

WSU Five-Year Program Review Self-Study

Description of Review Process:

A. Name and Affiliation of Program:

Name: Radiologic Sciences Program Cluster

Programs Conducted: Radiography
Diagnostic Medical Sonography/Cardiac and
Medical
Radiation Therapy
Nuclear Medicine
Magnetic Resonance Imaging
Computed Tomography
Cardiac Interventional Technology
Women's imaging
Advanced Radiography
Radiology Assistant
Masters of Science Radiologic Sciences

B. Review Team:

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D. Date of Site Visit: Spring Semester, 2013

Dates have not been selected at the time of submission of self-study.

DEPARTMENT OF RADIOLOGIC SCIENCES 2012 review

A. Brief Introductory Statement

The Weber State University Radiologic Sciences Program evolved from two hospital-based radiography programs that were conducted by St. Benedict's Hospital and Dee Memorial Hospital. From 1967 to 1970, the hospital-based programs arranged to have students complete general education courses at Weber State College, while the professional courses were still being taught at the hospitals. In 1969, the Utah Board of Regents assigned the primary role for radiologic sciences to Weber State College. Beginning autumn quarter in 1970, the hospitals gave up sponsorship of the programs and Weber State College assumed responsibility of the radiography programs with all classes taught on campus. The first class of Weber State College graduates completed the program in the spring of 1973.

The Nuclear Medicine and Radiation Therapy programs were approved by the Utah Board of Regents in 1976 and the Diagnostic Medical Sonography Program was approved in 1980. As innovative technological imaging modalities were developed during the 1980s, additional programs in Computed Tomography, Magnetic Resonance Imaging, Cardiovascular-Interventional Technology and Advanced Radiography were added to the program cluster. An emphasis in Mammography was added in the early 1990s. More recently the Radiologist Assistant program was developed. Mammography was changed to Women's Imaging and in 2009 the Masters of Sciences in Radiologic Sciences was approved.

During the early 1980s, the Utah Board of Regents approved the baccalaureate degree level in allied health sciences, which allowed the advanced radiography and the medical imaging specialty areas and radiation therapy to become an educational career ladder for technologists. Adding these advanced imaging areas to the program has proven to be beneficial to the medical community by producing highly-skilled health care workers throughout the state and allows graduates to pursue upward career mobility.

Due to campus-wide budget reductions in the mid-80s, the faculty were confronted with the possibility of discontinuing the advanced speciality modalities. Rather than discontinuing the programs and leaving the medical community without a manpower source, the faculty, with the permission of the dean and WSU administration, elected to move the programs to the Division of Continuing Education. The programs have been self-sustaining programs since that time.

Outreach Program:

The Weber State College Radiologic Sciences faculty was approached in 1978 to conduct a radiography program in Panguitch, UT in an effort to meet the manpower needs of the rural facility. Students were accepted into the Outreach program beginning autumn semester of 1979. Soon after, other rural hospitals in the state requested students for their facilities. In 1982, Dixie Medical Center in St. George and Valley View Hospital in Cedar City were added as clinical sites. The radiography program is designed to move into an area, educate and train students and when the need is met, the program can be moved to another site. The three main sites for the program are Price, St. George and Cedar City which provide qualified workers for the southern Utah areas and the Uintah Basin area. Locations where the radiography program has been conducted in rural areas are as follows:

Kanab

Panguitch

Tooele

Fillmore	Delta	Tremonton
Nephi	Moab	Richfield
Vernal	Roosevelt	Beaver
Monticello	Blanding	Payson

In addition to the radiography program, Nuclear Medicine, Diagnostic Medical Sonography and Radiation Therapy programs have also been conducted at various rural sites as need dictates.

In an agreement between the faculty and the WSU administration in 1994, students at the St. George, Cedar City and Price, UT sites were included into the campus program as budget-related. The faculty agreed to maintain a minimum of three sites in the outreach program and the classes are considered as part of the faculty teaching load.

In 1992, the Utah State Board of Regents approved a proposal to incorporate clinical sites in surrounding states when Western Wyoming Community College in Rock Springs, WY requested that Weber State University assume responsibility for their radiography program. Permission granted by the Board of Regents allowed several clinical sites to be added. The program operates in the same manner as the Outreach program, meaning when the need is met, the program can be moved to a different site. The current sites are as follows:

Evanston, WY	Cortez, CO	Riverton, WY
Rawlins, WY	Durango, CO	Twin Falls, ID
Jackson Hole, WY	Farmington, NM	
Douglas, WY	Montpelier, ID	

In 1998, Weber State University assumed the management of a hospital-based program in cooperation with Intermountain Health Care-Utah Valley Regional Medical Center. This program is considered on-campus and budget-related. This is a shared financial agreement between WSU and Intermountain Health Care. The current sites are as follows:

Provo, Utah	Orem, Utah	American Fork, Utah
Heber City, Utah		

The Department of Radiologic Sciences conducts programs in:

Radiography	Diagnostic Medical Sonography	Radiation Therapy
Nuclear Medicine	Magnetic Resonance Imaging	Computed
		Tomography
Mammography	Advanced Radiography	
Radiology Assistant	Cardiovascular-Interventional Technology	

B. Mission Statement

The **mission statement** for the Radiologic Sciences Program incorporates the philosophy of the program and is as follows.

The mission of the Weber State University Radiologic Sciences Program is to adhere to the mission and goals of the University and the Dumke College of Health Professions in serving the needs of the medical community and in assisting the students in the development of their potential as technologists and as human beings.

Goals stemming from the mission statement are:

The primary educational goal of the Radiologic Sciences Program is to use resources to equip students with the knowledge and skills needed to live effectively and to provide the knowledge, skills and judgment needed to render quality health care services. A second goal is to broaden the students' knowledge within the professional discipline and to maintain professional competency through a desire to participate in life-long learning.

Objectives to assist in attaining the mission and goals are to:

1. Maintain curricula based on current practices and a competency-based clinical evaluation system.
2. Integrate the didactic and clinical educational components to promote effective learning.
3. Promote a sense of professionalism and a desire to learn through role-modeling, mentoring and teaching practices.
4. Instill an appreciation of racial, cultural and human diversity.
5. Advocate the value of human dignity and ethical conduct.

Mission Statement Consistency:

The Radiologic Sciences Program mission statement, goals and objectives are integral to the mission statement of Weber State University (WSU) and the Dumke College of Health Professions. For example, WSU is committed to offering both vocational and professional educational programs to prepare students for immediate employment or further study. The Radiologic Sciences Program cluster is based upon a career ladder concept which provides lateral and/or vertical career mobility; the curriculum is designed to introduce new concepts and technological advances in medical imaging and radiation therapy; transmission of values and learning in the affective domain are incorporated into the curriculum throughout the program to promote the maintenance of human dignity; critical or analytical thinking and writing are stimulated through classroom interactions, assignments, research and projects; problem-solving skills are refined in the clinical education setting, in the laboratories, as well as the classroom; students are encouraged to attend professional society meetings, lectures and cultural activities to expand their knowledge; and students are given projects which are designed to stimulate life-long education and self-development.

C. Curriculum

The curricula of the programs contain the content required by the national certification agencies. Students must complete all of the required courses in order to be eligible to sit for the certifying examinations. Courses within a program must be offered each year to enable the class of students currently enrolled to qualify for the national examinations. The following tables provides information about each program.

Features unique to the Radiologic Sciences Program cluster are the curriculum design which incorporates a selection of core courses within the upper division advanced radiography curriculum that students entering the advanced imaging programs must complete. This core curriculum efficiently utilizes instructor time and effectively implements the career ladder concept allowing students to become multi-skilled health care workers. Other unique features are the ability to offer the programs throughout the rural areas of the state as need dictates by utilizing an educational delivery system which allows students to remain in their own rural community while gaining an education; the integration of both the didactic and clinical components of the educational experience that reinforces learning; and utilization of faculty qualifications and expertise of being certified in more than one imaging modality.

The Department of Radiologic Sciences has six (6) courses that have been considered part of general education. Five (5) courses have be approved for Scientific Inquiry, Radiologic Technology 3443 Quality Assurance in Radiology, Radiologic Technology 4943 Baccalaureate Thesis, Radiation Therapy 4446 Quality Assurance, Diagnostic Medical Sonography 4143 Quality Assurance, and Nuclear Medicine 4333 Quality Assurance. One Course Radiologic Technology 3003 Psycho-Social Medicine has been approved for Diversity Credit. With the current review of general education at Weber State University the SI and DV will be phased out according to student starting dates at the University.

Overview

The curricula of the programs contain the content required by the national certification agencies and meets or exceeds the national educational standards established by various professional organizations . Students must complete all of the required courses in order to be eligible to sit for the certifying examinations. Courses within a program must be offered each year to enable the class of students currently enrolled to qualify for the national examinations. The following table provides information about each program.

Table 1

Program	Type of Degree	General Education Courses/Maj or	Course Rotation by Year	WSU Online, Davis Campus, etc.	Unique Aspects of Curriculum
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Radiography	AAS	18-19 cr hrs of gen ed. vs. 50 cr hrs in major & 25 cr hrs of elective courses 68-69 cr hrs required	All courses must be taught annually so students will qualify for the certification exam	Use of Chi Tester and e-mail for student communication; taught at Price, Cedar City, St. George, Richfield, Uintah Basin and 4-Corners area, Provo IHC Campus	Accommodates students who wish a degree or those who only wish to become certified; allows students to remain in their rural community; also offered on the Navajo reservation.
Diagnostic Medical Sonography	BS	42 cr hrs of gen ed. vs. 22 cr hrs in Medical-Vascular emphasis & 19 in Cardiac emphasis with 15 cr hrs of support courses & 7-9 in elective courses	All courses must be taught annually so students will qualify for the certification exam	Use of Chi Tester and e-mail for student communication; has been taught at St. George, Cedar City, Gunnison, Provo	Accommodates students who wish to pursue a degree or those who only wish to become certified; allows students to remain in their rural community; offered on the Navajo reservation.
Nuclear Medicine	BS	42 cr hrs of gen ed. vs. 29 cr hrs in major & 12 cr hrs in support courses	All courses must be taught annually	Use of Chi Tester and e-mail for student communication; has been taught at Price, St. George, Vernal, Roosevelt, Provo & Cedar City	Accommodates students who wish to pursue a degree or those who only wish to become certified; allows students to remain in their rural community.

Radiation Therapy	BS	42 cr hrs of gen ed. vs. 36 cr hrs in major & 12 cr hrs in support courses & 12 cr hrs of elective courses	All courses must be taught annually	Use of WSU Online, Chi Tester and e-mail for student communication; taught at Provo, St. George and Salt Lake City	Accommodates students who wish to pursue a degree or those who only wish to be come certified
Magnetic Resonance Imaging (MRI)	BS	42 cr hrs of gen ed. vs. 14 cr hrs in major & 35 in support courses	All courses must be taught annually	Use of Chi tester & e-mail for communication with students; taught at Vernal, Roosevelt, Cedar City, St. George, Provo and Salt Lake City	Accommodates students who wish to pursue a degree or those who only wish to become certified
Computed Tomography (CT)	BS	42 cr hrs of gen ed. vs. 11 cr hrs in major & 35 in support courses	All courses must be taught annually	Use of Chi Tester & e-mail for communication with students; taught at Price, Moab, Roosevelt, Vernal, Kanab, Provo and Salt Lake City	Accommodates students who wish to pursue a degree or those who only wish to become certified

Curriculum Map

Table shows six competencies across the top/ each program down the left side and appropriate courses under each competency:

Table 2

<i>SIX departmental competencies used for direct measurements of learning in ALL programs in the Department</i>	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
Associate of Applied Science						
Radiography	RADT 2992 Seminar	RADT 2833	RADT 3043	RADT 2861-2865	RADT 1502-1532	RADT 1303
	RADT 2403	RADT 2942	RADT 2913	RADT 2865	RADT 1601-1661	RADT 2403
	RADT 3003	RADT 2803		RADT 2913	RADT 2272	RADT 3443
	RADT 2913	RADT 2913		RADT 3043	RADT 2913	RADT 3463
						RADT 2913
						RADT 3463
Bachelor's of Science						
Advance Radiography	RADT 3003	RADT 4213	RADT 3403	RADT 3043	RADT 3123	RADT 3443
	RADT 3263	RADT 4233	RADT 3423	RADT 3863	RADT 3143	RADT 3463
	RADT 4203				RADT 3523	RADT 3563
					RADT 4303	RADT 4433
						RADT 4443
Cardiovascular Interventional	RADT4203	RADT 4933			RADT 3123	Note--these were obtain in the

						radiography program
	RADT DV3003	RADT 4943		RADT 3863	RADT3143	RADT 3563
	RADT 3263			RADT 4863	RADT 4313	
	RADT 3253			RADT 3043	RADT 4343	
					RADT 4303	
					RADT 4333	
					RADT 4913	
Computed Tomography	RADT DV3003	RADT 4933	RADT 3403	RADT 3043	RADT 3123	RADT 3563
	RADT 3253	RADT 4943		RADT 3863	RADT 3143	RADT 4663
	RADT 4203			RADT 4863	RADT 4613	
					RADT 4303	
					RADT 4911	
DMS Medical	RADT 3003	RADT 4933	RADT 3043	DMS 4610	RADT 3123	DMS 4110
	RADT 3243	RADT 4943	DMS 4110	DMS 4811	RADT 3143	DMS 4120
	RADT 3253	DMS 4801	DMS 4120	DMS 4812	DMS 4210	DMS 4912
				DMS 4813	DMS 4220	
					DMS 4310	
					DMS 4330	
					DMS 4340	

DMS Cardiac	RADT 3003	RADT 4933	RADT 3043	DMS 4620	RADT 3123	DMS 4110
	RADT 3243	RADT 4943	DMS 4110	DMS 4821	RADT 3143	DMS 4120
	RADT 3253	DMS 4801	DMS 4120	DMS 4822	DMS 4310	DMS 4911
				DMS 4823	DMS 4230	
				DMS 4813	DMS 4220	
					DMS 4210	
DMS Vascular	DMS 4630, 4410, 4420		DMS 4630, 4110	DMS 4831, 4832	DMS 4410, 4420	DMS 4110
	RADT 3003	RADT 4933	RADT 3043	DMS 4630	RADT 3123	DMS 4120
	RADT 3243	RADT 4943	DMS 4110	DMS 4831	RADT 3143	DMS 4913
	RADT 3253	DMS 4801	DMS 4120	DMS 4832	DMS 4410	
				DMS 4833	DMS 4420	
MRI	RADT DV 3003	RADT 4933	RADT 4623	RADT 3043	RADT 3123	RADT 3563
	RADT 3253	RADT 4943		RADT 3863	RADT 3143	RADT 4603
	RADT 4203			RADT 4863	RADT 4643	
					RADT 4633	
					RADT 4303	
					RADT 4912	
Nuclear Medicine	RADT 3243	RADT 4933	RADT 3043	NUCM4861	RADT 3143	RADT 3563
	RADT 3263	RADT 4943	RADT 3423	NUCM 4862	NUCM 4103	NUCM 4303
				NUCM 4863	RADT 4303	MUCM 4333
					NUCM 4203	
					NUCM 4213	

					NUCM 4223	
					NUCM 4912	
RA	RADT 3243	RADT 4992	RADT 3403	RADT 3043	RADT 3123	RADT SI 3443
	RADT 3253	RADT 4933	RADT 4253	RADT 586 1	RADT 3143	RADT 3563
	RADT 3263	RADT SI 4943		RADT 586 2	RADT 3144	
	RADT 4203			RADT 586 3	RADT 3145	
	RADT DV 3003			RADT 586 4	RADT 3146	
				RADT 586 5	RADT 3147	
				RADT 586 8	RADT 3148	
					RADT 3149	
					RADT 3150	
					RADT 3151	
					RADT 3152	
				RADT 3153		
Radiation Therapy	RADT 4992	RADT 4933	RATH 4330	RADT 3563	RATH 4410	RATH SI4446
		RATH 4448	RADT 3403	RATH 4861	RATH 4412	RATH 4342
		RADT 4943		RATH 4862	RATH 4414	RATH 4444
				RATH 4863	RATH 4913	
<u>Women's Imaging</u>						
■ Mammo	RADT 4563		RADT 4563	RADT 3861	RADT 4553, 4563	RADT 4583,4563
--Bone Density	RADT 4543		RADT 4543		RADT 4543	RADT 4543
--Breast Sonography	DMS 4510		DMS 4110		DMS 4510	DMS 4110

This grid will be utilized for all direct measures of learning. All courses are step lock curriculum and will be pre and post tested utilizing CHI tester.

