

# WSU Five-Year Graduate Program Review Self-Study

## Department of Radiologic Sciences Masters of Science Radiologic Sciences

Semester Submitted: Fall 2017

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## **A. 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 Master of Science in Radiologic Sciences (MSRS) program offered in the Dr. Ezekiel R. Dumke College of Health Professions gives technologists the opportunity to shift into the educational and research arena, while providing information on advanced clinical practice. The MSRS program prepares individuals with increased clinical research and education skills. Candidates completing the program will be allowed to function in research, imaging industry careers, imaging education careers, advance patient care, invasive cardiac services and interventional radiology.

Designed to enhance the advanced radiologic sciences professional through self-development and critical-thinking skills, the program is intended to increase productivity, and improve patient communication and radiologic care. Weber State University's MSRS program is currently the only one in the state of Utah and one of few in the nation

## **B. Mission Statement**

### **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, and the best partnership with the communities that we serve.

### **Program Goals**

The **Master of Science in Radiologic Sciences (MSRS)** program is founded on the following concept's, (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.

**Our vision** is to lead the nation in innovative learning environments which incorporate technology, challenge learners, develop educators, produce professional leaders and impact health care worldwide

## C. Program and Curriculum

### Program Description

Designed to enhance the advanced radiologic sciences professional through self-development and critical thinking skills, the Master of Science in Radiologic Sciences (MSRS) program is intended to increase productivity, and improve patient communication and radiologic care. As the only program in the state of Utah and one of few in the nation, the MSRS program prepares graduates to stand out in areas of imaging education and industry, management, research, MSK diagnostic ultrasound, interventional radiology, and radiology nursing.

Graduate courses are taught in a step format and are taught during Fall and Spring semesters (no courses are taught during the Summer semester). Additionally, availability of courses are only offered during the specific semester in which that course is assigned, i.e. a course taught during the Fall semester may not be taken during the Spring semester, and vice versa.

At the time of completion of the program, no course may be older than three years. Students must petition with the program director to take courses beyond three years from the time they were admitted to the program.

### **Candidate Status**

University graduate students are classified as full-time students if they register for nine (9) or more semester credit hours. However, for the purpose of financial aid, full-time status is six (6) semester credit hours. Students are required to complete 36 credit hours of professional core requirements. A portion of the core requirement is the completion of a Master's thesis report, a practical application of knowledge and research.

### **Curriculum Structure**

#### **Fall Semester – 1<sup>st</sup> Year**

MSRS 6100 Research Methods (3)

MSRS 6200 Health Behavior and Managerial Epidemiology (3)

MSRS 6450 Managing Health Information (3)

### **Spring Semester – 1<sup>st</sup> Year**

MSRS 6120 Research and Statistics (3)

MSRS 6130 Functional Hemodynamics (3)

MSRS 6140 Clinical Laboratory Values (3)

### **Fall Semester – 2<sup>nd</sup> Year**

MSRS 6463 Problem Patient Management (3)

MSRS 6473 Vascular-Non-Invasive Imaging Procedures (3)

MSRS 6863 Vascular-Invasive Imaging Procedures (3)

### **Spring Semester – 2<sup>nd</sup> Year**

MSRS 6443 Clinical Pathways (3)

MSRS 6900 Master's Clinical Fellowship and Portfolio (3)

MSRS 6999 Master's Thesis (3)

## **Course Descriptions**

### **MSRS 6100: Research Methods (3)**

This course assists students to critique, evaluate, and use research within their health science education careers. The research process including the theoretical/conceptual basis of health sciences research, methods, and critique strategies are examined in detail. There is a focus on evaluation of published research reports to evaluate the appropriateness of application of findings to clinical practice.

### **MSRS 6120: Research and Statistics (3)**

This course focuses on the development of research skills used to evaluate data in support of the utilization of findings in clinical practice. Skills related to statistical analysis of quantitative data will be emphasized. Parametric and non-parametric methods of statistical analysis will be discussed.

### **MSRS 6130: Functional Hemodynamics (3)**

This course offers the fundamental principles and indications for invasive hemodynamic monitoring. The indications, possible contraindications and possible complications involved with the insertion of central venous lines, arterial lines, pulmonary artery catheters and ICP monitoring with the expected CVP, RV, PAP, PCWP, CO, and CI reading, waveforms and troubleshooting.

### **MSRS 6140: Clinical Laboratory Correlation (3)**

This course covers the concepts, analytical methods and clinical correlation of laboratory values as they relate to radiographic imaging, pathology, and patient history.

