Weber State University
Annual Assessment of Evidence of Learning

Department/Program: Department of Radiologic Sciences/Masters of Science Radiologic Sciences
Academic Year of Report: 2012-13
Date Submitted: November 8, 2013
Report author: Dr. Robert Walker
Department Chair and Professor

Contact Information:
Phone: 801-626-7156
Email: rwalker2@weber.edu
Brief Introductory Statement:

Historically, the profession of radiologic Sciences has offered its practitioners few career advancement opportunities. Skilled technologists who want to shift into the educational and research arena, or advanced clinical practice have few options. Most other allied health professions, by contrast, have formal career pathways in the clinical environment. By following these pathways, practitioners move to increasingly higher levels of responsibility, authority and autonomy. As the radiologic technology profession attempts to recruit and retain larger numbers of people, the lack of a clinical career path has become an obstacle. Many potential recruits may be deterred from pursuing the profession because they believe a career in radiologic technology leads nowhere. To overcome this perception, radiologic technology must develop realistic career pathways both at the institutional level and within the profession.

Advancement within a professional hierarchy tends to be more formalized than advancement up an institutional career ladder. At the professional level, an advancement hierarchy typically is linked to additional education and additional certification or credentialing. Although experience and skill remain important, it usually is necessary for the employee to achieve a certain level of education or earn a specified credential before advancing to the new position. The Master’s program in Radiologic Sciences continues to meet the demand for Masters-level researchers, educators and advance practice practitioners in Radiologic Sciences.

The MSRS program has allowed for increased research, education skills and knowledge and would credential some individual as an advanced practice radiologic science professional. That credential would allow such an individual to function as a radiology extender, supplementing and supporting the work of radiologists. His or her duties might include patient assessment, patient education, and image evaluation, follow-up images, and performing fluoroscopic and selected interventional procedures. All advance practice must follow national scopes of practice, state requirements and/or institutional policies. In performing these duties, the advance practice radiologic science professionals would free up radiologists to focus on interpretation, diagnosis and treatment.

The goals of the program are accomplished through hybrid courses (face-to-face and on-line), seminars, independent study, cooperative learning groups, individual and group assignments and projects that emphasize a practical application of theory to the imaging environment. On-campus courses are scheduled twice a semester during the Fall and Spring semesters. The 36-hour program of study consists of professional core requirements. A portion of the core requirement is the completion of a Master’s thesis, a practical application of knowledge and research.

B. Mission Statement
Program Mission
To support the University, the Dumke College of Health Professions, and the Department of Radiologic Sciences, the mission of the Master of Science in Radiologic Sciences program is to extend the professional knowledge, skills, and attitudes of imaging professionals, including those in medical facilities, research labs, industry, and higher education. The program is designed to advance the theoretical and practical applications of imaging of the cardiovascular system.

Simply stated: We provide the best: the best education for our students, the best support for our faculty, the best resources for our healthcare partners, and the best partnership with our community.

Program Goals

The Master of Science in Radiologic Sciences (MSRS) program is founded on the following concepts, (a) program outcomes are based on national and state standards and grounded in current theory and best medical practice, (b) structured to foster understanding, collaboration, and clinical and/or applied research, and (c) geared toward increasing student achievement and research in Radiologic Sciences. The components, understanding, collaboration, and research, serve as a framework for organizing course work and program development. The goals of the curriculum reflect an emphasis on preparing technologists.