Course titles, descriptions, and sequencing are contained on the following pages.

Radiography

FALL SEMESTER - First Year

RADT 1022 Introduction to Radiologic Technology.....	2
RADT 1303 Principles of Radiographic Exposure I.....	3
RADT 1502 Radiographic Anatomy & Positioning I.....	2
RADT 1601 Laboratory Experience.....	2
RADT 2833 Directed Readings & Research.....	3
RADT 2861 Clinical Education.....	3
RADT 2992 Seminar.....	1
Total Semester Credit Hours.....	<u>16</u>

SPRING SEMESTER - First Year

RADT 1512 Radiographic Anatomy and Positioning II.....	3
RADT 1621 Laboratory Experience.....	2
RADT 2043 Patient Care and Assessment I.....	2
RADT 2272 Basic Sectional Anatomy.....	2
RADT 2403 Principles of Radiographic Exposure II.....	2
RADT 2833 Directed Readings & Research.....	3
RADT 2862 Clinical Education.....	3
Total Semester Credit Hours.....	<u>17</u>

SUMMER SEMESTER - First Year

RADT 1522 Radiographic Anatomy and Positioning III.....	2
RADT 1641 Laboratory Experience.....	1
RADT 2803 Independent Research.....	1
RADT 2833 Directed Readings & Research.....	3
RADT 2863 Clinical Education.....	3
RADT DV3003 Psycho-Social Medicine.....	3
RADT 3043 Medical Ethics and Law.....	3
Total Semester Credit Hours.....	<u>16</u>

FALL SEMESTER - Second Year

RADT 1532 Radiographic Anatomy and Positioning IV.....	3
RADT 1661 Laboratory Experience.....	1
RADT 2833 Directed Readings & Research.....	3
RADT 2864 Clinical Education.....	3
RADT 2942 Career Planning & New Technology.....	2
RADT 3403 Radiobiology & Health Physics.....	3
RADT 3463 Computerized Imaging.....	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER - Second Year

RADT 2865 Clinical Education.....	2
RADT 2866 Final Competency Evaluation.....	2
RADT 2913 Comprehensive Review.....	2
RADT 2833 Directed Readings & Research.....	3
RADT SI3443 Quality Assurance in Radiology..	3
Total Semester Credit Hours.....	<u>12</u>

COURSE DESCRIPTIONS - RADIOGRAPHY PROGRAM

RADT 1022 INTRODUCTION TO RADIOLOGIC TECHNOLOGY

2 Credit Hours

Program orientation, elementary radiation protection and basic darkroom procedures.

RADT 1303 PRINCIPLES OF RADIOGRAPHIC EXPOSURE I

3 Credit Hours

Theory of x-ray production; imaging production and radiographic equipment.

RADT 1502 RADIOGRAPHIC ANATOMY AND POSITIONING I

2 Credit Hours

Terminology, pathology and radiographic positioning.

RADT 1512 RADIOGRAPHIC ANATOMY AND POSITIONING II

3 Credit Hours

Continuation of RADT 1502. Prerequisite: RADT 1502.

RADT 1522 RADIOGRAPHIC ANATOMY AND POSITIONING III

2 Credit Hours

Continuation of RADT 1512.

RADT 1532 RADIOGRAPHIC ANATOMY AND POSITIONING IV

3 Credit Hours

Continuation of RADT 1522. Prerequisite: RADT 1522.

RADT 1601 LABORATORY EXPERIENCE

2 Credit Hours

Patient positioning, darkroom experience and review of radiographic quality.

RADT 1621 LABORATORY EXPERIENCE

2 Credit Hours

Continuation of RADT 1601. Prerequisite: RADT 1601.

RADT 1641 LABORATORY EXPERIENCE

1 Credit Hour

Continuation of RADT 1621.

RADT 1661 LABORATORY EXPERIENCE

1 Credit Hour

Continuation of RADT 1641.

RADT 2043 PATIENT CARE AND ASSESSMENT I

2 Credit Hours

Patient care and management in radiology.

RADT 2272 BASIC SECTIONAL ANATOMY

2 Credit Hours

The anatomical appearance of each organ system and common pathology on sectional medical images.

RADT 2403 PRINCIPLES OF RADIOGRAPHIC EXPOSURE II

2 Credit Hours

Radiographic imaging, instrumentation, image production and factors affecting radiologic quality.

RADT 2803 INDEPENDENT RESEARCH

1-3 Credit Hours

Individualized projects.

RADT 2833 DIRECTED READINGS AND RESEARCH

1-3 Credit Hours

Selected readings and/or a research project on medical imaging procedures.

RADT 2861 CLINICAL EDUCATION

3 Credit Hours

Experience gained in a health care facility. Prerequisite: Acceptance into the program.

RADT 2862 CLINICAL EDUCATION

3 Credit Hours

Continuation of RADT 2861.

RADT 2863 CLINICAL EDUCATION

3 Credit Hours

Continuation of RADT 2862.

RADT 2864 CLINICAL EDUCATION

3 Credit Hours

Continuation of RADT 2863.

RADT 2865 CLINICAL EDUCATION

2 Credit Hours

Continuation of RADT 2864.

RADT 2866 FINAL COMPETENCY EVALUATION

2 Credit Hours

Demonstration of competency performing the procedures required by the certification agency.

RADT 2913 COMPREHENSIVE REVIEW

2 Credit Hours

Review of didactic and clinical applications.

RADT 2921 WORKSHOP, CONFERENCES AND TELECOURSES
1-3 Credit Hours

RADT 2942 CAREER PLANNING AND NEW TECHNOLOGY
2 Credit Hours
Assistance with career planning and an introduction to specialized imaging procedures and new and future imaging procedures.

RADT 2992 SEMINAR
1-2 Credit Hours
Patient case studies and critical care situations.

RADT DV3003 PSYCHO-SOCIAL MEDICINE
3 Credit Hours
Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW
3 Credit Hours
Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS
3 Credit Hours
Effects of ionizing radiation on the human body, patient and personnel protection, exposure monitoring health physics and oncology.

RADT SI3443 QUALITY ASSURANCE IN RADIOLOGY
3 Credit Hours
Development of a quality assurance program and manual to meet accreditation requirements.

RADT 3463 COMPUTERIZED IMAGING
3 Credit Hours
Digital radiography, image acquisition, image processing and digital image management.

SPECIALITIES

Advanced Rad Sci

RADT	COURSE NAME – REQUIRED COURSES	CR. HR.	FALL	SPRING	SUMMER
DV 3003	Psycho-Social Medicine	3	☒	☒	☒
3043	Medical Ethics and Law	3	☒	☒	☒
3423	Federal Regulations	3		☒	☒
4203	Patient Education in Radiology	3	☒		☒
4933	Research Methods	3	☒	☒	☒
SI 4943	Baccalaureate Thesis	3	☒	☒	☒
RADT	COURSE NAME – ELECTIVE COURSES	CR. HR.	FALL	SPRING	SUMMER
3123	Sectional Anatomy	3	☒		
3143	Imaging Pathophysiology	3	☒		
3243	Patient Care & Assessment II	3	☒	☒	
3253	Patient Care & Assessment III	3		☒	
3263	Diagnostic Services Pharmacology	3	☒	☒	
3403	Radiobiology & Health Physics	3	☒	☒	
SI 3443	Quality Assurance in Radiology	3		☒	☒RPA
3463	Computerized Imaging	3	☒		
3563	Managing Clinical Information	3	☒		
3863	Clinical Internship*	2-6	☒	☒	
4213	Supervision & Staff Development	3	☒		☒
4223	Promotional Strategies	3			☒
4233	Fiscal Analysis in Radiology	3		☒	
4243	Quality Management	3		☒	
4253	Risk Management	3	☒		
4303	Cardiology	3			☒
4403	Imaging Pathology	3	☒		
4413	Forensic Radiology	3	☒	☒	
4433	PACS Administration	3	☒	☒	
4443	Imaging Informatics	3		☒	
4543	Bone Densitometry	3			☒
4573	The Female Patient & Medical Imaging	3		☒	☒
4803	Individual Research*	1-3	☒	☒	☒
4833	Directed Readings & Research	3	☒	☒	☒
4863	Clinical Internship*	2-4	☒		☒
4922	Workshops, Conferences & Telecourses	2	☒	☒	☒
4942	Current Trends & Issues	2			☒
4992	Seminar** **	1-2	☒	☒	☒

☒ Indicates Semester Taught

*Credit hours established with faculty advisor. **Requires consultation with faculty advisor.

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE

3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethnic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patients and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW

3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY

3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY

3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3243 PATIENT CARE AND ASSESSMENT II

3 Credit Hours

System analysis and advanced level of patient care, assessment and management in radiology.

RADT 3253 PATIENT CARE AND ASSESSMENT III

3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 3263 DIAGNOSTIC SERVICES

PHARMACOLOGY

3 Credit Hours

Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS

3 Credit Hours

Effects of ionizing radiation on the human body, patient and personnel protection, exposure monitoring health physics and oncology.

RADT 3423 FEDERAL REGULATIONS

3 Credit Hours

Regulations governing health care, equipment and application of ionizing radiation.

RADT SI3443 QUALITY ASSURANCE IN RADIOLOGY

3 Credit Hours

Development of a quality assurance program and manual to meet accreditation requirements.

RADT 3463 COMPUTERIZED IMAGING

3 Credit Hours

Digital radiography, image acquisition, image processing and digital image management.

RADT 3563 MANAGING CLINICAL INFORMATION

3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 3863 CLINICAL INTERNSHIP

2-6 Credit Hours

Experience in a radiology specialty area.
Consent of instructor is required.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY

3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4213 SUPERVISION AND STAFF DEVELOPMENT

3 Credit Hours

Federal regulations, developing department protocol, designing departments personnel supervision and quality of care assessment.

RADT 4223 PROMOTIONAL STRATEGIES

3 Credit Hours

Assessment of needs, development and implementation of promotional strategies for Radiology Departments.

RADT 4233 FISCAL ANALYSIS IN RADIOLOGY

3 Credit Hours

Justification, acquisition and leasing of imaging equipment and accessories, staffing formulas and review of maintenance contracts.

RADT 4243 QUALITY MANAGEMENT IN RADIOLOGY

3 Credit Hours

Concepts and principles of quality management, collection and analysis of data.

RADT 4253 RISK MANAGEMENT

3 Credit Hours

Study of management of risk associated with the delivery of health care in clinical and non-clinical settings.

RADT 4303 CARDIOLOGY

3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4403 IMAGING PATHOLOGY

3 Credit Hours

Radiographic presentation of pathological conditions, abnormalities and anomalies.

RADT 4413 FORENSIC RADIOLOGY

3 Credit Hours

This course provides a comprehensive study of medical imaging's role in forensic medicine. Forensic Radiology is used to determine identity of remains, evaluate injury or cause of death and assist in the detection of abuse. Junior or Senior standing required.

RADT 4433 PACS ADMINISTRATION

3 Credit Hours

Digital imaging and communication standards, PACS administration, image quality, and emerging technology standards.

RADT 4443 IMAGING INFORMATICS

3 Credit Hours

Analyzing system needed, project management, quality improvement, bioinformatics, clinical informatics, and medical informatics.

RADT 4543 BONE DENSITOMETRY

3 Credit Hours

This course comprehensively covers the methods of bone density measurement (bone densitometry, DEXA), the pathogenesis of osteoporosis, quality management issues, therapies for osteoporosis and a review of additional analysis methods.

RADT 4573 THE FEMALE PATIENT & MEDICAL IMAGING

3 Credit Hours

This course will familiarize the student to disease processes specific to the female patient and the imaging methods that may be used in diagnosis and treatment. The clinical pathways that are commonly used, involving all radiologic imaging modalities, will be explored. Students who enroll in this course must be certified by the American Registry of Radiologic Technologists.

RADT 4803 INDIVIDUAL RESEARCH

1-3 Credit Hours

Research projects developed for district, state, regional or national presentation.

RADT 4833 DIRECTED READINGS AND RESEARCH

3 Credit Hours

Synthesis and analysis of journal articles resulting in a research paper for the purpose of publication.

RADT 4863 CLINICAL INTERNSHIP

2-4 Credit Hours

Experience in a radiology specialty area. Consent of instructor is needed.

RADT 4922. WORKSHOP, CONFERENCES AND TELECOURSES

2 Credit Hours

In consultation with Radiologic Sciences faculty advisor.

RADT 4933 RESEARCH METHODS

3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT 4942 CURRENT ISSUES AND TRENDS

2 Credit Hours

Current issues and trends in the health care industry and environment affecting radiology.

RADT SI4943 BACCALAUREATE THESIS

3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

RADT 4992 SEMINAR

1-2 Credit Hours

New developments and procedures in imaging and therapy and preparing for the future.

Cardiovascular-Interventional Technology

FALL SEMESTER

RADT 3043 Medical Ethics and Law	3
RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3

RADT 3563 Managing Clinical Information	3
RADT 3863 Clinical Internship.....	3
RADT 4313 Visceral, Pelvic and Extremity Angiography	3

Total Semester Credit Hours.....18

SPRING SEMESTER

RADT DV3003 Psycho-Social Medicine3
RADT 3253 Patient Care and Assessment III3
RADT 3263 Diagnostic Services Pharmacology 3
RADT 3863 Clinical Internship3
RADT 4343 Thoracic and Venous Procedures...3
RADT 4933 Research Methods3
Total Semester Credit Hours.....18

SUMMER SEMESTER

RADT 4203 Patient Education in Radiology3
RADT 4303 Cardiology.....3
RADT 4333 Head and Neck Angiography3
RADT 4863 Clinical Internship3

RADT 4913 Comprehensive Review/CIT..... 2
RADT SI4943 Baccalaureate Thesis 3
Total Semester Credit Hours 17

*Weber State University Radiography Program graduates who completed pre-requisite courses with a passing grade do not repeat the courses in the specialty program.

Students completing the program will earn a major in Cardiovascular-Interventional Technology Emphasis.

Department Bachelor of Science Degree Requirements:

Major required = 30 Credit Hours
Minor required = 18 Credit Hours
Total Required = 48 Credit Hours

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE 3 Credit Hours

Designed to prepare students to better understand their patient and the patient’s family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient sand professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW 3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY

3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY 3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3253 PATIENT CARE AND ASSESSMENT III 3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 3263 DIAGNOSTIC SERVICES PHARMACOLOGY 3 Credit Hours

Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3563 MANAGING CLINICAL INFORMATION 3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 3863 CLINICAL INTERNSHIP 2-6 Credit Hours

Experience in a radiology specialty area. Consent of instructor is required.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY 3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4303 CARDIOLOGY 3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4313 VISCERAL, PELVIC AND EXTREMITY ANGIOGRAPHY 3 Credit Hours

Anatomy, pathology, protocols and interventional procedures of abdominal viscera, extremities and pelvis.

RADT 4333 HEAD AND NECK ANGIOGRAPHY

3 Credit Hours

Anatomy, pathology, protocols and interventional procedures of the aortic arch, brachiocephalic, thyroid and other facial and neck arteries.

RADT 4343 THORACIC AND VENOUS PROCEDURES 3 Credit Hours

Anatomy, pathology, protocols and interventional procedures of the venous and cardiac systems.

RADT 4863 CLINICAL INTERNSHIP 2-4 Credit Hours

Experience in a radiology specialty area. Consent of instructor is needed.

RADT 4913 COMPREHENSIVE REVIEW/CIT 2 Credit Hours

Preparation for advanced certification examination.

