

MASTER OF SCIENCE IN RADIOLOGIC SCIENCES

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.

I. MISSION

Program Mission and Learning Outcomes

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 professional, 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

WSU will...

- Welcome traditional and nontraditional students and foster an engaging and supportive campus culture which promotes retention, graduation and next step success.
- Build outstanding programs that recruit motivated students and foster a vibrant level of scholarly activity.
- Expand offerings through development of multiple campuses and innovative uses of technology.
- Diversify and increase external funding for the university through shared responsibility at university, college and program levels.
- Recruit and retain talented faculty and staff who embrace the mission and vision of the university.
- Promote the dual-mission aspect of the WSU brand.

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.

II. CURRICULUM, ENROLLMENT, AND STUDENTS

a. Program Description

i. *Include a summary of degree requirements.*

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.

ii. *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)

iii. *Web address for WSU catalog page AND any program webpages, which provide a description of the program’s curriculum, degree requirements, and course descriptions.*

http://catalog.weber.edu/preview_program.php?catoid=2&poiid=712

<http://weber.edu/msrs>

<http://weber.edu/msrs/courses.html>

b. Evidence of Ongoing Demand for the Program

i. *Enrollment History*

Number of majors for current and last five academic years.

2007-2008	2008-2009	2009-2010	2010-2011	2011-12
----	----	----	21	38

Faculty to student ratio across program curriculum for current and last five academic years.

2007-2008	2008-2009	2009-2010	2010-2011	2011-12
----	----	----	??	??

ii. *Number of graduate courses offered for the last five academic years.*

	2007-2008	2008-2009	2009-2010	2010-2011	2011-12
Fall	----	----	----	3	6
Spring	----	----	----	3	6
Summer	----	----	----	----	----

iii. Mean course enrollment per semester

	2007-2008	2008-2009	2009-2010	2010-2011	2011-12
Fall	----	----	----	21	15
Spring	----	----	----	21	18.5
Summer	----	----	----	----	----

iv. Average time to degree completion (months) during last five academic years:

$$\frac{2 \text{ years}/4 \text{ semesters}}{2}$$

v. Admission, enrollment, and degrees awarded during the last five academic years.

	New Applications	Admitted Applicants	Selectivity (%)	Applicants Enrolled	Yield (%)	Matriculated Students	Matriculated International Students	Number of Graduates
2007-08	----	----	----	----	----	----	----	----
2008-09	----	----	----	----	----	----	----	----
2009-10	----	----	----	----	----	----	----	----
2010-11	24	24	100%	21	87.5%	21	0	N/A
2011-12	26	25	96.2%	17	68%	17	2	21

vi. List any standardized test scores that are required for admission to the program (GRE, GMAT, etc.). Are these scores waived under certain circumstances? Explain.

The MSRS program does not require any standardized test scores for admission.

vii. List all forms of English-language competency tests or coursework (and minimum scores) required of international applicants.

Unless a bachelor’s degree is received from a regionally-accredited college or university within the United States, an international student must submit a minimum score from one of the following:

Test of English as a Foreign Language (TOEFL): Score of 550 (paper-based) or 213 (computer-based)

International English Language Testing System (IELTS): 6.5 overall combined-band score.

viii. Enrollment Projections – Briefly describe enrollment patterns and factors influencing demand for the degree for the recent past and over the next few years.

The Department of Radiologic Sciences would like to ideally enroll an average of 25 students annually. The number of applicants decreased in the second year primarily due to difficult economic times. However, with an aging population of radiologic sciences educators and manages, as well as increased marketing of the program we expect the program to increase significantly.

ix. Describe relations with community/external stakeholders (e.g. advisory boards, etc.)

We have an excellent relationship with our stake holders. Below are the positions that the first graduating class are employed in:

Position Title	Employer	Location
Radiologist Assistant	Cleveland Clinic	Cleveland, OH
Radiologist Practitioner Assistant and Radiology Supervisor	Cherokee Nation Health Care Systems	Oklahoma