Weber State University Mission
Weber State University provides associate, baccalaureate and master degree programs in liberal arts, sciences, technical and professional fields. Encouraging freedom of expression and valuing diversity, the university provides excellent educational experiences for students through extensive personal contact among faculty, staff and students in and out of the classroom. Through academic programs, research, artistic expression, public service and community-based learning, the university serves as an educational, cultural and economic leader for the region. (approved by Board of Regents July 2011)

Weber State University Core Values
• Learning through personalized experiences and shared inquiry
• Engagement in community
• Access and opportunity for all
• Respect for people and ideas
• Nurturing the potential within every individual
C. Student Learning Outcomes

In support of the Weber State University five core values, the Master of Science in Radiologic Sciences has established the following:

1. Learning through personalized experiences and shared inquiry, the MSRS program will:
   • provide learning opportunities for students through a variety of instructional methodologies in multiple settings;
   • identify essential knowledge and skills for imaging graduate students;
   • engage students through a variety of strategies to ensure growth in knowledge, learning processes and research skills;

2. Engaged in the community, the MSRS program will:
   • provide appropriate technologies in order for graduate students to access, gather, organize, and present information related to clinical, educational and professional research.

3. Providing access and opportunity for all, the MSRS program will:
   • assist and support graduate students in professional development and research to improve clinical based research and foundational professional research;
   • provide student orientation to community/campus support services.

4. Respect for people and ideas, the MSRS program will:
   • promote the recruitment and support of students from diverse backgrounds;
   • promote the recruitment and support of faculty from diverse backgrounds;
   • promote appropriate professional behavior, ethics, diversity, and respect for self and others.

5. Nurturing the potential within every individual, the MSRS program will:
   • assist and encourage faculty and graduate students to develop collaborative relationships with other professionals;
   • support and assist with scholarship and grant writing;
   • provide appropriate, accurate, and timely advisement for students within the program.
provide funding for faculty, staff, and graduate students in professional growth and scholarship-related activities.

D. Curriculum

I. CURRICULUM, ENROLLMENT, AND STUDENTS

a. Program Description

Credit Hour Requirements: A total of 36 credit hours are required.
Grade Requirements: All required courses must be completed with a grade of ‘B’ or higher;
The maximum time for completion of the degree, including thesis will be two years. If the maximum time is exceeded, the student must petition to the program director for an extension.

i. Include a list of course titles and numbers.

MSRS 6100: Research Methods (3)
MSRS 6120: Research and Statistics (3)
MSRS 6130: Functional Hemodynamics (3)
MSRS 6140: Clinical Laboratory Correlation (3)
MSRS 6200: Health Behavior and Managerial Epidemiology (3)
MSRS 6443: Clinical Pathways (3)
MSRS 6450: Managing Health Information (3)
MSRS 6463: Problem Patient Management (3)
MSRS 6473: Vascular Non-Invasive Imaging Procedures (3)
MSRS 6863: Vascular Invasive Imaging Procedures (3)
MSRS 6900: Capstone: Clinical Fellowship & Portfolio (3)
MSRS 6999: Master’s Thesis in Radiologic Sciences (3)

E. Assessment Plan

All courses in the graduate and undergraduate programs are assessed on the six professional categories listed across the table. The MSRS program builds upon the professional knowledge and certification(s) that a student acquired during undergraduate education. The MSRS program was developed to increase Radiologic Sciences professional knowledge in research and writing to increase the foundation of knowledge that is lacking in the profession. Additionally, the program is preparing students to assume leadership roles in healthcare facilities and educational programs. Artifacts from each class listed below are collected to assist the student with developing the necessary competencies and allow for further course development. With only two graduating class at this time we will some time to
further evaluate the overall effectiveness of the program. We are however quite pleased with the job placement and student input from two graduating classes.

MASTERS OF SCIENCE RADIOLOGIC SCIENCES

<table>
<thead>
<tr>
<th>Patient Care and Education</th>
<th>Professional Development and Research</th>
<th>Biologic Effects and Safety</th>
<th>Clinical Competency and Medical Ethics</th>
<th>Procedures, Anatomy and Pathophysiology</th>
<th>Instrumentation and Quality Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSRS 6120</td>
<td>MSRS 6100</td>
<td>Undergraduate skill</td>
<td>MSRS 6900</td>
<td>MSRS 6130</td>
<td>MSRS 6450</td>
</tr>
<tr>
<td>MSRS 6130</td>
<td>MSRS 6120</td>
<td></td>
<td>MSRS 6130</td>
<td>MSRS 6140</td>
<td></td>
</tr>
<tr>
<td>MSRS 6443</td>
<td>MSRS 6200</td>
<td></td>
<td>MSRS 6473</td>
<td>MSRS 6863</td>
<td></td>
</tr>
<tr>
<td>MSRS 6463</td>
<td>MSRS 6999</td>
<td></td>
<td>MSRS 6863</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F. Report of assessment results:

a. **Strengths and Weaknesses**

**Strengths**
- Clinical-based curriculum
- Dedication of faculty and staff
- Strong undergraduate programs at Associate and Bachelor levels
- Strong support from community partners
- Collaborative student working groups
- Diverse student population

**Weaknesses**
- Current program is focused on cardiac imaging
- Need for additional faculty and resources
- Non-focused research agenda
- Lack of funding for graduate research and publication assistance

**Enhancing strengths**
- Expand the course offerings
- Hire new faculty as appropriate
- Continue to expand partnerships around the country
- Expand student recruitment for a diverse student population

**Ameliorating Weaknesses**
- Expand electives to include orthopedics and women & children imaging
- Create a style guide to be used by student and faculty
- Create an elective course in grant writing
- Try to identify funding courses for graduate research

We collect the following information on indirect measurements of student learning:
- Graduates employment
- Employer surveys reporting on their impressions of Weber State graduates they employ
- Graduate surveys reporting on their experiences in the program
- Regular institutional program review
- Advisory board review
- Student course evaluations
- Student exit evaluations
- Collection of student artifacts of learning

The direct measurement of student learning is measured in the MSRS 6900: Capstone: Clinical Fellowship & Portfolio, each of the six competencies listed above will be tested using course content from all other courses in the program. These evaluations will consist of case studies that will evaluate a student’s critical thinking skills as it relates to research, problem patient management, appropriateness of imaging procedure, patient management and patient assessment. Since we have only had two graduating classes at this time we are collecting foundation data that will be used to identify any weakness or trend that will need to be addressed by the program as we continue the evaluation process.
We have an excellent relationship with our stakeholders. Below are the positions that the graduating class of 2013 are employed in:

<table>
<thead>
<tr>
<th>Position Title</th>
<th>Employer</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Radiation Therapist</td>
<td>Intermountain Healthcare</td>
<td>Ogden, UT</td>
</tr>
<tr>
<td>Ultrasonographer</td>
<td>Intermountain Healthcare</td>
<td>Provo, UT</td>
</tr>
<tr>
<td>Magnetic Resonance Imaging Lead</td>
<td>Utah Imaging</td>
<td>Ogden, UT</td>
</tr>
<tr>
<td>Radiology Technologist</td>
<td>Intermountain Healthcare</td>
<td>Provo, UT</td>
</tr>
<tr>
<td>Teacher Assistant</td>
<td>King Abdulaziz University</td>
<td>Jeddah, Saudi Arabia</td>
</tr>
<tr>
<td>Radiology Physician Extender and</td>
<td>Transit Imaging and MRI Associates</td>
<td>Buffalo, NY</td>
</tr>
<tr>
<td>Administrator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interventional Radiology Technologist</td>
<td>Intermountain Healthcare</td>
<td>Provo, UT</td>
</tr>
<tr>
<td>Nuclear Medicine Technologist</td>
<td>Intermountain Healthcare</td>
<td>Ogden, UT</td>
</tr>
<tr>
<td>Nuclear Medicine Supervisor</td>
<td>Intermountain Healthcare</td>
<td>Logan, UT</td>
</tr>
<tr>
<td>Diagnostic Medical Sonographer</td>
<td>Intermountain Healthcare</td>
<td>Ogden, UT</td>
</tr>
<tr>
<td>Imaging Technologist</td>
<td>Animas Surgical Hospital</td>
<td>Durango, CO</td>
</tr>
<tr>
<td>Radiology Practitioner Assistant</td>
<td>Nassau Suffolk Radiology</td>
<td>Lindenhurst, NY</td>
</tr>
</tbody>
</table>

b. Student Profile
   
i. Provide information on the entering class for the last five academic years.