### **MSRS 6200: Health Behavior and Managerial Epidemiology (3)**



This course addresses the integration of epidemiology into strategic planning and managerial decision-making in health services organizations. Epidemiological principles and tools of investigation from clinical and managerial perspectives are addressed. Course work includes environmental analysis of health behaviors and lifestyle that impact demand on health care delivery systems. The student will evaluate models for integration of health services, preventive programs, demand management, and policy issues affecting continuity of care.

**MSRS 6440: Clinical Pathways (3)**

Studying clinical pathways for patients based on disease processes and trauma.

**MSRS 6450: Managing Health Information (3)**

Various planning approaches, styles and theories are considered from a corporate decision-making perspective within the unique governance structures of health service organizations. Issues covered include strategic planning and resource allocation within integrated health systems. Environmental analysis explores national health care delivery policy, unique financing structures such as third party payment systems, and open vs. regulated markets and development of comprehensive marketing plans.

**MSRS 6473: Vascular-Non-Invasive Imaging Procedures (3)**

Patient preparation and performance of medical imaging non-vascular-invasive procedures are presented.

**MSRS 6863: Vascular-Invasive Imaging Procedures (3)**

Patient preparation and performance of medical imaging vascular-invasive procedures are presented.

**MSRS 6900: Master's Clinical Fellowship and Portfolio (3)**

Experience in a Radiology department and Interventional Radiology coordinated by Weber State University, under the supervision of a Radiologist or other Medical Practitioner. Review and evaluation of student competencies, clinical performance, and professional development as required by certification.

**MSRS 6999: Master's Thesis (3)**

Students will enroll for this course as they complete their Master's thesis under the direction of the departmental graduate advisor. Departmental seminars and readings may also be assigned as part of this course. Students will finish their Master of Science in Radiologic Sciences degree by first completing a course of classroom or didactic study, then writing an original research monography for their thesis. This course is to be used during the time the student is writing getting approval for the thesis.

List the program level learning outcomes

All courses in the graduate and undergraduate programs are assessed on the five professional categories listed across the table. Radiation protection and safety was eliminated from the graduate degree because it is a required portion of undergraduate education and not taught within the graduate program. 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.

**Curriculum Grid Masters of Science Radiologic Science**

<i>Five departmental competencies used for direct measurements of learning in ALL programs in the Department</i>	<b>Patient Care and Education</b>	<b>Professional Development and Research</b>	<b>Clinical Competency and Medical Ethics</b>	<b>Procedures, Anatomy and Pathophysiology</b>	<b>Instrumentation and Quality Control</b>
<b>MSRS</b>	MSRS 6443	MSRS 6100	MSRS 6900	MSRS 6130	MSRS 6450
	MSRS 6463	MSRS 6120		MSRS 6140	
	MSRS 6130	MSRS 6200		MSRS 6473	
	<b>MSRS 6120</b>	<b>MSRS 6999</b>		MSRS 6863	

The above grid is utilized for all direct measures of learning. All courses are step lock curriculum and are pre and post tested utilizing multiple choice questions, case studies, simulated clinical scenarios, and radiographic reconstructed and segmented images in each of the five measures as appropriate. All students will complete the pre and post testing each semester in each of the 5 categories. The comprehensive posttest each semester will become the pretest for the next semester.

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

Catalog:

[http://catalog.weber.edu/preview\\_program.php?catoid=12&poid=5794&returnto=2968](http://catalog.weber.edu/preview_program.php?catoid=12&poid=5794&returnto=2968)

Program Website: <https://weber.edu/msrs>

Program Curriculum: <https://weber.edu/msrs/courses.html>

#### Evidence of ongoing demand for the program

Please provide data on the last five academic years on admissions, enrollments, and degrees awarded:

*In order to provide consistent data that conforms to the format for reporting to the Utah Board of Regents, some data will be provided by the Office of Institutional Effectiveness. Contact that office at extension 8586 for assistance.*

**NOTE:** the IR data above is collected in a manner which may not match departmental data on enrollment.

- ii.

Academic Year	New applications	Admitted Applicants	Selectivity (%)	Applicants Enrolled	Yield (%)	Matriculated Students [IR]	Matriculated International Students [IR]	Number of Graduates (Sum, Fall, Spr) [IR]
2016-17	12	11	91.6%	9	81.8%	2	0	18
2015-16	14	14	100%	11	78.6%	3	0	11
2014-15	19	19	100%	18	94.7%	3	0	16
2013-14	26	24	92.3%	13	54.2%	4	0	21
2012-13	26	25	96.2%	22	88%	2	2	15

Enrollment History:

Academic Year	Number of Majors
2016-17	20
2015-16	34
2014-15	40
2013-14	44
2012-13	37

Academic Year	Faculty/Student ratios across program curr.	Average class size
2016-17	1:3	9.5
2015-16	1:5	15.5
2014-15	1:6	17
2013-14	1:7	16
2012-13	1:6	20

Average time to degree completion (months): 15

(Note: If the program has different timeline options, please explain this in your narrative and organize your data based on the different options/tracks.)

