Radiologic Science Degree Completion Program

2009-10 Assessment Report

Oregon Institute of Technology
Medical Imaging Technology Department
Radiologic Science Degree Completion Program Assessment
2009-10

I. Introduction

The Radiologic Science (RDSC) Degree Completion Program began in 1996 and is one of three degree completion programs offered by the Department of Medical Imaging Technology at Oregon Institute of Technology.

The structure of the program allows registered radiologic technologists (RT) to pursue their Bachelor of Science degrees without coming to campus. This is accomplished by using the medical facilities where students are employed (or of their choice) as sites for temporary clinical practice, to fulfill the requirements of courses with labs, and the external capstone course, RDSC 411.

Eighty-eight credits are granted for the core radiography curriculum for registered technologists in good standing with the American Registry of Radiologic Technology (ARRT). A 62 credit block of math, communications, science, and remaining general education credits are taken from OIT for courses available online, or at a college in the student's locale. The remaining block of 50 credits is taken online from OIT.

During the early years of the program enrollment was slow, with little increase. The creation of a dedicated distance education office was greatly beneficial in promoting the program. From the fall of 2002, through the fall of 2007, the number of students coming into the program was 8, 8, 8, 12, 25, and 29, respectively. The number of graduates from 2002 through 2006 was 1, 2, 3, 1, and 4, respectively.

II. Mission, Objectives, and Student Learning Outcomes

Radiologic Science Degree Completion Program Mission Statement:

The mission of the Radiologic Science Degree Completion Program is to provide ARRT registered Radiologic Technologists a Bachelor of Science degree from a distance education program that furthers the student's knowledge, clinical practice, and performance of examinations while practicing competent patient care and safety in the advanced modalities of Radiologic Technology.

Program Objectives:

1. Maintain a degree completion curriculum with emphasis on special modalities.

2. Provide a BS degree in Radiologic Science with a core of courses directly applicable to the technologist-student seeking advancement or a leadership role in the profession.

3. Further the distance student's practice of providing compassionate healthcare in the clinical setting

4. Prepare graduates to obtain positions in the advanced modalities, management, sales, applications, education, and other career options available to Bachelor of Science degree graduates.

5. Place students in the clinical setting of various modalities, enabling them to gain hands-on experience and form new networks.

6. Provide a quality degree program that recognizes the achievement of passing the national registry.

7. Address quality of healthcare issues through the continued learning of working professionals.

8. Provide a meaningful capstone experience in one or more advanced imaging modalities.

Student Learning Outcomes:

1. Demonstrated knowledge of the concepts and principles behind the operation of special modality imaging machines and associated equipment.

2. Demonstrated professional judgment and appropriate interpersonal communication with colleagues and superiors.

3. Demonstrated proficiency in patient care

4. Identify arteriographic anatomy and cross sectional images of the head, neck, and torso, for specific accuracy and spelling.

5. Demonstrate magnetic field precautions and radiation safety for self, staff, and patients as set forth by the ALARA standards.

6. Observe, assist, and perform examinations of Computed Tomography, Magnetic Resonance, Arteriography, and Mammography or Quality Assurance.

7. Demonstrate the ability to perform intensive clinical practice in one or two special modalities, or demonstrate the ability to complete a significant project in a clinical or educational setting.

8. Identify major disease processes diagnostic to advanced modality examinations

III. SLO Three Year Assessment Cycle

A three-year cycle for the assessment of the program's student learning outcomes is shown below in Table 1.

Radiologic Science Outcome Assessment	**2007 2008**	**2008 2009**	**2009 2010**	**2010 2011**
1. Demonstrated knowledge of concepts and principles behind the operation of special modality imaging machines and associated equipment	F (356)			F
2. Demonstrated professional judgment and appropriate interpersonal communication with colleagues and superiors			W (411)	
3. Demonstrated proficiency in patient care	S (326)			W (354)
4. Identify arteriographic anatomy and cross sectional images of the head, neck, and torso, for specific accuracy and spelling.		W-S (366)	S (335)	
5. Demonstrate magnetic field precautions and radiation safety for self, staff, and patients as set forth by ALARA standards.		S (355?)		
6. Observe, assist, and perform examinations of Computed Tomography, Magnetic Resonance, Arteriography, and Mammography or Quality Assurance.				S
7. Demonstrate the ability to perform intensive clinical practice in one or two special modalities, or demonstrate the ability to complete a significant project in a clinical or educational setting.		F (411)		
8. Identify major disease processes diagnostic to advanced modality examinations.			Fall (336)	

