spatial resolution, image receptor exposure, distortion, and post-processing functions.

Five (5) hours of class time are required per week.

3.A. Curriculum Mapping

Radiologic Technology**Radiologic Technology PUR 2023-24 Self Study**

- **PLOs:** Do all PLOs reflect what you want students to demonstrate once they complete the program? Are there any PLOs that need to be updated? Are all PLOs measurable?
- **Potential gaps and scaffolding:** Are there any PLOs that are not addressed across the program curriculum? Are PLOs reflected in multiple courses in a way that scaffolds learning?
- **CLO alignment:** Is there a need to modify any course learning outcomes so that courses better support PLOs?
- **Course sequencing:** Is there a need to modify the course sequencing so that learning is scaffolded throughout the program? In other words, courses taken earlier in the program sequence should introduce PLOs, and courses taken later in the sequence should reinforce PLOs by offering students additional opportunities to practice.
- **Curriculum and learning opportunities:** Is it necessary to introduce new opportunities to reinforce learning? These could be modules or assignments in specific courses, additional courses, and/or co-curricular opportunities that would be required of all students in the program.
- **Do you need to make any changes to your curriculum map after this analysis?**

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Computed Tomography (CT or Cat Scan) Skills Certificate Curriculum Map

Map Origin: Computed Tomography (CT or Cat Scan) Skills Certificate (176)

Map Target: Computed Tomography (CT or Cat Scan) Skills Certificate (176)

CSLOs	Computed Tomography (CT or Cat Scan) Skills Certificate (176)		
	PSLO1: List and describe patient safety issues for CT scanning.	PSLO2: Identify cross-sectional anatomy and pathology to cover the entire human body.	PSLO3: Define and describe imaging techniques for the entire human body to include patient positioning, protocols, scan sequences, advanced imaging, and post processing procedures.
AMIZ03			
1. Identify and differentiate between the different generations and components of a CT scanner			
2. Explain patient care skills needed for CT examinations			
3. Define and explain safety parameters for CT examination			
AMIZ16			
1. Demonstrate the ability to position anatomical structures for CT of the head, neck, chest, CT angiography (CTA) of the chest, abdomen/pelvis, CTA abdomen/pelvis, thoracic and lumbar spine, and extremities		X (I)	X (I)
2. Identify cross-sectional anatomy of the head/neck		X (I)	X (I)
3. Identify cross-sectional anatomy of the chest, abdomen and pelvis		X (I)	X (I)
AMIZ18			
1. Define and describe the process of data acquisition.	X (I)		X (I)
2. List and describe the process of CT image reconstruction and post processing techniques.	X (I)		X (I)
AMIZ26			
1. List and describe various complex CT protocols such as biopsies, drainage's, aspirations, arthrography, discography, and myelography.			X (R)
2. Define positioning and patient care procedures for various CT examinations.			X (R)
3. Explain patient safety parameters for CT examinations as they pertain to pediatrics.	X (R)		
AMIZ36			
1. Identify and describe cross-sectional anatomy of the human body using appropriate terminology.		X (I)	
2. Identify and describe the basic pathology of the human body.		X (I)	
AMIZ59			
1. Demonstrate proficiency in computed tomography.	X (DM)	X (DM)	X (DM)
2. Analyze and demonstrate comprehensive CT principles and practices.	X (DM)	X (DM)	X (DM)
AMIZ90			
1. Provide appropriate patient care by performing standard examinations in the clinical setting based on industry standards in radiology.	X (PR)	X (PR)	X (PR)
2. Student will demonstrate clinical dependability in health care and the clinical setting.			
3. Synthesize prior classroom knowledge and applications in the ability to perform competency evaluations which are commensurate with the ARRT certification competency requirements.	X (PR)	X (PR)	X (PR)
	0	0	0
Attainment Levels: M: Mastered RM: Reinforced/Mastered IR: Introduced/Reinforced DM: Demonstrate/Mastery PR: Practiced/Reinforced IRD: Introduced/Reinforced/Demonstrated IPD: Introduced/Practiced/Demonstrated DP: Practiced/Demonstrated D: Demonstrated IP: Introduced/Practiced P: Practiced R: Reinforced I: Introduced			

Magnetic Resonance Imaging (MRI)Skills Certificate Curriculum Map				
Map Origin: Magnetic Resonance Imaging (MRI)Skills Certificate (96)				
Map Target: Magnetic Resonance Imaging (MRI) Skills Certificate (96)				
CSLOs	Magnetic Resonance Imaging (MRI) Skills Certificate (96)			
	PSLO1: Learn patient screening procedures, safety issues, and biological considerations, MRI terminology, and imaging principles and physics.	PSLO2: Learn cross-sectional anatomy and pathology to cover the entire human body.	PSLO3: Learn imaging techniques of the entire human body to include patient positioning, protocols, pulse sequences, advanced imaging, and post processing procedures.	
AMI201				
1. Describe the screening procedures and safety precautions used in an MRI environment.	X (I)			
2. Explain elementary imaging principles using appropriate MR terminology.	X (I)			
3. Explain patient care procedures, including the use of professional ethics, and proper patient communications in an MRI environment.	X (I)			
AMI236				
1. Identify and describe cross-sectional anatomy of the human body using appropriate terminology.		X (I)		
2. Identify and describe the basic pathology of the human body.		X (I)		
AMI238				
1. Calculate, manipulate, and critique imaging parameters, and options for image quality.			X (R)	
2. Describe and apply the basic principles and physics concepts utilized in MRI examinations.			X (R)	
3. Describe the types of data manipulations as related to traditional and advanced imaging sequences.			X (R)	
AMI246				
1. Identify and explain pathology of the Central Nervous System - head, neck and spine.		X (R)		
2. Identify and label cross-sectional anatomy structures of the Central Nervous System - head, neck and spine as it relates to MRI.		X (R)		
3. Recognize and explain standard positioning principles related to the Central Nervous System - head, neck and spine.			X (R)	
AMI248				
1. Describe and explain post processing procedures.			X (I)	
2. Describe and explain special body examinations as they are related to post processing.		X (I)	X (I)	
3. Students will learn the use of gadolinium contrast in examinations to include carotids, livers, kidneys, and other organs of the body.	X (I)			
AMI256				
1. Identify and explain pathology of the Torso and Limbs - abdomen, pelvis and musculoskeletal system.		X (DM)	X (DM)	
2. Identify and label cross-sectional anatomy structures of the Torso and Limbs - abdomen, pelvis and musculoskeletal system as it relates to MRI.		X (DM)	X (DM)	
3. Recognize and explain standard positioning principles related to the Torso and Limbs - abdomen, pelvis and musculoskeletal system.		X (DM)	X (DM)	
AMI290				
1. Provide appropriate patient care by performing standard examinations in the clinical setting based on industry standards in radiology.	X (DM)	X (DM)	X (DM)	
2. Student will demonstrate clinical dependability in health care and the clinical setting.	X (DM)	X (DM)	X (DM)	
3. Synthesize prior classroom knowledge and applications in the ability to perform competency evaluations which are commensurate with the ARRT certification competency requirements.	X (DM)	X (DM)	X (DM)	
	0	0	0	
Attainment Levels: M: Mastered RM: Reinforced/Mastered IR: Introduced/Reinforced DM: Demonstrate/Mastery PR: Practiced/Reinforced IRD: Introduced/Reinforced/Demonstrated IPD: Introduced/Practiced/Demonstrated DP: Practiced/Demonstrated D: Demonstrated IP: Introduced/Practiced P: Practiced R: Reinforced I: Introduced				

3.A. Curriculum Mapping

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To access the Radiography Curriculum Analysis Grid (2022) click on the blue folder located on the 3A Curriculum Mapping title bar. See the screenshot above the blue folder is highlighted in yellow.

Program Outcomes and Assessment Radiologic Technology Program 2018-2025

PART 1 – Mission Statement and Goals

PART 2 – Student Learning Objectives (SLO) Analysis

PART 3 – Program Effectiveness

PART 4 – Data & Discussion

PART 1 – Mission Statement

The mission of the Radiologic Technology program is to provide general and basic science education, combined with a sound foundation in the theory and art of radiologic technology to meet the educational needs of the students.

This is evidenced by a competency-based program employing various teaching methodologies and technologies delivered through quality instruction. The graduates will have the knowledge and skills necessary to successfully take the American Registry of Radiologic Technologist's Examination for radiographers and become a member of the health care team.

Goal 1: Students will be clinically competent.

- SLO 1) Students will demonstrate a working knowledge of positioning, technical factors, and imaging critique
- SLO 2) Students will practice radiation safety in accordance with the ALARA principle.

Goal 2: Students will communicate effectively

- SLO 1) Students will prepare a written communication project
- SLO 2) Students will apply effective oral communication skills

Goal 3: Student will problem solve using critical thinking skills

- SLO 1) Students will determine necessary adjustments for trauma examinations
- SLO 2) Students will evaluate radiographic images for diagnostic quality

Goal 4: Students will demonstrate professionalism

- SLO 1) Students will apply the ARRT Code of Ethics
- SLO 2) Students will demonstrate professionalism in the clinical setting

PART 2 – Student Learning Objectives (SLO) Analysis- all results are based on a 100% scale or 0-10, which is shown on a 100% scale

<i>Goal 1: Students will be clinically competent</i>					
OUTCOMES	MEASURE/TOOLS	BENCH-MARKS	TIME FRAME	RESPONSIBLE PARTY	RESULTS
1. Students will demonstrate a working knowledge of positioning, technical factors, and image critique.	<ul style="list-style-type: none"> • Ability will be measured in RAD 110 where the students will score an average of 90% or better on all competencies for the semester. 	90%	Yearly – end of RAD 110	Clinical Coordinator	<ul style="list-style-type: none"> • 2018- 93.45% -20 students 2020- 94.52% -20 students 2022- 99% - 22 students 2024
	<ul style="list-style-type: none"> • Ability will be measured in RAD 230 where the students will score an average of 90% or better on all competencies for the semester. 	90%	Yearly – end of RAD 230	Clinical Coordinator	<ul style="list-style-type: none"> • 2018- 95.12%- 19 students 2020- 94.16% -22 students 2022 94.88%- 20 2024
	<ul style="list-style-type: none"> • Ability will be measured in RAD 126 where the students will score an average of 85% or better on the 	85%	Yearly – end of RAD 126	RAD 126 Instructor	<ul style="list-style-type: none"> • 2018- 87.38%- 20 students 2021- 87.26% -20 students 2023- 90.27% 2025

1. Students will practice radiation safety in accordance with the ALARA principle.	<ul style="list-style-type: none"> Ability will be measured in RAD 110 using the average student grade on the Patient Care/Radiation Safety component from the Clinical Appraisal 	90%	Yearly – end of RAD 110	Clinical Coordinator	<ul style="list-style-type: none"> 2018-90.65%-18 students 2020- 96.09% - 22 students 2022- 95.4% - 22 students 2024
	<ul style="list-style-type: none"> Ability will be measured in RAD 230 using the average student grade on the Patient Care/Radiation Safety component from the Clinical Appraisal 	95%	Yearly – End of RAD 230	Clinical Coordinator	<ul style="list-style-type: none"> 2018-96.44%-19 students 2020- 95.71% - 23 students 2022 – 96.99% - 22 students 2024

Goal 2: Students will communicate effectively

OUTCOMES	MEASURE/TOOLS	BENCH-MARKS	TIME FRAME	RESPONSIBLE PARTY	RESULTS
1. Students will prepare a written communication project	<ul style="list-style-type: none"> Students will score 90% or above on written analysis of a pathology chosen in RAD 244 using a course rubric. 	90%	Yearly – end of RAD 244	RAD 244 Instructor	<ul style="list-style-type: none"> 2018-95.75%- 19 students 2020- 94.61% - 23 students 2022- 92.72% - 19 students 2024
	<ul style="list-style-type: none"> Students will score 90% or above on a research project on 	90%	Yearly – end of RAD 238	RAD 238 Instructor	<ul style="list-style-type: none"> 2018-93.68%-20 students 2020- 94.56% -23 students 2022- 100%

	radiation safety in RAD 238.				19 students 2024
1. Students will apply effective oral communication skills	<ul style="list-style-type: none"> Students will score 90% or above on the oral component of the RAD 112 Patient Care Presentation. Students will score an average of 9.5 /10 or better on the appraisal (Patient Care- Patient Communications section) in RAD 245 	90% 9.5/10	Yearly – end of RAD 112 Yearly – end of RAD 245	RAD 112 Instructor Instructor of Record RAD 245	<ul style="list-style-type: none"> 2018- 93.75%- 20 students 2020- 90.8%- 20 students 2022- 92% - students 2024 2019- 9.7/10-19 students 2021- 9.9/10- 23 students 2023 working on 2025

Goal 3: Students will problem solve using critical thinking skills

OUTCOMES	MEASURE/TOOLS	BENCH-MARKS	TIME FRAME	RESPONSIBLE PARTY	RESULTS
1. Students will determine necessary adjustments for trauma examinations	<ul style="list-style-type: none"> Students will receive an average of 8 out of 10 points or better on their first attempt on a lab checkoff on a trauma examination in RAD 126. Students will 	8/10 85%	Yearly – end of RAD 126 Yearly – end of RAD 245	RAD 126 Instructor Clinical Coordinator	<ul style="list-style-type: none"> 2019- 7.95/10- 20 students 2021- 9.31 /10-20 students 2023- 9.5/10 -22 students 2025 2019- 93.95%-19 students 2021- 94.40% -23 students

	score 85% or greater on a trauma hip competency measured at end of RAD 245 yearly to give all students of that class opportunity to complete the competency.				2023- working on 2025
1. Students will evaluate radiographic images for diagnostic quality	<ul style="list-style-type: none"> Students will achieve an average 85% or better on image analysis/film quiz worksheets in RAD 126. Students will score 1000 or greater on the exit registry review exam in RAD 259. 	85% 85%	Yearly – end of RAD 126 Yearly – end RAD 259	RAD 126 Instructor RAD 259 Instructor	<ul style="list-style-type: none"> 2019-94.44%-20 students 2021- 92.75% -20 students 2023-94.32% -22 students 2025 2019-90.48%-18 students 2021- 83.20% -22 students 2023 90.38% 18 students 2025

Goal 4: Program students will demonstrate professionalism.

OUTCOMES	MEASURES/TOOLS	BENCH-MARKS	TIME FRAME	RESPONSIBLE PARTY	RESULTS
1. Students will apply the ARRT Code of Ethics	<ul style="list-style-type: none"> Ability will be measured using a scenario on an ARRT Code of 	90% 90%	Yearly – End of RAD 103 Yearly- End of RAD 103	RAD 103 Instructor RAD 103 Instructor	<ul style="list-style-type: none"> 2018-96.2%-20 students 2020- 95.2% -20 students 2022- 94.81%

	<p>Ethics Project in RAD 103 where the student average is 90% or better.</p> <ul style="list-style-type: none"> Ability to define legal terms in healthcare in a radiology setting will be measured by written quizzes or exams using current industry standards known to the student. 				<p>- 22 students 2024</p> <ul style="list-style-type: none"> 2018-94.43%-20 students 2020- 93.67% -20 students 2022- 97.69% - 22 students 2024
1. Students will demonstrate professionalism in the clinical setting	<ul style="list-style-type: none"> Students will achieve an overall average of 90% or better on professionalism category of the Clinical appraisal by the end of year one. Students will achieve an overall average of 90% or better on the professionalism category of the Clinical appraisal by the end of year two. 	<p>90%</p> <p>90%</p>	<p>Yearly – Final appraisal of RAD 230</p> <p>Yearly – Final appraisal of RAD 245</p>	<p>RAD 230 Instructor of Record</p> <p>RAD 245 Instructor of Record</p>	<ul style="list-style-type: none"> 2018-96.94%-19 students 2020- 96.97% -24 students 2022- 97% - 22 students 2024 2019-96.86%-19 students 2021- 98.98% -23 students 2023 2025

PART 3 – Program Effectiveness (Calculated once the year is complete)

	OUTCOME	MEASUREMENT TOOL	BENCHMARK	TIME FRAME	RESPONSIBLE PARTY	RESULTS
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1	Students will pass the ARRT certification examination on the first attempt	National Certification examination – first time pass rates	90% each year 90% 5 year average	End of year report by ARRT	Program Director	2017.....100% 2018.....100% 2019.....100% 2020.....94.12% 2021.....90.9% 2022.....100% 5 year average....97%	
2	Students will be gainfully employed within 6 months of graduation	Graduate survey	85% or higher yearly	Survey at end of November	Program Director	2017.....100% 2018.....100% 2019.....100% 2020.....100% 2021.....80% 2022.....100% 5 year average....96%	
3	Students will complete the Radiologic Technology program	Graduation Roster	85% of Cohort beginning the program year	End of Spring Semester	Program Director	2017.....95% 2018.....85% 2019.....95% 2020.....90% 2021.....95.83% 2022.....95% 5 year average....92.17%	
4	Graduates will be satisfied with their education	Graduation Survey	85% of the graduates will rate the program	End of Spring Semester	Program Director	2017.....94.2% 2018.....89% 2019.....100% 2020.....9	

	n		satisfactory or better			7% 2021.....100% 2022.....93.33% 5 year average....95.86%	
5	Employers will be satisfied with newly hired graduates	Employers Survey	85% of the employers will be satisfied with the newly hired graduates.	Survey sent to clinical sites by end of November	Program Director	New starting in 2021.....100% 2022.....97%	

Program Effectiveness Discussion

The five-year program outcome averages have exceeded the benchmarks set by the TMCC radiologic technology program. The outcomes have one consistent measurement tool that is used each year and is compiled by the program director. After review, no adjustments are needed at this time.

PART 4 – Data & Discussion

Goal 1 Discussion

1. *Students will demonstrate a working knowledge of positioning, technical factors, and image critique.*

A. Ability will be measured in RAD 110 where the students will score an average of 90% or better on all competencies for the semester.

2018- Goal 1-1A has exceeded the given benchmark of 90% at 93.45%. The students in RAD 110 are in their first semester clinical course of the radiologic technology program and are required to do three competencies. Each competency is graded on positioning, technical factors used and the student's ability to critique the images. After the assessment year review, no adjustment to RAD 110 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 1-1A has exceeded the given benchmark of 90% at 94.52%. The students in RAD 110 are in their first semester clinical course of the radiologic technology program and are required to do three competencies. Each competency is graded on positioning, technical factors used and the student's ability to critique the images. After the assessment year review, no adjustment to RAD 110 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

B. Ability will be measured in RAD 230 where the students will score an average of 90% or better

on all competencies for the semester.