RADT 4933 RESEARCH METHODS 3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS 3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

Computed Tomography

FALL SEMESTER

RADT 3043 Medical Ethics and Law	3
RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3
RADT 3563 Managing Clinical Information	3
RADT 3863 Clinical Internship	3
RADT 4663 CT Physics and Instrumentation.....	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER

RADT DV3003 Psycho-Social Medicine	3
RADT 3253 Patient Care and Assessment III	3
RADT 3403 Radiobiology and Health Physics 3	
RADT 3863 Clinical Internship	3
RADT 4613 CT Imaging of the Torso and Limbs	3
RADT 4933 Research Methods	3
<u>ELECTIVE</u>	
RADT 4803 Individual Research	1
Total Semester Credit Hours.	<u>16-18</u>

SUMMER SEMESTER

RADT 4203 Patient Education in Radiology	3
RADT 4303 Cardiology	3
RADT 4653 CT Imaging of the Central Nervous System	3
RADT 4863 Clinical Internship.....	3
RADT 4911 Comprehensive Review/CT	2
RADT SI4943 Baccalaureate Thesis	3
Total Semester Credit Hours	<u>17</u>

*Weber State University Radiography Program graduates who completed pre-requisite courses with a passing grade do not repeat the courses in the specialty program.

Students completing the program will earn a major in Computed Tomography Emphasis.

Department Bachelor of Science Degree Requirements:

- Major required = 30 Credit Hours
- Minor required = 18 Credit Hours
- Total Required = 48 Credit Hours

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE

3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient sand professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW

3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY

3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY

3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3253 PATIENT CARE AND ASSESSMENT III

3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS

3 Credit Hours

Effects of ionizing radiation on the human body, patient and personnel protection, exposure monitoring health physics and oncology.

RADT 3563 MANAGING CLINICAL INFORMATION

3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 3863 CLINICAL INTERNSHIP

2-6 Credit Hours

Experience in a radiology specialty area. Consent of instructor is required.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY

3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4303 CARDIOLOGY

3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4613 COMPUTED TOMOGRAPHY OF THE TORSO AND LIMBS

3 Credit Hours

Sectional anatomy, pathology and imaging protocols of the abdominal viscera, pelvis, thorax and extremities.

RADT 4653 COMPUTED TOMOGRAPHY OF THE CENTRAL NERVOUS SYSTEM

3 Credit Hours

Sectional anatomy, pathology and imaging protocols of the head, spine and central nervous system.

RADT 4663 COMPUTED TOMOGRAPHY PHYSICS AND INSTRUMENTATIONS

3 Credit Hours

Interactions of electromagnetic waves, instrumentation, imaging sequences and computer parameters of computerized tomography imaging.

RADT 4803 INDIVIDUAL RESEARCH

1-3 Credit Hours

Research projects developed for district, state, regional or national presentation.

RADT 4863 CLINICAL INTERNSHIP

2-4 Credit Hours

Experience in a radiology specialty area. Consent of instructor is needed.

RADT 4911 COMPREHENSIVE REVIEW/CT

2 Credit Hours

Preparation for advanced certification examination.

RADT 4933 RESEARCH METHODS

3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS

3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

DMS/Cardiac

FALL SEMESTER - First Year

RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3
RADT 3243 Patient Care and Assessment II.....	3
DMS 4210 Cardiac Sonography I.....	3
DMS 4610 Cardiac Laboratory.....	1
Total Semester Credit Hours	<u>13</u>

SPRING SEMESTER - First Year

RADT 3043 Medical Ethics and Law.....	3
RADT 3253 Patient Care and Assessment III	3
DMS 4110 Sonography Principles and Instrumentation.....	3
DMS 4220 Cardiac Sonography II.....	3
DMS 4811 Cardiac Clinical I.....	3
Total Semester Credit Hours.....	<u>15</u>

ELECTIVES

RADT 3263 Diagnostic Services Pharmacology	3
RADT 3423 Federal Regulations.....	3
RADT 4833 Directed Readings and Research.....	3

Department Bachelor of Science Degree Requirements:

- Major required = 30 Credit Hours
- Minor required = 18 Credit Hours
- Total Required = 48 Credit Hours

SUMMER SEMESTER - First Year

RADT 4933 Research Methods.....	3
DMS SI4120 Quality Assurance.....	3
DMS 4230 Cardiac Sonography III	3
DMS 4801 Individualized Research.....	3
DMS 4812 Cardiac Clinical II.....	3
Total Semester Credit Hours	<u>15</u>

ELECTIVES

RADT 4573 The Female Patient and Medical Imaging.....	3
RADT 4833 Directed Readings and Research ...	3

FALL SEMESTER - Second Year

RADT DV3003 Psycho-Social Medicine	3
RADT SI4943 Baccalaureate Thesis	3
DMS 4813 Cardiac Clinical III	3
DMS 4911 Cardiac Comprehensive Review	1
Total Semester Credit Hours.....	<u>10</u>

ELECTIVES

RADT 3563 Managing Clinical Information	3
RADT 4203 Patient Education in Radiology	3
RADT 4803 Individual Research	1-3
DMS 4410 Vascular Sonography	2
DMS 4801 Individualized Research	1-3

Students completing the four-semester program will earn a major in Cardiac Sonography Emphasis and a minor in Advanced Radiologic Sciences.

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE
3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse

populations based on their value systems, cultural and ethnic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW 3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY 3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY 3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3243 PATIENT CARE AND ASSESSMENT II 3 Credit Hours

System analysis and advanced level of patient care, assessment and management in radiology.

RADT 3253 PATIENT CARE AND ASSESSMENT III 3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 4933 RESEARCH METHODS 3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS 3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

DMS 4110 SONOGRAPHY PRINCIPLES AND INSTRUMENTATION 3 Credit Hours

Elementary principles, propagation through tissues, transducers, pulse echo principles and instruments, images, storage and display, Doppler, image features and artifacts, bioeffects and safety.

DMS SI4120 QUALITY ASSURANCE 3 Credit Hours

Developing, analyzing and evaluating a quality assurance program.

DMS 4210 CARDIAC SONOGRAPHY I 3 Credit Hours

Concepts in cardiac sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4220 CARDIAC SONOGRAPHY II 3 Credit Hours

Continuation of DMS 4210.

DMS 4230 CARDIAC SONOGRAPHY III 3 Credit Hours

Continuation of DMS 4220.

DMS 4610 CARDIAC LABORATORY 1 Credit Hours

Patient position and instrumentation, transducer selection and anatomic placement, scanning protocol, and image quality are practiced for cardiac sonographic examinations.

DMS 4811 CARDIAC CLINICAL I 3 Credit Hours

A minimum of 24 hours per week in an active diagnostic cardiac sonography department.

DMS 4812 CARDIAC CLINICAL II 3 Credit Hours

Continuation of DMS 4811.

DMS 4813 CARDIAC CLINICAL III 3 Credit Hours

Continuation of DMS 4812.

DMS 4911 CARDIAC COMPREHENSIVE REVIEW 1 Credit Hour

Review and requirements for advanced responsibilities of the cardiac sonographer.

ELECTIVE COURSE OFFERINGS

Meet with your faculty advisor and develop an academic contract. Complete a minimum of 7 credit hours for a major and minor from approved department course offerings.

RADT 3263 DIAGNOSTIC SERVICES PHARMACOLOGY 3 Credit Hours

Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3423 FEDERAL REGULATIONS 3 Credit Hours

Regulations governing health care, equipment and application of ionizing radiation.

RADT 3563 MANAGING CLINICAL INFORMATION 3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY 3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4573 THE FEMALE PATIENT AND MEDICAL IMAGING 3 Credit Hours

This course will familiarize the student to disease processes specific to the female patient and the imaging methods that may be used in diagnosis and treatment. The clinical pathways that are commonly used, involving all radiologic imaging modalities, will be explored. Students

who enroll in this course must be certified by the American Registry of Radiologic Technologists.

RADT 4803 INDIVIDUAL RESEARCH 1-3 Credit Hours

Research projects developed for district, state, regional or national presentation.

RADT 4833 DIRECTED READINGS AND RESEARCH 3 Credit Hours

Synthesis and analysis of journal articles resulting in a research paper for the purpose of publication.

DMS 4410 VASCULAR SONOGRAPHY I 2 Credit Hours

Concepts in vascular sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4801 INDIVIDUALIZED RESEARCH 1-3 Credit Hours

Contact with faculty advisor required.

DMS 4921 WORKSHOPS, CONFERENCES, AND TELECOURSES 1-3 Credit Hours

DMS/Medical

FALL SEMESTER - First Year

RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3

RADT 3243 Patient Care and Assessment II	3
DMS 4310 Abdominal Sonography.....	3
DMS 4320 Superficial Structure Sonography ...	1

DMS 4620 Medical Laboratory	1
Total Semester Credit Hours	<u>14</u>

SPRING SEMESTER - First Year

RADT 3043 Medical Ethics and Law	3
RADT 3253 Patient Care and Assessment III	3
DMS 4110 Sonography Principles and Instrumentation	3
DMS 4330 Gynecologic Sonography	1
DMS 4340 Obstetric Sonography	3
DMS 4821 Medical Clinical I	3
Total Semester Credit Hours	<u>16</u>

ELECTIVES

RADT 3263 Diagnostic Services Pharmacology	3
RADT 3423 Federal Regulations	3
RADT 4833 Directed Readings & Research	3

Department BS Degree Requirements:

- Major required = 30 Credit Hours
- Minor required = 18 Credit Hours
- Total Required = 48 Credit Hours

SUMMER SEMESTER - First Year

RADT 4933 Research Methods	3
DMS SI4120 Quality Assurance	3

DMS 4801 Individualized Research	3
DMS 4822 Medical Clinical II	3
Total Semester Credit Hours	<u>12</u>

ELECTIVES

RADT 4573 The Female Patient & Medical Imaging	3
RADT 4833 Directed Readings & Research	3

FALL SEMESTER - Second Year

RADT DV3003 Psycho-Social Medicine	3
RADT SI4943 Baccalaureate Thesis	3
DMS 4823 Medical Clinical III	3
DMS 4912 Medical Comprehensive Review	2
Total Semester Credit Hours	<u>11</u>

ELECTIVES

RADT 3563 Managing Clinical Information	3
RADT 4203 Patient Education in Radiology	3
RADT 4803 Individual Research	1-3
DMS 4410 Vascular Sonography	2
DMS 4801 Individualized Research	1-3

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE

3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW

3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY

3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY

3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3243 PATIENT CARE AND ASSESSMENT II

3 Credit Hours

System analysis and advanced level of patient care, assessment and management in radiology.

RADT 3253 PATIENT CARE AND ASSESSMENT III

3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 4933 RESEARCH METHODS

3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS
3 Credit Hours
Research in the health professions utilizing the scientific inquiry method.

DMS 4110 SONOGRAPHY PRINCIPLES AND INSTRUMENTATION
3 Credit Hours
Elementary principles, propagation through tissues, transducers, pulse echo principles and instruments, images, storage and display, Doppler, image features and artifacts, bioeffects and safety.

DMS SI4120 QUALITY ASSURANCE
3 Credit Hours
Developing, analyzing and evaluating a quality assurance program.

DMS 4310 ABDOMINAL SONOGRAPHY I
3 Credit Hours
Concepts in abdominal intraperitoneal and retroperitoneal sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4220 SUPERFICIAL STRUCTURE SONOGRAPHY
1 Credit Hours
Concepts in superficial structure sonographic scanning technique and protocol to produce and evaluate diagnostic images in the clinical setting.

DMS 4330 GYNECOLOGIC SONOGRAPHY
1 Credit Hours
Concepts in gynecologic sonographic scanning technique and protocol to produce and evaluate diagnostic images in the clinical setting.

DMS 4340 OBSTETRIC SONOGRAPHY I
3 Credit Hours
Concepts in obstetric sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4620 MEDICAL LABORATORY
1 Credit Hours

Patient position and instrumentation, transducer selection and anatomic placement, scanning protocol, and image quality are practiced for medical sonographic examinations.

DMS 4821 MEDICAL CLINICAL I
3 Credit Hours
A minimum of 24 hours per week in an active diagnostic medical sonography department.

DMS 4822 MEDICAL CLINICAL II
3 Credit Hours
Continuation of DMS 4821.

DMS 4823 MEDICAL CLINICAL III
3 Credit Hours
Continuation of DMS 4822.

DMS 4912 MEDICAL COMPREHENSIVE REVIEW
2 Credit Hour
Review and requirements for advanced responsibilities of the medical sonographer.

ELECTIVE COURSE OFFERINGS
Meet with your faculty advisor and develop an academic contract. Complete a minimum of 7 credit hours for a major and minor from approved department course offerings.

RADT 3263 DIAGNOSTIC SERVICES PHARMACOLOGY
3 Credit Hours
Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3423 FEDERAL REGULATIONS
3 Credit Hours
Regulations governing health care, equipment and application of ionizing radiation.

RADT 3563 MANAGING CLINICAL INFORMATION
3 Credit Hours
Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY
3 Credit Hours
Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4573 THE FEMALE PATIENT AND MEDICAL IMAGING

3 Credit Hours

This course will familiarize the student to disease processes specific to the female patient and the imaging methods that may be used in diagnosis and treatment. The clinical pathways that are commonly used, involving all radiologic imaging modalities, will be explored. Students who enroll in this course must be certified by the American Registry of Radiologic Technologists.

RADT 4803 INDIVIDUAL RESEARCH

1-3 Credit Hours

Research projects developed for district, state, regional or national presentation.

RADT 4833 DIRECTED READINGS AND RESEARCH

3 Credit Hours

Synthesis and analysis of journal articles resulting in a research paper for the purpose of publication.

DMS 4410 VASCULAR SONOGRAPHY I

2 Credit Hours

Concepts in vascular sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4510 BREAST SONOGRAPHY

1 Credit Hours

Concepts in breast sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4801 INDIVIDUALIZED RESEARCH

1-3 Credit Hours

Contact with faculty advisor required.

DMS 4921 WORKSHOPS, CONFERENCES, AND TELECOURSES

1-3 Credit Hours

DMS/Vascular

FALL SEMESTER

RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3
RADT 3243 Patient Care and Assessment II.....	3
DMS 4410 Vascular Sonography I	2
DMS 4630 Vascular Laboratory.....	1
DMS 4831 Vascular Clinical I.....	3
Total Semester Credit Hours	<u>15</u>

Electives

RADT DV3003 Psycho-Social Medicine.....	3
RADT 3563 Managing Clinical Information	3
RADT 4203 Patient Education in Radiology.....	3
RADT 4803 Individual Research.....	1-3
DMS 4801 Individualized Research.....	1-3

SPRING SEMESTER

RADT 3043 Medical Ethics and Law	3
RADT 3253 Patient Care and Assessment III	3
DMS 4110 Sonography Principles and Instrumentation.....	3

DMS 4420 Vascular Sonography II	3
DMS 4832 Vascular Clinical II.....	3
Total Semester Credit Hours	<u>15</u>

Electives

RADT 3263 Diagnostic Services Pharmacology	3
RADT 3423 Federal Regulations	3
RADT 4833 Directed Readings and Research ...	3
RADT 4933 Research Methods.....	3
DMS 4801 Individualized Research.....	1-3

SUMMER SEMESTER

DMS SI4120 Quality Assurance.....	3
DMS 4833 Vascular Clinical III	3
DMS 4801 Individualized Research.....	3
DMS 4913 Vascular Comprehensive Review	1
Total Semester Credit Hours	<u>10</u>

Electives

RADT 4573 The Female Patient and Medical Imaging	3
RADT 4833 Directed Readings and Research	3
RADT SI4943 Baccalaureate Thesis	3

Department Bachelor of Science Degree Requirements:
 Major required = 30 Credit Hours
 Minor required = 18 Credit Hours
 Total Required = 48 Credit Hours

Students completing the three-semester program will earn a major in Vascular Sonography Emphasis and a minor in Advanced Radiologic Sciences. Courses required for a major or minor in the Department of Radiologic Sciences:
 RADT 4933 Research Methods..... 3
 RADT SI4943 Baccalaureate Thesis 3
 Recommended course meeting Diversity Requirement:
 RADT DV3003 Psycho-Social Medicine 3

COURSE DESCRIPTIONS

RADT 3043 MEDICAL ETHICS AND LAW
3 Credit Hours
 Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY
3 Credit Hours
 Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY
3 Credit Hours
 Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3243 PATIENT CARE AND ASSESSMENT II
3 Credit Hours
 System analysis and advanced level of patient care, assessment and management in radiology.