Currently, the MSRS program does not offer courses during the summer semester

Enrollment projections – briefly describe enrollment patterns and factors influencing demand for the degree. (Note: programs are not expected to project an exact number of expected students, but rather a qualitative assessment of potential opportunities and/or threats to enrollment as well as any strategies for maximizing opportunities and managing threats.)

Enrollment has gone down slightly over the past couple of years. There are several factor that have influenced enrollment. The uncertainty of Healthcare reform and they effect that change will have on the employment. Many mid-level managers and

educators have remained in the workforce awaiting the effect of reform and the future of healthcare and education.

In graduate surveys and other assessment tools we realized that we needed to create more options for graduate students. Along with more options it was suggested that we create rolling start dates for admission. The assessment tools also pointed out that we need to broaden the admissions requirement to include nursing, athletic training and other IPE style course offerings. Finally it became apparent that if we were going to recruit international students that we need an option for more traditional delivered education and less Hybrid course work.

In Section; Action Plan for Ongoing Assessment Based on Current Self Study Findings the Department has outline some options for changes and has submitted course work and program change document to the curriculum committee. These should be finalized before spring semester 2018.

b. Student profile

i. Please provide information on the entering class for each of the past 5 years:

Entering Class	Ave. GRE	Ave. GMAT	Ave. GPA (undergrad)	Ave. Age (years)	Ave. Relevant Work Experience (months) (optional)
2016-17	N/A	N/A	3.63	43.1	
2015-16	N/A	N/A	3.58	41.9	
2014-15	N/A	N/A	3.67	37.5	
2013-14	N/A	N/A	3.56	37.7	
2012-13	N/A	N/A	3.63	38.3	

ii. Success rate of your students' post-graduation regarding employment and/or further graduate education. Add narrative if desired.

Graduating Class	# of Graduates (A)	# of Graduates Employed in Field (B)	# of Graduates in Add'l Graduate Program (C)	# of Graduates with unknown status	Placement Rate (B+C)/A
2016-17	18	18			
2015-16	11	11			
2014-15	16	16			
2013-14	21	21			
2012-13	15	15			

iii. *List the most common career fields represented among your students (optional):*

1. Radiography
2. Magnetic Resonance Imaging
3. Diagnostic Medical Sonography
4. Advanced Radiologic Sciences
5. Nuclear Medicine
6. Radiation Therapy

iv. *Does your program provide career placement services: Describe:*

No most of the student entering the MSRS and already employed

v. *List any recent awards, honors or recognition received by your students (optional).*

**2017 Student of the Year:** Scott Malinowski

**2017 Thesis of the Year:** Mikayla Hwang for thesis entitled, "The Effectiveness and Performance of Ultrasound and CT in Diagnosing Acute Appendicitis"

**2016 Student of the Year:** Taylor Ward

**2016 Thesis of the Year:** Greg Yardley for thesis entitled, "Bone Mineral Density Cross Calibration Comparison Study of Two Hologic DXA Systems Using a whole Body Phantom"

**2015 Student of the Year:** Brent Unutoa

**2015 Thesis of the Year:** Angella Endicott for thesis entitled, "Correlating Magnetic Resonance Cholangiopancreatography with Sonography or Computed Tomography and Elevated Bilirubin Levels"

**2014 Thesis of the Year:** Jesse Rock

**2014 Thesis of the Year:** Amanda Hinderman for thesis entitled, "Improving Parathyroid Ultrasound Localization by Sonography Examination Criteria: A Retrospective Study"