2018- Goal 1-1B has exceeded the given benchmark of 90% at 95.12%. The students in RAD 230 are in their fourth semester of the radiologic technology program and are required to do thirteen competencies. Each competency is graded on positioning, technical factors used and the student's ability to critique the images. After each assessment year review, no adjustment to RAD 230 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 1-1B has exceeded the given benchmark of 90% at 94.16%. The students in RAD 230 are in their fourth semester of the radiologic technology program and are required to do thirteen competencies. Each competency is graded on positioning, technical factors used and the student's ability to critique the images. After assessment year review, no adjustment to RAD 230 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

C. Ability will be measured in RAD 126 where the students will score an average of 85% or better on the final exam.

2019- Goal 1-1B has exceeded the given benchmark of 85% at 87.38%. The students in RAD 126 are in their second semester of the radiologic technology program-positioning course. The course culminates in a comprehensive final exam that covers anatomy, positioning, critique and higher-level thinking. The final exam allows faculty to assess whether students are ready to take the positioning portion of the ARRT national registry. After assessment year review, no adjustment to RAD 126 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2021- Goal 1-1B has exceeded the given benchmark of 85% at 87.26%. The students in RAD 126 are in their second semester of the radiologic technology program-positioning course. The course culminates in a comprehensive final exam that covers anatomy, positioning, critique and higher-level thinking. The final exam allows faculty to assess whether students are ready to take the positioning portion of the ARRT national registry. After assessment year review, no adjustment to RAD 126 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2. *Students will practice radiation safety in accordance with the ALARA principle.*

A. Ability will be measured in RAD 110 using the average student grade on the Patient Care/Radiation Safety component from the Clinical Appraisal.

2018- Goal 1-2A has met the benchmark of 90% at 90.65%. The students in RAD 110 are in their first semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section three of the appraisal asks the staff to rate students with seven questions related to patient care, ALARA and radiation safety. The yearly assessment takes data from section three on both semester appraisals and averages them. The appraisal allows faculty to identify if students are practicing didactic curriculum in the clinical site. After assessment year review, no adjustment to RAD 110 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 1-2A has exceeded the benchmark of 90% at 96.09%. The students in RAD 110 are in their first semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section three of the appraisal asks the staff to rate students with seven

questions related to patient care, ALARA and radiation safety. The yearly assessment takes data from section three on both semester appraisals and averages them. The appraisal allows faculty to identify if students are practicing didactic curriculum in the clinical site. After assessment year review, no adjustment to RAD 110 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

B. Ability will be measured in RAD 230 using the average student grade on the Patient Care/Radiation Safety component from the Clinical Appraisal

2018- Goal 1-2B has exceeded the benchmark of 90% at 96.44%. The students in RAD 230 are in their fourth semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section three of the appraisal asks the staff to rate students with seven questions related to patient care, ALARA and radiation safety. The yearly assessment takes data from section three on both semester appraisals and averages them. The appraisal allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site. After assessment year review, no adjustment to RAD 230 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 1-2B has exceeded the benchmark of 90% at 95.71%. The students in RAD 230 are in their fourth semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section three of the appraisal asks the staff to rate students with seven questions related to patient care, ALARA and radiation safety. The yearly assessment takes data from section three on both semester appraisals and averages them. The appraisal allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site. After assessment year review, no adjustment to RAD 230 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

Goal 2 Discussion

1. *Students will prepare a written communication project*

A. Students will score 90% or above on critical thinking written analysis of pathology case studies in RAD 244.

2018- Goal 2-1A has exceeded the benchmark of 90% at 95.75%. The students in RAD 244 are in their fourth semester of the radiologic technology program. The pathology course includes written case study analysis of chosen pathology. The written communication project is graded based on a rubric and allows faculty to identify if students are able to communicate effectively in a written form. After assessment year review, no adjustment to RAD 244 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 2-1A has exceeded the benchmark of 90% at 94.61%. The students in RAD 244 are in their fourth semester of the radiologic technology program. The pathology course includes written case study analysis of chosen pathology. The written communication project is graded based on a rubric and allows faculty to identify if students are able to communicate effectively in a written form. After assessment year review, no adjustment to RAD 244 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

B. Students will score 90% or above on a research project on radiation safety in RAD 238.

2018- Goal 2-1B has exceeded the benchmark of 90% at 93.68%. The students in RAD 238 are in their fourth semester of the radiologic technology program. The radiation safety course includes a written research project. The written communication project is graded based on a rubric and allows faculty to identify if students are able to communicate effectively in a written form. After assessment year review, no adjustment to RAD 238 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 2-1B has exceeded the benchmark of 90% at 94.56%. The students in RAD 238 are in their fourth semester of the radiologic technology program. The radiation safety course includes a written research project. The written communication project is graded based on a rubric and allows faculty to identify if students are able to communicate effectively in a written form. After assessment year review, no adjustment to RAD 238 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2. *Students will apply effective oral communication skills*

A. Students will score 90% or above on the oral component of the RAD 112 Patient Care Presentation.

2018- Goal 2-2A has exceeded the benchmark of 90% at 93.75%. The students in RAD 112 are in their first semester of the radiologic technology program. The patient care course includes an oral presentation research project on a student chosen topic. The communication project is graded based on a rubric and allows faculty to identify if students are able to communicate effectively in an oral form. After assessment year review, no adjustment to RAD 112 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 2-2A has met the benchmark of 90% at 90.8%. The students in RAD 112 are in their first semester of the radiologic technology program. The patient care course includes an oral presentation research project on a student chosen topic. The communication project is graded based on a rubric and allows faculty to identify if students are able to communicate effectively in an oral form. After assessment year review, no adjustment to RAD 112 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

B. Students will score an average of 9.5/10 or better on the appraisal (Patient Communications section 1) in RAD 245

2019- Goal 2-2B has exceeded the benchmark of (9.5/10) 95% at 97.29%. The students in RAD 245 are in their fifth semester of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section one of the appraisal asks the staff to rate students with eight questions related to patient communication, professional behavior and accepts constructive criticism in a constructive matter. The yearly assessment takes data from section three on the final semester appraisal. The appraisal allows faculty to identify if students are continuing to practice effective communication skills in the clinical site. After assessment year review, no adjustment to RAD 245 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2021- Goal 2-2B has exceeded the benchmark of (9.5/10) 95% at 99.3%. The students in RAD 245 are in their fifth semester of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section one of the appraisal asks the staff to rate students with eight questions related to patient communication, professional behavior and accepts constructive criticism in a

constructive matter. The yearly assessment takes data from section three on the final semester appraisal. The appraisal allows faculty to identify if students are continuing to practice effective communication skills in the clinical site. After assessment year review, no adjustment to RAD 245 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

Goal 3 Discussion

1. *Students will determine necessary adjustments for trauma examinations*

A. Students will receive an average of 8 out of 10 points or better on their first attempt on a lab checkoff on a trauma examination in RAD 126.

2019- Goal 3-1A has met the benchmark of (8/10) 80% at 79.5%. The students in RAD 126 are in their second semester of the radiologic technology program-positioning course. The course culminates in a comprehensive trauma lab that covers anatomy, positioning, critique and higher-level thinking for the treatment of trauma patients. The final lab allows faculty to assess whether students are ready to image and care for trauma patients. The faculty assess if the students can make the necessary adjustments to successfully image patients who cannot be positioned in a traditional way. After assessment year review, an adjustment to RAD 126 is necessary. The adjustment will be a practice trauma lab done the week prior to the graded lab, this will give students a chance to practice and be better prepared. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2021- Goal 3-1A has exceeded the benchmark of (8/10) 80% at 93.1%. The students in RAD 126 are in their second semester of the radiologic technology program-positioning course. The course culminates in a comprehensive trauma lab that covers anatomy, positioning, critique and higher-level thinking for the treatment of trauma patients. The final lab allows faculty to assess whether students are ready to image and care for trauma patients. The faculty assess if the students can make the necessary adjustments to successfully image patients who cannot be positioned in a traditional way. After assessment year review, no adjustment to RAD 126 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

B. Students will score 85% or greater on a trauma hip competency measured at end of RAD 245 yearly to give all students of that class opportunity to complete the competency.

2019- Goal 3-1B has exceeded the benchmark of 85% at 93.95%. The students in RAD 245 are in their fifth semester clinical course of the radiologic technology program. The fifth semester was chosen by faculty to allow all students to comp a Trauma hip. Data was collected from each student and did not necessarily come from RAD 245, but could have been a different clinical semester. The competency grade allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site. After assessment year review, no adjustment to RAD 245 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment. The benchmark may be raised in the future if the students continue to exceed the current set benchmark.

2021- Goal 3-1B has exceeded the benchmark of 85% at 94.4%. The students in RAD 245 are in their fifth semester clinical course of the radiologic technology program. The fifth semester was chosen by faculty to allow all students to comp a Trauma hip. Data was collected from each student and did not necessarily come from RAD 245, but could have been a different clinical semester. The competency grade allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site. After assessment year review, no adjustment to RAD 245 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment. The benchmark will be raised to 90% in the next assessment 2023 due to students exceeding the current benchmark.

2. *Students will evaluate radiographic images for diagnostic quality*

A. Students will achieve an average 85% or better on image analysis worksheets in RAD 126.

2019- Goal 3-2A has met the benchmark of 85% at 94.44%. The students in RAD 126 are in their second semester of the radiologic technology program-positioning course. The course includes weekly critique labs where students evaluate radiographic images. RAD 126 builds on RAD 116 which is the first semester positioning course. During RAD 116 faculty help students with critique, in 126 the students must do it on their own. The analysis worksheets allows faculty to assess whether students are able to critique images in the clinical setting. The faculty assess if the students can identify anatomy, positioning errors and pathology. After assessment year review, no adjustment to RAD 126 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment. The benchmark may be raised in the future if the students continue to exceed the current set benchmark.

2021- Goal 3-2A has met the benchmark of 85% at 92.75%. The students in RAD 126 are in their second semester of the radiologic technology program-positioning course. The course includes weekly critique labs where students evaluate radiographic images. RAD 126 builds on RAD 116 which is the first semester positioning course. During RAD 116 faculty help students with critique, in 126 the students must do it on their own. The analysis worksheets allows faculty to assess whether students are able to critique images in the clinical setting. The faculty assess if the students can identify anatomy, positioning errors and pathology. After assessment year review, no adjustment to RAD 126 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment. The benchmark may be raised in the future if the students continue to exceed the current set benchmark.

B. Students will score 85% or greater on the exit registry review exam in RAD 259.

2019- Goal 3-2B has met the benchmark of 85% at 90.48%. The students in RAD 259 are in their fifth semester of the radiologic technology program. The course includes ARRT registry review and registry prep exams. The last registry review exam for RAD 259 is a culmination of the program didactic curriculum and includes questions covering image critique. The faculty assess if the students can identify anatomy, positioning errors and pathology. After assessment year review, no adjustment to RAD 259 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2021- Goal 3-2B has not met the benchmark of 85% at 83.21%. The students in RAD 259 are in their fifth semester of the radiologic technology program. The course includes ARRT registry review and registry prep exams. The last registry review exam for RAD 259 is a culmination of the program didactic curriculum and includes questions covering image critique. The faculty assess if the students can identify anatomy, positioning errors and pathology. After assessment year review, an adjustment to RAD 259 may be necessary. The class of 2021 had program interruption due to the pandemic; this interruption may have effected their end of semester registry review exam grade. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment. If the next assessment (post pandemic 2023) shows a continuation of 2021, a review of the RAD 259 curriculum will be done and semester tests may be averaged versus just using the last test taken.

Goal 4 Discussion

1. *Students will apply the ARRT Code of Ethics*

A. Ability will be measured using a scenario on an ARRT Code of Ethics Project in RAD 103 where the student average is 90% or better.

2018- Goal 4-1A has exceeded the benchmark of 90% at 96.2%. The students in RAD 103 are in their first semester of the radiologic technology program. The course includes ARRT code of

ethics review and general medical ethics review to instruct students in professionalism. The ARRT code of ethics project incorporates students reading the ARRT code of ethics, choosing one and writing or presenting a report. The faculty assess if the students can identify and discuss a portion of the ARRT code of ethics and discuss how it applies to professionalism in the work place. After assessment year review, no adjustment to RAD 103 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2021- Goal 4-1A has exceeded the benchmark of 90% at 95.2%. The students in RAD 103 are in their first semester of the radiologic technology program. The course includes ARRT code of ethics review and general medical ethics review to instruct students in professionalism. The ARRT code of ethics project incorporates students reading the ARRT code of ethics, choosing one and writing or presenting a report. The faculty assess if the students can identify and discuss a portion of the ARRT code of ethics and discuss how it applies to professionalism in the work place. After assessment year review, no adjustment to RAD 103 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

B. Ability will be measured using a Quiz on the ARRT Code of Ethics in RAD 103 where the student average is 90% or better.

2018- Goal 4-1B has exceeded the benchmark of 90% at 94.43%. The students in RAD 103 are in their first semester of the radiologic technology program. The course includes ARRT code of ethics review and general medical ethics review to instruct students in professionalism. The ARRT code of ethics quiz allows faculty to assess if the students can identify, analyze and evaluate the ARRT code of ethics. After assessment year review, no adjustment to RAD 103 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 4-1B has exceeded the benchmark of 90% at 93.67%. The students in RAD 103 are in their first semester of the radiologic technology program. The course includes ARRT code of ethics review and general medical ethics review to instruct students in professionalism. The ARRT code of ethics quiz allows faculty to assess if the students can identify, analyze and evaluate the ARRT code of ethics. After assessment year review, no adjustment to RAD 103 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2. *Students will demonstrate professionalism in the clinical setting*

A. Students will achieve an overall average of 90% or better on professionalism category of the Clinical appraisal by the end of year one.

2018- Goal 4-2A has exceeded the benchmark of 90% at 96.94%. The students in RAD 230 are in their fourth semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section one of the appraisal asks the staff to rate students with eight questions related to professionalism. The yearly assessment takes data from section one on the final appraisal. The appraisal allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site and engaging in professional behavior. After assessment year review, no adjustment to RAD 230 is necessary. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2020- Goal 4-2A has exceeded the benchmark of 90% at 96.94%. The students in RAD 230 are in their fourth semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section one of the appraisal asks the staff to rate students with eight

questions related to professionalism. The yearly assessment takes data from section one on the final appraisal. The appraisal allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site and engaging in professional behavior. After assessment year review, no adjustment to RAD 230 is necessary. The current measurement tool should be changed to the third semester in the future assessment (2022) to fit the outcome of "by the end of year one". The benchmark is still relevant to this goal and will continue to be used in future assessment.

B. Students will achieve an overall average of 90% or better on professionalism category of the Clinical appraisal by the end of year two.

2019- Goal 4-1B has exceeded the benchmark of 90% at 96.86%. The students in RAD 245 are in their fifth semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section one of the appraisal asks the staff to rate students with eight questions related to professionalism. The yearly assessment takes data from section one on the final appraisal. The appraisal allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site and engaging in professional behavior. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment.

2021- Goal 4-1B has exceeded the benchmark of 90% at 98.98%. The students in RAD 245 are in their fifth semester clinical course of the radiologic technology program. The clinical course includes two appraisals, one mid-semester and one at the end of the semester. The liaisons and staff technologists fill out the appraisal and turn them into the radiologic technology program online through Trajecsyst. Section one of the appraisal asks the staff to rate students with eight questions related to professionalism. The yearly assessment takes data from section one on the final appraisal. The appraisal allows faculty to identify if students are continuing to practice didactic curriculum in the clinical site and engaging in professional behavior. The current measurement tool and benchmark are still relevant to this goal and will continue to be used in future assessment. The benchmark may be raised in the future if the students continue to exceed the current set benchmark.

I am not sure why HIT 180 is included?

We need to update AMI 203, which is introductory

Attach JRCERT Curriculum Grid

Attach Rad Tech Mapping CLO to PLO

The rad tech PLO's and CLO's accurately reflect what the program wants and needs students to demonstrate once they complete the program. The PLO's are measurable and included in multiple courses. The program sequence is built on scaffolding and students learn important concepts multiple times through out the program as they progress.

3.B. Evidence of Program Learning Outcomes Assessment

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Summarize the most significant program assessment results since your last PUR. These will come from past CARS, APRs, and Action Plans and assessment data within eLumen. Please discuss course assessment findings as they apply to the program and program learning outcomes.

The rad tech curriculum changes and evolves each year. The faculty consistently updates course material to reflect changing standards, assessment results and student feedback. Some recent changes are:

- 1- A pre-trauma lab was added in RAD 126 in 2020 because in 2019 the students were scoring an average below 80%. The Pre-trauma lab has been successful, in 2021 students scored an average of 93% and 2023 .
- 2- Extra surgery training, this became evident based on employer and post graduate survey data that was returned. In response the program has a new affiliation agreement with Sierra Surgery Center and NNMC Surgery Center to have surgery lab days where they take pixie to a real operating suite and practice.
- 3- Recently introduced case studies in the positioning course RAD 116 and 126, this was evident by the students lack of critical thinking skills with scenario questions on exams. We don't have enough data to share, but we will in the future.
- 4- Lecture outlines/ skeleton notes, this was evident when students kept requesting study guides.
- 5- Testing frequency/shorter tests, this was recommended at the ACERT conference. These changes have been received well by the students and have improved the course outcomes.
- 6- Due to a drop in RAD 259 HESI exit exam scores from 2019 to 2021 (2019 90%, 2021 83%, 2023 90%) the program now pays for a national mid curricular HESI exam at the end of the third semester. The cost is \$65 per student and comes from student fees. The material tested is directly related to the students national ARRT registry exam. The director receives individual student scores and a national comparison report. This exam allows the program to start early remediation if necessary to improve student outcomes.

Describe how department faculty implemented plans to improve students' achievement of program learning outcomes. What changes did you make to the program based on assessment results and improvement plans?

See above.

3.C. General Education Outcomes Assessment (if applicable)

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

- Describe which general education learning outcomes (GELOs) you assessed in your department/unit and summarize the most significant assessment results.
- Describe how department faculty implemented plans to improve students' achievement of GE learning outcomes. What changes did you make to general education based on assessment results and improvement plans? Do any CLOs need to be changed to align with GELOs?