RADT 3253 PATIENT CARE AND ASSESSMENT III
3 Credit Hours
 Intravenous therapy, patient care procedures and monitoring during imaging studies.

DMS 4110 SONOGRAPHY PRINCIPLES AND INSTRUMENTATION
3 Credit Hours

Elementary principles, propagation through tissues, transducers, pulse echo principles and instruments, images, storage and display, Doppler, image features and artifacts, bioeffects and safety.

DMS SI4120 QUALITY ASSURANCE
3 Credit Hours
 Developing, analyzing and evaluating a quality assurance program.

DMS 4410 VASCULAR SONOGRAPHY I
2 Credit Hours
 Concepts in vascular sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4420 VASCULAR SONOGRAPHY II
3 Credit Hours
 Continuation of DMS 4410.

DMS 4630 VASCULAR LABORATORY
1 Credit Hours
 Patient position and instrumentation, transducer selection and anatomic placement, scanning protocol, and image quality are practiced for vascular sonographic examinations.

DMS 4831 VASCULAR CLINICAL I
3 Credit Hours
 A minimum of 24 hours per week in an active diagnostic vascular sonography department.

DMS 4832 VASCULAR CLINICAL II **3 Credit Hours**
Continuation of DMS 4831.

DMS 4833 VASCULAR CLINICAL III **3 Credit Hours**
Continuation of DMS 4832.

DMS 4913 VASCULAR COMPREHENSIVE REVIEW **1 Credit Hour**
Review and requirements for advanced responsibilities of the vascular sonographer.

ELECTIVE COURSE OFFERINGS

RADT DV3003 PSYCHO-SOCIAL MEDICINE **3 Credit Hours**
Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3263 DIAGNOSTIC SERVICES PHARMACOLOGY **3 Credit Hours**
Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3423 FEDERAL REGULATIONS **3 Credit Hours**
Regulations governing health care, equipment and application of ionizing radiation.

RADT 3563 MANAGING CLINICAL INFORMATION **3 Credit Hours**
Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY **3 Credit Hours**

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4573 THE FEMALE PATIENT AND MEDICAL IMAGING **3 Credit Hours**
This course will familiarize the student to disease processes specific to the female patient and the imaging methods that may be used in diagnosis and treatment. The clinical pathways that are commonly used, involving all radiologic imaging modalities, will be explored. Students who enroll in this course must be certified by the American Registry of Radiologic Technologists.

RADT 4803 INDIVIDUAL RESEARCH **1-3 Credit Hours**
Research projects developed for district, state, regional or national presentation.

RADT 4833 DIRECTED READINGS AND RESEARCH **3 Credit Hours**
Synthesis and analysis of journal articles resulting in a research paper for the purpose of publication.

RADT 4933 RESEARCH METHODS **3 Credit Hours**
Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS **3 Credit Hours**
Research in the health professions utilizing the scientific inquiry method.

DMS 4801 INDIVIDUALIZED RESEARCH **1-3 Credit Hours**
Contact with faculty advisor required.

DMS 4921 WORKSHOPS, CONFERENCES, AND TELECOURSES **1-3 Credit Hours**

(Mammography is included in Women's Imaging)

Magnetic Resonance Imaging

FALL SEMESTER

RADT 3043 Medical Ethics and Law	3
RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3
RADT 3563 Managing Clinical Information	3
RADT 3863 Clinical Internship	3
RADT 4603 MRI Physics and Instrumentation..	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER

RADT DV3003 Psycho-Social Medicine	3
RADT 3253 Patient Care and Assessment III	3
RADT 3863 Clinical Internship	3
RADT 4623 Advanced MRI Procedures and Safety	3
RADT 4643 MRI Imaging of the Torso and Limbs	3
RADT 4933 Research Methods	3
Total Semester Credit Hours.....	<u>18</u>

SUMMER SEMESTER

RADT 4203 Patient Education in Radiology	3
RADT 4303 Cardiology	3
RADT 4633 MRI Imaging of the Central Nervous System	3
RADT 4863 Clinical Internship.....	3
RADT 4912 Comprehensive Review/MRI	2
RADT SI4943 Baccalaureate Thesis	3
Total Semester Credit Hours	<u>17</u>

*Weber State University Radiography Program graduates who completed pre-requisite courses with a passing grade do not repeat the courses in the specialty program.

Students completing the program will earn a major in Magnetic Resonance Imaging Emphasis.

Department Bachelor of Science Degree Requirements:

Major required = 30 Credit Hours
 Minor required = 18 Credit Hours
 Total Required = 48 Credit Hours

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE

3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems,

cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient sand professional peers. Understanding

multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW
3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY
3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY
3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3253 PATIENT CARE AND ASSESSMENT III
3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 3563 MANAGING CLINICAL INFORMATION
3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 3863 CLINICAL INTERNSHIP
2-6 Credit Hours

Experience in a radiology specialty area. Consent of instructor is required.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY
3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4303 CARDIOLOGY
3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4603 MAGNETIC RESONANCE IMAGING PHYSICS AND INSTRUMENTATION
3 Credit Hours

Physical principles and theories of magnetic resonance, instrumentation, imaging sequences

and methods in normal and abnormal tissue, and computer parameters of magnetic resonance.

RADT 4623 ADVANCED MRI PROCEDURES AND SAFETY
3 Credit Hours

Evaluation of organ function and diagnosis of disease process using advanced MRI procedures with emphasis on spectroscopy and functional MR. Includes an in-depth study of MRI safety.

RADT 4633 MAGNETIC RESONANCE IMAGING OF THE CENTRAL NERVOUS SYSTEM
3 Credit Hours

Sectional anatomy, pathology and imaging protocol of the head, spine and central nervous system.

RADT 4643 MAGNETIC RESONANCE OF THE TORSO AND LIMBS
3 Credit Hours

Sectional anatomy, pathology and imaging protocols of the abdominal viscera, pelvis, thorax and extremities.

RADT 4663 COMPUTED TOMOGRAPHY PHYSICS AND INSTRUMENTATIONS
3 Credit Hours

Interactions of electromagnetic waves, instrumentation, imaging sequences and computer parameters of computerized tomography imaging.

RADT 4863 CLINICAL INTERNSHIP
2-4 Credit Hours

Experience in a radiology specialty area. Consent of instructor is needed.

RADT 4912 COMPREHENSIVE REVIEW/MRI
2 Credit Hours

Preparation for advanced certification examination.

RADT 4933 RESEARCH METHODS

3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS

3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

Magnetic Resonance Imaging/Computed Tomography

FALL SEMESTER - First Year

RADT 3123 Sectional Anatomy.....	3
RADT 3143 Imaging Pathophysiology	3
RADT 3563 Managing Clinical Information	3
RADT 3863 Clinical Internship	3
RADT 4603 MRI Physics and Instrumentation..	3
RADT 4663 CT Physics and Instrumentation....	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER - First Year

RADT 3253 Patient Care and Assessment III	3
RADT 3403 Radiobiology and Health Physics 3	
RADT 3863 Clinical Internship	3
RADT 4613 CT Imaging of the Torso and Limbs	3
RADT 4623 Advanced MRI Procedures and Safety	3
RADT 4643 MRI Imaging of the Torso and Limbs	3
Total Semester Credit Hours.....	<u>18</u>

*Weber State University Radiography Program graduates who completed pre-requisite courses with a passing grade do not repeat the courses in the specialty program.

SUMMER SEMESTER - First Year

RADT 4303 Cardiology	3
RADT 4633 MRI Imaging of the Central Nervous System	3
RADT 4653 CT Imaging of the Central Nervous System	3
RADT 4863 Clinical Internship.....	3
RADT 4911 Comprehensive Review/CT	or
RADT 4912 Comprehensive Review/MRI	2
RADT 4933 Research Methods.....	3
Total Semester Credit Hours .	<u>14-15</u>

FALL SEMESTER - Second Year

RADT DV3003 Psycho-Social Medicine	3
RADT 3043 Medical Ethics and Law	3
RADT 4203 Patient Education in Radiology	3
RADT 4863 Clinical Internship.....	3
RADT 4911 Comprehensive Review/CT	or
RADT 4912 Comprehensive Review/MRI	2
RADT SI4943 Baccalaureate Thesis	3
Total Semester Credit Hours	<u>17</u>

Students completing the program will earn a major in Magnetic Resonance Imaging/Computed Tomography Emphasis.

Department Bachelor of Science Degree Requirements:

- Major required = 30 Credit Hours
- Minor required = 18 Credit Hours
- Total Required = 48 Credit Hours

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE

3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW

3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY

3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY

3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3253 PATIENT CARE AND ASSESSMENT III

3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS

3 Credit Hours

Effects of ionizing radiation on the human body, patient and personnel protection, exposure monitoring health physics and oncology.

RADT 3563 MANAGING CLINICAL INFORMATION

3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 3863 CLINICAL INTERNSHIP

2-6 Credit Hours

Experience in a radiology specialty area.

Consent of instructor is required.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY

3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4303 CARDIOLOGY

3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4603 MAGNETIC RESONANCE IMAGING PHYSICS AND INSTRUMENTATION

3 Credit Hours

Physical principles and theories of magnetic resonance, instrumentation, imaging sequences and methods in normal and abnormal tissue, and computer parameters of magnetic resonance.

RADT 4613 COMPUTED TOMOGRAPHY OF THE TORSO AND LIMBS

3 Credit Hours

Sectional anatomy, pathology and imaging protocols of the abdominal viscera, pelvis, thorax and extremities.

RADT 4623 ADVANCED MRI PROCEDURES AND SAFETY

3 Credit Hours

Evaluation of organ function and diagnosis of disease process using advanced MRI procedures with emphasis on spectroscopy and functional MR. Includes an in-depth study of MRI safety.

RADT 4633 MAGNETIC RESONANCE IMAGING OF THE CENTRAL NERVOUS SYSTEM

3 Credit Hours

Sectional anatomy, pathology and imaging protocol of the head, spine and central nervous system.

RADT 4643 MAGNETIC RESONANCE OF THE TORSO AND LIMBS

3 Credit Hours

Sectional anatomy, pathology and imaging protocols of the abdominal viscera, pelvis, thorax and extremities.

RADT 4653 COMPUTED TOMOGRAPHY OF THE CENTRAL NERVOUS SYSTEM
3 Credit Hours

Sectional anatomy, pathology and imaging protocols of the head, spine and central nervous system.

RADT 4663 COMPUTED TOMOGRAPHY PHYSICS AND INSTRUMENTATIONS
3 Credit Hours

Interactions of electromagnetic waves, instrumentation, imaging sequences and computer parameters of computerized tomography imaging.

RADT 4863 CLINICAL INTERNSHIP
2-4 Credit Hours

Experience in a radiology specialty area. Consent of instructor is needed.

RADT 4911 COMPREHENSIVE REVIEW/CT
2 Credit Hours

Prep for advanced certification examination.

RADT 4912 COMPREHENSIVE REVIEW/MRI
2 Credit Hours

Preparation for advanced certification examination.

RADT 4933 RESEARCH METHODS
3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS
3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

Nuclear Medicine

FALL SEMESTER

RADT 3143 Imaging Pathophysiology	3
RADT 3243 Patient Care and Assessment II	3
RADT 3263 Diagnostic Services Pharmacology	3
RADT 3563 Managing Clinical Information	3
NUCM 4103 Radiopharmaceuticals and Dosages.....	3
NUCM 4861 Clinical Education	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER

RADT 3423 Federal Regulations	3
RADT 4303 Cardiology.....	3
RADT 4933 Research Methods.....	3
NUCM 4203 Scanning and Imaging I	3
NUCM 4303 Radionuclide Physics and Instrumentation	3

NUCM 4862 Clinical Education	3
Total Semester Credit Hours.....	<u>15-18</u>

SUMMER SEMESTER

RADT SI4943 Baccalaureate Thesis.....	3
NUCM 4213 Scanning and Imaging II	3
NUCM 4223 Nuclear Cardiology	3
NUCM SI4333 Quality Assurance	3
NUCM 4863 Clinical Education	3
NUCM 4912 Comprehensive Review	2
Total Semester Credit Hours	<u>17</u>

*Students completing another program in the Department of Radiologic Sciences at Weber State University have completed this course.

Students completing the program will have earned a major in Nuclear Medicine.

Courses required for a major or minor in the Department of Radiologic Sciences:	
RADT 4933 Research Methods	3
RADT SI4943 Baccalaureate Thesis.....	3
Recommended course meeting Diversity Requirement:	
RADT DV3003 Psycho-Social Medicine.....	3

COURSE DESCRIPTIONS - NUCLEAR MEDICINE PROGRAM

RADT 3043 MEDICAL ETHICS AND LAW
3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3143 IMAGING PATHOPHYSIOLOGY
3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3243 PATIENT CARE AND ASSESSMENT II
3 Credit Hours

System analysis and advanced level of patient care, assessment and management in radiology.

RADT 3263 DIAGNOSTIC SERVICES PHARMACOLOGY
3 Credit Hours

Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS
3 Credit Hours

Effects of ionizing radiation on the human body, patient and personnel protection, exposure monitoring health physics and oncology.

RADT 3423 FEDERAL REGULATIONS
3 Credit Hours

Regulations governing health care, equipment and application of ionizing radiation.

RADT 3563 MANAGING CLINICAL INFORMATION
3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 4303 CARDIOLOGY
3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4933 RESEARCH METHODS
3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS
3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

NUCM 4103 RADIOPHARMACEUTICALS AND DOSAGES
3 Credit Hours

Radiopharmacology, characterization of radiopharmaceuticals used in performing examinations and calculation of dosages.

NUCM 4203 SCANNING AND IMAGING PROCEDURES I
3 Credit Hours

Organ concentration, excretion and absorption, measurements and imaging.

NUCM 4213 SCANNING AND IMAGING PROCEDURES II
3 Credit Hours

Organ concentration, excretion and absorption, measurements and imaging.

NUCM 4223 NUCLEAR CARDIOLOGY 3 Credit Hours

Pathology, indications for examination and procedures in nuclear cardiology.

NUCM 4303 RADIONUCLIDE PHYSICS & INSTRUMENTATION 3 Credit Hours

Production and properties of radionuclides, decay schemes, radiation measurements and special characteristics of radiopharmaceuticals.

NUCM SI4333 QUALITY ASSURANCE 3 Credit Hours

Nuclear Medicine departmental policies and procedures.

NUCM 4861 CLINICAL EDUCATION I 3 Credit Hours

A minimum of 24 hours per week in an active Nuclear Medicine department.

NUCM 4862 CLINICAL EDUCATION II 3 Credit Hours

A minimum of 24 hours per week in an active Nuclear Medicine department.

NUCM 4863 CLINICAL EDUCATION III 3 Credit Hours

A minimum of 24 hours per week in an active Nuclear Medicine department.

NUCM 4912 COMPREHENSIVE REVIEW 2 Credit Hours

Review of learned material.

NUCM 4991 SEMINAR 1 Credit Hour

New technology, procedures and equipment.

