

**Oregon Institute of Technology
Medical Imaging Technology Department
Radiologic Science Program Assessment
2010-2011**

I. Introduction

The Radiologic Science program at Oregon Institute of Technology is entering its 62 year of educating future Radiologic Technologists. The program is proud of its strong retention rates from the sophomore (professional courses) to the senior year (externship). Because of limited space and teacher ratio, the radiology program limits the selection numbers to 48 students into the sophomore professional level each year. The program generally graduates between 44-48 students a year with 46 students graduating in 2010. The average salaries reported for the 2010 graduating class was \$48,760 with 28 graduates reporting.

II. Summary of Program Purpose, Objectives and Student Learning Outcomes

The Radiologic Science faculty established the program purpose, objectives, and student learning outcomes in fall 2007 and reviewed spring 2010. There have been no changes to date.

Program Purpose

The purpose of the Radiologic Science Bachelor's Degree Program at Oregon Institute of Technology is to provide graduates with the knowledge, clinical skills, and compassion that will allow them to become exemplary medical imaging technologists and future leaders in radiology and advanced imaging professions.

Educational Objectives

The Radiologic Science program prepares graduates to:

- Be advanced leaders in the profession.
- Be compassionate, caring healthcare professionals.
- Be eligible, well-prepared, and able to sit for and pass the ARRT credentialing examination.
- Have immediate job placement within six months of graduation.
- Address the healthcare shortage of Oregon and bordering states.
- Work in advanced imaging fields and sit for advanced imaging registries.

Expected Student Learning Outcomes

The Radiologic Science student will:

1. Demonstrate knowledge of x-ray physics and related math.
2. Demonstrate professional conduct and ideals essential to the profession including teamwork, ethics.
3. Demonstrate effective critical thinking and problem solving skills.
4. Demonstrate effective patient care skills.
5. Utilize both written and oral communication effectively.
6. Recognize quality diagnostic images for both technical and anatomical criteria and have the technical ability to correctly repeat images when the quality is not adequate for diagnostics.
7. Demonstrate radiation safety for self, staff, and patients as set forth by the ALARA standards.
8. Perform imaging procedures using departmental protocol complying with ARRT curriculum standards.
9. Demonstrate an understanding of advanced multiple ARRT imaging modalities and the need for lifelong learning.

Additional Student Learning Opportunities

RDSC students have additional learning opportunities through participation in Association of Collegiate Educators in Radiologic Technology (ACERT) conferences held in Las Vegas each year and attendance at the Oregon Society of Radiologic Technologists conference. The Radiologic Science student club participates in a joint venture with the Federal Fish and Wildlife Services of Klamath Falls, to identify fish species through digital imaging of the fish.

III. Three-Year Cycle for Assessment of Student Learning Outcomes

The current cycle of assessment is shown in Table 1.

Radiologic Science Outcome Assessment	2010 2011	2011 2012	2012 2013	2013 2014
1. Demonstrate knowledge of x-ray physics and related math		X		
2. Demonstrate professional conduct and ideals essential to the profession including teamwork and ethics			X	
3. Demonstrate effective critical thinking and problem solving skills				X
4. Demonstrate effective patient care skills		X		
5. Utilize both written and oral communication effectively	X			X
6. Recognize quality diagnostic images for both technical and anatomical criteria and have the technical ability to correctly repeat images when the quality is not adequate for diagnostics			X	
7. Demonstrate radiation safety for self, staff, and patients as set forth by the ALARA standard		X		
8. Perform imaging procedures using departmental protocol complying with ARRT curriculum standards			X	
9. Demonstrate an understanding of advanced multiple ARRT imaging modalities and the need for lifelong learning	X			X

Table 1. Three year cycle for assessment of student learning outcomes.

IV. Summary of 2010-11 Assessment Activities

The program faculty formally assessed two student learning outcomes this year, as follows.

PSLO #5: Utilize both written and oral communication effectively. The faculty conducted an analysis of where this outcome is reflected in the curriculum. The mapping of this outcome to the Radiologic Science curriculum can be found in Appendix A-1.

Written Communication

Direct Assessment #1

The faculty assessed written communication in RDSC 410 Externship Winter 2011, using case studies graded with a rubric. There were 41 students assessed, results by proficient and highly proficient are listed in table 2 below.

Assessment method	Measurement scale	Minimal acceptable performance	Proficient	Highly Proficient
Rubric scored case study	1 – 4 proficiency	80% at 3 or 4	26.8%	53.7%

Table 2. Assessment results for SLO 5, RDSC410, winter 2011, faculty ratings of writing.