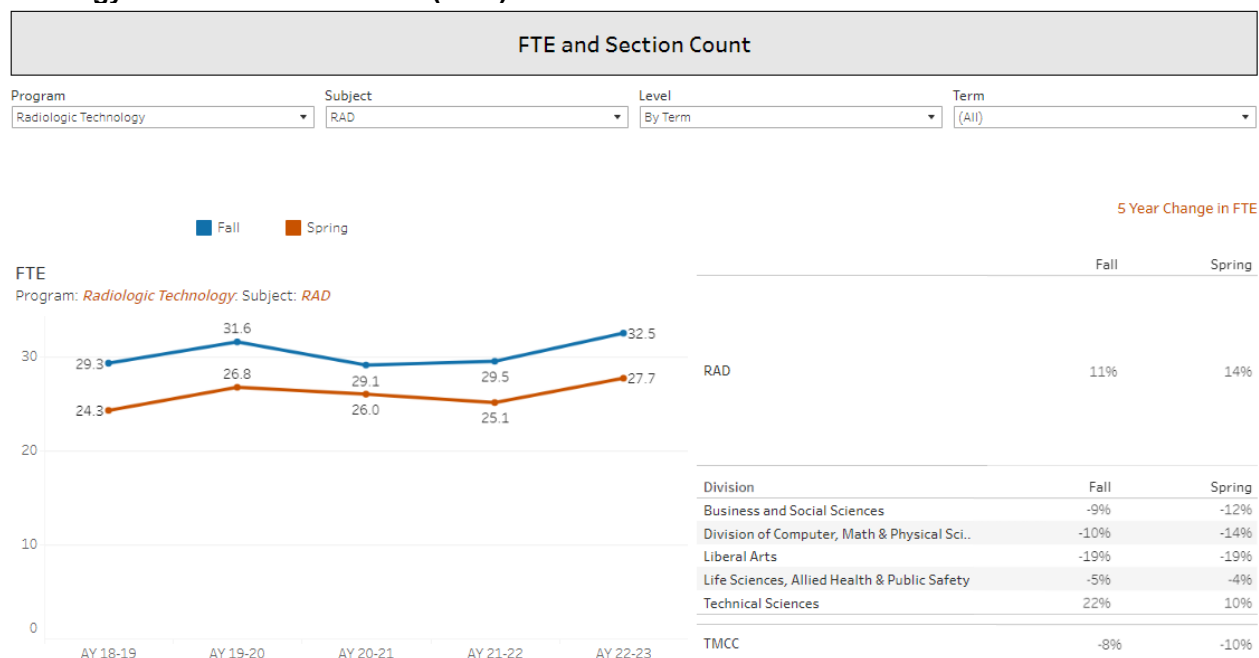
N/A

4.A. FTE and Section Count

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

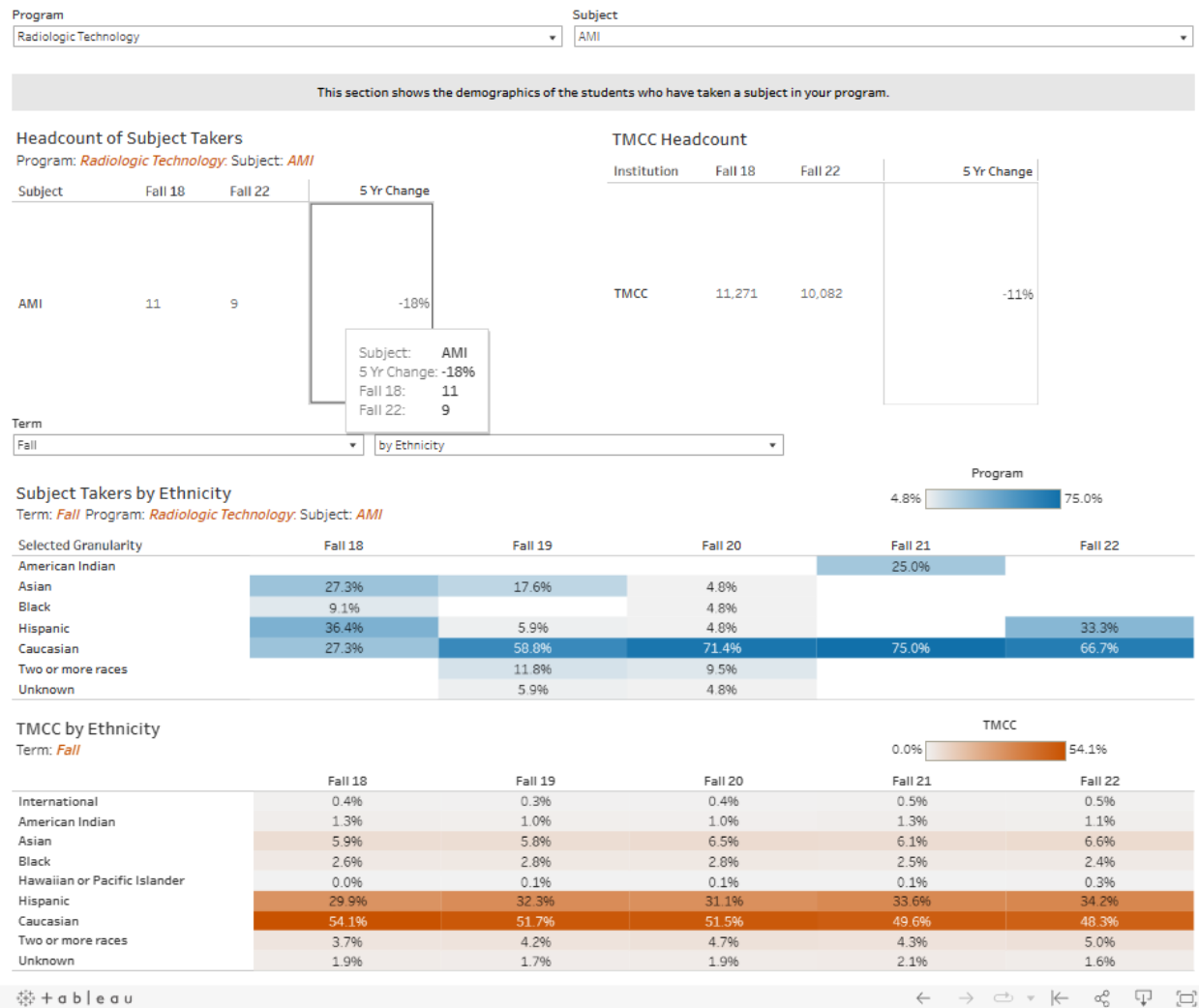
Radiology FTE and Section Count (RAD)

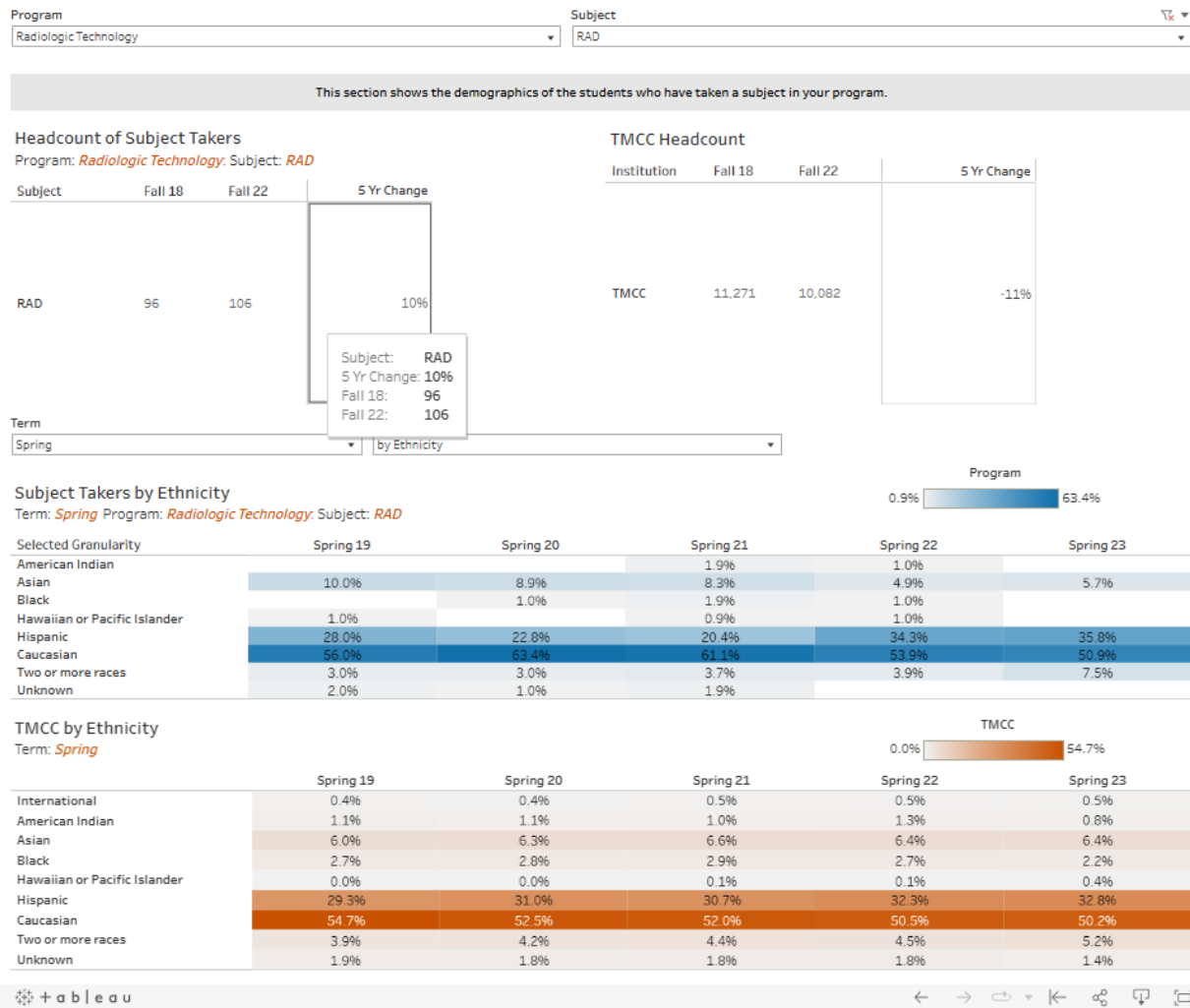


Please analyze the trends in FTE and course section counts by academic year and by term. Discuss what these trends suggest about the viability of the program based on its enrollment.

The rad tech and AMI programs are both application based. The rad tech program accepts 24 students per year, this is up from previous years of 18, 20 and 22. This number is only limited by the clinical sites available in the community. The application cycle for 2022 had 50 applications and 2023 had 57 applications, and has been consistently growing year to year. The program is viable.

The AMI program has suffered from low enrollment. The enrollment cap could be too high which is possibly affecting the data. The MRI program has been consistent with enrollment and is much stronger than CT which only had one student graduate in 2022. The program is offering the CT courses to second year students to try to raise enrollment, but it is not covered under financial aid. The main issue with AMI is that local hospitals cross train their employees and the didactic material is available on line for a lower cost.

[RETURN TO DATA DASHBOARDS](#)

[RETURN TO DATA DASHBOARD](#)

Program: Radiologic Technology Subject: RAD

This section shows the demographics of the students who have taken a subject in your program.

Headcount of Subject Takers

Program: Radiologic Technology Subject: RAD

Subject	Fall 18	Fall 22	5 Yr Change
RAD	96	106	10%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term: Spring Demographics: by Ethnicity

Subject Takers by Ethnicity

Term: Spring Program: Radiologic Technology Subject: RAD

Selected Granularity	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
American Indian			1.9%	1.0%	
Asian	10.0%	8.9%	8.3%	4.9%	5.7%
Black		1.0%	1.9%	1.0%	
Hawaiian or Pacific Islander	1.0%		0.9%	1.0%	
Hispanic	28.0%	22.8%	20.4%	34.3%	35.8%
Caucasian	56.0%	63.4%	61.1%	53.9%	50.9%
Two or more races	3.0%	3.0%	3.7%	3.9%	7.5%
Unknown	2.0%	1.0%	1.9%		

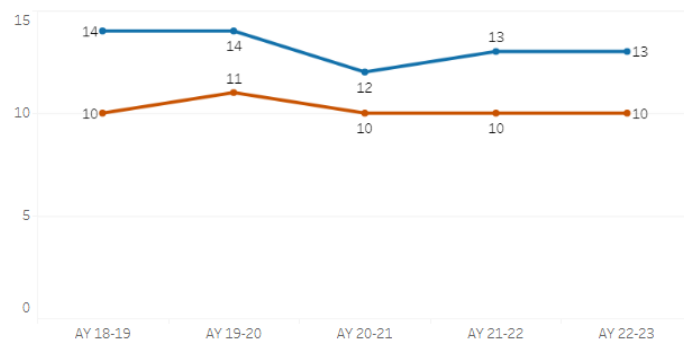
TMCC by Ethnicity

Term: Spring

Selected Granularity	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
International	0.4%	0.4%	0.5%	0.5%	0.5%
American Indian	1.1%	1.1%	1.0%	1.3%	0.8%
Asian	6.0%	6.3%	6.6%	6.4%	6.4%
Black	2.7%	2.8%	2.9%	2.7%	2.2%
Hawaiian or Pacific Islander	0.0%	0.0%	0.1%	0.1%	0.4%
Hispanic	29.3%	31.0%	30.7%	32.3%	32.8%
Caucasian	54.7%	52.5%	52.0%	50.5%	50.2%
Two or more races	3.9%	4.2%	4.4%	4.5%	5.2%
Unknown	1.9%	1.8%	1.8%	1.8%	1.4%

Section Count

Program: Radiologic Technology Subject: RAD



5 Year Change in Section Count

	Fall	Spring
RAD	-7%	0%
Division		
Business and Social Sciences	-9%	-11%
Division of Computer, Math & Physical Scie..	-30%	-32%
Liberal Arts	-19%	-22%
Life Sciences, Allied Health & Public Safety	4%	2%
Technical Sciences	35%	10%
TMCC	-7%	-13%

4.B. Course Fill Rates and Unsuccessful Enrollment Attempts

Radiologic Technology PUR 2023-24 Self Study

Program: Radiologic Technology Subject: (All) Section: By Term

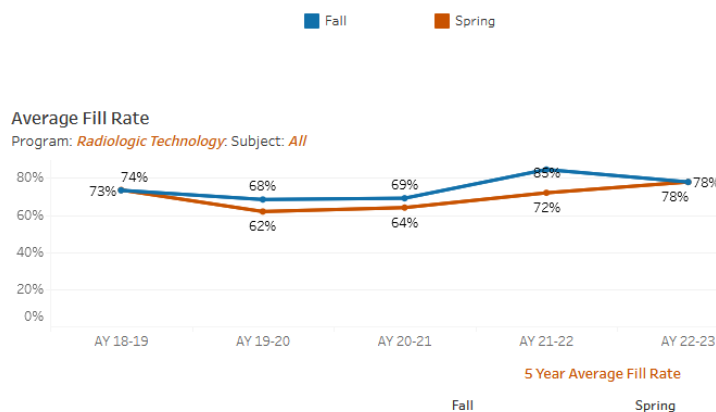


Division	Fall	Spring
Business and Social Sciences	69%	63%
Division of Computer, Math & Physical Sci...	84%	79%
Liberal Arts	82%	76%
Life Sciences, Allied Health & Public Safety	79%	76%
Technical Sciences	45%	43%
TMCC	72%	68%

Program: **Radiologic Technology**. Subject: **All**

	Fall	Spring
AMI 201	51%	
AMI 203	16%	
AMI 216	47%	
AMI 218	47%	
AMI 226		47%
AMI 228		47%
AMI 236	63%	
AMI 238	50%	
AMI 246	50%	
AMI 248		33%
AMI 256		33%
AMI 259		41%
AMI 290	18%	12%
RAD 101	98%	99%
RAD 103	97%	
RAD 110	97%	
RAD 112	97%	
RAD 116	97%	
RAD 118	97%	
RAD 124		97%
RAD 125		97%
RAD 126		97%
RAD 128		97%
RAD 220	100%	
RAD 230	92%	100%
RAD 236	93%	
RAD 238	93%	
RAD 242		93%
RAD 244	93%	
RAD 245		92%
RAD 247	93%	
RAD 259		93%
RAD 290	100%	

Program: Subject: By Term:



AMI	37%	27%
RAD	96%	96%
Division	Fall	Spring
Business and Social Sciences	69%	63%
Division of Computer, Math & Physical Sci..	84%	79%
Liberal Arts	82%	76%
Life Sciences, Allied Health & Public Safety	79%	76%
Technical Sciences	45%	43%
TMCC	72%	68%

5 Yr Avg Course Level Fill Rate

Program: *Radiologic Technology*; Subject: *All*

	Fall	Spring
AMI 201	51%	
AMI 203	16%	
AMI 216	47%	
AMI 218	47%	
AMI 226		47%
AMI 228		47%
AMI 236	63%	
AMI 238	50%	
AMI 246	50%	
AMI 248		33%
AMI 256		33%
AMI 259		41%
AMI 290	18%	12%
RAD 101	98%	99%
RAD 103	97%	
RAD 110	97%	
RAD 112	97%	
RAD 116	97%	
RAD 118	97%	
RAD 124		97%
RAD 125		97%
RAD 126		97%
RAD 128		97%
RAD 220	100%	
RAD 230	92%	100%
RAD 236	93%	
RAD 238	93%	
RAD 242		93%
RAD 244	93%	
RAD 245		92%
RAD 247	93%	
RAD 259		93%
RAD 290	100%	

Unsuccessful Enrollment Attempts

Program: Subject:

5 Yr Average Unsuccessful Enrollment Attempts

An enrollment attempt is considered unsuccessful if the student tried to enroll in one or more sections of a course but could not because the section was full, and who ultimately did not take the course that term. If they eventually enrolled in another section, they are not counted as unsuccessful. And a student is only counted once per course no matter how many section-level attempts they had.

Course Level

Program: *Radiologic Technology*

RAD 101	26.20
RAD 103	1.00
RAD 110	1.00
RAD 112	1.00
RAD 116	3.50
RAD 118	1.00
RAD 124	1.80
RAD 126	1.60
RAD 128	1.00

Division & College Wide

Business and Social Sciences	4.08
Division of Computer, Math & Physical Sciences	18.00
Liberal Arts	8.99
Life Sciences, Allied Health & Public Safety	7.01
Technical Sciences	2.96
TMCC	7.53

Please analyze the trends in course fill rates and unsuccessful enrollment attempts. Discuss what these trends suggest about meeting student demand for the courses offered in your program (s).

The Rad Tech program is application point based competitive entry. This means that students can only enroll in rad tech classes once they have been accepted and their major is declared as rad tech. The rad tech fill rates are high because the students are in a program with a set sequence of courses. The years of numbers lower than 100% are from students who withdrew or were dismissed from the cohort.

The only course that has a high unsuccessful enrollment attempt is RAD 101, Exploration of Radiology, which is a prerequisite to application. RAD 101 has 3 sections and 66 spots per semester. It is limited by clinical placement because each student does a one day, eight hour rotation at a local hospital. It is a popular course and is consistently full.

AMI (advanced medical imaging) is the program for the CT and MRI Skills certificates. CT courses are only available to ARRT registered x-ray technologists or current TMCC second year x-ray students. The AMI program is offered to the x-ray community to fulfill the ARRT didactic requirements to take the CT or MRI ARRT national registry exam. The problem is that the x-ray techs can buy modules online to fulfill the same didactic requirements. The drastic change in enrollment in AY 21-22 is due to the pandemic. The AMI program was put on hold for one year to reduce the overall rad tech budget.

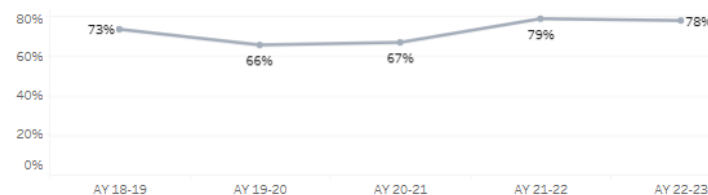
The CT and MRI skills certificates were developed because of advisory board suggestions, but as discussed earlier the hospitals are cross training employees instead of sending them to TMCC. The program is working with TMCC and local resources to help with funding, but the structure of the skills certificate could be the problem. Currently the AMI students have to take numerous courses and finish in two semesters. This could be limiting enrollment and we have discussed the possibility of offering all of the courses each semester and not making students stick to a sequence. An additional issue with AMI's low student enrollment is PT faculty pay. Most courses are paid as independent study, which is a much lower rate than by credit. One last thought is that the enrollment cap is probably too high which is also negatively affecting the fill rate percentage.