Radiation Therapy

FALL SEMESTER

RADT 3563 Managing Clinical Information	3
RADT 4933 Research Methods	3
RATH 4330 Radiation Therapy Physics	3
RATH 4410 Radiation Oncology I	3
RATH SI4446 Quality Assurance.....	3
RATH 4861 Clinical Education I	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER

*RADT 3403 Radiobiology and Health Physics	3
RATH 4342 Introduction to Treatment Planning	3
RATH 4412 Radiation Oncology II.....	3
RATH 4448 New Technology.....	3
RATH 4862 Clinical Education II.....	3
Total Semester Credit Hours.....	<u>15</u>

SUMMER SEMESTER

RADT 4943 Baccalaureate Thesis	3
RADT 4992 Seminar	2
RATH 4414 Radiation Oncology III	3
RATH 4444 Advanced Treatment Planning / Brachytherapy.....	3
RATH 4863 Clinical Education III.....	3
RATH 4913 Comprehensive Review	3
Total Semester Credit Hours	<u>17</u>

Elective: RADT 3043 Medical Ethics and Law...3	
RADT 3423 Federal Regulations	3
RADT 3243 Patient Care and Assessment II	3

Recommended course meeting Diversity Requirement:	
RADT DV3003 Psycho-Social Medicine	3

Department Bachelor of Science Degree
Requirements:

Major required = 30 Credit Hours

Minor required = 18 Credit Hours

Total Required = 48 Credit Hours

Students completing the program will have earned a
major Radiation Therapy.

COURSE DESCRIPTIONS

RADT 3043 MEDICAL ETHICS AND LAW

3 Credit Hours

Medical ethics and law and case studies in
medical imaging and radiation therapy.

RADT 3243 PATIENT CARE AND ASSESSMENT II

3 Credit Hours

System analysis and advanced level of patient
care, assessment and management in radiology.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS

3 Credit Hours

Effects of ionizing radiation on the human body,
patient and personnel protection, exposure
monitoring health physics and oncology.

RADT 3423 FEDERAL REGULATIONS

3 Credit Hours

Regulations governing health care, equipment
and application of ionizing radiation.

RADT 3563 MANAGING CLINICAL INFORMATION

3 Credit Hours

Digital and volumetric imaging, emerging
technologies, secure computerized
management practice, and patient privacy
regulations.

RADT 4933 RESEARCH METHODS

3 Credit Hours

Apply research strategies in health care and
clinical practice, obtain certificate for human
subject research, formulate a research
proposal, and complete an institutional review
board application.

RADT SI4943 BACCALAUREATE THESIS

3 Credit Hours

Research in the health professions utilizing the
scientific inquiry method.

RADT 4992 SEMINAR

2 Credit Hours

New developments and procedures in imaging
and therapy and preparing for the future.

RATH 4330 RADIATION THERAPY PHYSICS

3 Credit Hours

An overview of the profession of radiation
therapy. Radiation therapy physics, dosimetry,
isodose distribution for isotopes and
electrically-produced beams. Mechanics of
Linear acceleration and Cobalt.

RATH 4342 INTRODUCTION TO TREATMENT PLANNING

3 Credit Hours

Basic qualities and concepts in radiotherapeutic
dosimetry. Current aspects of the anatomical
and physical consideration involved in planning
an delivery of the therapy prescription.

RATH 4410 RADIATION ONCOLOGY I

3 Credit Hours

Pathology of cancer; combined therapy and
surgery; chemotherapy and radiation therapy;
clinical application of treatment techniques;
and case studies.

RATH 4412 RADIATION ONCOLOGY II

3 Credit Hours

Pathology of cancer; combined therapy and
surgery; chemotherapy and radiation therapy;

clinical application of treatment techniques; and case studies.

RATH 4414 RADIATION ONCOLOGY III

3 Credit Hours

Pathology of cancer; combined therapy and surgery; chemotherapy and radiation therapy; clinical application of treatment techniques; and case studies.

RATH 4444 ADVANCED TREATMENT PLANNING

3 Credit Hours

Prescription interpretation, nuclide implants, brachytherapy and treatment techniques involving hyperthermia. Beam modification devices and theory of beam placement will be discussed.

RATH SI 4446 QUALITY ASSURANCE

3 Credit Hours

Establishment of a quality assurance program for linear accelerators, simulators and therapeutic isotopes.

RATH 4448 NEW TECHNOLOGY

3 Credit Hours

Exploration of the emerging technology and new equipment used in Radiation Therapy.

RATH 4861 CLINICAL EDUCATION I

3 Credit Hours

Clinical education designed to facilitate transference of didactic instruction to practical clinical practice.

RATH 4862 CLINICAL EDUCATION II

3 Credit Hours

Clinical education designed to facilitate transference of didactic instruction to practical clinical practice.

RATH 4863 CLINICAL EDUCATION III

3 Credit Hours

Clinical education designed to facilitate transference of didactic instruction to practical clinical practice.

RATH 4913 COMPREHENSIVE REVIEW

3 Credit Hours

Review of all didactic and clinical courses and competencies. Quest lectures and multiple mock registry examinations will be presented.

Radiologist Assistant

FALL SEMESTER - First Year

RADT 3143 Imaging Pathophysiology	3
RADT 3243 Patient Care and Assessment II.....	3
RADT 3403* Radiobiology & Health Physics.....	3
RADT 5403 Evaluation of the Osseous System..	3
RADT 5423 Evaluation of the Abdomen and GI System	3
RADT 5861 Clinical Preceptorship.....	3
Total Semester Credit Hours. <u>15-18</u>	

SPRING SEMESTER - First Year

RADT 3123 Sectional Anatomy.....	3
RADT 3253 Patient Care & Assessment III..	3
RADT 3263 Diagnostic Services Pharmacology	3
RADT 5413 Evaluation of the Chest.....	3
RADT 4933 Research Methods	3
RADT 5862 Clinical Preceptorship.....	3
Total Semester Credit Hours.....	<u>18</u>

SUMMER SEMESTER - First Year

RADT DV3003* Psycho-Social Medicine.....	3
RADT 3043* Medical Ethics and Law.....	3
RADT SI3443 Quality Assurance (Fluoroscopy).....	3
RADT 4303 Cardiology	3
RADT 4992 Directed Readings:(Professional Communication Radiology).....	1
RADT 5473 Invasive Imaging Studies (Non-vascular)	3
RADT 5863 Clinical Preceptorship	3
Total Semester Credit Hours. <u>13-19</u>	

FALL SEMESTER - Second Year

RADT 3563 Managing Patient Information....	3
RADT 4203 Patient Education in Radiology.....	3
RADT 4253 Risk Management	3
RADT SI4943 Baccalaureate Thesis.....	3
RADT 5433 Evaluation of the Genitourinary System	3
RADT 5864 Clinical Preceptorship.....	3
Total Semester Credit Hours.....	<u>18</u>

SPRING SEMESTER - Second Year

RADT 4803 Individual Research: Vascular Invasive Imaging	2
RADT 5443 Clinical Pathways.....	3
RADT 5453 Evaluation/CNS and Facial Structures.....	3

RADT 5463 Problem Patient Management.....	3
RADT 5865 Clinical Preceptorship	3
RADT 5868 Final Competency Assessment	3
Total Semester Credit Hours	<u>17</u>

*Students completing another program in the Department of Radiologic Sciences at Weber State University have completed these courses.

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE 3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient sand professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW 3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3123 SECTIONAL ANATOMY 3 Credit Hours

Anatomical study of the body in the sagittal, transverse and coronal imaging planes.

RADT 3143 IMAGING PATHOPHYSIOLOGY 3 Credit Hours

Imaging adaptations and alterations in anatomy and physiology with variation outside of the normal range.

RADT 3243 PATIENT CARE AND ASSESSMENT II 3 Credit Hours

System analysis and advanced level of patient care, assessment and management in radiology.

RADT 3253 PATIENT CARE AND ASSESSMENT III 3 Credit Hours

Intravenous therapy, patient care procedures and monitoring during imaging studies.

RADT 3263 DIAGNOSTIC SERVICES PHARMACOLOGY 3 Credit Hours

Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects and patient care required for specific pharmacologic agents.

RADT 3403 RADIOBIOLOGY AND HEALTH PHYSICS 3 Credit Hours

Effects of ionizing radiation on the human body, patient and personnel protection, exposure monitoring health physics and oncology.

RADT 3423 FEDERAL REGULATIONS 3 Credit Hours

Regulations governing health care, equipment and application of ionizing radiation.

RADT SI3443 QUALITY ASSURANCE IN RADIOLOGY (FLUOROSCOPY) 3 Credit Hours

Development of a quality assurance program and manual to meet accreditation requirements.

RADT 3563 MANAGING CLINICAL INFORMATION
3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 4203 PATIENT EDUCATION IN RADIOLOGY
3 Credit Hours

Skills necessary to assess, plan and evaluate a variety of educational programs specific to radiology patients.

RADT 4253 RISK MANAGEMENT
3 Credit Hours

Study of management of risk associated with the delivery of health care in clinical and non-clinical settings.

RADT 4303 CARDIOLOGY
3 Credit Hours

Detailed study of the heart: anatomy, physiology, pathophysiology, pharmacology, EKGs and imaging modalities.

RADT 4803 INDIVIDUAL RESEARCH
1-3 Credit Hours

Research projects developed for district, state, regional or national presentation.

RADT 4933 RESEARCH METHODS
3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS
3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

RADT 4992 SEMINAR
1-2 Credit Hours

New developments and procedures in imaging and therapy and preparing for the future.

RADT 5403 EVALUATION OF THE OSSEOUS SYSTEM
3 Credit Hours

Imaging evaluation of pathological conditions, abnormalities and anomalies of the osseous system.

RADT 5413 EVALUATION OF THE CHEST
3 Credit Hours

Imaging evaluation of pathological conditions, abnormalities and anomalies of the chest.

RADT 5423 EVALUATION OF THE ABDOMEN AND GI SYSTEM
3 Credit Hours

Imaging evaluation of pathological conditions, abnormalities and anomalies of the abdomen and gastrointestinal system.

RADT 5433 EVALUATION OF THE GENITOURINARY SYSTEM
3 Credit Hours

Imaging evaluation of pathological conditions, abnormalities and anomalies of the genitourinary system.

RADT 5443 CLINICAL PATHWAYS
3 Credit Hours

Studying clinical pathways for patients based on disease processes and trauma. Prerequisites: RADT 5403 and RADT 5413.

RADT 5453 EVALUATION / CNS AND FACIAL STRUCTURES
3 Credit Hours

Imaging evaluation of pathological conditions, abnormalities and anomalies of the central nervous system and facial structures.

RADT 5463 PROBLEM PATIENT MANAGEMENT
3 Credit Hours

Determination of pathological conditions utilizing problem-solving case studies.

RADT 5473 INVASIVE IMAGING PROCEDURES
3 Credit Hours

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

RADT 5861 CLINICAL PRECEPTORSHIP
3 Credit Hours

Experience in a radiology department. Consent of instructor needed.

RADT 5862 CLINICAL PRECEPTORSHIP
3 Credit Hours

Continuation of RADT 5861.

RADT 5863 CLINICAL PRECEPTORSHIP
3 Credit Hours

Continuation of RADT 5862.

RADT 5864 CLINICAL PRECEPTORSHIP
3 Credit Hours

Continuation of RADT 5863.

RADT 5865 CLINICAL PRECEPTORSHIP
3 Credit Hours

Continuation of RADT 5864.

RADT 5868 FINAL COMPETENCY ASSESSMENT
3 Credit Hours

Review and evaluation of student competencies.

Women's Imaging

FALL SEMESTER

RADT 3863 Clinical Internship	3
RADT 4553 Breast Anatomy, Physiology and Pathology	3
RADT 4563 Mammographic Positioning Imaging Techniques	3
RADT 4583 Mammographic Equipment and Quality Assurance.....	3
Total Semester Credit Hours.....	<u>12</u>

SPRING SEMESTER

RADT 3043 Medical Ethics and Law	3
RADT 4572 Patient Education and Clinical Examination.....	2
RADT 4573 The Female Patient and Medical Imaging	3
DMS 4110 Sonography Principles and Instrumentation	3
DMS 4510 Breast Sonography	1
DMS 4841 Breast Clinical.....	3
Total Semester Credit Hours.....	<u>15</u>

SUMMER SEMESTER

RADT DV3003 Psycho-Social Medicine	3
RADT 3423 Federal Regulations	3
RADT 4543 Bone Densitometry	3
RADT 4863 Clinical Internship	2
Total Semester Credit Hours.....	<u>11</u>

FALL SEMESTER ELECTIVES

RADT 3563 Managing Clinical Information	3
RADT 4833 Directed Readings and Research ...	3

SPRING SEMESTER ELECTIVES

RADT 4933 Research Methods.....	3
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SUMMER SEMESTER ELECTIVES

RADT 4914 Comprehensive Review/WI.....	2
RADT SI4943 Baccalaureate Thesis	3

Students completing all three semesters will have earned a major in Women's Imaging Emphasis. The student may obtain a minor in Advanced Radiologic Sciences by completing the Department Requirements.

Department Bachelor of Science Degree Requirements:

- Major required = 30 Credit Hours
- Minor required = 18 Credit Hours
- Total Required = 48 Credit Hours

Courses required for either a major or minor in the Department of Radiologic Sciences:

RADT 4933 Research Methods.....	3
RADT SI4943 Baccalaureate Thesis	3

COURSE DESCRIPTIONS

RADT DV3003 PSYCHO-SOCIAL MEDICINE
3 Credit Hours

Designed to prepare students to better understand their patient and the patient's family through comparison of diverse populations based on their value systems, cultural and ethic influences, communication styles, socio-economic influences, health risks and life stages. Study of factors that influence the interrelationships with patient and professional peers. Understanding multicultural diversity assists the student in providing better patient care.

RADT 3043 MEDICAL ETHICS AND LAW
3 Credit Hours

Medical ethics and law and case studies in medical imaging and radiation therapy.

RADT 3423 FEDERAL REGULATIONS
3 Credit Hours

Regulations governing health care, equipment and application of ionizing radiation.

RADT 3863 CLINICAL INTERNSHIP
2-6 Credit Hours

Experience in a radiology specialty area.
Consent of instructor is required.

RADT 4543 BONE DENSITOMETRY
3 Credit Hours

This course comprehensively covers the methods of bone density measurement (bone densitometry, DEXA), the pathogenesis of osteoporosis, quality management issues, therapies for osteoporosis and a review of additional analysis methods.

RADT 4553 BREAST ANATOMY, PHYSIOLOGY AND PATHOLOGY
3 Credit Hours

Normal breast anatomy and physiology compared to pathological conditions.

RADT 4563 MAMMOGRAPHIC POSITIONING / IMAGING TECHNIQUES
3 Credit Hours

Routine positions, risk versus benefit; tissue variations, specialized procedures and imaging modalities.

RADT 4572 PATIENT EDUCATION AND CLINICAL EXAMINATION
2 Credit Hours

Breast disease and reconstruction methods, breast examination, rehabilitation, medical-legal considerations.

RADT 4573 THE FEMALE PATIENT AND MEDICAL IMAGING
3 Credit Hours

This course will familiarize the student to disease processes specific to the female patient and the imaging methods that may be used in diagnosis and treatment. The clinical pathways that are commonly used, involving all radiologic imaging modalities, will be explored. Students who enroll in this course must be certified by the American Registry of Radiologic Technologists.

RADT 4583 MAMMOGRAPHIC EQUIPMENT AND QUALITY ASSURANCE
3 Credit Hours

Equipment operation, technical factors and quality assurance procedures in mammography.

RADT 4863 CLINICAL INTERNSHIP
2 Credit Hours

Experience in a radiology specialty area.
Consent of instructor is needed.

DMS 4110 SONOGRAPHY PRINCIPLES AND INSTRUMENTATION
3 Credit Hours

Elementary principles, propagation through tissues, transducers, pulse echo principles and instruments, images, storage and display, Doppler, image features and artifacts, bioeffects and safety.

DMS 4510 BREAST SONOGRAPHY
1 Credit Hours

Concepts in breast sonographic scanning technique and protocol to produce and evaluate diagnostic images.

DMS 4841 BREAST CLINICAL
3 Credit Hours

A minimum of 24 hours per week performing breast sonography examinations.

ELECTIVE COURSE OFFERINGS

Meet with your faculty advisor and develop an academic contract. Complete a minimum of 10 credit hours for a major and minor from approved department course offerings.