D. Student Learning Outcomes and Assessment  
**Assessment Plan**

<b>Objective</b>	<b>Internal Measurement</b>	<b>External Measurement</b>	<b>Data Collection</b>
Patient assessment, monitoring and management skills.	Successful completion of MSRS courses 6443, 6120 6230 and 6463	Graduate surveys and employer survey	Student course evaluations, graduate evaluations and employer evaluation Qualifying exam in MSRS 6900
Patient education, safety and comfort skills.	Successful completion of MSRS courses 6443, 6120 6230 and 6463	Graduate surveys and employer survey	Student course evaluations, graduate evaluations and employer evaluation Qualifying exam in MSRS 6900
Legal, professional and ethical responsibility.	Successful completion of MSRS Courses 6100, 6120,6200 and 6999	Completion of CITI, WSU IRB and Clinical institutional IRB if required. Data collection and research skills	Course papers and Master's Thesis and student professional publications Qualifying exam in MSRS 6900
Knowledge of anatomy, physiology and pathophysiology	Successful completion of MSRS 6130, 6140, 6473 and 6863	Graduate surveys and employer survey	Student course evaluations, graduate evaluations and employer evaluation Qualifying exam in MSRS 6900
Responses to diverse patient populations	Completion of MSRS 6200	Graduate surveys and employer survey. Student best practice radiology based research	Epidemiologic health management paper and research Qualifying exam in MSRS 6900
Knowledge and application of federal regulations	Successful completion of MSRS Courses 6100, 6120,6200 and 6999	Completion of CITI, WSU IRB and Clinical institutional IRB if required. Data collection and research skills	Course papers and Master's Thesis and student professional publications Qualifying exam in MSRS 6900
Professionalism and desire to learn	Completion of MSRS 6900	Graduate surveys and employer survey	Number of poster, presentations and publication that result from the student research. Professional and clinical changes that occur from the research Qualifying exam in MSRS 6900
Continued competency through lifelong learning	Completion of MSRS 6900 qualifying comprehensive exam.	Graduate surveys and employer survey	Number of students that enter Doctoral programs.



**Report of assessment results for the most previous academic year:**

The curriculum grid was utilized for all direct measures of learning. All courses are step lock curriculum and were pre and post tested utilizing multiple choice questions, case studies, simulated clinical scenarios, and radiographic reconstructed and segmented images in each of the five measures as appropriate. All students will complete the pre and post testing each semester in each of the 5 categories. The comprehensive posttest each semester will become the pretest for the next semester.

Each Student should score 75% or higher on the comprehensive posttest each semester and qualifying exam in MSRS 6900.

**Patient Care and Education**                      **100% of the students in the program scored 75% or higher at the end of each course list on grid sequence and in the MSRS 6900 qualifying exam with an average score of 94%**

**Professional Development  
And Research**    **100% of the students in the program scored 75% or higher at the end of each course list on grid sequence and in the MSRS 6900 qualifying exam with an average score of 92%**

**Clinical Competency**    **100% of the students in the program scored 75% or higher at the end of each course list on grid sequence and in the MSRS 6900 qualifying exam with an average score of 100%**

**Procedures, Anatomy**    **100% of the students in the program scored 75% or higher at the end of each course list on grid sequence and in the MSRS 6900 qualifying exam with an average score of 92%**

**Instrumentation  
And Quality Control**    **100% of the students in the program scored 75% or higher at the end of each course list on grid**

sequence and in the MSRS 6900 qualifying exam with an average score of 89%

**In the MSRS 6900: Capstone: Clinical Fellowship & Portfolio, each of the five competencies listed above will be evaluated using course content from all 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. The student will complete a comprehensive examination in this course;**

**2014-15 was the first year that this was given and the 100 of students scored 75% or higher on the cases studies and examination.**

**2015-16 the test will be administered in early spring semester and will be reported next year**

**We also collect the following measurements of student learning and program effectiveness:**

- 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**

Assessment of Graduating Students

Please provide a brief narrative describing the assessment processes for graduating students.

During the final semester in the program, students will complete an evaluation of the MSRS program. The purpose of the evaluation is to identify the effectiveness the program has on working professionals. Students are asked to identify skills learned and explain how the program has helped them grow as a professional. Additionally, one- and three-year evaluations are sent to graduates from the program to assess the impact the program has had.

## E. Academic Advising

### Advising Strategy and Process

Advisement begins with prospective students make first inquiries about the MSRS program with the MSRS enrollment director. The enrollment director ensures that prospective students understand the admissions and application processes, program and course expectations, and university processes and procedures.

Throughout the students' time in the program, the enrollment director maintains continuous contact with enrolled students, updating them on important information and announcements they need to know to maintain student success, including course requirements and progress, graduation, scholarship, and various deadlines. The enrollment director works collaboratively with the program director to ensure students are successfully meeting course and program requirements. Additionally, the enrollment director tracks the students' progress in completing the thesis report. The student will receive advisement on the thesis report from their respective committee chairperson (department faculty) and committee members.

### Effectiveness of Advising

Since MSRS students only attend classes on the WSU-Ogden campus two times per semester, the enrollment director actively reaches out to students by email and phone, addressing any concerns they have regarding program requirements, scholarship and registration processes, and thesis report progression. Additionally, the enrollment director meets with program faculty to address any issues affecting student success and communicates recommendations with students.