Program:
 Subject:
 Level:

■ AY

Average Fill Rate

Program: *Radiologic Technology*; Subject: *All*



5 Year Average Fill Rate

AY

AMI 32%

RAD 96%

Division	AY
Business and Social Sciences	66%
Division of Computer, Math & Physical Sci..	82%
Liberal Arts	79%
Life Sciences, Allied Health & Public Safety	78%
Technical Sciences	44%
TMCC	70%

5 Yr Avg Course Level Fill Rate

Program: *Radiologic Technology*; Subject: *All*

	AY
AMI 201	51%
AMI 203	16%
AMI 216	47%
AMI 218	47%
AMI 226	47%
AMI 228	47%
AMI 236	63%
AMI 238	50%
AMI 246	50%
AMI 248	33%
AMI 256	33%
AMI 259	41%
AMI 290	15%
RAD 101	99%
RAD 103	97%
RAD 110	97%
RAD 112	97%
RAD 116	97%
RAD 118	97%
RAD 124	97%
RAD 125	97%
RAD 126	97%
RAD 128	97%
RAD 220	100%
RAD 230	94%
RAD 236	93%
RAD 238	93%
RAD 242	93%
RAD 244	93%
RAD 245	92%
RAD 247	93%
RAD 259	93%
RAD 290	100%

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Unsuccessful Enrollment Attempts

Program:
 Subject:

5 Yr Average Unsuccessful Enrollment Attempts

An enrollment attempt is considered unsuccessful if the student tried to enroll in one or more sections of a course but could not because the section was full, and who ultimately did not take the course that term. If they eventually enrolled in another section, they are not counted as unsuccessful. And a student is only counted once per course no matter how many section-level attempts they had.

Course Level

Program: *Radiologic Technology*

Course Level	Division & College Wide
RAD 101	26.20
RAD 103	1.00
RAD 110	1.00
RAD 112	1.00
RAD 116	3.50
RAD 118	1.00
RAD 124	1.80
RAD 126	1.60
RAD 128	1.00
Business and Social Sciences	4.08
Division of Computer, Math & Physical Sciences	18.00
Liberal Arts	8.99
Life Sciences, Allied Health & Public Safety	7.01
Technical Sciences	2.96
TMCC	7.53

4.C. Student Demographics: Ethnicity, Gender, Credit Load, Student Status, Age Range, Pell-eligibility, and First-generation status

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Demographics: Program Majors

Program

Radiologic Technology

This section shows the demographics of the students who are declared majors in your program.

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADTRY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term

Fall

Demographics

by Ethnicity

Program Majors by Ethnicity

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Asian	10.2%	12.0%	8.5%	7.5%	4.9%
Black		2.0%	2.1%		
Hawaiian or Pacific Islander			2.1%	2.5%	
Hispanic	28.6%	20.0%	17.0%	20.0%	24.4%
Caucasian	59.2%	62.0%	66.0%	65.0%	65.9%
Two or more races	2.0%	4.0%	4.3%	5.0%	4.9%

Program
2.0% 66.0%

TMCC by Ethnicity

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
International	0.4%	0.3%	0.4%	0.5%	0.5%
American Indian	1.3%	1.0%	1.0%	1.3%	1.1%
Asian	5.9%	5.8%	6.5%	6.1%	6.6%
Black	2.6%	2.8%	2.8%	2.5%	2.4%
Hawaiian or Pacific Islander	0.0%	0.1%	0.1%	0.1%	0.3%
Hispanic	29.9%	32.3%	31.1%	33.6%	34.2%
Caucasian	54.1%	51.7%	51.5%	49.6%	48.3%
Two or more races	3.7%	4.2%	4.7%	4.3%	5.0%
Unknown	1.9%	1.7%	1.9%	2.1%	1.6%

TMCC
0.0% 54.1%

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term

Spring

Demographics

by Ethnicity

Program Majors by Ethnicity

Term: *Spring* Program: *Radiologic Technology*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
Asian	10.7%	11.5%	8.8%	7.7%	5.1%
Black		1.9%	1.6%		1.7%
Hawaiian or Pacific Islander			1.8%	2.6%	
Hispanic	25.0%	21.2%	17.5%	20.5%	28.8%
Caucasian	60.7%	61.5%	66.7%	64.1%	59.3%
Two or more races	3.6%	3.8%	3.5%	5.1%	5.1%

TMCC by Ethnicity

Term: *Spring*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
International	0.4%	0.4%	0.5%	0.5%	0.5%
American Indian	1.1%	1.1%	1.0%	1.3%	0.8%
Asian	6.0%	6.3%	6.6%	6.4%	6.4%
Black	2.7%	2.8%	2.9%	2.7%	2.2%
Hawaiian or Pacific Islander	0.0%	0.0%	0.1%	0.1%	0.4%
Hispanic	29.3%	31.0%	30.7%	32.3%	32.8%
Caucasian	54.7%	52.5%	52.0%	50.5%	50.2%
Two or more races	3.9%	4.2%	4.4%	4.5%	5.2%
Unknown	1.9%	1.8%	1.8%	1.8%	1.4%

Term

Fall

Demographics

by Gender

Program Majors by Gender

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
F	69.4%	64.0%	66.0%	67.5%	53.7%
M	30.6%	36.0%	34.0%	32.5%	46.3%

TMCC by Gender

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
F	53.3%	54.3%	56.9%	55.1%	54.0%
M	46.3%	45.7%	43.1%	44.9%	46.0%
U	0.4%				

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

Term: *Spring*

Demographics

by Gender

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Program Majors by Gender

Term: *Spring* Program: *Radiologic Technology*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
F	64.3%	63.5%	68.4%	66.7%	57.6%
M	35.7%	36.5%	31.6%	33.3%	42.4%

TMCC by Gender

Term: *Spring*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
F	52.1%	54.1%	56.4%	54.8%	54.6%
M	47.9%	45.9%	43.6%	45.2%	45.4%
U		0.0%			

Term

Fall

Demographics

by Credit Load

Program Majors by Credit Load

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Full-Time	18.4%	8.0%	10.6%		9.8%
Part-Time	81.6%	92.0%	89.4%	100.0%	90.2%

TMCC by Credit Load

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Full-Time	27.6%	28.2%	29.3%	29.1%	28.5%
Part-Time	72.4%	71.8%	70.7%	70.9%	71.5%

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTRY-CT	7	0	
RT-AAS	40	41	2%

Term: Spring

Demographics

by Credit Load

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Program Majors by Credit Load

Term: *Spring* Program: *Radiologic Technology*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
Full-Time	12.5%	11.5%	14.0%	2.6%	16.9%
Part-Time	87.5%	88.5%	86.0%	97.4%	83.1%

Program
2.6% 97.4%

TMCC by Credit Load

Term: *Spring*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
Null				0.0%	
Full-Time	25.5%	26.2%	26.3%	28.8%	26.1%
Part-Time	74.5%	73.8%	73.7%	71.2%	73.9%

TMCC
0.0% 74.5%Term: Fall

Demographics

by Student Status

Program Majors by Student Status

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Continuing	95.9%	100.0%	100.0%	100.0%	100.0%
New Transfer	4.1%				

Program
4.1% 100.0%

TMCC by Student Status

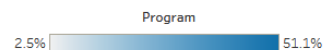
Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
New	15.2%	14.6%	13.5%	16.3%	17.2%
Continuing	65.5%	62.1%	60.9%	61.0%	57.2%
New Transfer	11.0%	8.7%	7.8%	8.1%	7.3%
New High School	5.7%	11.1%	12.4%	8.3%	12.0%
Continuing HS	2.6%	3.5%	5.4%	6.4%	6.4%

TMCC
2.6% 65.5%

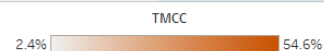
Term: Demographics:

Program Majors by Age Range

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
18-24	40.8%	38.0%	21.3%	32.5%	29.3%
25-34	32.7%	40.0%	51.1%	47.5%	43.9%
35-49	20.4%	18.0%	19.1%	17.5%	19.5%
50+	6.1%	4.0%	8.5%	2.5%	7.3%

TMCC by Age Range

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
<18	7.1%	12.7%	15.0%	11.8%	13.6%
18-24	54.6%	52.9%	51.4%	52.8%	52.2%
25-34	23.9%	22.2%	22.8%	23.6%	21.4%
35-49	10.5%	9.0%	8.4%	9.3%	9.8%
50+	3.9%	3.3%	2.4%	2.5%	3.0%

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term: Demographics:

Program Majors by Age Range

Term: *Spring* Program: *Radiologic Technology*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
18-24	35.7%	34.6%	26.3%	30.8%	30.5%
25-34	37.5%	40.4%	50.9%	48.7%	45.8%
35-49	23.2%	21.2%	17.5%	17.9%	18.6%
50+	3.6%	3.8%	5.3%	2.6%	5.1%

TMCC by Age Range

Term: *Spring*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
<18	5.9%	8.6%	10.5%	11.2%	13.5%
18-24	54.6%	54.1%	52.0%	52.9%	52.5%
25-34	25.2%	24.1%	25.2%	23.7%	20.8%
35-49	10.6%	9.8%	9.6%	9.7%	9.8%
50+	3.8%	3.4%	2.6%	2.5%	3.3%

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

Term

Fall

Demographics

by Pell Eligibility


TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Program Majors by Pell Eligibility

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Pell eligible	55.1%	48.0%	46.8%	60.0%	56.1%
not Pell Eligible	44.9%	52.0%	53.2%	40.0%	43.9%

Program
40.0%  60.0%

TMCC by Pell Eligibility

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Pell eligible	44.1%	40.9%	39.9%	38.6%	34.0%
not Pell Eligible	55.9%	59.1%	60.1%	61.4%	66.0%

TMCC
34.0%  66.0%

Headcount of Program Majors

Program: *Radiologic Technology*

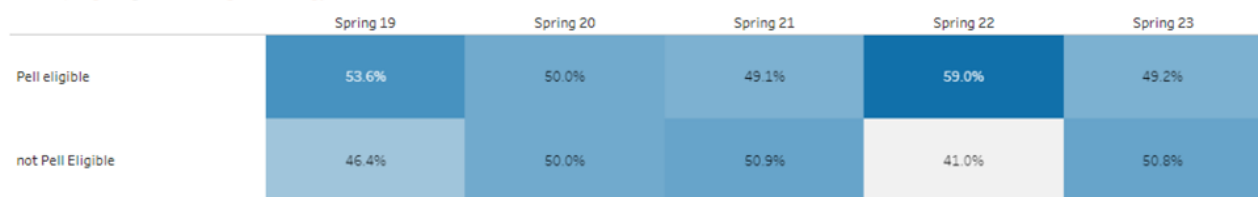
Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTRY-CT	7	0	
RT-AAS	40	41	2%

Term: SpringDemographics: by Pell Eligibility

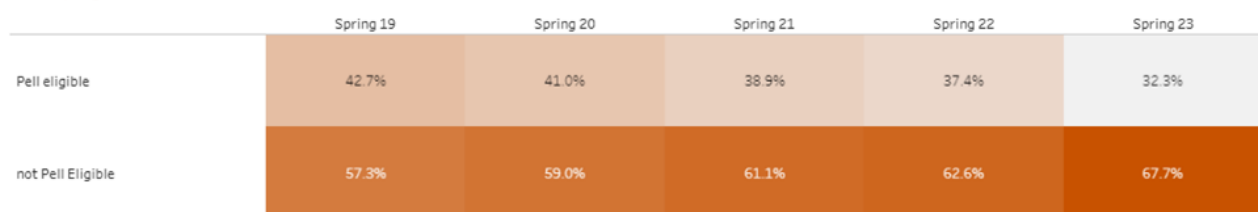
TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Program Majors by Pell Eligibility

Term: *Spring* Program: *Radiologic Technology*

TMCC by Pell Eligibility

Term: *Spring*

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

Term: Demographics:

Program Majors by First Generation

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
First Generation	38.8%	44.0%	48.9%	55.0%	36.6%
not First Generation	61.2%	56.0%	51.1%	45.0%	63.4%

TMCC by First Generation

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
First Generation	48.8%	48.9%	46.4%	46.9%	49.1%
not First Generation	51.2%	51.1%	53.6%	53.1%	50.9%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADTRY-CT	7	0	
RT-AAS	40	41	2%

Term

Demographics

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Program Majors by First Generation

Term: *Spring* Program: *Radiologic Technology*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
First Generation	41.1%	44.2%	52.6%	53.8%	35.6%
not First Generation	58.9%	55.8%	47.4%	46.2%	64.4%

Program
35.6%  64.4%

TMCC by First Generation

Term: *Spring*

	Spring 19	Spring 20	Spring 21	Spring 22	Spring 23
First Generation	48.9%	48.4%	46.2%	46.7%	48.6%
not First Generation	51.1%	51.6%	53.8%	53.3%	51.4%

TMCC
46.2%  53.8%

- Briefly describe the typical student in terms of ethnicity, gender, credit load, student status, first-generation students, age range, Pell-eligibility and first-generation status, including how they compare to demographics of the college. Please note any potential equity gap and discuss your plans for closing them. An equity gap is where there is a significant and persistent disparity in access or achievement between different groups of students.
- Describe the demographics of the program's faculty compared to the demographics of the program's students.
- Discuss teaching methods and other practices used by the program's faculty to cultivate a welcoming, safe, and inclusive learning environment.

The average radiologic technology student is:

- **Caucasian**, which is at a higher rate than the college. The program has slightly less Hispanic students but more Asian students than the college.
- **Female**. This is similar to the college, but as of fall of 2022 it is almost 50/50 male female, which is a new possible trend for the rad tech profession which is predominantly female.
- **Part-time**, which is similar to the college. The rad tech program gives points towards application for general education requirements to be completed before application. This way students can concentrate on the radiology courses and put students down to part time credits.
- **Continuing**, which is similar to the college.
- **Age 25-34**, which is different from the college's more prevalent age group of 18-24 years old. The rad tech program has a higher number of older students (ages 35-49 and over 50) because for most students this is a second career. The program also cannot have students younger than 18.
- **Half are Pell eligible**, which is more than the college.
- **40-50% are first generation** which is slightly below the college.

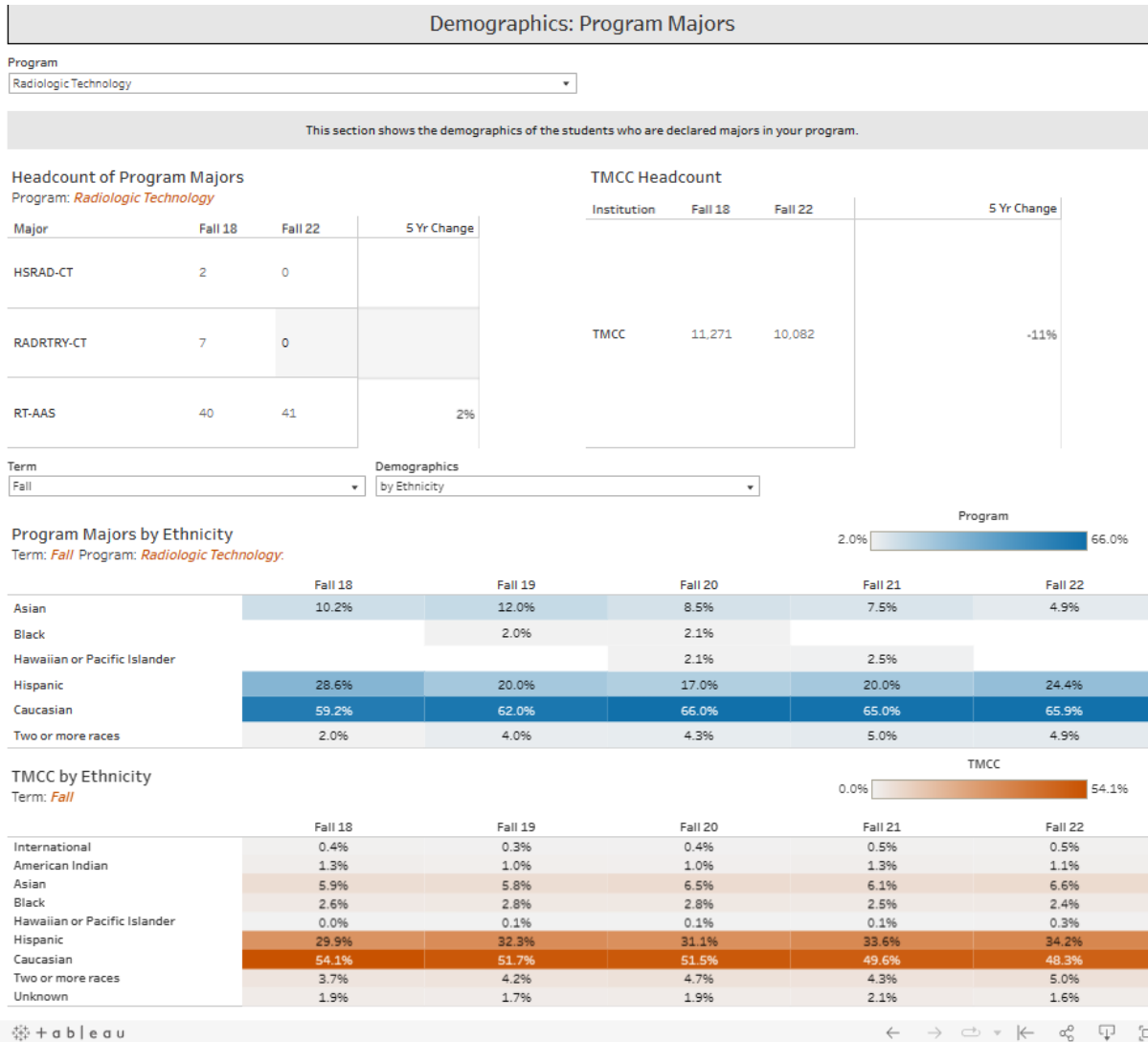
Considering the data reviewed above, the program does not seem to have any significant equity gaps.

The program faculty demographics is Caucasian, mostly female (1 male) and between the ages of 25-55. This mirrors the program's student population but given the increase in males, which might amount to a new trend in the discipline, the program might look to try and attract more male applicants in future faculty searches.

The teaching methods used by the program are inclusive, we make sure that students understand that mistakes and wrong answers are a part of the learning process. We use in person and online discussion formats to encourage shy students to participate. We allow students to choose (in most cases) what they are interested in for projects and experiments. We are open to all suggestions and try to make class valuable and transformative. The students are our peers, we want to help them be the best rad tech possible in case we work with them or are treated by them in the future.

Statement written by a current second year student, who is on the PUR Committee:

Teachers and faculty have an open-door type policy, answer emails and texts promptly, are open to helping students get extra practice with open labs. Accommodations are readily made for students who have specific needs—pregnancy, teachers don't make us have class if the weather is dangerous, open discussions are encouraged in class. Teachers and faculty respond well to suggestions and student criticism by actually changing the courses to better suit student needs.