RADT 3563 MANAGING CLINICAL INFORMATION 3 Credit Hours

Digital and volumetric imaging, emerging technologies, secure computerized management practice, and patient privacy regulations.

RADT 4833 DIRECTED READINGS AND RESEARCH 3 Credit Hours

Synthesis and analysis of journal articles resulting in a research paper for the purpose of publication.

RADT 4933 RESEARCH METHODS 3 Credit Hours

Apply research strategies in health care and clinical practice, obtain certificate for human subject research, formulate a research proposal, and complete an institutional review board application.

RADT SI4943 BACCALAUREATE THESIS 3 Credit Hours

Research in the health professions utilizing the scientific inquiry method.

RADT 4914 COMPREHENSIVE REVIEW/WI 2 Credit Hours

Preparation for advanced certification examination.

Measureable Learning Outcomes

At the end of their study at WSU, students in this program will

1. Provide outstanding patient care and education
2. Demonstrate a working knowledge of professional development and research
3. Provide clinically competent and ethical patient care
4. Understand and utilize appropriate procedures, anatomy and pathophysiologic Information in imaging or treating patients
5. Use appropriate instrumentation and quality control

Table 3 Radiography Outcomes Assessment—Indirect measurements of student learning

Objective	Internal Measurement	External Measurement	Data Collection
Upon completing the Radiologic Technology Program the student will be able to:			
Identify the biological effects of radiation	Successful Completion of: Radt 1303 Radt 3403	Utah State Practical Technician results Examination	Yearly

		ARRT Examination results	Yearly
		Clinical Evaluation & Personal and Professional Growth Assessment	Every Semester
Demonstrate proper radiation protection procedures during diagnostic procedures	Successful Completion of: Radt 1022 Radt 3403 Radt 1502/1601 Radt 1512/1621 Radt 1522/1641 Radt 1532/1661 Radt 1542/1681 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician examination results ARRT Examination results Clinical Evaluation & Personal and Professional Growth Assessment	Yearly Yearly Every Semester
Demonstrate proper use and understanding of radiation exposure monitors and diagnostic radiation equipment	Successful Completion of: Radt 1303 Radt 2403 Radt SI3443 Radt 1502/1601 Radt 1512/1621 Radt 1522/1641	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation &	Yearly beginning Yearly Every Semester

	Radt 1532/1661 Radt 1542/1681 Clinical Evaluations: Radt 2861-2865	Personal and Professional Growth Assessment	
Demonstrate, select, accurately explain and produce diagnostic quality radiographs	Successful Completion of: Radt 1303 Radt 2403 Radt SI3443 Radt 1502/1601 Radt 1512/1621 Radt 1522/1641 Radt 1532/1661 Radt 1542/1681 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician results Examination ARRT Examination results Employer Surveys Clinical Evaluation & Personal and Professional Growth Assessment	Yearly beginning Yearly Every 3 years Every semester
Demonstrate repeated competency in accurately explaining the proper radiographic film processing technique	Successful Completion of: Radt 1303 Radt 2403 Radt SI3443 Radt 1502/1601 Radt 1512/1621 Radt 1522/1641	Utah State Practical Technician results Examination ARRT Examination results Job placement rates	Yearly Yearly Every 3 years

	Radt 1532/1661 Radt 1542/1681 Clinical Evaluations: Radt 2861-2865	Employer Surveys Clinical Evaluation & Personal and Professional Growth Assessment	Every semester
Demonstrate and accurately interpret quality assurance testing	Successful Completion of: Radt 1303 Radt 2403 Radt SI3443 Radt 1542/1681 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation & Personal and Professional Growth Assessment	Yearly Yearly Every semester
Demonstrate proper evaluation and critique of radiographic positioning, technical factors, anatomy, physiology and pathology	Successful Completion of: Radt 1502/1601 Radt 1512/1621 Radt 1522/1641 Radt 1532/1661 Radt 1542/1681	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation &	Yearly Yearly

	Clinical Evaluations: Radt 2861-2865	Personal and Professional Growth Assessment	Every Semester
Demonstrate legal and professional responsibility	Successful Completion of: Radt DV3003 Radt 3403 Radt 2043 Radt 3423 Radt 1022 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation & Personal and Professional Growth Assessment	Yearly Yearly Every Semester
Demonstrate appropriate patient education, safety and comfort skills	Successful Completion of: Radt 1022 Radt 2043 Radt DV3003 Radt 3023 Radt 2263 Radt 1502/1601 Radt 1512/1621 Radt 1522/1641 Radt 1532/1661 Radt 1542/1681	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation & Personal and Professional Growth Assessment	Yearly Yearly Every Semester

	Clinical Evaluations: Radt 2861-2865		
Demonstrate acceptable methods of infection control and prevention	Successful Completion of: Radt 1022 Radt 2043 Radt DV3003 Radt 3023 Radt 2263 Radt 1502/1601 Radt 1512/1621 Radt 1522/1641 Radt 1532/1661 Radt 1542/1681 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation & Personal and Professional Growth Assessment	Yearly Yearly Every Semester
Demonstrate proper patient monitoring during radiographic procedures	Successful Completion of: Radt 2043 Radt DV3003 Radt 3023 Radt 2263 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation & Personal and Professional Growth	Yearly Yearly Every Semester

		Assessment	
Demonstrate appropriate responses to diverse patient populations	Successful Completion of: Radt DV3003 Radt 3023 Clinical Evaluations: Radt 2861-2865	Utah State Practical Technician results Examination ARRT Examination results Clinical Evaluation & Personal and Professional Growth Assessment Employer Surveys Graduate Surveys	Yearly Yearly Every Semester Every 3 years Every 3 years
Demonstrate a sense of professionalism and desire to learn	Successful Completion of: Radt 1022 Radt DV3003 Radt 2866 Student acceptance into specialty programs	Utah State Practical Technician results Examination ARRT Examination results Employer Surveys	Yearly Yearly Every 3 years

		Graduate Surveys	Every 3 years
		Exit interviews	Yearly
		Clinical Evaluation & Personal and Professional Growth Assessment	Every Semester
Demonstrate continued competency through life long learning	Student acceptance into specialty programs	Employer Surveys	Every 3 years
		Graduate Surveys	Every 3 years
		Exit Interviews	Yearly
		Clinical Evaluation & Personal and Professional Growth Assessment	
Table 4 Advanced Radiography, Imaging Specialities and Radiation Therapy			
Advance Radiography/CORE			
Objective	Internal Measurement	External Measurement	Data Collection
Upon completing the Program of choice, the student will be able to:			

Identify the biologic effects of ionizing radiation	Successful completion of Radt 3403, Radt SI3443	Certification examination results	Annually
Demonstrate proper radiation protection procedures during diagnostic procedures	Successful completion of: Radt 4863 – CT Radt 4861& 4862 – Mammo Radt 5861, 5862, 5863, 5864 & 5865 – RPA Nucm 4861, 4862. 4863 Rath 4861, 4862. 4863	Certification examination results Employer surveys	Annually Every 3 years
Demonstrate patient assessment, monitoring and management skills	Successful completion of: Radt 3243 Radt 3253 Radt 3263, Radt 4303 Radt 5363 & 4423 -- RPA Rath 4425– Rad	Certification examination results Employer surveys	Annually Every 3 years

	Therapy Clinical evaluations		
Demonstrate appropriate patient education, safety and comfort skills.	Successful completion of: Radt DV3003, Radt 3043 Radt 4203, Radt 4223 Radt 4572-- Mammography Rath 4425– Radiation Therapy Clinical evaluations	Certification examination results Employer surveys	Annually Every 3 years
Demonstrate legal, professional and ethical responsibility	Successful completion of: Radt DV3003, Radt 3043 Radt 4253, Radt 4233 Clinical evaluations	Certification examination results	Annually
Demonstrate knowledge of anatomy, physiology and pathophysiology	Successful completion of: Radt 3023, Radt 3123 Radt 3143, 4423 & 4403 All courses in the specific programs pertaining to imaging. Clinical evaluations	Certification examination results Employer surveys	Annually Every 3 years

Demonstrate appropriate responses to diverse patient populations	Successful completion of: Radt DV3003, Radt 3023 Radt 4203, Radt 3243 Radt 3253, Radt 5363 Clinical evaluations	Certification examination results Employer surveys Graduate surveys	Annually Every 3 years Every 3 years
Demonstrate knowledge and application of federal regulations	Successful completion of: Radt 3043, Radt 3423 Radt 4243, Radt 4253 Radt 4213 Clinical evaluations	Certification examination results Employer surveys	Annually Every 3 years
Demonstrate a sense of professionalism and desire to learn	Successful completion of: Radt 4803, Radt 4933 Radt SI4943, Radt 4922, Radt 4942, Radt 4992 Active participation in	Exit interviews Graduate surveys Employer surveys	Annually Every 3 years Every 3 years

	professional organizations; acceptance into graduate programs		
Demonstrate continued competency through life long learning	Active participation in professional organizations Acceptance into graduate school	Maintenance of active certification status Employer surveys Employment rate Graduate surveys	Every 3 years Every three years Every three years Every 3 years
Computerized Tomography/Magnetic Resonance Imaging (CT/MRI)			
Demonstrate proper use of imaging equipment	Successful completion of: Radt 4603, Radt 4623 Radt 4663, Radt 3463 Clinical evaluations: Radt 4863	Certification examinations results Employer surveys Graduate surveys	Annually Every 3 years Every 3 years
Demonstrate proper selection of technical factors to produce diagnostic images	Successful completion of: Radt 4633, Radt 4643 Radt 4613, Radt 4653	Certification examination results Employment rate Graduate surveys	Annually Annually Every 3 years

	Radt 4911, Radt 4912 Clinical evaluations		
Demonstrate and accurately interpret quality assurance testing	Successful completion of: Radt 3443, Radt 4603 Radt 4663 Clinical evaluations	Certification examination results Employer surveys	Annually Every 3 years
Demonstrate proper evaluation and critique of diagnostic images for accuracy of technical factors, patient positioning, anatomy, contrast injection and pathology	Successful completion of: Radt 4633, Radt 4643, Radt 4613, Radt 4653, Radt 4623, Radt 4911 and Radt 4912	Certification examination results Employer surveys Employment rate Graduate surveys	Annually Every 3 years Annually Every 3 years
Cardiovascular-Interventional Technology (CIT)			
Demonstrate proper use of imaging equipment	Successful completion of: Radt 3463, Radt 4913 ARRT certification Clinical evaluations: Radt 4863	Certification examination results Employment rate	Annually Annually

Demonstrate proper use of technical factors to produce diagnostic images	Successful completion of: Radt 4313, Radt 4333, Radt 4343 Clinical evaluations	Certification examination results	Annually
Demonstrate and accurately interpret quality assurance testing	Successful completion of: Radt SI3443, Radt 3463 Clinical evaluations & ARRT certification	Certification examination results	Annually
Demonstrate proper evaluation and critique of diagnostic images for accuracy of technical factors, patient positioning, anatomy, contrast injection and pathology	Successful completion of: Radt 4313, Radt 4333, and Radt 4343	Certification examination results Employment rate Employer surveys	Annually Annually Every 3 years
Women's Imaging Mammography			
Demonstrate proper use of imaging equipment	Successful completion of: Radt 4563 Clinical evaluations: Radt 4861, Radt 4862	Certification examination results Employment rate Employer surveys	Annually Annually Every 3 years

Demonstrate proper selection of technical factors to produce diagnostic images	Successful completion of: Radt 4553, Radt 4563 Clinical evaluations: Radt 4861, Radt 4862	Certification examination results Employment rate Employer surveys	Annually Annually Every 3 years
Demonstrate and accurately interpret quality assurance testing	Successful completion of: Radt 4583 Clinical evaluations: Radt 4861, Radt 4862	Certification examination results Employer surveys	Annually Every three years
Demonstrate proper evaluation and critique of diagnostic images for accuracy of technical factors, patient positioning, anatomy and pathology	Successful completion of: Radt 4553, Radt 4563, Radt 4572 Clinical evaluations: Radt 4861, Radt 4862	Certification examination results Employer surveys Employment rate	Annually Every 3 years Annually
Diagnostic Medical Sonography			
Demonstrate proper use of imaging equipment	Successful completion of: DMS 4103, DMS 4641, DMS 4642, DMS 4643, DMS 4644, DMS 4645 Clinical evaluations:	Certification examination results Employer surveys Exit interviews	Annually Every 3 years Annually

	DMS 4861, 4862, 4863, 4864, 4865, 4866, 4867	Employment rate	Annually
Demonstrate proper selection of technical factors to produce diagnostic images	Successful completion of: DMS 4103, DMS 4303, DMS 4323, DMS4343, DMS 4403, DMS 4503, DMS 4523 Clinical evaluations	Certification examination results Exit interviews Employer surveys Graduate surveys Employment rate	Annually Annually Every 3 years Every 3 years Annually
Demonstrate and accurately interpret quality assurance testing	Successful completion of: DMS 4103, DMS 4143 Clinical evaluations	Certification examination results	Annually
Demonstrate proper evaluation and critique of diagnostic images for accuracy of technical factors, patient positioning, anatomy, contrast injection and pathology	Successful completion of: DMS 4303, DMS 4323, DMS 4343, DMS 4403, DMS 4503, DMS 4523 Clinical evaluations	Certification examination results Exit interviews Employer surveys Graduate surveys	Annually Annually Every three years Every three years

		Employment rate	Annually
Nuclear Medicine			
Demonstrate proper use of imaging equipment	Successful completion of: Radt 3463, Nucm 4303, Nucm SI4333 Clinical evaluations: Nucm 4861, 4862, 4863	Certification examination results Employer surveys Graduate surveys Employment rate	Annually Every 3 years Every 3 years Annually
Demonstrate proper use of radiopharmaceuticals & technical factors to produce diagnostic images	Successful completion of: Nucm 4103, Nucm4203, Nucm 4213 Nucm 4303, Nucm SI4333, Nucm 4223 Clinical evaluations	Certification examination results Employer surveys Graduate surveys Employment rate	Annually Every 3 years Every 3 years Annually
Demonstrate and accurately interpret quality assurance testing	Successful completion of: Nucm 4303, NucmSI4333 ARRT certification in radiography	Certification examination results Employer surveys	Annually Every 3 years
Demonstrate proper evaluation and critique of diagnostic	Successful completion of: Nucm 4103,	Certification examination results	Annually

images for accuracy of technical factors, patient positioning, anatomy, nuclide injection, and pathology	Nucm4203, Nucm 4213, Nucm 4223 Clinical evaluations	Employer surveys Employment rate Graduate surveys	Every 3 years Annually Every 3 years
Radiation Therapy			
Demonstrate proper use of treatment equipment	Successful completion of: Rath 4330, Rath 4342 Rath 4444 Clinical evaluations: Rath 4861, 4862, 4863	Certification examination results Employer surveys Graduate surveys Employment rate	Annually Every 3 years Every 3 years Annually
Demonstrate proper interpretation of treatment prescriptions, treatment fields and procedures	Successful completion of: Rath 4410, Rath 4412, Rath 4414, Rath 4444 Clinical evaluations: Rath 4861, 4862, 4863	Certification examination results Employer surveys Graduate surveys Employment rate	Annually Every 3 years Every 3 years Annually

Demonstrate and accurately interpret quality assurance testing	Successful completion of: Rath 4330, Rath SI4446 ARRT certification in radiography	Certification examination results Employer surveys Graduate surveys Employment rate	Annually Every 3 years Every 3 years Annually
Demonstrate proper evaluation and critique of treatment simulation and delivery, patient positioning and protection, anatomy and pathology	Successful completion of: Rath 4342, Rath 4410, Rath4412, Rath 4414, Rath 4444 Clinical evaluations	Certification examination results Employer surveys Graduate surveys Employment rate	Annually Every 3 years Every 3 years Annually
Radiology Practitioner Assistant			
Demonstrate proper use of imaging equipment	Successful completion of: Radt SI3443, Radt 3463, Radt 5403, Radt 5413,	Certification examination results Employment rate	Annually Annually

	Radt 5423, Radt 5433, Radt 5453 Clinical evaluations: Radt 5861, 5862, 5863, 5864, 5865, 5867		
Demonstrate efficient use of imaging and fluoroscopic equipment to produce diagnostic images	Successful completion of: Radt 5403, 5413, 5423, 5433, 5453 Clinical evaluations	Certification examination results Employment rate	Annually Annually
Demonstrate and accurately interpret quality assurance testing	Successful completion of: Radt SI3443 ARRT certification in radiography	Certification examination results Employment rate	Annually Annually
Demonstrate proper evaluation and critique of diagnostic images for accuracy in technical factors, patient positioning, anatomy, contrast injection and pathology	Successful completion of: Radt 5403, 5413, 5423, 5433, 5453 Clinical evaluations	Certification examination results Employment rate	Annually Annually

The Department of Radiologic Sciences has an excellent ongoing system for outcome assessing and planning. The most difficult part of the assessment plan is the inability to implement change due to such things as budgetary restraints, lack of personnel, and inability to obtain equipment and/or resources to facilitate the identified needs.