Table 1. Three year Assessment Cycle

IV. Student Learning Outcome #2. Demonstrated professional judgment and appropriate interpersonal communication with colleagues and superiors. Winter 2010, RDSC 411: Externship

Eleven items from the professional evaluation, relative to professional judgment and appropriate communications are reported. Six evaluations were completed on three students this term. Assessment results are shown in Table 2.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results # passing/ out of 6
5. Performance under pressure	Professional eval	Point score	80 points	6/6
6. Perseverance	Professional eval	Point score	80 points	6/6
7. Judgment/critical thinking	Professional eval	Point score	80 points	6/6
8. Professional ethics	Professional eval	Point score	80 points	6/6
9. Self confidence	Professional eval	Point score	80 points	6/6
10. Attitude toward criticism	Professional eval	Point score	80 points	6/6
11. Attitude toward assigned tasks	Professional eval	Point score	80 points	6/6
12. Initiative	Professional eval	Point score	80 points	6/6
15. Interpersonal relationships-patients	Professional eval	Point score	80 points	6/6
16. Interpersonal relationships-all staff	Professional eval	Point score	80 points	6/6
17. Teamwork	Professional eval	Point score	80 points	6/6

Table 2. Assessment Results for SLO #2, RDSC 411, winter 2010

Comments

An indirect affirmation to the data in table 2 is commentary on the evaluations.
No statements were made to contradict or raise suspicions about the results.

Strengths, Weaknesses, Actions.

The benchmark of 80 points out of 100 was met. Of the 66 items sampled the lowest score given was an 80, of which there was one. Along with thirteen 90s, only 21% of the items were rated below 100. In the opinion of four clinical evaluators these students demonstrated professional judgment and appropriate interpersonal communication in the course of their clinical training, and weaknesses in their performance were not noted.

V. Student Learning 4. Identify arteriographic anatomy and cross sectional images of the head, neck, and torso, for specific accuracy and spelling. Spring 2010, RDSC 326, CIT and BIO 335, Cross Sectional Anatomy.

Two courses address this outcome directly: five units in cross sectional anatomy, and one unit in cardiovascular interventional technology. Assessment results are shown in Tables 3 and 4.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Unit 1 ave scores	short answer	% correct	75%	69%
Unit 2 ave scores	short answer	% correct	75%	92.5%
Unit 3 ave scores	short answer	% correct	75%	96.8%
Unit 4 ave scores	short answer	% correct	75%	89.3%
Unit 5 ave scores	short answer	% correct	75%	87%

Table 3. Assessment Results for SLO #4, spring 2010, Cross sectional anatomy

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Units ave scores	MC/Matching	% correct	75%	96%

Table 4. Assessment Results for SLO #4, spring 2010, Cardiovascular interventional technology

Comments

With the exception of unit one in cross sectional anatomy the benchmark was exceeded by a considerable margin.

Strengths, Weaknesses, Actions.

Due to the limited number of students in these distance courses the failure of a few, or even one, skews the results. It is not uncommon for one or two students to do poorly on the first test. Although instructions on how to approach this course and suggestions for study are included and there will always be students who do not take heed of instructions, they will be revisited for possible improvements.

VI. Student Learning Outcome #8. Identify major disease processes diagnostic to advanced modality examinations. Fall 2009, RDSC 336: Pathophysiology

Eleven questions from Test 2 relative to heart disease were sampled as shown in Table 5.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results in % correct answers
Test 2 ques. 23	MC	% correct	75%	94.1
Test 2 ques. 40	MC	% correct	75%	94.1
Test 2 ques. 41	MC	% correct	75%	64.7
Test 2 ques. 42	MC	% correct	75%	82.3
Test 2 ques. 43	T/F	% correct	75%	64.7
Test 2 ques. 44	T/F	% correct	75%	76.7
Test 2 ques. 45	MC	% correct	75%	100
Test 2 ques. 46	MC	% correct	75%	94.1
Test 2 ques. 47	T/F	% correct	75%	52.9
Test 2 ques. 48	MC	% correct	75%	88.2
Test 2 ques. 49	MC	% correct	75%	88.2

Table 5. Assessment Results for SLO #8, RDSC 336, winter 2009

Thirty-one questions (19 matching in 4 questions) from test 3 relative to pulmonary disease as shown in Table 6.