Demographics: Program Majors

Program

Radiologic Technology

This section shows the demographics of the students who are declared majors in your program.

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADTRY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term

Fall

Demographics

by Gender

Program Majors by Gender

Term: *Fall* Program: *Radiologic Technology*.
 Program
 30.6%  69.4%

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
F	69.4%	64.0%	66.0%	67.5%	53.7%
M	30.6%	36.0%	34.0%	32.5%	46.3%

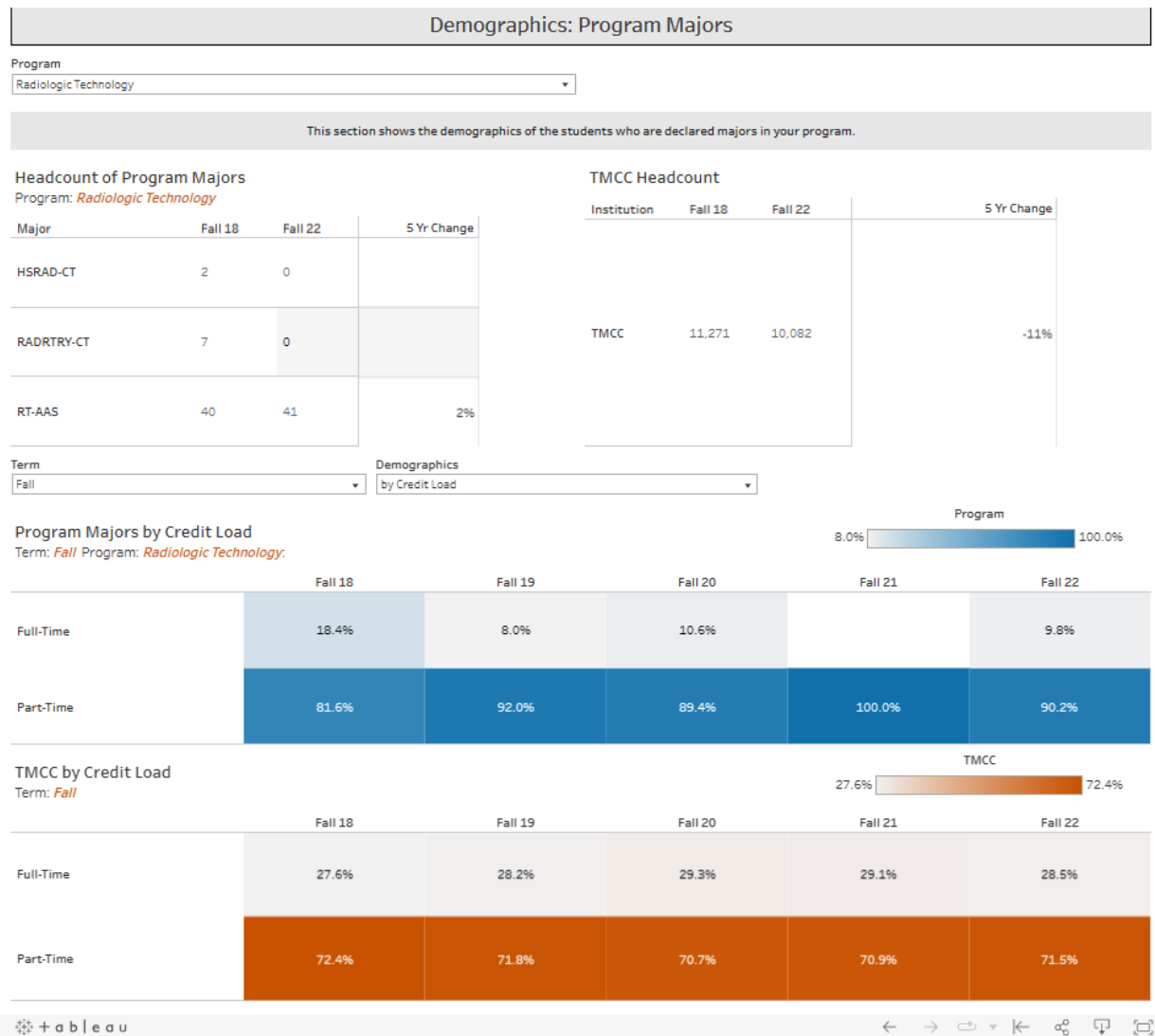
TMCC by Gender

Term: *Fall*
 TMCC
 0.4%  56.9%

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
F	53.3%	54.3%	56.9%	55.1%	54.0%
M	46.3%	45.7%	43.1%	44.9%	46.0%
U	0.4%				

25% + tableau





Demographics: Program Majors

Program

Radiologic Technology

This section shows the demographics of the students who are declared majors in your program.

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term

Fall

Demographics

by Student Status

Program Majors by Student Status

Term: *Fall* Program: *Radiologic Technology*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
Continuing	95.9%	100.0%	100.0%	100.0%	100.0%
New Transfer	4.1%				

TMCC by Student Status

Term: *Fall*

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
New	15.2%	14.6%	13.5%	16.3%	17.2%
Continuing	65.5%	62.1%	60.9%	61.0%	57.2%
New Transfer	11.0%	8.7%	7.8%	8.1%	7.3%
New High School	5.7%	11.1%	12.4%	8.3%	12.0%
Continuing HS	2.6%	3.5%	5.4%	6.4%	6.4%

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Demographics: Program Majors

Program

Radiologic Technology

This section shows the demographics of the students who are declared majors in your program.

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term

Fall

Demographics

by Age Range

Program Majors by Age Range

Term: *Fall* Program: *Radiologic Technology*:Program
2.5% 51.1%

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
18-24	40.8%	38.0%	21.3%	32.5%	29.3%
25-34	32.7%	40.0%	51.1%	47.5%	43.9%
35-49	20.4%	18.0%	19.1%	17.5%	19.5%
50+	6.1%	4.0%	8.5%	2.5%	7.3%

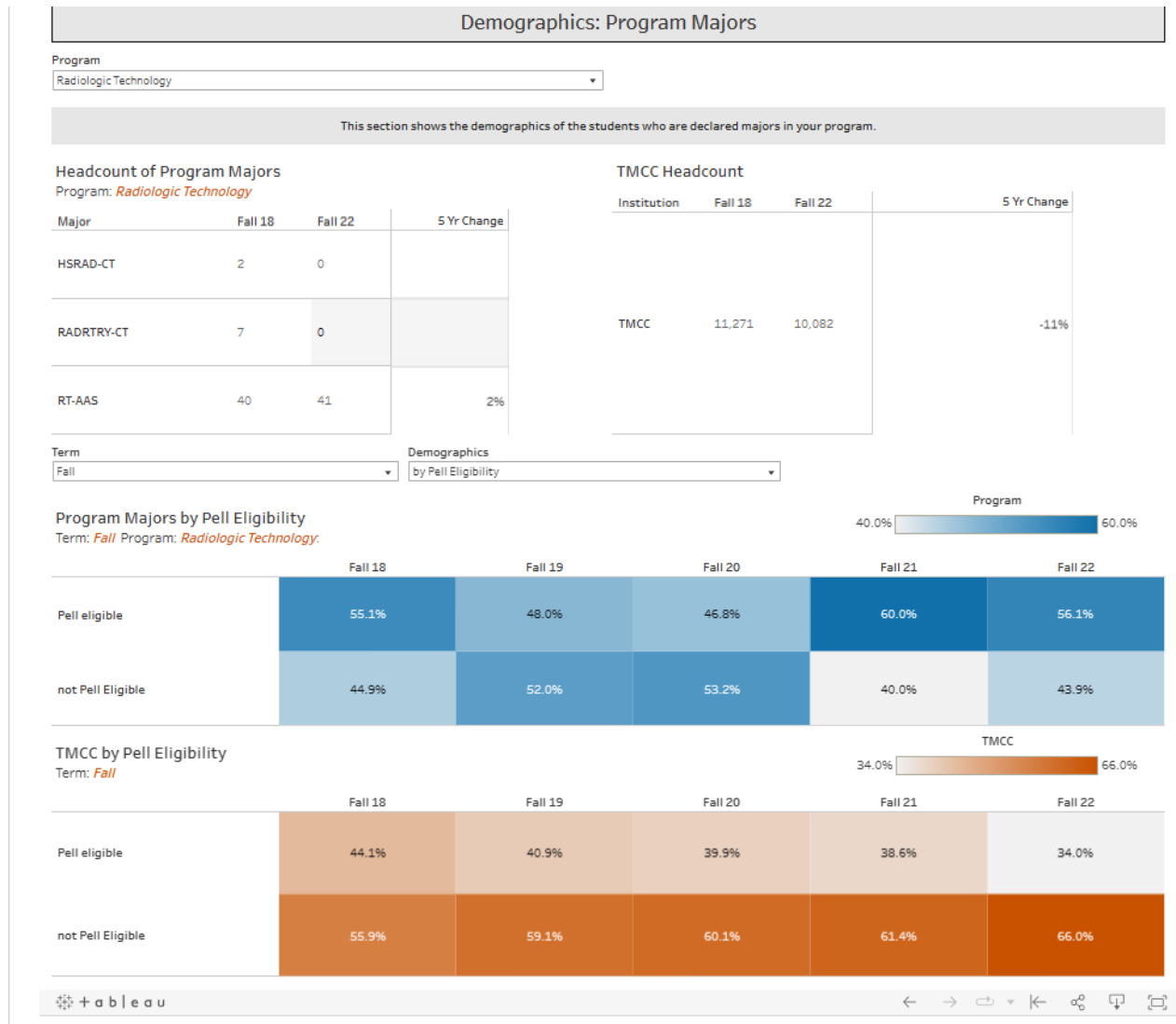
TMCC by Age Range

Term: *Fall*TMCC
2.4% 54.6%

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
<18	7.1%	12.7%	15.0%	11.8%	13.6%
18-24	54.6%	52.9%	51.4%	52.8%	52.2%
25-34	23.9%	22.2%	22.8%	23.6%	21.4%
35-49	10.5%	9.0%	8.4%	9.3%	9.8%
50+	3.9%	3.3%	2.4%	2.5%	3.0%

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Demographics: Program Majors

Program

Radiologic Technology

This section shows the demographics of the students who are declared majors in your program.

Headcount of Program Majors

Program: *Radiologic Technology*

Major	Fall 18	Fall 22	5 Yr Change
HSRAD-CT	2	0	
RADRTY-CT	7	0	
RT-AAS	40	41	2%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term

Fall

Demographics

by First Generation

Program Majors by First Generation

Term: *Fall* Program: *Radiologic Technology*Program
34.1%  65.9%

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
First Generation	38.8%	44.0%	48.9%	55.0%	34.1%
not First Generation	61.2%	56.0%	51.1%	45.0%	65.9%