The data collected is reviewed regularly in the following manner:

1. All assessment information is discussed at regularly Department faculty meetings.
2. Twice annually, the Department holds an all-day planning meeting to discuss changes and improvements to the programs within the Department.
3. Advisory Committee meetings are held each semester.
4. Individual clinical site issues are discussed regularly with clinical faculty.
5. Appropriate information is shared with students annually during student orientation, during the semester as warranted and/or with student organization leadership.

Some Implications These Results Have Had On The Department And Changes Made:

1. The Diagnostic Medical Sonography program was restructured to facilitate better clinical, lab and didactic time frames for the students and learning outcomes. Additional new sonography equipment has been purchased and the department has been able to obtain two additional machines from vendors to assist with the Lab experience. We have also hired several lab assistants to help with the load and time commitment in these labs. These changes in the program have made it easier and more efficient for student sonographers to enter clinical in the second semester of the program.
2. The instructor for the Radiation Therapy resigned her position without notice fall of 2011. After discussion with the faculty in the department, the Dean and the advisory committee it was decided that we would manage the program internally and adjunct faculty would be utilized to teach the program. The first year of registry scores and pass rates increased significantly. In the summer of 2012 the new adjuncts were paid development money to update all courses, course materials and tests to meet current practice and ARRT content specification's.
3. Faculty teaching loads were evaluated and several reassignments were made. Additionally the Department now employs 7 new adjuncts that have helped with faculty load. We were also able to hire a new faculty member in the fall of 2011.

4. The clinical competency evaluation system requiring the verification of clinical competency by the radiologist or the supervising technologist has been revised and streamlined. This system is used to evaluate students at local and distance sites. Additionally all Radiography students must pass a re-competency program each semester in the energized labs on campus.
5. A new server has been purchased by the Department to be used for the PACS and RIS system in the department.
6. Technology enhancement has been added to a number of courses and labs.
7. The electronic bulletin board has been updated and refined to post information for students and clinical faculty. The student handbook and clinical information is also available to the clinical faculty to assist with clinical education
8. Student evaluations of clinical education sites have been reviewed with each of the clinical sites and changes made to better facilitate the clinical education for students and provide appropriate clinical education that is required for ARRT clinical competencies.
9. The independent study program has reviewed all files and contacted student to reactivate their file for degree completion.
10. The curricula for the programs were reviewed and appropriate changes made.
11. The conference room, computer lab, and clinical energized labs have been update with new technology.
12. Perkins funds were obtained to purchase additional equipment for the department to enhance the NOVARAD PACS and RIS system.
13. A redesign of the teaching methods used in the laboratory sessions on campus.
14. Office area was resigned to accommodate better work flow and utilize space.
15. More emphasis was placed on specific subject content in some of the courses.
16. Discussion with clinical faculty coordinators on the clinical competency system has taken

place.

17. There has been modification and addition of material in courses to better meet the needs of students and health care industry.
18. The title of our advance practice program was changed to RA program to be in compliance with state licensure laws_and titles.
- 19 The department has developed a marketing plan that includes trade/professional shows and print ad materials.

D. Academic Advising

Each faculty member is responsible for advising students in the program where they have primary teaching responsibilities; however, if a faculty member is not available, then available faculty are expected to advise the students. Radiography students are advised in class about the various opportunities within medical imaging and the students rotate through the imaging modalities within the clinical setting to provide more in-depth understanding of the imaging specialities. Individual programs of study for students pursuing a baccalaureate degree are achieved through the completion of an academic contract for each student outlining the courses needed. The contract is signed by the faculty member in charge of the particular program and by the student. Academic advising materials are also placed in the student handbook for quick reference by the student. A copy is kept in the student's file for reference and a copy is given to the student. Faculty are also available for more intense one-on-one advisement and to answer questions, give advice and are expected to be involved in advising for any program offered by the department. A student may also review their academic standings by reviewing their personal graduation evaluation from Weber State University's Home Page.

Academic advising is assessed by the number of students who pursue additional education beyond the entry-level and complete an advanced imaging area, employment of the graduates, and by students who pursue graduate degrees. The most difficult aspect of advising is the general education and transfer credits. This responsibility has been placed on the department without a lot of resource or contacts for assistance.

Some examples of the changes that have occurred to improve student advising are listed below:

1. Academic Advisement materials placed in Student Handbook

- 2. Advisement issues were discussed regularly at faculty meetings
- 3. Academic Contracts were revised to be more user-friendly

E. Faculty

Full Time Faculty:

Seven (8) full-time faculty (FTE) are currently teaching in the Radiologic Sciences Department cluster of programs. Of the eight FTE faculty, four are male and four are female; 7 are Caucasian and 1 is of Hispanic descent. Seven faculty salaries are from E & G /legislative money and one faculty’s salary is from revenue generated from self-supporting programs.

All of the faculty are certified in radiography and in at least one additional specialized medical imaging area; two possess a doctoral degree, six have a master’s degree. In addition to specialized certification, other areas of expertise the faculty possess are pediatric radiology, gerontology, patient care and assessment, imaging pathophysiology, radiobiology, computed imaging, patient education and psycho-social medicine. The dual, and sometimes triple, certification of the faculty enhances the versatility and flexibility in conducting the programs. Below is overview of the faculty profile. Full Vita forms on all faculty are on file.

FACULTY PROFILE								
Name of Faculty	Gender/ Ethnicity	Rank/ Tenure	Highest Degree	Areas of Specialization	Years of Teaching			Professional and Scholarly Activity
					WSU	Other	Total	

FACULTY PROFILE							
Robert Walker	Male/White	Professor/Tenured Dept. Chair	Ph.D.	Radiography, MRI/CT, Quality Management, patient care & assessment, patient education, pediatric radiography Teaches in MSRS program	31	31	Held national offices, several referred publications, chaired several national committees, served on national certification board, delegate to national organization, speaker at state, regional and national mtgs.
Wynn Harrison	Male/White	Professor/Tenured	M. Ed.	Radiography, Nuclear Medicine, federal regulations	35	35	Held office in state and regional professional societies, delegate to professional organization, member of national committees and task force, speaker at regional and state mtgs.

FACULTY PROFILE							
Diane Kawamura	Female/White	Professor/Tenured	Ph.D.	Radiography, Sonography, imaging pathophysiology, sectional anatomy, research methods teaches in MSRS program	34	34	Held national offices, several referred publications, served on two national boards, speaker at international, national, regional and state mtgs., delegate to national professional organization, published textbook; held office in state societies; external examiner 2x at Kuwait University
Diane Newham	Female/White	Assistant Professor Non Tenure Track	M.S.	Radiography CT/MRI Mammography Computer-based Instruction, Radiobiology Patient Care RA program	20	15	Held state office, chaired several state committees, speaker at state, regional and national mtgs., one referred publication, member of national committees, delegate for national organization, member of national task force

FACULTY PROFILE							
Terri Jurkiewicz	Female/White	Assistant Professor Tenure Track	MS	Radiography Mammography ARDMS 3 areas and instructional technology	8	8 Taught many years adjunct before coming to WSU full time	Held state office, chaired several state committees, speaker at state, regional and national mtgs., publication,
RexChristensen	Male/white	Assistant Professor Tenure Track	MHA	Radiography, MRI CT PACS/RIS Teaches in RA and MSRS program Distant education	6	6	Held state office, chaired several state committees, speaker at state, regional and national mtgs., publication,
Tanya Nolan	Female White/Hispanic	Assistant Professor Tenure Track	MEd	Radiography ARDMS 3 areas and instructional technology	7	7	Held state office, chaired several state committees, speaker at state, regional and national mtgs., publication,

FACULTY PROFILE							
Casey Neville	Male/White	Assistant Professor Tenure Track	MSRS	Radiography, MRI CT PACS/RIS Teaches in MSRS program Manager Radiation Therapy Program	2	2	speaker at state, regional and national mtgs., publication

Adjunct/Clinical Faculty:

Adjunct Faculty

Adjunct faculty are utilized in the programs to provide current knowledge on equipment, image interpretation, imaging procedures and patient care techniques. A profile on some of the adjunct faculty utilized in the Radiologic Sciences Program cluster is listed below:

Clinical Faculty

Teira Rigby	Female	MSRS	Teaches Radiography Provo campus
Chris	Male	BS radiation	Radiation

Marston		therapy	therapy
Micheal Devenport	Male	MS in Cardiac Physiology	DMS-Cardiac
Shane Clampitt	Male	Enrolled in MSRS program	MRI
Morgan Hadlock		Radiation therapy And MS in Physics	Radiation therapy
Ryan Hecoc	Male	MS in Radiation/medical Physics	Radiation therapy
Mark Fackerall	male	MHA	Radiation therapy

Evaluation and Mentoring

Evaluation of full-time and adjunct faculty is obtained immediately following the course through comments solicited from the students to determine learning content and outcomes and by use of student evaluations. Clinical education sites are evaluated annually and this information is then reviewed individually with each of the clinical coordinators. Course materials are evaluated at the end of each semester. Additionally, all full-time faculty are reviewed annually at the end of the academic year.

Orientation and mentoring of new contract/adjunct faculty is accomplished through assistance with development of course materials and examinations, suggestions for teaching aids and teaching techniques, and invitations to sit in on classes to observe experienced instructors. Open communication and consultation with other faculty members is always available. Discussions at regularly-held faculty meetings provide an opportunity for contract faculty to obtain input on teaching strategies, ideas for course content, appropriate textbooks, classroom management and feed back on pedagogical approaches. Adjunct faculty are assisted in one-on-one sessions with the faculty member responsible for the program.

Faculty (full-time and adjunct) are urged to attend seminars and workshops offered on campus to develop teaching methodologies and are encouraged to participate in professional meetings and research projects to assure current knowledge is

being taught. The Dumke College of Health Professions also provides financial support for faculty development, degree completion and research. Both full-time and adjunct faculty are eligible for these funds.

Departmental Teaching Standards

Teaching standards within the Department are stringent to assure students are learning and are able and competent in applying their knowledge in clinical practice with real patients. Due to the rapidly-changing technology used in medical imaging, the curricula of the program cluster must also reflect the state-of-the-art technology and procedures, to be certain the students' education meets the employment requirements of the health care facilities. Expansion of knowledge beyond the minimum requirements for certification is stressed in order to produce graduates with critical thinking and problem-solving skills that can be readily applied in clinical practice. The faculty firmly believe all students are capable of learning, perhaps in different ways; therefore, teaching strategies are modified to meet the learning needs of the students. A variety of teaching methodologies are utilized, including lecture, demonstration, guest lecturers, computer-based learning, simulation, small-group discussion, role playing, discovery learning, supervised clinical instruction, research projects, directed readings and analysis, and one-on-one tutorial assistance.

Determination of Teaching Effectiveness

Teaching effectiveness is measured by the students' preparation and performance at the clinical sites, evaluation of the course material each semester, evaluation of instructors, exit surveys, pass rates on the certification examinations, employment of graduates and employer surveys. Consultation with advisory committee members also provide insight into teaching effectiveness.

Examples Which Illustrate The Impact of The Faculty Evaluation Process

Standardization of student advisement

- Upgraded and maintained current curricular content
- Improved national certification scores
- Increased student enrollment numbers in some programs
- Improved teaching methodology and classroom management
- Enhanced and updated clinical performance standards

Orientation of New Contract/Adjunct Faculty

Orientation of new contract/adjunct faculty is accomplished through assistance with development of course materials and examinations, suggestions for teaching aids and teaching techniques, and invitations to sit in on classes to observe experienced instructors. Open communication and consultation with other faculty members is always available. Discussions at regularly-held faculty meetings provide an opportunity for contract faculty to obtain input on teaching.

Adjunct faculty are used in the specialized imaging modalities to provide current knowledge and trends in medical imaging procedures and equipment and to provide instruction in an area of specific expertise. These individuals may be utilized as guest speakers or may be totally responsible for a course. The clinical faculty are employed by the affiliated health care facilities and assist in the clinical aspect of the programs. Each of the clinical education sites has at least one primary contact person for each of the modalities that their facility has student placed in. Vita forms on Adjunct/ Clinical faculty are on file.

Evaluation and Mentoring:

Evaluation of full-time and adjunct faculty is obtained immediately following the course through comments solicited from the students to determine learning content and outcomes and by use of student evaluations. Clinical education sites are reviewed annually and this information is then reviewed individually with each of the clinical coordinators. Course materials are evaluated at the end of each semester. Additionally, all full-time faculty are reviewed annually at the end of the academic year.

Orientation and mentoring of new contract/adjunct faculty is accomplished through assistance with development of course materials and examinations, suggestions for teaching aids and teaching techniques, and invitations to sit in on classes to observe experienced instructors. Open communication and consultation with other faculty members is always available. Discussions at regularly-held faculty meetings provide an opportunity for contract faculty to obtain input on teaching strategies, ideas for course content, appropriate textbooks, classroom management and feed back on pedagogical approaches. Adjunct faculty are assisted in one-on-one sessions with the faculty member responsible for the program.

Faculty (full-time and adjunct) are urged to attend seminars and workshops offered on campus to develop teaching methodologies and are encouraged to participate in professional meetings and research projects to assure current knowledge is being taught. The Dumke College of Health Professions also provides financial support for faculty development, degree completion and research. Both full-time and adjunct faculty are eligible for these funds.

Examples Which Illustrate The Impact of The Faculty Evaluation Process 1994-2002:

1. Standardization of student advisement
2. Upgraded and maintained current curricular content
3. Improved national certification scores
4. Increased student enrollment numbers in some programs
5. Improved teaching methodology and classroom management
6. Enhanced and updated clinical performance standards

Staff:

The Radiologic Sciences Department employs two secretarial staff positions. One secretarial position is funded through state allocated funds and the other position is funded through income generated by conducting self-supporting programs; both are female and Caucasian. Below is an overview of contract staff:

CONTRACT STAFF PROFILE					
NAME	GENDER	ETHNICITY	JOB TITLE	Years of Employment	Areas of Expertise
Lori Frederiksen	Female	White	Secretary III	20 WSU 6 Department	Computer applications, dictation, office organization, administrative responsibilities

CONTRACT STAFF PROFILE					
Cindy Esterholdt	Female	White	Professional Staff— Independent study	10 WSU 4 Department	Distance Learning and Outreach Education
Lonnie Lujan	male	Hispanic	Professional Staff MSRS	6 year WSU 1 year department	Advisement and MSRS

Staff Mentoring and Evaluation:

All contract staff are reviewed annually at the end of the academic year utilizing the universities “Performance Review and Enrichment Program” (PREP) system. Contract Staff are urged to attend seminars and workshops offered on campus to provide enrichment and improve job performance. The Dumke College of Health Professions also provides financial support for staff development.

Examples which Illustrate The Impact of The Staff Evaluation Process 1994-2002:

1. Development of personal and professional goals each year
2. Development and maintenance of a master calendar
3. Improved office procedures and productivity

Administrative/Budget

E & G/Legislative: The Radiography program and one-half of the Diagnostic Medical Sonography program are the only programs funded through state-allocated funds.