### Recruitment

Utah Graduate School Fair (USU, WSU, UVU, SUU, DSU, and UNLV)  
Association of Collegiate Educators in Radiologic Technology Conference  
Society of Radiology Physician Extenders (SRPE) Conference  
American Society of Radiologic Technologist Conference

Digital Marketing Campaign: 166,666 impressions per month  
UTA Bus ads  
Digital Billboards  
Conference tote bag inserts

F. Faculty and Teaching

- a. Describe the minimum qualifications required of graduate faculty (e.g., degree, professional experience):

Minimally a Master’s degree in required and a doctoral degree preferred, certification in a medical field, documented research skills and publications see section titled Programmatic/Departmental Teaching Standards.

- b. Faculty Demographic Information – list all faculty who teach in the program:

Name	Home Dept	Title/Qual	Type (tenure, tenure track, contract or adjunct)	Gender	Ethnicity
Robert Walker	Radiologic Sciences	Professor and Department Chair	Tenured	Male	White
Diane Kawamura	Radiologic Sciences	Professor	Tenured	Female	White
Rex Christensen	Radiologic Sciences	Associate	Tenured	Male	White
Casey Neville	Radiologic Science	Assistant	Tenure track	Male	White
Tanya Nolan	Radiologic Sciences s	Associate	Tenured	Female	White Hispanic
Patricia Shaw	HAS	Professor and Department Chair	Tenured	Female	White
Paul Eberle	Respiratory Therapy	Professor and Department Chair	Tenure	Male	White
Yasmen Simonian	Dean	Professor and Dean	Tenured	Female	Armenian

- i. Percentage of graduate courses and/or credits taught:

	# of courses or credits taught in-load	# of courses or credits taught in overload	Percentage of courses or credits taught in overload
2016-17	36 Credits	9 Credits	25%
2015-16	36 Credits	9 Credit	25%
2014-15	36 Credits	9 Credits	25%
2013-14	36 Credits	9 Credits	25%
2012-13	36 Credits	9 Credits	25%

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

Department of Radiologic Sciences Faculty are not compensated additional funds, it is concerned part of the teaching load,

#### Programmatic/Departmental Teaching Standards

##### Faculty Qualifications

##### Programmatic/Departmental Teaching Standards

**The contract and adjunct graduate faculty in the Department of Radiologic Sciences possess an appropriate level of understanding related to;**

- Contemporary educational theories
- Principles and models underlying the design of curricula and the value of adult learning.
- Conceptual and theoretical foundations and principles related to health profession education and adult learning.
- Knowledge of curriculum development which incorporates educational theories, principles and models.
- Theories, principles and philosophies of adult education.
- Learning domains (cognitive, affective and psychomotor).
- Competency-based education.
- Critical and reflective thinking.
- Show enthusiasm for teaching, learning and imaging that inspires and motivates students.
- Foster a relationship of mutual trust and respect.
- Content, process and outcome-based curricula.
- Global Competencies and population Health related to Medical Imaging and Radiotherapy

#### **Department of Radiologic Sciences graduate Faculty Qualifications and Expectations**

##### Description of Duties and Tasks

1. Essential duties and responsibilities include the following and other duties may be assigned.
2. Instructs students diagnostic medical imaging and radiotherapy coursework, labs and clinical.
3. Provides learning activities that stimulate student involvement and encourage critical thinking.

4. Participates in ongoing curriculum development, implementation, and evaluation.
5. Assist Department Chair with program accreditation requirements.
6. Demonstrates creativity and innovation in the field, service, in the profession and/or the community.
7. Plans and organizes lesson plans, research and reference materials, syllabi, and other learning aids.
8. Utilizes innovative teaching strategies to meet the learning needs of a diverse student population:
9. Facilitates, supervises and evaluates students in a variety of clinical settings.
10. Participates in graduation, general assembly, and other department, college and university functions.
11. Responsibilities also include advising students, maintaining office hours, serving on program, college and university committees, maintaining professional competence, and participating in professional development activities.
12. Performs other related tasks as assigned by the Department Chair.

#### Knowledge

1. Effective teaching techniques adaptable to a variety of learning styles.
2. Understanding the comprehensive mission and philosophy of Department, College and University.
3. Subject matter and related and/or relevant topics and issues in Medical imaging and Radiation Therapy.
4. Sensitive to issues relating to a diverse student body.