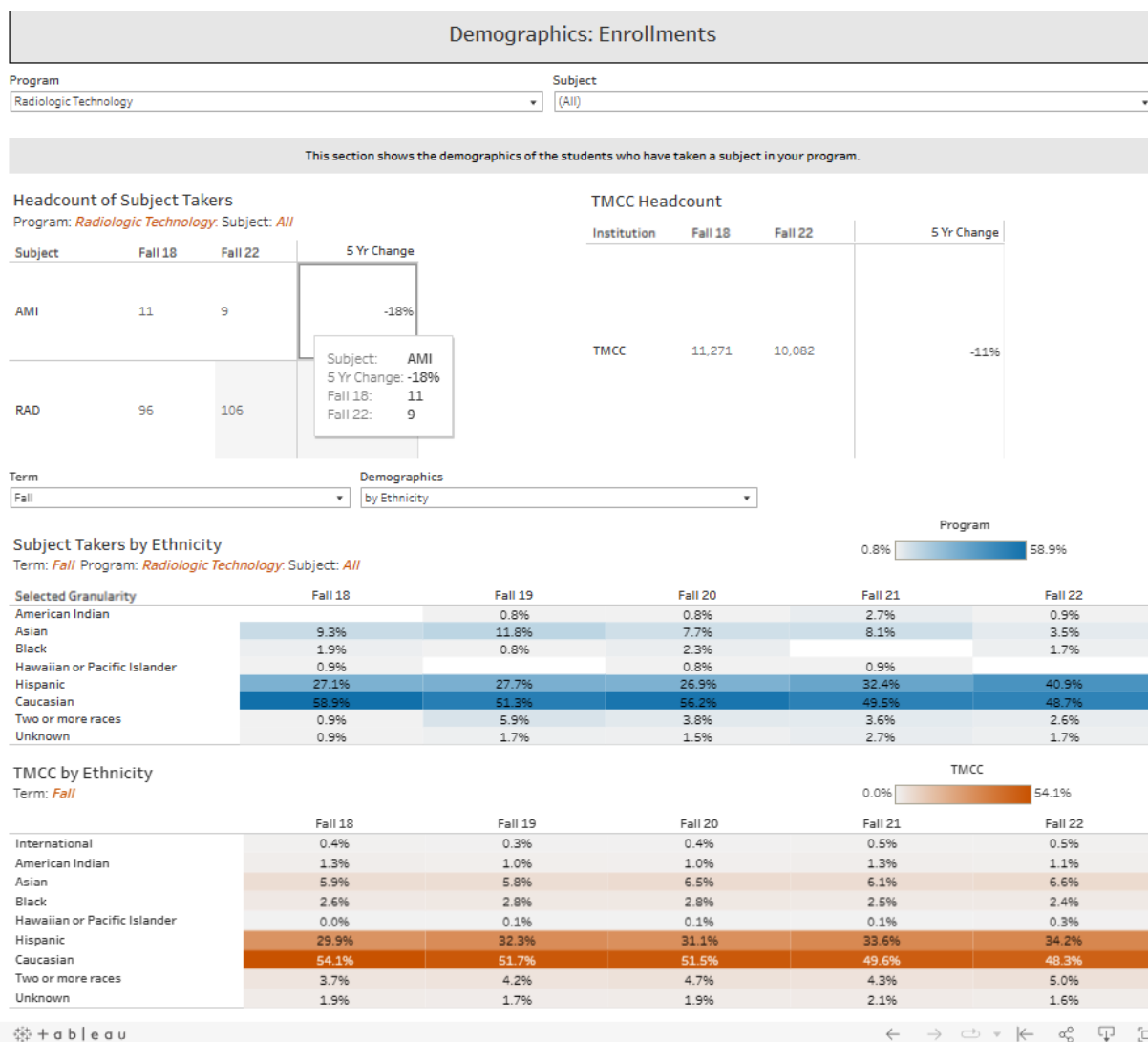
TMCC by First Generation

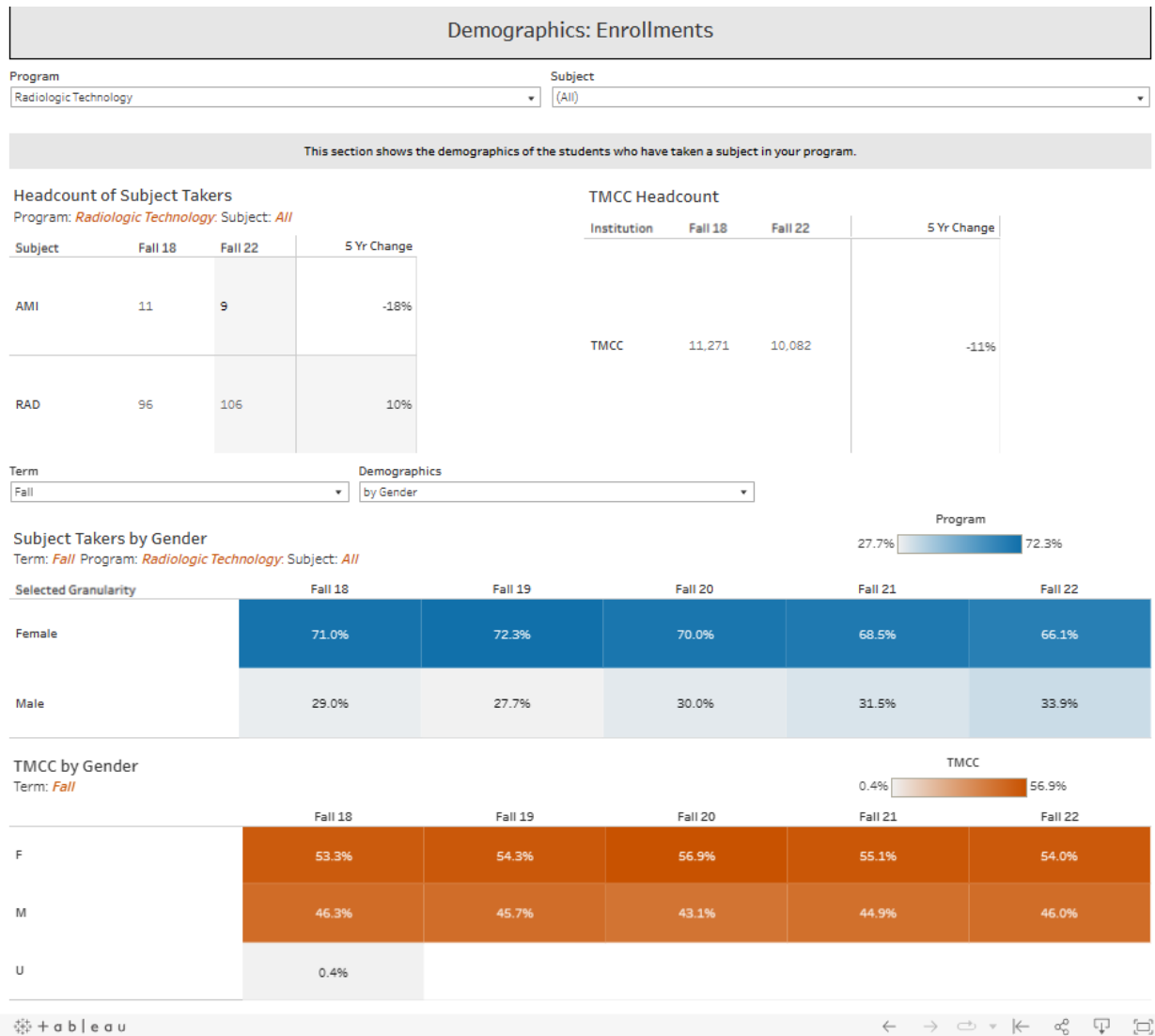
Term: *Fall*TMCC
46.4%  53.6%

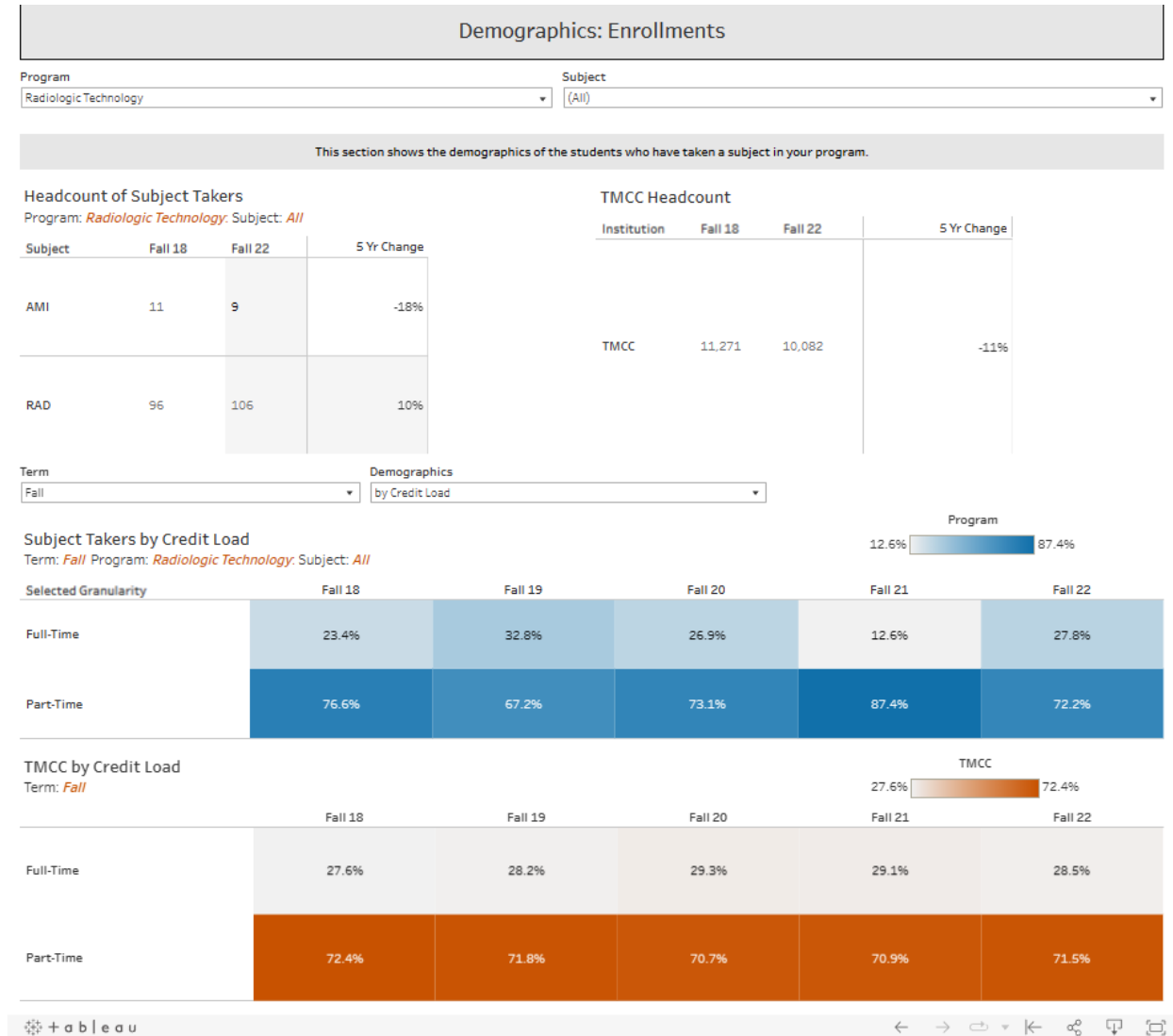
	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
First Generation	49.0%	49.1%	46.4%	47.0%	49.2%
not First Generation	51.0%	50.9%	53.6%	53.0%	50.8%

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Demographics: Enrollments

Program Radiologic Technology Subject (All)

This section shows the demographics of the students who have taken a subject in your program.

Headcount of Subject Takers

Program: *Radiologic Technology* Subject: *All*

Subject	Fall 18	Fall 22	5 Yr Change
AMI	11	9	-18%
RAD	96	106	10%

TMCC Headcount

Institution	Fall 18	Fall 22	5 Yr Change
TMCC	11,271	10,082	-11%

Term Fall Demographics by Student Status

Subject Takers by Student Status

Term: *Fall* Program: *Radiologic Technology* Subject: *All*

Program
4.7%  87.9%

Selected Granularity	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
New	4.7%	12.6%	6.2%	8.1%	14.8%
Continuing	87.9%	74.8%	83.8%	75.7%	72.2%
New Transfer	7.5%	12.6%	10.0%	16.2%	13.0%

TMCC by Student Status

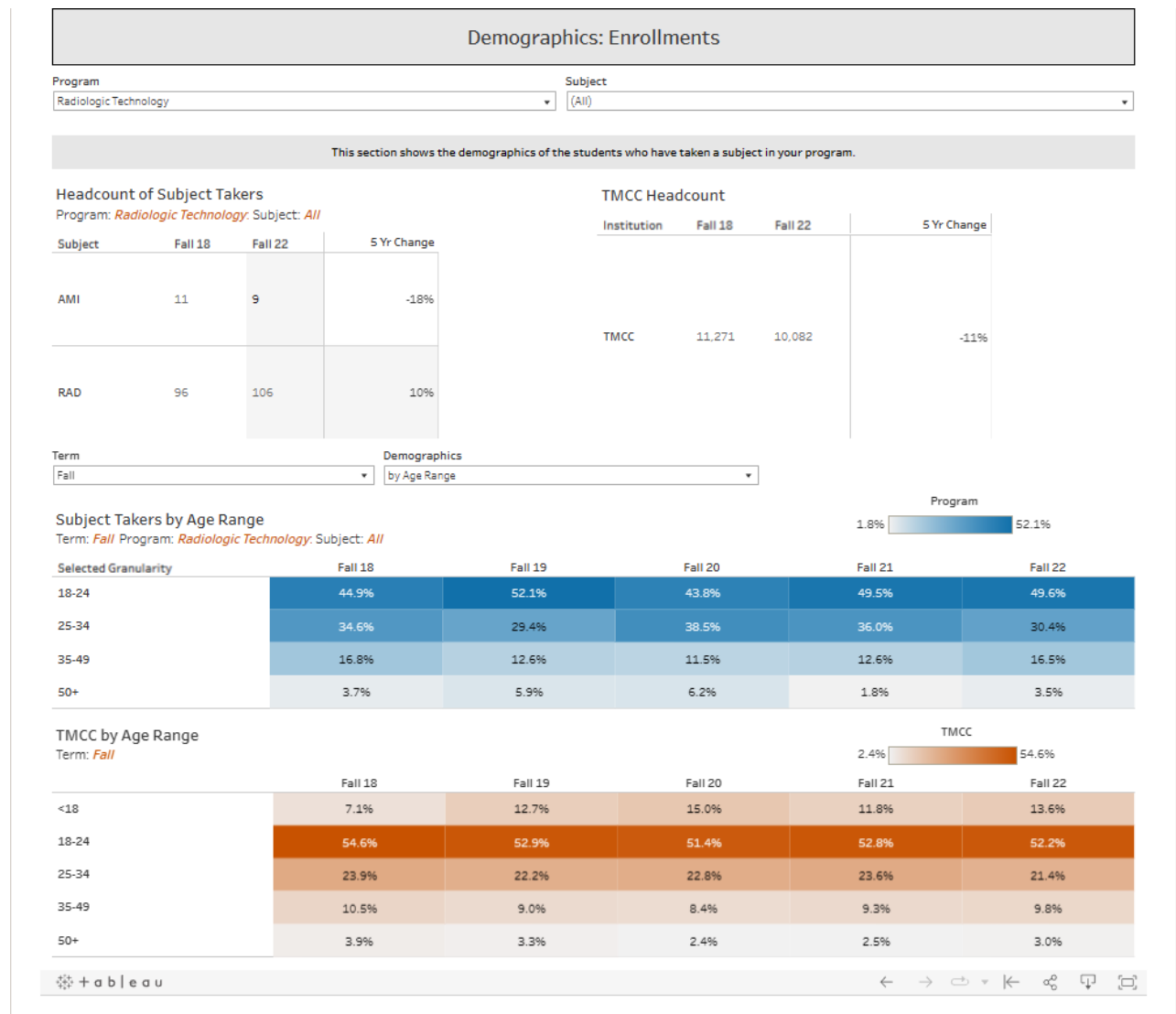
Term: *Fall*

TMCC
2.6%  65.5%

	Fall 18	Fall 19	Fall 20	Fall 21	Fall 22
New	15.2%	14.6%	13.5%	16.3%	17.2%
Continuing	65.5%	62.1%	60.9%	61.0%	57.2%
New Transfer	11.0%	8.7%	7.8%	8.1%	7.3%
New High School	5.7%	11.1%	12.4%	8.3%	12.0%
Continuing HS	2.6%	3.5%	5.4%	6.4%	6.4%

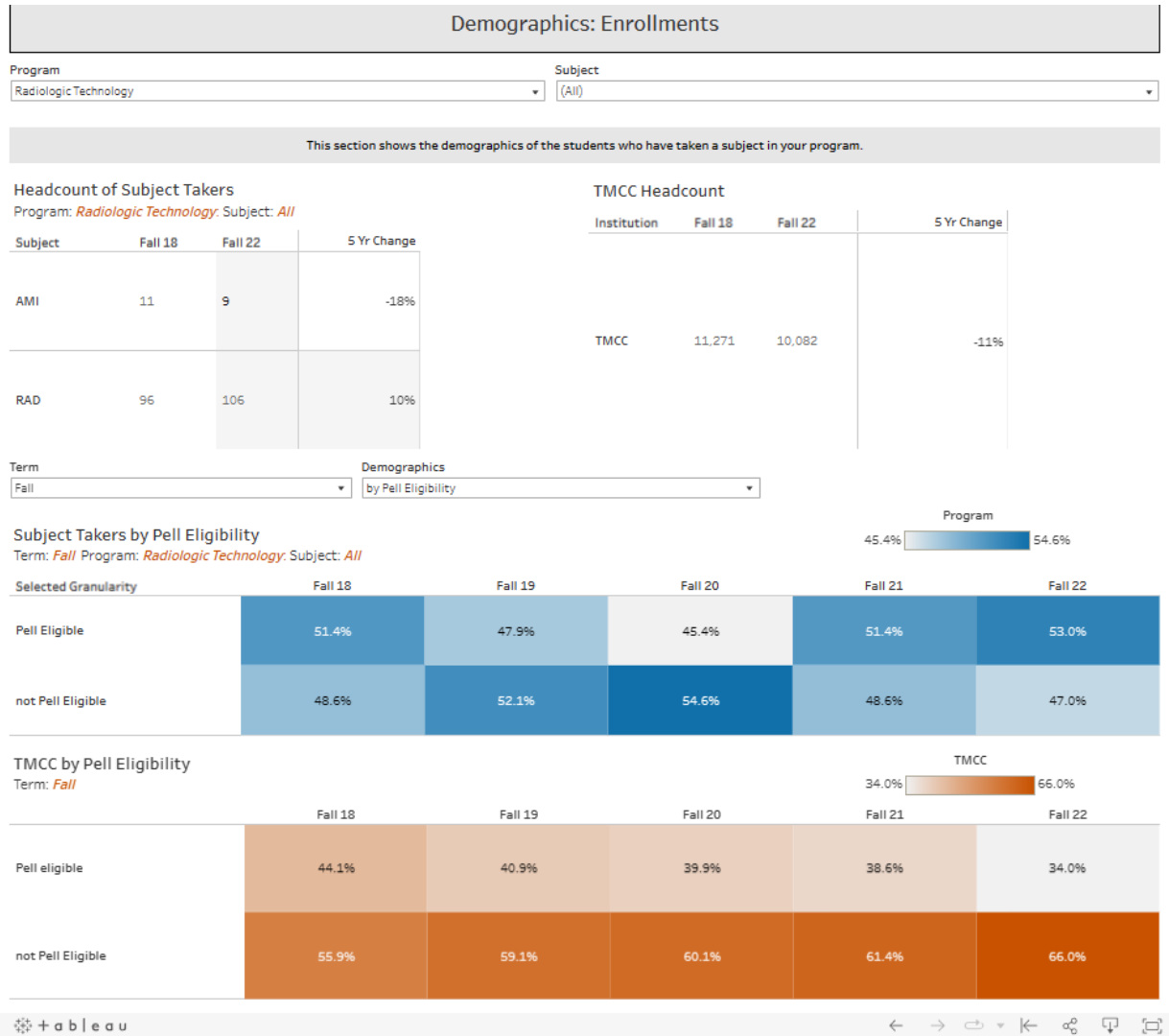
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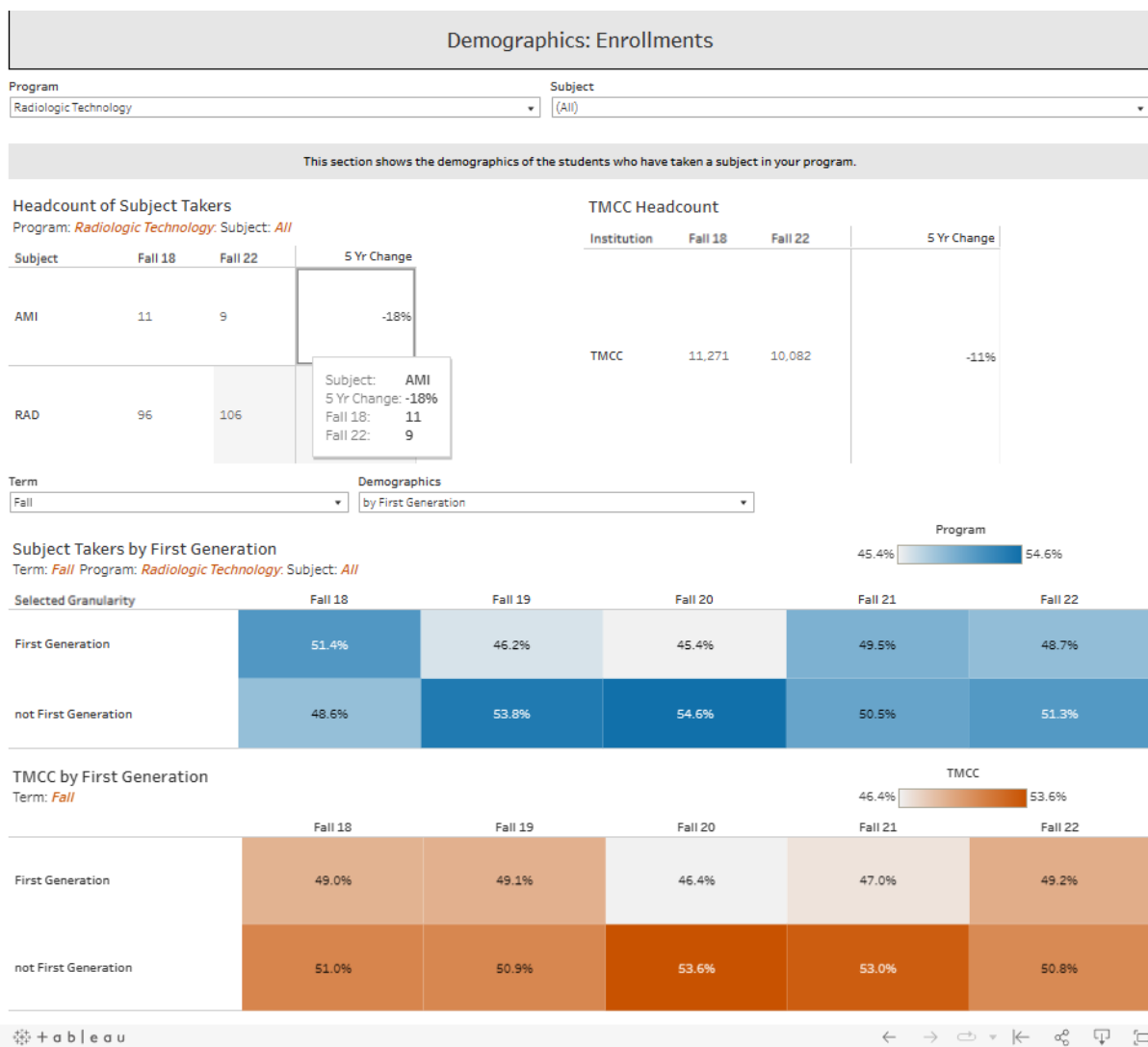
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5.A. Course Completion Rates

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Program: Subject: Level:

The tables below show the percent of students completing your courses. These numbers are compared to all divisions and to TMCC as a whole. The metrics can be disaggregated by the demographics below.

Completion Rate: The number of students who remain in a class until the end of the semester and receive A, B, C, D, Pass (P), Satisfactory (S), In Progress (X), Incomplete (I) or Audit (AD) grade notations.

Successful Completion: The number of students who completed a course with a C or better (A, B, C).