The faculty reviewed the results of the written case study and concluded that, 80.5% of the students were proficient in writing which meets faculty's expectations as to the level of writing required in the imaging field for patient charting. The faculty is curious if the radiologic science student's writing is consistent with the writing departments expectations for senior level students, therefore we would like to participate in a shared writing assessment, where our student's case studies will have a second evaluation conducted by the writing department at OIT.

Direct Assessment #2

Clinical Instructors were asked to rate students on this outcome with 15 CIs reporting, the results showed that 46.7% were highly prepared while 53.3% were sufficiently prepared, for a total of 100% at prepared or better.

Indirect Assessment # 1

The faculty assessed student learning on this outcome by surveying graduating senior extern students. The students were asked to rate their level of preparation. With 36 extern students reporting, the results showed that 63.9% indicated that they were highly prepared, while 33.3% indicated that they were adequately prepared, for a total of 97.2% at prepared or better.

After the faculty reviewed the results of the students' assessment of their written communication, they concluded that students have met the faculty's expectations. In addition both students and clinical instructors are satisfied with the level of student proficiency in writing. No further action is necessary at this time.

Oral communication

Direct Assessment #1

The faculty assessed oral communication in RDSC 301 Radiographic Positioning III fall term using the OIT public speaking rubric. Forty-two juniors participated in this assessment. The performance criteria and results are shown in Table 3.

Performance criteria	Assessment method	Measurement scale	Minimal acceptable performance	Results
Content	Rubric scored presentation	1 – 4 proficiency	90% at 3 or 4	90%
Organization	Rubric scored presentation	1 – 4 proficiency	90% at 3 or 4	95%
Style	Rubric scored presentation	1 – 4 proficiency	90% at 3 or 4	95%
delivery	Rubric scored presentation	1 – 4 proficiency	90% at 3 or 4	95%
visuals	Rubric scored presentation	1 – 4 proficiency	90% at 3 or 4	100%

Table 3. Assessment results for SLO 5, RDSC 301, fall 2010, oral communication

After the faculty reviewed the results of the oral communication assessment assignment, the faculty concluded that the majority of radiology students met all expectations. Of the few students who did not meet the expectations, lack of preparation seems to be the most apparent factor. No necessary follow-up at this time.

Direct Assessment #2

Clinical Instructors were asked to rate students on this outcome with 15 CIs reporting, the results showed that 33.3% were highly prepared while 60% were sufficiently prepared, for a total of 93.3% at prepared or better.

Indirect Assessment # 1

The faculty assessed student learning on this outcome by surveying graduating senior extern students. The students were asked to rate their level of preparation. With 36 extern students reporting, the results showed that 64.4% indicated that they were highly prepared, while 30.6% indicated that they were adequately prepared, for a total of 100% at prepared or better.

After the faculty reviewed the results of the students' assessment of their oral communication, they concluded that students have met the faculty's expectations. In addition both students and clinical instructors are satisfied with the level of student proficiency in oral communication. No further action is necessary at this time.

PSLO #9: Demonstrate an understanding of advanced multiple ARRT imaging modalities and the need for lifelong learning

The faculty conducted an analysis of where this outcome is reflected in the curriculum. The mapping of this outcome to the Radiologic Science curriculum can be found in Appendix A-2.

Direct Assessment #1

To address the concept of lifelong learning the faculty chose to look at five years of postgraduates from the RDSC field to assess how many have successfully obtained an advanced modality certification. This verification is available through the American Registry Of

Radiologic Technologist ARRT website. Faculty expect 25% of graduates five years out should have at least one additional modality certification. Table 4 shows the results for this assessment.

Modalities	Year 5
CT	23%
MRI	9%
CIT/IR	
Mammography	2%
QA	
Dexa	
Percent of students with advanced modality certification	34.8%

Table 4. Five year post graduate modality certification

The Radiologic Science faculty concluded that RDSC graduates are pursuing lifelong learning opportunities by successfully acquiring advanced modality certifications which require completing ARRT mandatory competencies and passing the ARRT examination. The faculty are pleased that 34.8% of RDSC graduates five years post-graduation are seeking advanced certification. This indicates that OIT graduates will remain current in the profession.

In the radiologic Science profession continuing education know as CME is a yearly requirement in order to renew certification. 24 CME must be completed every two years. In addition, if a technologist sat for a post-primary certification exam after January 2011 he/she will have to sit for the certification exam every ten years. Faculty consider this mandatory measure to be a substantial indicator of lifelong learning.