#### Skills

1. Effective planning, organizing, communication, and organizational skills.
2. Effectively assisting student learning.
3. Interacting with students of diverse backgrounds.
4. Maintaining and established schedule, including evenings and weekends, including possible multiple campus locations, this may vary by semester.
5. Maintaining confidentiality of student information.

#### Technology Skills

1. Demonstrated proficiency using computer applications, classroom, clinical, lab, or other current learning technologies for effective teaching in the Department of Radiologic Sciences.

#### Required Work Experience

1. A minimum of three years clinical experience in Medical imaging and or Radiation Therapy.

2. Documented research skills activity and publications

#### Required Education

1. Masters of Science Degree in Radiologic Technology or related field
2. Must hold National Certification in Radiography and or advanced national certifications or skill sets in other health professions
3. Master's Degree in Radiologic Sciences or related area required for tenure track
4. Doctoral degree and research experience preferred

#### Evidence of Effective Instruction

All faculty are evaluate exactly the same

- i. Regular Faculty
  - ii. Adjunct Faculty
1. Student Clinical competency evaluations
  2. Student Personal and Professional growth evaluations
  3. Student program exit evaluations
  4. Course evaluations
  5. Employer surveys
  6. Employment rates
  7. Graduate surveys
  8. Final competency/portfolio evaluations

#### Mentoring Activities

Faculty attends a variety of workshops or conference related to new technologies, teach strategies, clinical and technical expertise, student placement/clinical management every year.

Diversity of Faculty  
See appendix B



## Ongoing Review and Professional Development

All faculty are evaluate exactly the same

- i. Regular Faculty
  - ii. Adjunct Faculty
1. Student Clinical competency evaluations
  2. Student Personal and Professional growth evaluations
  3. Student program exit evaluations
  4. Course evaluations
  5. Employer surveys
  6. Employment rates
  7. Graduate surveys
  8. Final competency evaluations

The Dumke college has an annual faculty evaluation that is completed and discussed with all faculty that covers the items list above and creates an action plan for the next year

## **G. Support Staff, Administration, Facilities, Equipment, and Library**

### **Adequacy of Staff**

The department currently has 5 fulltime administrative and support staff. Additionally, we have two work studies every semester, a variety of on campus lab assistants and clinical faculty that are employed by each of our clinical sites.

### Ongoing Staff Development

Program support staff take a variety of course work from the University to complete degrees or for personal and professional growth. Staff is encouraged to take courses on training tracker to increase their knowledge and effectiveness related to university policy and procedures.

### Adequacy of Administrative Support

At the current time and with the new Liaison position, current staff, lab assistants, and work studies I believe that we have adequate staffing.

## Adequacy of Facilities and Equipment

Like everyone else we could all use more space, I believe we have maximized the space that we have. The equipment is state of the art and meets our current needs.

## Adequacy of Library Resources

Our students use mostly online resources

## **Standard G - Relationships with External Communities**

### Description of Role in External Communities

#### Clinical placement

Currently placing more than 350 under graduate and graduate students every semester in a clinical internship

#### Cooperate Partners

They are utilized to supply up to date equipment and software to teaching and learning activities

#### Donors

Provide financial resources for scholarships and non-state funded expenditures

### Summary of External Advisory Committee Minutes

The graduate program utilizes the undergraduate program advisory committee to keep a pulse on the changes occurring in the diverse numbers modalities in Medical Imaging and Radiotherapy. Additionally we use our cooperate partners to making sure that our education is closely aligned to industry.

H. Results of Previous Program Reviews

Problem Identified	Action Taken	Progress
Concern: In an effort to assist prospective students to the Department of Radiologic Sciences, a link from the Radiologic Sciences Homepage is recommended.	Previous 5 Year Program Review:	
	Year 1 Action Taken:	
	Year 2 Action Taken:	
	Year 3 Action Taken:	
	Year 4 Action taken:	
Concern: Space resources for MS program; to grow the program: equipment, classroom and additional faculty	Previous 5 Year Program Review:	
	Year 1 Action Taken:	
	Year 2 Action Taken:	
	Year 3 Action Taken:	
	Year 4 Action taken:	

Summary Information (as needed)

I. Action Plan for Ongoing Assessment Based on Current Self Study Findings

Action Plan for Evidence of Learning Related Findings

Problem Identified	Action to Be Taken
Issue 1 Add two new faculty to the graduate faculty with one being a full time graduate director.	Current 5 Year Program Review:
	Year 1 Action to Be Taken: work with Deans office for funding
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:
Issue 2 Implement new course offering with core and elective as well IPE focused course work ...see examples listed below  Courses and program of study has already been approved by the curriculum committees	Current 5 Year Program Review:
	Year 1 Action to Be Taken: student enrollment would be on going, course Create new curriculum grid and assessment grid. Recruit and market new offerings. Open enrollment to other in medical imaging (such as Radiology nursing)
	Year 2 Action to Be Taken: recruit an international Cohort of graduate students. Expand clinical site
	Year 3 Action to Be Taken: Investigate CCI certification for interventional Cardiology
	Year 4 Action to Be Taken:

**Issue 2 Examples**

MASTERS of SCIENCE RADIOLOGIC SCIENCES Fall 2018

CORE (24 hours)

MSRS 6100 Research Methods

MSRS 6120 Research and Statistics

MSRS 6140 Clinical Laboratory Correlation

MSRS 6200 Health Behavior and Managerial Epidemiology

MSRS 6450 Managing Health Information

MSRS 6900 Capstone: Clinical Fellowship & Portfolio  
MSRS 6999 Master's Thesis in Radiologic Sciences

## Electives

### Imaging Education and Industry

MSRS 6130 - Functional Hemodynamics  
MSRS 6403 - Evaluation of the Osseous System  
MSRS 6413 - Evaluation of the Chest  
MSRS 6423 - Evaluation of the Abdomen and G I System  
MSRS 6433 - Evaluation of the Genitourinary System  
MSRS 6443 - Clinical Pathways  
MSRS 6453 - Evaluation/CNS and Facial Structures  
MSRS 6463 - Problem Patient Management  
MSRS 6473 - Vascular Non-Invasive Imaging Procedures  
MSRS 6483 MSK Sonography  
MSRS 6800 Advanced Medical imaging 3D segmentation, modeling and structural printing  
MSRS 6863 - Vascular Invasive Imaging Procedures  
MSRS 6860 - Clinical Preceptorship  
MSRS 6861 - Clinical Preceptorship  
MSRS 6862 - Clinical Preceptorship

### MSRS International cohort

MSRS 6130 - Functional Hemodynamics  
MSRS 6443 - Clinical Pathways  
MSRS 6463 - Problem Patient Management  
MSRS 6800 Advanced Medical imaging 3D segmentation, modeling and structural printing  
MSRS 6860 - Clinical Preceptorship

#### Potential IPE Courses

- MSRS 6403 - Evaluation of the Osseous System
- MSRS 6413 - Evaluation of the Chest
- MSRS 6800 -Advanced Medical Imaging 3D Segmentation, Modeling and Structural Printing
- MSRS 6860 - Clinical Preceptorship

#### Radiology Nurse

- MSRS 6130 - Functional Hemodynamics
- MSRS 6443 - Clinical Pathways
- MSRS 6463 - Problem Patient Management
- MSRS 6473 - Vascular Non-Invasive Imaging Procedures
- MSRS 6863 - Vascular Invasive Imaging Procedures
- MSRS 6860 - Clinical Preceptorship

#### Interventional CARDIOLOGY

- MSRS 6130 - Functional Hemodynamics
- MSRS 6413 - Evaluation of the Chest
- MSRS 6463 - Problem Patient Management
- MSRS 6443 - Clinical Pathways
- MSRS 6473 - Vascular Non-Invasive Imaging Procedures
- MSRS 6863 - Vascular Invasive Imaging Procedures
- MSRS 6800 - Advanced Medical imaging 3D segmentation, modeling and structural printing
- MSRS 6860 - Clinical Preceptorship
- MSRS 6861 - Clinical Preceptorship
- MSRS 6862 - Clinical Preceptorship

MSRS 6800 -Advanced Medical imaging 3D segmentation, modeling and structural printing  
MSRS 6863 - Vascular Invasive Imaging Procedures  
MSRS 6860 - Clinical Preceptorship  
MSRS 6861 - Clinical Preceptorship  
MSRS 6862 - Clinical Preceptorship

#### Muscle Skeletal Sonography

MSRS 6403 - Evaluation of the Osseous System  
MSRS 6443 - Clinical Pathways  
MSRS 6483 -MSK Sonography  
MSRS 6860 - Clinical Preceptorship  
MSRS 6800 - Advanced Medical imaging 3D segmentation, modeling and structural printing

#### Radiologist Assistant

MSRS 6130 - Functional Hemodynamics  
MSRS 6403 - Evaluation of the Osseous System  
MSRS 6413 - Evaluation of the Chest  
MSRS 6423 - Evaluation of the Abdomen and G I System  
MSRS 6433 - Evaluation of the Genitourinary System  
MSRS 6443 - Clinical Pathways  
MSRS 6453 - Evaluation/CNS and Facial Structures  
MSRS 6463 - Problem Patient Management  
MSRS 6473 - Vascular Non-Invasive Imaging Procedures

Additionally, two additional tracks have been added to the Dumke College long range plan. MSRS –Medical Dosimetry and MSRS-interventional Radiology.