Gender: Ethnicity: Credit Load: Age Range: Student Status: First Generation: Pell Eligible:

Avg Completion & Successful Completion Rates by Subject

Program: *Radiologic Technology* Subject: *All*

Program: 78% 100%

Subject	AY 18-19 AY	AY 19-20 AY	AY 20-21 AY	AY 21-22 AY	AY 22-23 AY	5 yr Avg
AMI Completion Rate	84%	97%	97%	78%	100%	95%
AMI Successful Completion	80%	87%	97%	78%	100%	91%
RAD Completion Rate	97%	96%	97%	94%	98%	97%
RAD Successful Completion	97%	96%	97%	93%	97%	96%

5 Yr Avg Completion & Successful Completion Rates by Division

Division: 54% 85%

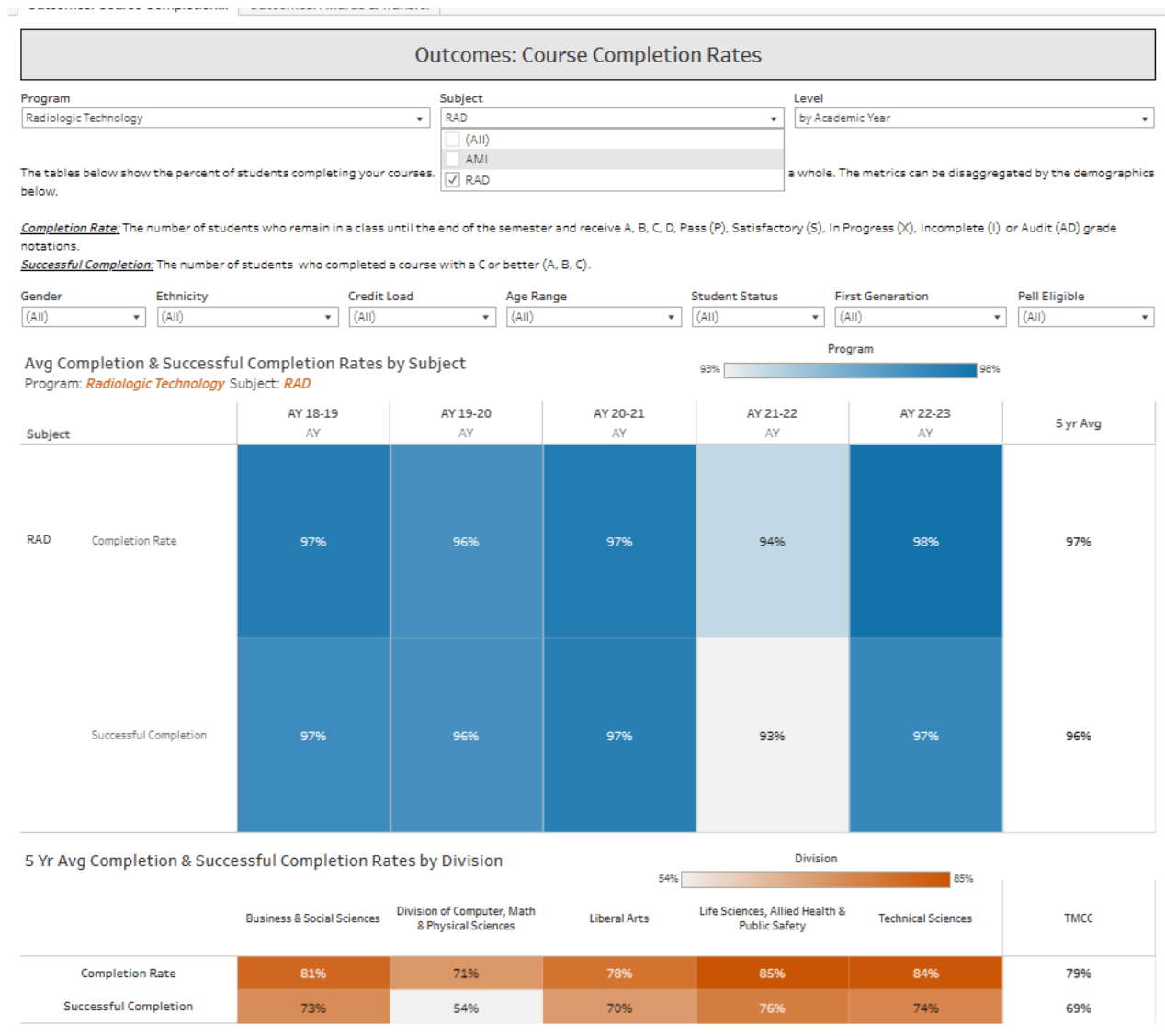
	Business & Social Sciences	Division of Computer, Math & Physical Sciences	Liberal Arts	Life Sciences, Allied Health & Public Safety	Technical Sciences	TMCC
Completion Rate	81%	71%	78%	85%	84%	79%
Successful Completion	73%	54%	70%	76%	74%	69%

Please discuss any trends or shifts that you see in the overall course completion rate, and successful completion (C or better). What might these trends or shifts mean?

Next, disaggregate the data by student demographics. Discuss any potential equity gaps and your plans for closing these gaps. An equity gap is where there is a significant and persistent disparity in access or achievement between different groups of students.

The rad tech program has consistently high course completion and successful course completion rates of greater than 88% across all student demographics, which are much higher than those of the college. The disaggregated data shows negligible changes in course completion for gender, ethnicity, credit load, age range, student status, generation and Pell eligibility. The AMI program, while still higher than the college, does show a lower completion rate than the AAS degree. The reasoning for this could be the prescribed course sequence. Working professionals struggle with multiple courses, this is why the program

has discussed opening the classes to any registered technologist with a recommended but not prescribed sequence. The disadvantage to the program is that all of the AMI courses would need to be taught each semester with PT faculty most likely being paid IS rates. It opens the question of viability and need. I think MRI is viable because it is much harder to cross-train in and I think CT is needed because in the future it will be a part of the AAS curriculum.

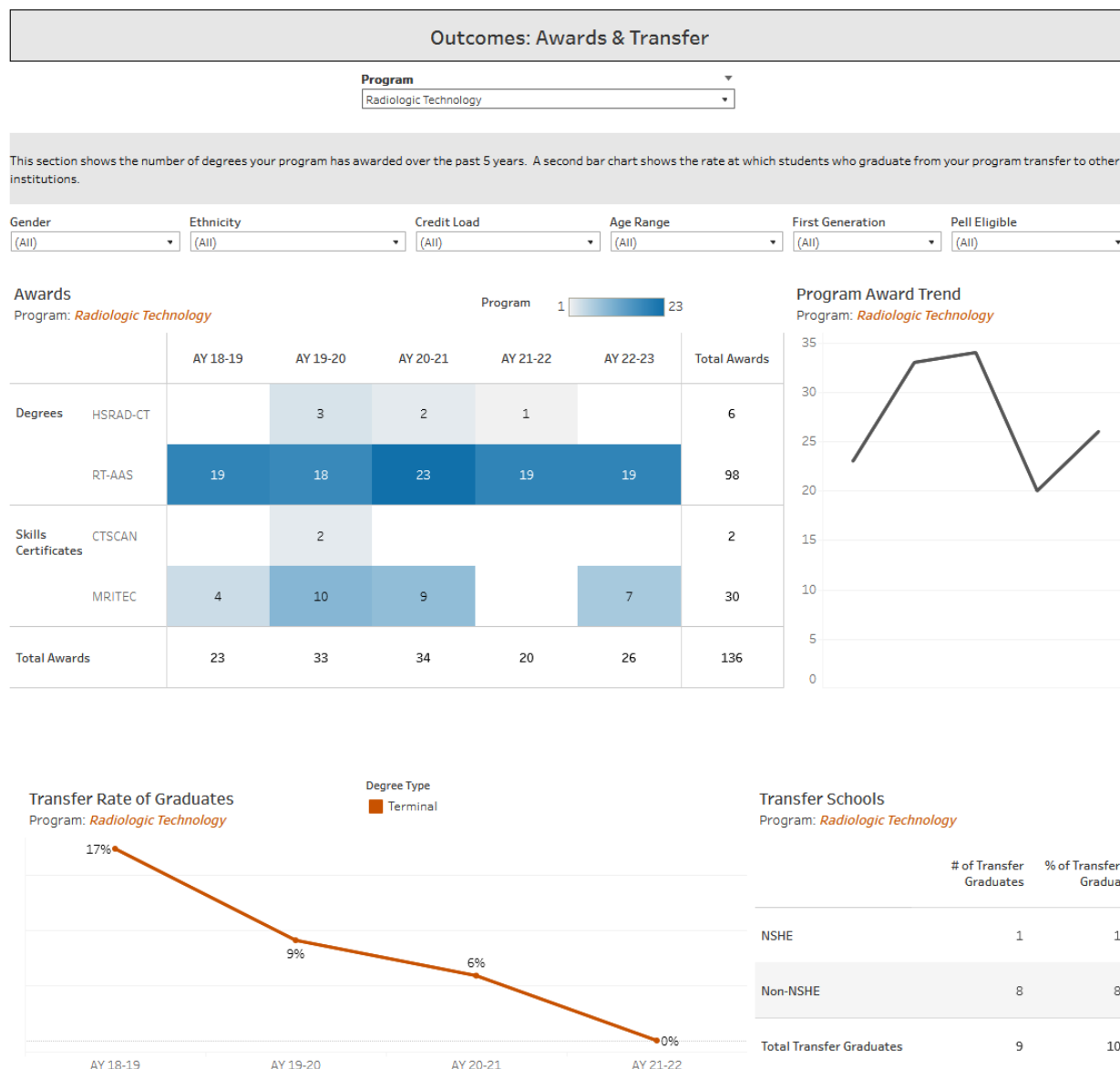




5.B. Graduation and Transfer

Radiologic Technology

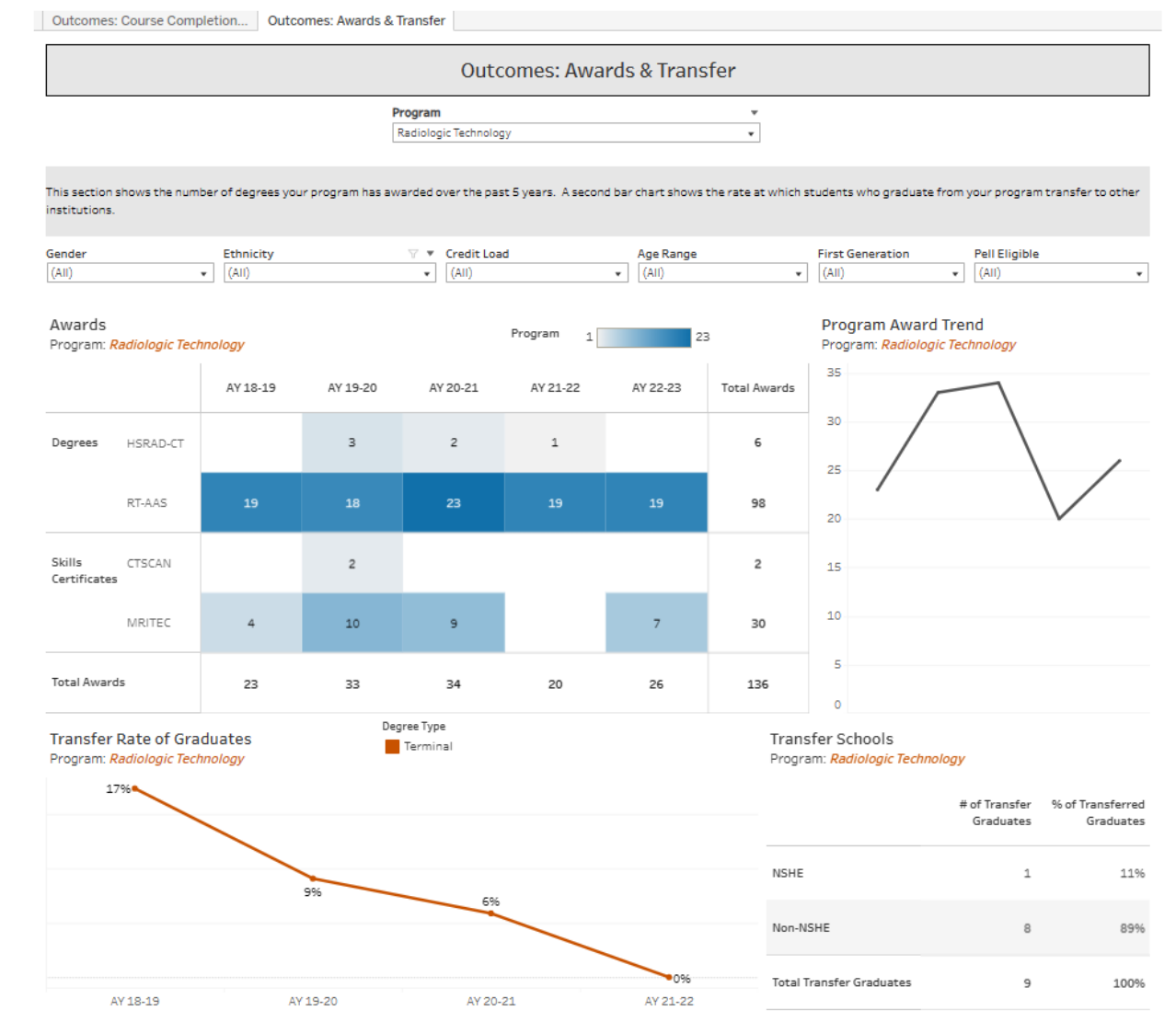
Radiologic Technology PUR 2023-24 Self Study



Please discuss any trends or shifts that you see in the number of graduates and graduates who have transferred in the past 5 years.

Next, disaggregate the data by student demographics, and discuss any potential equity gaps: Which student populations are earning degrees or certificates compared to the demographic makeup of the program? Do graduates resemble the student demographics of the program? If not, discuss ideas to mitigate potential equity gaps.

Students don't usually transfer after the AAS degree is conferred. The degree allows graduates to sit for their ARRT national registry licensure exam. The graduates start working in the field and gain additional education through CEU's and cross training at work for additional modalities (CT, MRI, Mammo) or possibly a skills certificate through TMCC. It is only in recent years that radiology departments have started increasing wages for graduates holding a bachelor's degree, this is why we developed an online BAS degree.



6.A. Faculty Achievement

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Describe the program/unit's full-time (FT) faculty credentials, experience, and highlights of significant activities and/or contributions to TMCC. Please use the format below for each FT faculty member.

- **Faculty Name, FTE**
- **Degree(s) or professional certification(s) awarded, discipline, awarding institution**
- **Number of years teaching at TMCC**
- **Total number of years in academia**
- **Primary courses taught**
- **Significant activities or contributions made to TMCC (Please limit to 3)**
- **Substantial accomplishments or contributions to the community, especially those related to education or your discipline (e.g. mentoring, community service) (Please limit to 3)**

FT Program Director

Rori Wilkis

AAS Rad Tech TMCC RT(R) (2006)

BS Business and Health Care Management WGU

MS Curriculum and Instruction WGU

Started academia journey with TMCC in 2018

Has taught almost every course in the RT program, but most recently is teaching radiation physics, pathology, x-ray image critique, quality management and control.

TMCC Faculty Senator 23-24

Member of the TMCC ASA and Accreditation Committee - 2022 7-year report

TMCC Lambda Nu (LN) Honor Society Student Advisor

Vice President of the Nevada Society of Radiologic Technologists 2023-2024

Numerous LN Community projects (Sock drive for the homeless, Karma Boxes, The Gleaning project)

Sky Ranch Middle School Parent Panel

Katrina Bolton

AAS Rad Tech TMCC RT(R)(2006)

TMCC Skills Certificate MRI (MR)(2017)

TMCC Skills Certificate CT 2019

BS Radiology Sciences - Boise State University

M.Ed. Instructional Design - WGU

Started academia journey with TMCC in 2020

Mammography Educators Certificate of Completion Mammography

California Registered Rad Tech, MRI Tech, and Mammo Tech

Nevada Registered Rad Tech, MRI Tech

Has taught all of the MRI courses. Teaches Radiology Positioning course and lab.

TMCC Lambda Nu Honor Society Member

American Society of Radiologic Technologist Member

Nevada Society of Radiologic Technologist Member

6.B. FT/PT Faculty and Student Credit Hours Taught

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Describe the trends or shifts in the number of full-time (FT) and part-time (PT) faculty, and the number of student credit hours (SCH) taught by FT and PT faculty since the last program/unit review. What Impact, if any, have these trends or shifts had on the program/unit?

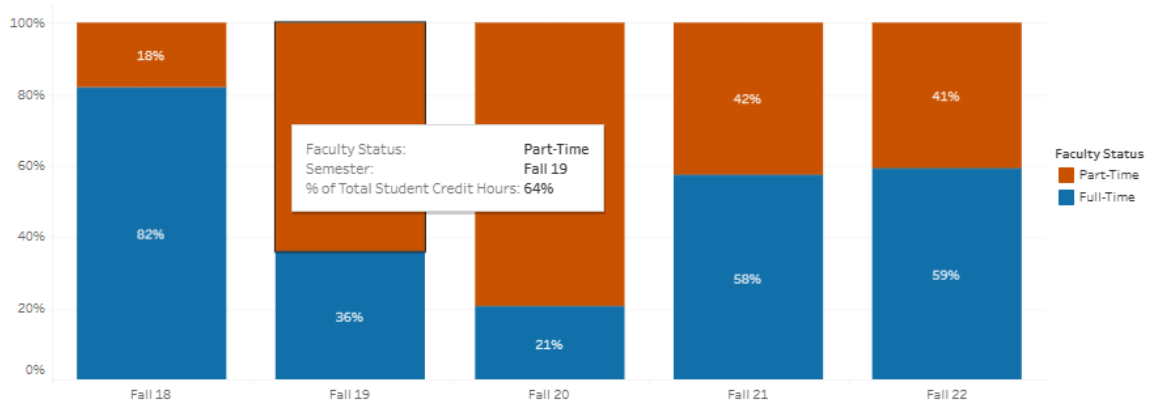
The radiology technology program currently has a FT Director, one FT MRI/X-ray tenure track instructor, one FT CT/X-ray temporary instructor (job was just posted and search will be in spring 2024 and is not included in the current data), and four PT instructors. The two FT instructors are both on overload and lately double overload. They consistently teach 20-23 credits per semester and one of the PT instructors is currently at 70% FTE. The other PT instructors can only help online or on very limited days during the week due to full time job commitments. The radiology program has a part time pool job application that is always open. The difficulty has been finding instructors with the needed radiology credentials who have time and actually want to be in front of a class, rather than online, in clinical or only in the laboratory.

Traditionally the TMCC rad tech program has hired any x-ray tech with an associates degree who wants to try teaching. They are thrown to the wolves with no training or guidance. This has been detrimental to the program and allowed good candidates to leave after one semester. My time as director is small but my first change was to co-teach with my new instructors and help them with the curriculum and assessment cycles. The on-the-job experience is incredibly valuable, but they need to feel supported and understand the education process. My ultimate goal is hiring FT and PT Bachelor level x-ray techs who have at least three years of experience working in the radiology field. Hopefully our new online BAS can help support our future educators. You may be asking, "why would you start a BAS program when your staff is already maxed out?", which is a great question! The BAS is completely online and can be taught by our PT and FT faculty with Master's degrees, which will alleviate the extra twelve credits a semester. The PT faculty is excited to be able to teach more online courses. Ultimately, we need two additional PT faculty to help alleviate the current workload.

Faculty Workload

Program ▼ Term ▼
 Radiologic Technology ▼ Fall ▼

Student Credit Hours

Program: *Radiologic Technology*

The above section shows the percent of student credit hours that were taught by Full-Time vs Part-Time faculty within your program's subject area. These student credit hours are not necessarily enrollments of your declared majors, they are enrollments by all students taking your courses. Student credit hours are defined as the sum of (enrolled students x units).

Headcount & FTE

Program: *Radiologic Technology*

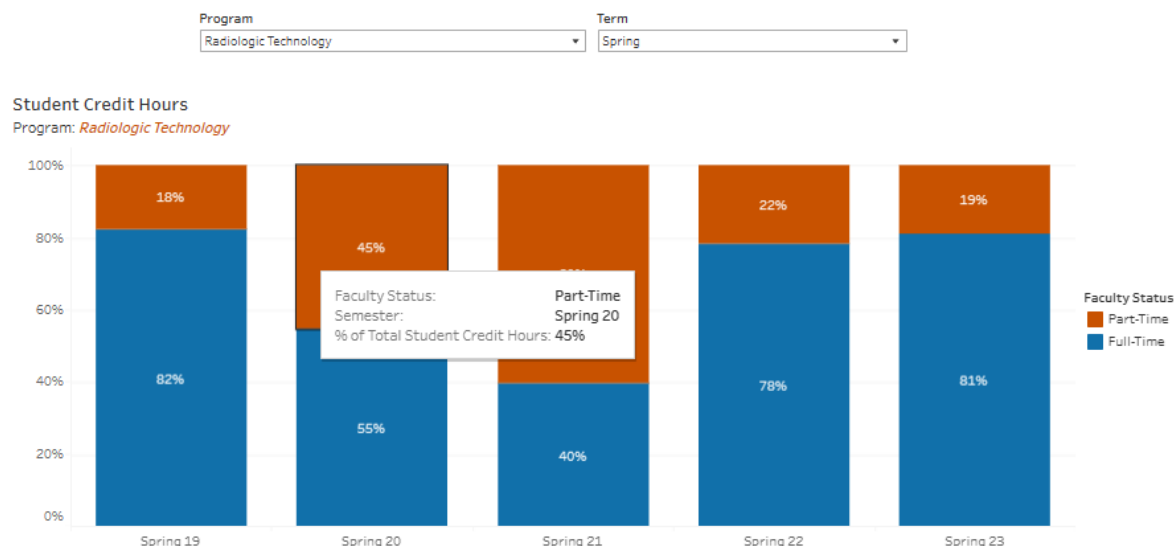
	Full-Time		Part-Time	
	Headcount	FTE	Headcount	FTE
Fall 18	2	2.0	3	0.8
Fall 19	2	0.8	9	2.6
Fall 20	1	0.5	8	2.6
Fall 21	2	1.1	4	0.6
Fall 22	2	1.9	5	1.4

The above section shows the headcount and the FTE (units / 15) of Full-Time vs Part-Time faculty who teach your courses. If the FTE of your FT faculty is larger than headcount, this means that the average teaching load of your FT faculty is greater than 15. If the FTE is lower than headcount, this is a reflection of the amount of release given to your FT faculty.