Nuclear Med PET/CT Technologist	Intermountain Heart Institute of IMC	Murray, UT
Radiologist Practitioner Assistant and Ultrasonographer	Bell Memorial Hospital	Ishpeming, MI
Radiologist Practitioner Assistant	University of Texas Medical School	Houston, TX
Ultrasonographer	Bear River Valley Hospital	Tremonton, UT
Radiologist Practitioner Assistant	Diagnostic Imaging Associates, Inc.	Tulsa, OK
Nuclear Medicine Technologist	Intermountain Healthcare	Urban Central Region of Utah
Magnetic Resonance Imaging Technologist	Utah Imaging	Salt Lake City, UT
Radiologic Technologist	Dixie Regional Medical Center	St. George, UT
Radiologic Technologist	Utah Valley Regional Medical Center	Provo, UT
Instructor, Radiologic Sciences	Weber State University	Ogden, UT
Magnetic Resonance Imaging Technologist	LDS Hospital	Salt Lake City, UT
Vice President of Professional Services, Surgery, and Quality	Peace Health	Longview, WA
Radiologic Technologist	McKay Dee Hospital	Ogden, UT
Magnetic Resonance Imaging Technologist	McKay Dee Hospital	Ogden, UT
Imaging Manager	Bear River Valley Hospital	Tremonton, UT
Radiologist Practitioner Assistant	Lakeland Radiologists	Charleston, IL
Radiologist Practitioner Assistant	National Jewish Hospital	Denver, CO
Joint Specialty Radiology Technician	Calton Harrison Clinic	Ogden, UT
Magnetic Resonance Imaging Technologist	Tooele Valley Imaging	Tooele, UT

c. Student Profile

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

	Average GRE	Average GMAT	Average Undergrad GPA	Average Age	Average Post-Undergrad Work Exper. (months)
2011-12	N/A	----	3.66	35.7	34
2010-11	N/A	----	3.51	35.4	69.38
2009-10	----	----	----	----	----
2008-09	----	----	----	----	----
2007-08	----	----	----	----	----

ii. Top five undergraduate majors represented.

1. Radiology Practitioner Assistant/Radiologist Assistant
2. Magnetic Resonance Imaging
3. Diagnostic Medical Sonography
4. Advanced Radiologic Sciences
5. Nuclear Medicine

iii. Top five employers pre- and/or post-graduation.

1. Intermountain Healthcare

2. Weber State University, Ogden Regional Medical Center, Cleveland Clinic, Cherokee Nation Health Systems, Bell Memorial Hospital, University of Texas Medical School, Diagnostic Imaging Associates, Inc., Hospital Corporation of America, Peacehealth, Lakeland Radiologists, National Jewish Hospital, Carlton Harrison Clinic, Tooele Valley Imaging, Utah Imaging, Amerinet, Mercy Regional Medical Center, Suffolk Medical Imaging, Quantum Imaging, King Abdul University

iv. *Most common career fields represented.*

Radiology Practitioner Assistant, MRI Technologist, Diagnostic Medical Sonographer, Nuclear Medicine Technologist, Radiologic Technologist

v. *Does your program provide career placement services? Explain.*

Career placement services are currently not offered, as enrolled students are currently employed in the field and study in the MSRS program for professional development in management, research, and clinical experience.

vi. *List any recent awards, honors, or recognition received by students.*

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

2012 Department of Radiologic Sciences named Best Radiologic Sciences Training program

III. TEACHING

a. Faculty (*Attach a CV for each*)

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

b. Faculty Qualifications Required (*e.g. degree, professional experience, etc.*)

All faculty have a Master's degree or higher with clinical and research expertise.

c. Faculty Compensation

- i. *Overload per course:* \$ 3,500.00
Is this adjusted for enrollment? No

Explain.

Faculty in the Department of Radiologic Sciences teach courses as load. Adjunct Faculty are currently paid \$3,500.00 per course which is consistent with other Master's programs in the Dumke College of Health Professions.

- ii. *Departmental cost per course (if any) associated with in-load teaching. (e.g. supplemental pay, replacement adjunct hires, etc.):*

There have been no additional costs

- iii. *Percentage of graduate courses taught in most recent academic year.*

In-load: 75%

Overload: 25%

- iv. *Describe the faculty compensation model for thesis advising, directed study, supervision of student consulting projects/internships, etc.*

Currently there is no compensation for faculty advising, it is all on-load teaching assignments. As the program grows and develops then this will need to be revisited.

d. Teaching/Research Assistance Program

- i. *Do you have any such program, and if so, please describe in terms of number of assistantships, teaching responsibilities, mentoring and training for TAs.*

Graduate assistants have been hired to assist in undergraduate labs, clinical education and computer assistance.

- ii. *How is it funded?*

Teaching assistants are currently funded using lab fees and other un-allotted monies.

- iii. *Is it useful for recruiting?*

Not for the most part. All the graduate students are currently working full time in healthcare.