Self Supporting: All other programs (self-supporting/budget-related) are operated through Continuing Education with funds being returned to the Department to cover operational costs, program growth and development.

Student Lab Fees: The Radiography students are assessed \$84.00 in lab fees for the five-semester program. The Diagnostic Medical Sonography students are assessed \$90.50 in lab fees over a four-semester period. These lab fees are used to maintain the equipment and purchase supplies for student use in the labs.

Private Donations: The Radiologic Sciences Department has less than \$5,000.00 in private cash donations annually. The Department has little money that is used to support faculty research, scholarship or creative activities. The Dumke College of Health Professions provides financial support for faculty development, degree completion and research. Both full-time and adjunct faculty

F. Relationships with External Communities

Relationships With The External Community

The Radiography Program is affiliated with 25 health care facilities within Utah and with approximately 12 health facilities in the surrounding states. Totally, the Department of Radiologic Sciences has affiliation agreements with 300 healthcare facilities across the United States in all disciplines within the Radiologic Sciences program cluster. Each affiliate has a designated clinical coordinator assigned as the primary contact person for the program and have other professionals as designated clinical faculty to assist them. The affiliation is formalized through use of a legally-acceptable affiliation agreement which outlines the responsibilities of the health care facility and of the University in the educational process of the students.

In addition to the close contact with affiliated health care facilities, the program has advisory committees for the radiography, sonography, nuclear medicine and radiation therapy programs. The radiography advisory committee also provides input to the MRI, CT, CIT, mammography and other advanced radiography programs. The advisory committees meet at least biannually and also participate in the student selection process. Advisory committees provide valuable input into curriculum, program policies, program operation, student progress and approaches to problem situations. A complete list of advisory board members is available in the Department for review. Regular clinical visits are made by the faculty to all of the rural health facilities and local health facilities to assure students are gaining adequate education in all facets of the discipline. Copies of clinical site visits are on file for review. All affiliated clinical sites receive a Clinical Policy and Information Manual to assure that implementation of policies and procedures are consistent in all facilities.

The advisory committees and clinical faculty have been instrumental in acquiring donations of radiographic film, radiographic cassettes and other teaching aids for the programs. A major contribution is the acquisition of medical images for an up-to-date teaching file to use in the classroom and the laboratories. Each affiliate also donates the time of the clinical coordinator, who is an employee, to conduct seminars, to assess clinically student progress, to assist students who need additional guidance, and to participate in the advisory committee meetings. In addition, the health care facilities allow students to utilize state-of-the-art equipment and accessories while gaining clinical educational experience. The Department utilizes approximately 470 clinical coordinators, clinical faculty, and/or preceptors to assist the students with their clinical education. A complete list of the clinical faculty is available for review on campus. The minutes from advisory committee meeting are also available.

Facilities

The Department of Radiologic Sciences has excellent facilities:

- Three Energized Radiographic Labs
- Student Computer Lab with PACS and RIS system
- Ultrasound Lab
- Three Electronic Classrooms
- Wireless Internet Environment
- Ultrasound equipment and Phantoms

The facility is adequate to accomplish the mission and goals of the program at this time. However if the program is to grow additional space for faculty staff and students will be required.

Results of Previous Program Reviews

Overview:

This review of the Radiologic Sciences Programs was conducted as part of the Weber State University's continuing process for those educational programs that are not currently accredited by a specialized external accrediting agency. The team utilized standards last revised in June 2004. Radiologic Sciences voluntarily withdrew from external accreditation nearly 10 years ago for financial and logistical reasons.

Radiologic Sciences as a health profession remains fragmented with numerous subspecialties each requiring a separate joint review accreditation committee. For Weber State's RadSci program to be specialty accredited they would have to have memberships in at least 5 different organizations and would be perpetually participating in self studies and site visits.

The team reviewed the RadSci self study of November 2005 and the WSU Internal Audit of December 2005. The team had the opportunity to speak to the Dean of the Dumke College of Health Professions, Chair of Radiologic Sciences, Faculty, and Students.

The program has developed an expansive distance education program serving the Intermountain West and nation. Many of the programs are transportable and can be easily relocated to areas of need. The program has relied on continuing education funding which both allowed growth but has also raised some questions on financial accounting.

Standard A: Mission Statement

- The expected outcomes of the program were clearly defined.

- The process of student accomplishments were determined and periodically assessed based upon the constituencies served by the program.
- A clearly defined educational program, including a curriculum that enables graduates to achieve the mission was evidenced.
- The program mission statement was appropriate to and supported the mission statements of both the college housing the program and the university.

Standard B: Curriculum

- The program demonstrated that the curriculum for each degree and for any general education/service courses offered by the program is the result of thoughtful curriculum planning and review processes.
- The curriculum was consistent with the program's mission.
- The program demonstrated that there is an appropriate allocation of resources for curriculum delivery that is consistent with the mission of the program, the number of graduates, and the number of major/minor and general education SCHs produced.
 - See recommendations at end of report
- Department courses supported the major/minor/general education/service programs and are offered on a regular basis to ensure students are able to complete graduation requirements in a timely manner.

Standard C: Student Learning Outcomes and Assessment

- **Outcomes**
 - Students achieved the expected knowledge, skills, and behaviors at the time of graduation.
 - Student learning outcomes supported the goals of the program and the constituencies served.
 - Student learning outcomes are directly linked to the program's curriculum.

- **Assessment**

- A set of measures for assessment were clearly defined and appropriately applied.
- The department demonstrated that they are using assessment measures in a systematic manner on a regular basis.
- The department demonstrated that the assessment of the program mission and student outcomes was being used to improve and further develop the program.

Standard D: Academic Advising

- The department had a clearly defined strategy for advising their major/minor or BIS students that is continually assessed for its effectiveness.
 - Significant advising is done by the DCHP advisors
- Students receive appropriate assistance in planning their individual programs of study.
- Students receive needed assistance in making career decisions and in seeking placement, whether in employment or graduate school.

Standard E: Faculty

- The faculty size, composition, qualifications, and professional development activities reflected a planning process which is consistent with the program's mission.
 - See recommendations at end of report
- The department maintained a minimal core of full-time faculty sufficient to provide stability and ongoing quality improvement for the degree programs offered.

- The contract/adjunct faculty who provide instruction to students (day/evening, off/on campus) were academically and professionally qualified.
- The department demonstrated efforts to achieve demographic diversity in its faculty.
- The university/college had appropriate procedures for the orientation of new contract/adjunct faculty starting in the summer
 - Due to workloads, new faculty gets minimal departmental mentoring. See recommendations.
- Processes were in place to determine appropriate teaching assignments and service workloads, to guide and mentor contract/adjunct faculty, and to provide adequate support for activities which implement the program's mission.
- Teaching was systematically monitored to assess its effectiveness, and revised periodically to reflect new objectives and to incorporate improvements based on appropriate assessment methods. For both contract and adjunct faculty, there is evidence of:
 - Effective creation and delivery of instruction was evidenced
 - Efficiency is not being maximized with alternative instructional technology due to faculty overload providing teaching.
 - Ongoing evaluation and improvement of instruction was evidenced
 - Innovation in instructional processes were present in the teaching modules and computerized case studies
 - A formal, periodic review process existed for all faculty

Standard F: Program Support

- The number and capabilities of the support staff was adequate to meet the mission and objectives of the program.
 - (Program is replacing a recent death of a secretary)
 - Site team supports permanent (E&G) funding of clinical lab manager
- Administrative support was present in assisting in the selection and development of support staff.
- The facilities, equipment, and library support needs were adequate to meet the mission and goals of the program.

- Large class room facilities appear to be limited
- Clinical lab facilities are outstanding. It is assumed that a digital radiography imaging system purchase will be implemented in the very near future.

Standard G: Relationship with External Communities

- Formal relationships between the program and external communities of interest existed and were clearly defined.
- External relationships had a clearly defined role and evidence of their contribution to the program (curriculum, equipment, faculty, budget, etc) were demonstrated.
- The program had an active external advisory committee, that meets regularly
 - Minutes of the meetings were made available.

Standard H: Program Summary

- The program demonstrated how it has implemented most of the recommendations from the previous review and what effect these changes had on the program.
 - 5/2 year equipment plan was developed
 - Department needs to formalize purchase plans with higher administration
 - Periodic student evaluation of clinical sites was completed
 - PAR's and accounting practices with Continuing Education have improved
- Site visit team does not recommend the need for individual program accreditation. For Weber State's RadSci program to be specialty accredited they would have to have memberships in at least 5 different organizations and would be perpetually participating in self studies and site visits.
 - The national trend for multidisciplinary programs appears to be quickly moving towards internal institutional review
- The team supports the RadSci commitment and direction with the RPA and RA program. Site team suggests that university legal counsel review any potential conflict of interest raised in the previous self study.
- The education between the campus and distance ed was consistent

Laudatory Comments:

- Intense satisfaction was noted in the department's ability to provide education for all localities
- Well deserved, intense pride was noted in the national notoriety and demonstrated quality of the program
- The faculty seemed willing to work with each other and teach any area of the curriculum
- Program should be commended for progressive approaches to curriculum changes and healthcare delivery
 - Program wants to develop a women's imaging degree and Masters degrees in Dosimetry and RPA (The site team strongly supports this movement)
- Program assessment is excellent from an advisory committee, department and university perspective.
- Students stated both DCHP and departmental advising was seamless throughout their education
- Faculty was commended by students for meeting their needs and responding to questions
- Faculty was confident in the supportive leadership of Bob Walker, Chair

Areas of Concern / Recommendations

- The site visitors sensed that the RadSci faculty is strained
 - Faculty appeared to show signs of stress due to course teaching load
 - Due to teaching loads, the experienced faculty may not have time for new faculty promotion and tenure mentoring
 - Workload and obvious stress factors could ultimately harm new faculty recruitment
- The computation of the RadSci teaching load is somewhat unique and does not neatly fit into the standard DCHP or University model
 - Site visitors suggest that RadSci develop a faculty load model that can be readily understood.
- Site team supports permanent (E&G) funding of clinical lab manager. This would help reduce the strain on the current teaching faculty.

- Site visitors have concern that all students may not be getting comparable clinical opportunities, patient mix and availability to complete competencies.
 - In the future, the designated clinical coordinator for the department must assure equal opportunities for all students.
 - Students in small clinics and hospitals may need to be rotated to larger facilities
- Some students expressed concerns that program produced materials which may not be up to date in terminology and some assignments did not appear to have relevancy
 - Program should review current materials and update as appropriate
- Available campus technology is currently under-utilized in decreasing teaching workload and stress.
 - Usage of a university approved electronic grade book should be considered
 - Blended (hybrid) and stand alone web courses should be developed
 - Student technology consultants for increased web based projects should be utilized
- In the future, the designated clinical coordinator for the department must assure equal opportunities for all students.
 - Students in small clinics and hospitals may need to be rotated to larger facilities . All Student must meet the same ARRT clinical competency for certification

Department of Radiologic Sciences Response:

- Some students expressed concerns that program produced materials which may not be up to date in terminology and some assignments did not appear to have relevancy
 - Program should review current materials and update as appropriate
- Available campus technology is currently under-utilized in decreasing teaching workload and stress.
 - Usage of a university approved electronic grade book should be considered
 - Blended (hybrid) and stand alone web courses should be developed
 - Student technology consultants for increased web based projects should be utilized

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

Action Plan for Evidence of Learning Related Findings

Implement the pre and post testing for direct measurements of learning.
Make appropriate changes as warranted.
Continue to evaluate teach load and need for new faculty

Action Plan for Staff, Administration, or Budgetary Findings

Work with the development office and the capital campaign
Monitor need for additional staff, hourly help and/ student aids
Hire more teaching assistants in the future

Summary of Artifact Collection Procedure

The departments is keeping a collection of student artifacts from each course to include such things case studies, papers, images obtained in the labs and clinical evaluations. This will be digital information that will be contained in our departmental PACS and RIS system. Students that complete an AAS, BS and/or MSRS degrees will have a portfolio of artifacts for each level of education.

Student and Faculty Statistical Summary

Department of Radiologic Sciences							
<u>Student and Faculty Statistical Summary</u>							
(data provided by Institutional Research)							
	2006-07	2007-08	2008-09	2009-10	2010-2011	2011-2012	
Student Credit Hours Total	21,102	20,121	19,100	18,129	17,041	16,045	
Diagnostic Medical Sonography	937	1,182	943	1,146	1,182	1,093	
Nuclear Medicine	742	841	790	608	563	466	
Radiation Therapy	1,362	1,468	1,095	1,254	954	771	
Radiography	18,061	16,630	16,272	15,121	14,342	13,715	
Student FTE Total	703.40	670.70	636.67	604.30	568.03	534.83	
Student Majors	734	778	722	755	779	784	
Diagnostic Medical Sonography	58	137	107	141	126	99	
Nuclear Medicine	11	16	30	6	8	20	
Radiation Therapy	31	39	46	76	31	44	
Radiography	464	401	352	375	396	394	
Advanced Rad Sci	170	185	187	157	218	227	
Program Graduates							
Associate Degree	69	98	151	101	87	97	
Bachelor Degree	112	117	121	123	163	176	
Student Demographic Profile	734	778	722	755	779	784	

Female	474	516	476	509	537	544		
Male	260	262	246	246	242	240		
Faculty FTE Total	10.03	9.53	8.08	9.25	10.49	NA		
Adjunct FTE	4.5	2.88	1.2	1.93	3.17	NA		
Contract FTE	5.53	6.65	6.88	7.32	7.32	NA		
Student/Faculty Ratio	70.13	70.38	78.80	65.33	54.14998	NA		
*Student majors include pre-professional programs								
Student Credit Hours Total represents the total department-related credit hours for all students per academic year. Includes only students reported in Banner system as registered for credit at the time of data downloads.								
Student FTE Total is the Student Credit Hours Total divided by 30.								
Student Majors is a snapshot taken from self-report data by students in their Banner profile as of the third week of the								

<p>Fall term for the academic year.</p>								
<p>Program Graduates includes only those students who completed <u>all</u> graduation requirements by end of Spring semester for the academic year of interest. Students who do not meet this requirement are included in the academic year in which all requirements are met. Summer is the first term in each academic year.</p>								
<p>Student Demographic Profile is data retrieved from the Banner system.</p>								

<p>Faculty FTE is the aggregate of contract and adjunct instructors during the fiscal year. Contract FTE includes instructional-related services done by "salaried" employees as part of their contractual commitments. Adjunct FTE includes instructional-related wages that are considered temporary or part-time basis. Adjunct wages include services provided at the Davis campus, along with on-line and Continuing Education courses.</p>								
<p>Student/Faculty Ratio is the Student FTE Total divided by the Faculty FTE Total.</p>								

Financial Analysis Summary

External Community Involvement Names and Organizations

Students have provided AHEC presentations and provided information about the Radiologic Sciences Programs at career fairs, such as Majorfest. They have provided service in the support of ACERT by providing direction, documents, and information to the professional conference attendees. These students provided time and volunteered as patients to further the education and support of students involved in sonography education. Andrea Nelsen and Taylor Thornley dedicated several hours to help produce and promote a food drive dedicated to the YCC of Ogden, UT. Also, Taylor volunteered several hours (8 per semester) to a local hospice center and organized and ran a 5K in response to raising money for the cause. Jeremy Cook provided service to the people of Jiamusi and the children of Yangpu elementary in conjunction with his study abroad in China. He has also given several hours (8 per semester) to the local desert industries. Jeremy Bennett dedicates a great deal of his time for a support group of parents dealing with children suffering from brittle bone disease. Other projects that have been discussed to be completed in the month of December: breast cancer awareness fund raisers, sub-for-santa, working in a soup kitchen, and providing ski lessons for disabled.

External Community Involvement Financial Contributions

Perkins Grant	
2010/2011	\$49,006.00
2011/2012	\$14,645.18
2012/2013	\$27,513.00
Total	\$91,164.18