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Test 3 ques. 2 (10 items)	Matching	% correct	75%	33.33
Test 3 ques. 4	MC	% correct	75%	100
Test 3 ques. 5	MC	% correct	75%	91.6
Test 3 ques. 6	MC	% correct	75%	91.6
Test 3 ques. 7	T/F	% correct	75%	83.3
Test 3 ques. 8 (3 items)	Matching	% correct	75%	50
Test 3 ques. 9	MC	% correct	75%	66.6
Test 3 ques. 10	MC	% correct	75%	75
Test 3 ques. 11	MC	% correct	75%	91.6
Test 3 ques. 12 (4 items)	Matching	% correct	75%	50
Test 3 ques. 13	MC	% correct	75%	75
Test 3 ques. 14 (2 items)	Matching	% correct	75%	91.6
Test 3 ques. 15	MC	% correct	75%	91.6
Test 3 ques. 16	MC	% correct	75%	91.6
Test 3 ques. 17	SA	% correct	75%	50
Test 3 ques. 18	SA	% correct	75%	33.3

Table 6. Assessment Results for SLO #8, RDSC 336, winter 2009

Course Grades

Indirectly, the breakdown of grades imply that the course is rigorous, but a high grade is attainable with effort.

A = 5
B = 5
C = 5
D = 3
F = 0

Strengths, Weaknesses, Actions.

A total of 42 questions were sampled—11 regarding disease of the heart from test two, and 31 regarding disease of the pulmonary system from test three. These disease processes selected for this sample are commonly encountered in the work of imaging technologists.

Eight questions that did not meet the benchmark of 75% were examined.

From test two:
question 41, MC regarding patent ductus arteriosis
question 43, T/F regarding left heart failure
question 47, TF regarding left heart failure

It is notable that two of the three questions below the benchmark were T/F, and the third T/F question in the sample was only 1.6% above the mark. There is nothing special about the subject matter, but a possible explanation might be found in the counter intuitive nature of the answers, which is a mark of well written T/F questions.

From test three:
Test 3 ques. 2 (10 items matched to 18 possible answers)
Test 3 ques. 8 (3 items matched to 3 items)
Test 3 ques. 9 MC (answer was all the above)
Test 3 ques. 12 (4 items matched to 8 possible answers)
Test 3 ques. 17 (Short answer)
Test 3 ques. 18 (Short answer)

The commonality found in these questions is that but for one, the format was not multiple choice. Matching items with more possible answers than questions were problematic, as were short answers. These formats are useful in constructing questions at a higher level of difficulty, which corresponds to the instructor's intention to have 25% of the questions at that level.

The course surveys a variety of pathologies diagnosed by medical imaging, the underlying cause of disease, and the terminologies that describe them. The level of expectation is rigorous, but not excessively so. It is on target relative to subject matter and difficulty. These results will be forwarded to the instructor, but no recommendations for specific improvement are being made.

VII. Summary of Student Learning Outcomes

The program faculty conducted formal assessment of three student learning outcomes during 2009-10.

Student Learning Outcome #2. Demonstrated professional judgment and appropriate interpersonal communication with colleagues and superiors

Benchmarks were met and no remediation was necessary.

Student Learning Outcome #4. Identify arteriographic anatomy and cross sectional images of the head, neck, and torso, for specific accuracy and spelling.

Benchmarks were met. Instructions for approaching the course will be revisited to attempt to defray low scores on the first unit test.

Student Learning Outcome #8: Identify major disease processes diagnostic to advanced modality examinations

Benchmarks were met and no remediation was necessary.

Student learning outcomes have been mapped to the curriculum as shown in Appendix A.

VIII. Follow-up assessment of Radiographic Pathology from Winter 2009

Actions.

The instructor of the course was notified of two incidental findings last year. It was noted that two course objectives were not assessed, and two questions from the nervous system unit needed to be reviewed.

IX. Follow-up assessment of CT from Spring 2009

Actions.

Although the averaged total met the benchmark, the course instructor was given the results for consideration of individual outcomes.

Appendix A
SLO-Curriculum Matrix

Curriculum	SLO 2 Professional Judgment	SLO 4 ID Anatomy	SLO 8 Pathology
BIO 335		x	
BIO 336			
BUS 316			
BUS 317			
RDSC 326		x	
RDSC 354			
RDSC 355			
RDSC 356			
RDSC 365			
RDSC 366			x
RDSC 411	x		