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Faculty Workload



The above section shows the percent of student credit hours that were taught by Full-Time vs Part-Time faculty within your program's subject area. These student credit hours are not necessarily enrollments of your declared majors, they are enrollments by all students taking your courses. Student credit hours are defined as the sum of (enrolled students x units).

Headcount & FTE

Program: *Radiologic Technology*

	Full-Time		Part-Time	
	Headcount	FTE	Headcount	FTE
Spring 19	2	1.6	3	0.4
Spring 20	2	1.1	6	1.6
Spring 21	1	0.7	6	1.8
Spring 22	2	1.5	2	0.3
Spring 23	2	1.9	3	0.7

The above section shows the headcount and the FTE (units / 15) of Full-Time vs Part-Time faculty who teach your courses. If the FTE of your FT faculty is larger than headcount, this means that the average teaching load of your FT faculty is greater than 15. If the FTE is lower than headcount, this is a reflection of the amount of release given to your FT faculty.

6.C. Support Staff

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Describe the program/unit's support staff, including their FTE, major duties, and any specialized credentials necessary to carry out their duties. Is the number of staff adequate to support the program/unit? Explain.

The program's support staff consists of an Administrative Assistant III, a classified employee and two Letter of Appointment (LoA) positions. Depending on the workload, the program also employs student workers. The admin assistant (100%) supports the Director of the Radiology program, as well as its faculty. This position also supervises the classified Facilities Attendant (100%), the two LoAs and the occasional student workers. The admin

assistant also supports the CT and MRI Certificates and is liaison to the CSN Partnership of the Surgical Technologist Program. The Administrative Assistant supports the Dean of the Life Sciences, Allied Health & Public Safety division with building coordination and other duties as needed.

The facilities attendant is in charge of maintenance/security and safely manages the building including evening and /or weekend operations of the TMCC Health Science Center. The LoAs supports the public, students, faculty, staff and other duties as needed. The student workers support the students, faculty and staff with all duties as needed. As the radiologic technology department grows with the addition of an advanced BAS program the administrative assistant responsibilities will also grow and may need to be expanded. We are well supported and do not see any need for additional staff.

6.D. Facilities and Technology

Radiologic Technology

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Describe the facilities and technology used by the program/unit, and discuss any unique requirements. These may include labs, studios, off-campus sites, computer classrooms, specialized equipment, etc. Are program/unit facilities and technology adequate to support the program? Explain.

The TMCC rad tech program has a fully energized x-ray laboratory that allows students to take x-rays of phantoms or objects used as stand-ins for human bones and tissues. Our largest phantom, Pixie, is a full size fake body with a real human skeleton inside. These phantoms allow practice before students attend clinical and x-ray real patients. The classroom currently used is adequate for 24 students and is adjacent to the energized laboratory. The laboratory is used for patient care, imaging equipment, physics, quality control, positioning and more. The program is currently borrowing a gurney from the EMS program and it does not see the need to purchase one. The program has a portable x-ray machine, but it is dated and will need to be replaced in the near future with an updated digital model that is closer to what the students are using at the clinical sites. The laboratory has 26 iPads that can be used by students and instructors for class or projects. The iPads have radiology positioning software and an anatomy app loaded for student use. The program gives some exams on computers and often uses the computer labs at the HSC Campus. The students also take advantage of the computers and study rooms available to them on campus. The HSC library is equipped with two view boxes and a catalog of labeled x-ray images for students to use at any time. The radiology students attend clinical each semester at a local hospital, but TMCC is not responsible for any clinical equipment. The program is currently well supported and any future improvements will only bring the laboratory closer to what students experience at clinical and better prepare them for their future profession.

7.A. Five-Year Plan

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Using your analyses from previous sections, develop a 5-year plan for the program(s). Include an estimated timeline of goal completion. Please address the following questions:

- **Using the most significant curriculum and assessment findings, describe strategies to sustain or improve student learning.**
- **After considering the most significant enrollment findings, discuss strategies, if needed, to improve enrollment and close equity gaps. These may include more efficient scheduling, streamlining pathways to completion, outreach to underserved students, addressing internal or external factors anticipated to impact future enrollment, etc.**
- **With respect to course completion rate, graduation, and transfer, discuss strategies to enhance student success and close equity gaps. These may include curriculum changes, pedagogical changes, streamlining pathways to completion, improving advising, mentoring, retention efforts, etc.**
- **Considering the above strategies, what are the major goals that the department/unit hopes to accomplish in the next 5 years? Include an estimated timeline for completing goals. How does the department or unit plan align with the Academic Affairs Strategic Plan or the College's Strategic Master Plan?**

The Five-year Plan of the radiologic technology department is:

Curriculum and Assessment

The program will continue to assess all courses according to our TMCC assessment cycle, fulfill the JRCERT accreditation and curriculum requirements and encourage faculty professional development.

Update the course description for RAD 124. (Spring 2024)

Remove RAD 250, 198 and 290 in 2024. (Spring 2024)

Review the Mission statements of the rad tech AAS and AMI programs with faculty and the advisory board

Prepare students for further education and employment in the community by offering well-planned, in-demand, and high-quality programs. The program meets with the advisory board once a semester to develop community relationships and strategize the changing educational needs of the local community. The program is continually mapping student learning outcomes to our program learning outcomes while participating in cyclical program assessment. The program values updated hands-on laboratory equipment which allows students to seamlessly transition to community clinical sites. This also aligns with the TMCC Core themes of student success and academic excellence.

Enhance student learning through ongoing faculty professional development. The program is currently training new part-time faculty through mentor co-teaching. This allows new instructors to learn the current curriculum and experience different teaching and learning

styles. The program highly encourages professional development and applicable conference attendance. This also aligns with the TMCC Core theme of academic excellence.

Enrollment

Promote and support the new Bachelor's Degree program (Fall 2024) and a future Associates degree in Sonography (3-5 years).

Hire a FT instructor who has sonography credentials (3-5 years).

Explore possible sonography laboratory locations, equipment, and curriculum (3-5 years).

Advertise the CPL for ARRT registered military educated veterans and help veterans technologists across the country earn an AAS. (2024)

Access, the program has increased the x-ray cohort steadily over the last 5 years and will soon offer an online BAS degree. Student Success, the program has high graduation and ARRT national pass rates. These rates surpass the majority of the country and ensure students an accredited program with a history of student success and community involvement. Workforce, the program actively works with community leaders to evaluate workforce needs. Research, the program is in the process of digitizing thousands of x-ray images in hopes of student undergraduate research possibilities. Stewardship of Resources, the program has been switching from paper tests and scantrons to online testing. This saves resources and helps students prepare for their national registry, which is given via computer.

The AAS rad tech enrollment is maxed at 24, this is limited by clinical availability. Every fall the program receives 45-60 AAS x-ray applications, which along with local workforce needs, supports the viability of the program. Recruit, develop, and retain diverse faculty. The program started advertising for the current full time position November 1st, 2023, it is open for 60 days and will be searched in the spring of 2024. This timeline will hopefully allow diverse candidates to apply. This also aligns with the TMCC Core theme of academic excellence.

Student Success Outcomes (retention, completion, graduation)

We will continue to use the ASRT curriculum guide, ARRT didactic clinical requirements and the ARRT national registry content specifications to facilitate student learning. The completion and retention rates for AMI (95%) and the Radiologic Technology program (97%) is high.

Expand or change the AMI program to increase enrollment. The CT and MRI skills certificates are valuable but need to be supported by the local community. If local hospitals continue to cross-train employees in CT without structured education, the program will not be able to sustain the skills certificate. (Fall 2024)

Hire an additional FT faculty to help support the needs of the department. (Spring 2024)

Finish the reference library at the HSC. (2024)

Purchase a digital portable x-ray machine. (2-3 years)

Work with the dean to facilitate a mock surgery laboratory and purchase a C-arm. (3-5 years)

8.A. Resource Requests

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Identify any resource requests. For each request, please indicate whether the request is for an additional faculty and/or staff position, capital improvements (facilities), technology or specialized instructional resources, or professional development. Address the following items:

- **Request (Additional faculty/staff, capital improvements, technology or other specialized instructional resources, or professional development)**
 - **Estimated time to hire or time the request will be made.**
 - **Projected measurable outcomes. Which PLOs and/or student success metrics does the department hope to improve as a result of the request?**
 - **Alignment to the Academic Affairs or College's Strategic Plan**

Faculty: The Rad Tech program is growing. The growth will require one additional permanent FT Faculty (four total) to help with the new BAS program and a future Sonography AAS. The additional FT faculty member will need to be a Sonography technologist who is qualified to teach AAS degree level courses allowing the FT faculty with Master's degrees to teach for the BAS program. The timeline for a fourth FT faculty is 3-5 years. The AAS sonography can not be started without a sonographer on staff or contract. **Equipment:** A new updated digital portable X-ray machine would allow the students the opportunity to work with equipment and software that is comparable to their clinical sites. The current cost of a digital portable x-ray machine is \$63,500. It could be ordered and delivered in a 3-6 month time frame.

Completion of the reference library at HSC and possible subscription to ASRT(American Society of Radiologic Technologists) scholarly articles would cost \$2,000 and could be accomplished quickly.

The Digital C-arm could potentially be used in a shared IPE space with surgical technology, sterile processing and nursing to allow students practice time in a mock hands on sterile environment. The cost is \$93,000 and it could be ordered and delivered in a 3-6 month time frame.

The Scanlab MRI/CT simulation software and academic license for online skills certificate students to use before attending clinical rotations is \$999 per student or a \$3,000 academic license with a lower student fee.

The equipment and resources requested are in alignment with Objective 3, high quality programs that prepare students for academic success.

Academic Standards and Assessment Committee Findings and Recommendations

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Academic Standards and Assessment Committee's Findings:

The Radiologic Technology program has been in existence since 1965 and continues to support the workforce needs of our community. These needs are demonstrated by a 17.9% projected growth rate through 2030. To ensure that these needs are met, the program works with an outside advisory board, surveys employers and graduates 6-months post graduation and aligns curriculum with industry standards using ASRT guidelines. Access to the program has been broadened by ensuring affordability of course texts, increasing cohort size, expanding clinical site offerings, developing a BAS program, and increasing enrollment efforts. Student success, as measured by course completion rates, within the program supersedes that of the division and college at 88%. This success is supported by a culture of continual improvement within the program where the results of robust yearly assessment are used to support the need for curriculum modification in the pursuit of teaching excellence.

A point of discussion in committee was a concern related to the viability of the AMI program. This program has seen low student enrollment over the previous 5-years for reasons which are well articulated in the PUR. Changes in how this program is offered may make the program more attractive to students.

In order for the Radiologic Technology program to continue meeting workforce needs, continue increasing access, and to continue their support of student success through teaching excellence additional resources are needed. The ASA committee supports the Radiological Technology programs request for two additional PT instructors, one additional FT instructor, and a new portable X-ray machine.

Program Strengths:

- The Rad Tech program has done an excellent job responding to the last PUR. This includes aligning CSLOs with PLOs, adding more curriculum, developing a BAS is Rad Tech which is planned to start FA24, hiring a program director with a masters, expanding clinical site offerings, and increasing their cohort size and recruitment efforts.
- The program surveys employers and graduates 6-months post-graduation to ensure that workforce needs are being met.
- The Rad Tech program ensures affordability despite OER not being a practical option. This includes allowing students to use older versions of textbooks, virtual versions of textbooks, creating their own content and ensuring the library has copies of the textbooks which students can reference.
- Program faculty conduct robust annual assessment, which includes both direct assessment of SLOs through course assignments and the HESI exam, as

well as indirect assessment through surveys.

- Course completion rates across all programs exceed 88% and outpace the college.

Areas of Concern or Improvement:

- AMI 203 is not aligned with the PLOs of the CT Skills Certificate. AMI 291 CSLO #2 is not aligned with the PLOs of the CT Skills Certificate.
- As self-identified, there is low enrollment in the AMI program. Furthermore, hospitals elect to offer their own training in this field, creating an additional challenge.
- The Radiologic Technology program is in need of additional faculty and resources in order to sustain their demonstrable growth and meet industry needs. This includes: one FT faculty, two PT faculty, and a new portable X-ray machine.

Recommendations:

- AMI 203 needs to be aligned with PLOs of the CT skills certification. AMI 291 CSLO #2 needs to be aligned with a PLO of the CT skills certification.
- As self-identified, continue to revisit AMI courses with regard to PT student involvement. Explore resource/ faculty allocation according to needs. Is AMI needed if hospitals cross train?
- The ASA committee supports the allocation of funds to achieve the program's need to Hire a FT faculty member within 3-5 years. The ASA committee supports the allocation of funds to achieve the program's need to hire two PT instructors.
- The ASA committee supports the allocation of funds to purchase a new portable x-ray machine for the Radiological Technology program.

Other comments:

Please indicate what has been incorporated from running the canvas accessibility checker and attending accessibility PD into courses. What accessibility measures are appropriate in a rad tech program?

Dean's Findings and Recommendations

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

Academic Dean's Findings:

The TMCC Radiologic Technology program produces great graduates and is one of the flagship Allied Health programs that TMCC is known for in the community. It has strong leadership in Director Wilkis, one tenure-track faculty, and a current search for another tenure-track faculty. This team works with a group of part-time faculty to provide instruction for the AAS in Radiologic Technology and the two advanced Skills Certificates in CT and MRI. This team will also launch the online BAS degree to allow AAS graduates to upskill to the bachelor's level. There is great interest in the program based on the enrollment in the RAD 101 course. Cohort size in the competitive entry AAS program is limited by accreditation and available clinical site placements.

Strengths:

The program has continually maintained its external accreditation with minimal findings and recommendations. The Director and faculty are well respected in the community and the program advisory board has members representing clinical sites from across the region. Students become well-prepared Radiologic Technologists when they earn their degree, have very high program completion rates, very high pass rates for registry licensure, and are highly coveted employees by area hospitals and imaging centers.

Areas for Improvement:

The program has made great efforts in promotion and marketing, and the program will need institutional help to expand their promotions to fully implement the new BAS program. The program also continues to diversify, increasing the proportion of Hispanic students and male students, and those recruitment efforts should continue.

Summary Action Recommended (Continue program(s), significantly revise, discontinue, etc. followed by explanation):

The program should continue on its current successful trajectory.

Recommendations and Implementation Timeline:

Following the launch of the new BAS, adding any new modalities will need to be done as Director and faculty time allow.

Resources Necessary for Implementation of Recommendations:

The program has been successful in obtaining needed professional development and equipment, some of which is very expensive. The Director works closely with the Dean and the Grants office to capitalize on opportunities including Perkins and other funding sources. These collaborations need to continue to ensure the proper resources for the program, including equipment maintenance and replacements.

Impact of Recommendations on Division Planning:

The addition of the online BAS degree does not impact the physical location of Health Science Center (HSC). Additional growth could lead to the need for additional allocations of faculty office space. However, adding any modalities to the curriculum that require more physical lab or lecture space would need to be planned in collaboration with the other needs of the HSC location, which is limited in size and is the campus site for the AS and RN-BSN programs in Nursing, programs in Sterile Processing and Surgical Technology, and the majority of the Public Safety Programs, including EMS/Paramedic and Fire Science and Technology.

Impact of Recommendations on Program/Unit Faculty:

Any program's need for additional faculty competes in a landscape where there are no new positions, only the re-positioning of existing positions across the college.

Vice President of Academic Affairs' Findings and Recommendations

Radiologic Technology

Radiologic Technology PUR 2023-24 Self Study

VPAA's Findings and Conclusions:

(Include which of the ASA Committee's and Dean's findings and recommendations were upheld or not upheld.)

The Rad Tech program is clearly a big part of TMCC's identity, and its presence and impact in our community is significant. The program delivers its curriculum and training very effectively, and accreditors clearly struggle to identify things to find as 'recommendations.' This, however, does not prompt the Director to sit idle -- her efforts since the last PUR to bring forward a BAS degree program are evidence of her interest in maintaining the program's momentum and continuing to deliver for our community of practice.

Strengths:

Rad Tech benefits from knowledgeable and experienced faculty, PT instructors, and support staff. The Division Dean is also a strong advocate, and the program boasts high quality equipment, particularly with the replacement of its large CT machine in 2022. The newer machine is smaller and has added features that the prior one did not. The spaces at our Health Science Center are ample and well-appointed, and with the possible expansion of Surg Tech, there is the possibility of developing new lab spaces. Finally, the student demographics are in very good shape and their performance rates are exceptional.

Areas for Improvement:

The program has no major deficiencies, and the last accreditation visit delivered very positive findings. Director Wilkis has identified new equipment that will help to expand the program's training capabilities, and has further identified key faculty who will need to be hired in order to train in sonography. Following the sudden departure of a longtime PT instructor in 2023, the Director will ensure that all instructors understand any issues with their instruction or delivery that require modification. With regard to the fill rates, I support the plan to cap sections at levels that reflect the cohort size, to ensure that fill rates do not appear too low.

Recommendations and Next Steps for the Program Based on the PUR:

(Include whether the program should be continued, significantly revised, or discontinued, followed by a rationale.)

This program should definitely continue. It meets a vital workforce need, does so very effectively, enjoys the respect of our community, draws applicants consistently, and maintains very high completion and pass rates.

Resources Needed to Implement Recommendations Towards Program Improvement or Enhancement:

In the BAS program proposal presented by the VPAA to the Board's ARSA Committee in February 2024, under the heading "Readiness to Being Program," we find the following statements: "The TMCC AAS Radiologic Technology program has existing faculty to teach the proposed BAS," and "The AAS program currently has a pool of qualified instructors to instruct for the BAS but may need any additional FT instructor in the future." Soon afterward, the program successfully hired a new FT tenure-track instructor. Though staffing levels can shift, continual recruitment efforts, specifically of instructors who can teach online, will enable local instructors to focus on the in-person classes.

Regarding equipment, the Dean will add the portable x-ray machine and the C-arm device to the division funding wishlist, and the VPAA will advocate for these purchases when college revenues and funding permit.