- iv. *Are there plans to expand it?*

No. Currently one or two are meeting the department needs.

e. Academic Advising

Describe advising responsibilities and how students are advised.

A program advisor will be appointed by the department chair from all graduate faculty in the department (i.e., those holding terminal degrees in their field). *All MSRS candidates must consult the Program Advisor at least once a semester.* The Radiological Sciences Department Chair will serve as chair of the advisement committee, which will comprise all graduate Radiologic Sciences faculty. Continued program evaluation and improvement, especially in the first three years, will assure a high quality program that meets student needs. Also, student needs and success will be monitored continuously throughout the program.

IV. RESOURCES

a. Facilities

Describe physical space, teaching location(s), specialized labs, and/or other facilities utilized by the program.

All courses are currently conducted on the main WSU campus in the Department of Radiologic Sciences. Currently the classrooms, labs and student advisement office are adequate to meet our needs.

b. Program Funding (FY12 'Original Budget' General Fund Categories)

Total Staff Salaries:	\$ 108,238.00
Total Instructional Wages:	\$ 26,227.00
Total Current Expense:	\$ 10,000.00
Total Expense:	\$ 145,265.00

c. Support Staff

- i. *List all support staff associated with the program (director, enrollment director, secretary, etc.), and describe the responsibilities and amount of time associated with each position.*

Program Director: Robert J. Walker, PhD, RT(R)(MR)(CT)(QM) FASRT

Enrollment Director: Lonnie Lujan, MEd

Secretary: Lori Frederiksen

- ii. *Are support staff dedicated to the graduate program or shared?*

Lonnie Lujan is dedicated to the graduate program. Robert J. Walker and Lori Frederiksen are shared with Radiologic Sciences' graduate and undergraduate programs.

d. Recruitment/Promotion

List recruitment activities and associated costs (printing, advertising, staff time, etc.).

2012-2013 AY RECRUITMENT

MSRS RECRUITING EVENTS

Date	Fair and/or Event	# of Students
3/29/2012	National Council on Undergrad Research	2
4/26-27/2012	Society of Radiology Physician Extenders Conference - Las Vegas	7
9/26/2012	WSU Graduate Fair	4
10/2/2012	SUU Graduate Fair	7
10/10/2012	Boise State Graduate Fair	4
10/12/2012	Idaho State Graduate Fair	11
04/20-27/2013	International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting - SLC	
06/13-14/2013	American Society of Radiologic Technologists (ASRT) Meeting - Albuquerque, NM	
07/11-12/2013	Association of Educators in Imaging and Radiologic Sciences (AEIRS) Annual Meeting - SLC	
	TOTAL	35

MSRS MAILINGS

Date	Who	# of Students
5/15/2012	RS Graduates Fall 1997 - Fall 2011	459
5/29/2012	RS Graduates Spring 2012	42
11/19/2012	BSRS Programs/Career Centers	49
	TOTAL	550

e. Resource Support

Is the program adequately supported in terms of resources? Explain.

The program will need in the future additional support in faculty lines and office space.

V. ASSESSMENT INFORMATION

a. Program Review

i. List any recent or upcoming reviews (Utah Board of Regents, Northwest Accreditation, external accrediting bodies, etc.).

This is the three year Utah Board of Regents Review.

ii. Briefly summarize the most significant findings of the most recent review.

New program; first review.

iii. Indicate what corrective actions, if any, have been implemented since the last review.

N/A

b. Strengths and Weaknesses

i. Identify strengths and weaknesses of the program.

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

ii. Describe institutional and departmental plans for enhancing strengths and ameliorating weaknesses.

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

c. Program Assessment Plan

i. Attach a copy of the program’s assessment plan and explain findings.

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 one 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 place and student input from the first graduating class

MASTERS OF SCIENCE RADIOLOGIC SCIENCES

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

ii. If the program has or is seeking external/professional accreditation (aside from Northwest), describe the special requirements involved (reporting, data collection, curriculum, etc.). Describe any opportunities/challenges/constraints for the program associated with this accreditation.

N/A

iii. List all program assessment metrics (direct and indirect measures), such as student learning outcomes, exit surveys, graduate placement, and/or employer satisfaction surveys.

We will 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* will be measure 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.

iv. Indicate how these findings have been used to initiate change and plan for program improvement. (Include a timeline)

Since we have only have one graduating class at this time we are collecting foundation data that will be used to identify any weakness or trend that will need to addressed by the program.