<table>
<thead>
<tr>
<th></th>
<th>Average GRE</th>
<th>Average GMAT</th>
<th>Average Undergrad GPA</th>
<th>Average Age</th>
<th>Average Post-Undergrad Work Exper. (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>N/A</td>
<td>-----</td>
<td>3.58</td>
<td>37.7</td>
<td>113.05</td>
</tr>
<tr>
<td>2011-12</td>
<td>N/A</td>
<td>-----</td>
<td>3.66</td>
<td>35.7</td>
<td>34</td>
</tr>
<tr>
<td>2010-11</td>
<td>N/A</td>
<td>-----</td>
<td>3.51</td>
<td>35.4</td>
<td>69.38</td>
</tr>
</tbody>
</table>

   
ii. Top five undergraduate majors represented.
1. Radiology Practitioner Assistant/Radiologist Assistant
2. Magnetic Resonance Imaging/Computed Tomography
3. Advanced Radiologic Sciences
4. Nuclear Medicine
5. Diagnostic Medical Sonography

iii. Top five employers pre- and/or post-graduation.
   1. Intermountain Healthcare
   2. MountainStar Healthcare
   3. University of Utah Hospital
   4. Davis Hospital
   5. Tanner Clinic; Utah Imaging

iv. Most common career fields represented.
Radiologic Technologist, Radiology Practitioner Assistant/Radiologist Assistant/Physician Extender, MRI/CT Technologist, Diagnostic Medical Sonographer, Nuclear Medicine Technologist, Director/Coordinator, Assistant Professor, Mammography

v. List any recent awards, honors, or recognition received by students.
American Society of Radiologic Technologist Seed Grant: $3,416 research grant awarded to Lynn Reingold

2013 Thesis of the Year: Jesse Rock Jr. for thesis entitled, Assessment of Poor Filling Gallbladder During Hepatobiliary Scintigraphy and Correlation with Sonography, Computerized Tomography and Surgical Intervention

Accepted to Doctoral Programs (2013): Jami Fowler, Jehad Felemban, Kasey Crandall, Lisa Hanavan, Wendy Shaffer

2012 Thesis of the Year: Lance Burrell for thesis entitled, Left Atrial Appendage Volume as a Predictor of Embolic Stroke in Atrial Fibrillation Patients

Department of Radiologic Sciences named 2012 Best Radiologic Sciences Training program
## Appendix B
### Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Academic Home</th>
<th>Tenure, Contract, Adjunct, etc.</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christensen, Rex</td>
<td>Assistant Professor</td>
<td>RS</td>
<td>Tenure Track</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Eberle, Paul</td>
<td>Chair/Professor</td>
<td>REST</td>
<td>Tenure</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hanson, Kami</td>
<td>Assistant Professor</td>
<td>DH</td>
<td>Tenured</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>-----</td>
</tr>
<tr>
<td>Jurkiewicz, Terri</td>
<td>Assistant Professor</td>
<td>RS</td>
<td>Tenure</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Kawamura, Diane</td>
<td>Distinguished Professor</td>
<td>RS</td>
<td>Tenured</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Neville, Casey</td>
<td>Assistant Professor</td>
<td>RS</td>
<td>Tenure Track</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nolan, Tanya</td>
<td>Assistant Professor</td>
<td>RS</td>
<td>Tenure Track</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Shaw, Patricia</td>
<td>Chair/Associate Professor</td>
<td>HAS</td>
<td>Tenure</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Simonian, Yasmeh</td>
<td>Dean, DCHP</td>
<td>DCHP</td>
<td>Tenured</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Walker, Robert</td>
<td>Chair/Professor</td>
<td>RS</td>
<td>Tenure</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>