Direct Assessment #2

Clinical Instructors were asked to rate students on this outcome with 15 CIs reporting, the results showed that 66.7% were highly prepared while 33.3% were sufficiently prepared, for a total of 100% at prepared or better.

Indirect Assessment #1

In an indirect assessment, the Externship Coordinator surveyed 41 senior extern students in spring 2011 as to how well the program prepared them in the area of lifelong learning. With 36 extern students reporting, the results showed that 61.1 % indicated that they were highly prepared, while 38.9% indicated that they were adequately prepared, for a total of 100% at prepared or better.

After the faculty reviewed the results of the students' assessment of their lifelong learning, they concluded that students have met the faculty's expectations. In addition both students and clinical instructors are satisfied with the level of student preparedness to be lifelong learners. No further action is necessary at this time.

Detailed records of this assessment can be found in the Radiologic Science coordinator's notebook.

V. Summary of Student Learning Outcomes

The program faculty met in June 2011 to review the assessment work for the year and drew the following conclusions.

PSLO #5: Utilize both written and oral communication effectively

Strengths: Students met performance criteria for both written and oral communication.

Weaknesses: None identified at this time.

Actions: None required at this time.

PSLO #9. Demonstrate an understanding of advanced multiple ARRT imaging modalities and the need for lifelong learning

Strengths: Students met expectations for lifelong learning.

Weaknesses: None at this time.

Actions: No further action required.

**Appendix A-1
Radiologic Science
SLO-Curriculum Map**

Student Learning Outcome PSLO # 5. Utilize both written and oral communication effectively

Courses that are shaded below indicate that the SLO above is taught in the course, students demonstrate skills or knowledge in the SLO, and students receive feedback on their performance on the SLO.

I = Introduced
R = Reinforced
E = Emphasized

	Sophomore			Junior			Senior		
Fall	RDSC 201	Imaging Techniques I		RDSC 301	Radiographic Positioning III	R	RDSC 410	Extern	E
	RDSC 235	Equipment Operation & Maintenance		RDSC 320	Surgical, Trauma & Mobile Radiography				
	BIO 335	Cross-Sectional Anatomy		BIO 336	Pathophysiology				
Win	RDSC 202	Imaging Techniques II							
	RDSC 205	Patient Care	R	RDSC 366	Radiographic Pathology		RDSC 410	Extern	E
	RDSC 210	Radiographic Positioning I	R	RDSC 356	Magnetic Resonance				
	RDSC 272	Radiation Protection							
Spr	PHY 217	Physics of Medical Imaging		RDSC 355	Computed Tomography	R	RDSC 410	Extern	E
	RDSC 211	Radiographic Positioning II	R	RDSC 326	Cardiovascular/Interventional Technology				
	RDSC 233	Contrast Media Procedures		RDSC 354	Mammography				
				RDSC 365	Advanced Quality Assurance/Quality Control				
				RDSC 388	Externship Prep				

Appendix A-2
Radiologic Science
SLO-Curriculum Map

SLO # 9. Demonstrate an understanding of advanced multiple ARRT imaging modalities and the need for lifelong learning.

Courses that are shaded below indicate that the SLO above is taught in the course, students demonstrate skills or knowledge in the SLO, and students receive feedback on their performance on the SLO.

I = Introduced
R = Reinforced
E = Emphasized

	Sophomore			Junior			Senior		
Fall	RDSC 201	Imaging Techniques I		RDSC 301	Radiographic Positioning III		RDSC 410	Extern	E
	RDSC 235	Equipment Operation & Maintenance		RDSC 320	Surgical, Trauma & Mobile Radiography				
	BIO 335	Cross-Sectional Anatomy		BIO 336	Pathophysiology				
Win	RDSC 202	Imaging Techniques II							
	RDSC 205	Patient Care		RDSC 366	Radiographic Pathology		RDSC 410	Extern	E
	RDSC 210	Radiographic Positioning I		RDSC 356	Magnetic Resonance				
	RDSC 272	Radiation Protection							
Spr	PHY 217	Physics of Medical Imaging		RDSC 355	Computed Tomography	I	RDSC 410	Extern	E
	RDSC 211	Radiographic Positioning II		RDSC 326	Cardiovascular/ Interventional Technology	I			
	RDSC 233	Contrast Media Procedures		RDSC 354	Mammography	I			
				RDSC 365	Advanced Quality Assurance/Quality Control	I			
				RDSC 388	Externship Prep	R			