APPENDICES

Appendix A: Student and Faculty Statistical Summary

RadSci GRAD	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Student Credit Hours Total <sup>1</sup></b>	<b>678</b>	<b>666</b>	<b>594</b>	<b>576</b>	<b>459</b>
<b>Student FTE Total <sup>2</sup></b>	<b>33.90</b>	<b>33.30</b>	<b>29.70</b>	<b>28.80</b>	<b>22.95</b>
<b>Student Majors <sup>3</sup></b>	40	32	32	31	21
other (2nd or 3rd majors)	0	3	0	0	1
<b>Program Graduates <sup>4</sup></b>					
Bachelor Degree					
Master Degree	19	14	20	13	18
<b>Student Demographic Profile <sup>5</sup></b>					
Female	21	19	16	16	13
Male	19	16	16	15	9
<b>Faculty FTE Total <sup>6</sup></b>	<b>2.02</b>	<b>2.02</b>	<b>2.01</b>	<b>2.31</b>	n/a
Adjunct FTE	0.49	0.49	0.48	0.48	n/a
Contract FTE	1.53	1.53	1.53	1.83	n/a
<b>Student/Faculty Ratio <sup>7</sup></b>	<b>16.78</b>	<b>16.49</b>	<b>14.78</b>	<b>12.47</b>	n/a

Program Name:		2013	2014	2015	2016	2017
Expectation of time to graduation?	# of years	2	2	2	2	2
Number and percent of majors meeting expectation for graduating	Department					
Number and percent of majors graduating w/in 1 year of expectation	Department	0	0	0	0	0
Number and percent of majors graduating w/in 2 years of expectation	Department	0	0	0	0	0
Number and percent of majors who don't complete by 6 years	Department	0	0	0	0	0
Average overall hours of graduates	University					
	Department	36	36	36	36	36
Average 'years to degree' for master's degree recipients	University					

	Department	2	2	2	2	2
Other Analyses		2013	2014	2015	2016	2017
Percent of courses with adequate completion	Department					
(adequate completion = 80%+, A and B grades)	University					

Appendix B: Contract/Adjunct Faculty Profile

Name	Gender	Ethnicity	Rank	Tenure Status	Highest Degree	Years of Teaching	Areas of Expertise
Robert Walker	Male	White	Professor	Tenured	PhD	36	Radiography
Diane Kawamura	Female	White	Professor	Tenured	PhD	40	Sonography
Casey Neville	Male	White	Assistant	On track	DHSc	8	Radiography
Rex Christensen	Male	White	Associate	Tenured	MHA	10	MRI/CT
Tanya Nolan	Female	White Hispanic	Associate	Tenured	EdD	9	Sonography
Patricia Shaw	Female	White	Professor	Tenured	EdD	23	Coding and Health Services
Paul Eberle	Male	White	Professor	Tenured	PhD	30	Hemodynamics
Yasmen Simonian	Female	Armenian	Professor	Tenured	PhD	37	MLS

Appendix C: Staff Profile

Name	Gender	Ethnicity	Job Title	Years of Employment	Areas of Expertise
Lonnie Lujan	Male	HIS	Enrollment Director	6	Advisement, admissions, recruitment
Francisco Ruiz	Male	Hispanic	Admin II	3	University Procedures
Cathy Wells	Female	White	Admin II	4 months	University Procedures
Lori Frederiksen	Female	White	Director of independent Study	25	Degree completion and advisement

Appendix D: Financial Analysis Summary

<b>MSRS</b>					
<b>Funding</b>	<b>12-13</b>	<b>13-14</b>	<b>14-15</b>	<b>15-16</b>	<b>16-17</b>
Appropriated Fund	146,047	161,611	202,292	178,977	201,672
Other:					
Special Legislative Appropriation					
Grants or Contracts					
Special Fees/Differential Tuition	78,499	86,864	108,731	96,199	108,397
<b>Total</b>	<b>224,546</b>	<b>248,475</b>	<b>311,023</b>	<b>275,176</b>	<b>310,069</b>

Student FTE	33.9	33.3	29.7	28.8	22.95
Cost per Student FTE	\$6,624	\$7,462	\$10,472	\$9,555	\$13,511

*Note:* Data provided by Provost's Office

Summary Information (as needed)



