Radiography Program
School of Health Professions
University of Missouri

STUDENT
POLICY & GENERAL
INFORMATION MANUAL

2016-2017
Radiography Program
# Policy & General Information Manual
## 2016-2017
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Radiography Program

Policy & General Information Manual
2016-2017

I. INTRODUCTION

A. PROGRAM LENGTH
Radiography program faculty coordinate with the School of Health Professions’ Student Services in the advisement of students throughout their college career. The program is divided into two phases and generally takes a minimum of four years to complete. In the first, or prerequisite, phase students enroll in the University of Missouri’s required general education courses and complete the Radiography Program’s required prerequisite courses.

Admission to the second, or professional, phase of the program requires a separate application and is competitive. The February 1 deadline typically falls during the spring semester of a student’s sophomore year. Upon acceptance into the program, students begin professional radiography courses in the summer semester following acceptance into the program, typically the summer semester of their Junior year. This professional phase of the program runs for 24 consecutive months. Successful students will then graduate with a bachelor’s degree and are eligible to apply for their national registry examination through the American Registry for Radiologic Technologists (ARRT) to become a registered radiologic technologist: RT(R).

B. PROGRAM SCHEDULE
The program observes the University of Missouri academic calendar found on the MU Web page (http://provost.missouri.edu/academic-calendar/) that includes holiday observances, semester breaks, and between semester breaks, with the exception of the second summer in the program where students return one week early to fulfill their clinical education requirement.

C. PROGRAM COSTS
University of Missouri
Costs to attend the University of Missouri may be found from the University’s home web page under “Prospective Students”. (Mizzou Admissions: http://admissions.missouri.edu/index.php)

Following the “Costs and Aid” link will take you to the following tuition and fees, scholarships, residency, financial aid, veteran’s benefits:

- [http://registrar.missouri.edu/residency/](http://registrar.missouri.edu/residency/)

**Additional Scholarships**
- School of Health Professions Scholarships  
  [http://healthprofessions.missouri.edu/students/scholarships.php](http://healthprofessions.missouri.edu/students/scholarships.php)
- Radiography Scholarship: Mary Sebacher Scholarship. One $500 competitive scholarship is awarded to a senior radiography student. Please contact the Radiography Program Director for further information.

**Refunds**
Refunds are handled through the Office of Cashiers and may be accessed through the University of Missouri home page at the following URLs:
- Contact us: [http://cashiers.missouri.edu/contact.html](http://cashiers.missouri.edu/contact.html)
- Refunds: [http://cashiers.missouri.edu/refunds/about.html](http://cashiers.missouri.edu/refunds/about.html)
- Current refund schedule:  
  [http://cashiers.missouri.edu/refunds/schedule.html](http://cashiers.missouri.edu/refunds/schedule.html)

**Estimated Additional Costs**

In addition to the University tuition and fees, room and board, and personal expenses, a radiography student will have additional costs associated with the program, clinical affiliations and being a professional. Estimated costs are subject to change. Students should budget for at least the following ancillary costs:
- Transportation to clinical sites in Columbia
- Costs associated with background checks: Missouri Dept. of Health and Senior Services $12, nationwide background check $28.95 (one time)
- Costs associated with drug testing (Panel 14 Drug Screen)
- Immunizations: MU students must comply with the mandatory MU immunization policy  
  [http://studenthealth.missouri.edu/forms&policies/immunization.html](http://studenthealth.missouri.edu/forms&policies/immunization.html). Because of potential for exposure to other diseases, health professions students also have more extensive requirements. Our clinical sites currently require the following: MMR, DTP, Polio, Adult Td or Tdap, Varicella (chicken pox), Hepatitis B, Two-step TB testing with annual update, and influenza.
- Procedures and services not provided by the Student Health Fee.  
  [http://studenthealth.missouri.edu/needtoknow/healthfee.html](http://studenthealth.missouri.edu/needtoknow/healthfee.html).
- As a student you are not covered by Workman’s Compensation; therefore, all students are urged to have some type of medical hospitalization insurance.
- Scrubs (black) approximately $95-120 for 3 sets
- Work shoes $70-100
- Lead side markers (BB with initials) $35-40 (one time unless you lose them)
- American Heart Association Basic Life Support for Healthcare Providers training: $50 (2 year certification)
- Missouri Society of Radiologic Technologists Membership $20 for 2 years
- Annual conference attendance $ 160 per year (location dependent)
- Books: estimate $1200 for the program (largest impact is first semester)
- Electronic clinical tracking: $165 per year
- Fee for national registry exam (ARRT): $200
- Senior banquet ($70)
- Optional student membership in the national professional organization: The American Society for Radiologic Technologists: $35
- Optional Experiential Liability Insurance: $17/year (see section IV.D.7)

D. MISSION STATEMENT
The primary mission of the radiography program is to prepare highly competent, registry-eligible professionals in the medical imaging sciences. Our program and curriculum are designed to provide an educational foundation for the advancement into leadership and managerial positions within medical imaging, as well as providing an environment where scholarly activity, professional development, and service are expectations. Our curriculum enables successful graduates to readily interact with a variety of health care and science related fields.

E. PROGRAM OBJECTIVES
In order to fulfill the primary mission of this program, the following goals and objectives have been developed:

1. Recruit students with a demonstrated track of educational excellence into our full-time professional program
2. Continually improve the educational program to ensure that students receive relevant and timely instruction as it pertains to the medical imaging discipline
3. Maintain accreditation with national organizations to ensure that our program continues to meet the high standards set forth by these organizations
4. Promote continuing education of medical imaging professionals with specific emphasis on providing this education to rural health care practitioners
5. Stimulate critical-thinking and problem-solving abilities through curriculum design
6. Ensure that students are well prepared to pass national certifying examinations
7. Focus on accepted radiographic positions, while allowing students the opportunity to be creative and innovative in accomplishing this task
8. Adequately prepare students to enter into the job market competitively upon graduation
9. Provide students with opportunities for interaction with other healthcare professionals to develop a multidisciplinary approach to health care delivery
10. Encourage medical imaging professionals to consistently employ radiation safety to protect those who come to us for medical care
11. Promote professional and ethical behavior, thus positively influencing public perception of the medical imaging profession

F. PROGRAM OUTCOMES ASSESSMENT GOALS

Goal 1: Students will be clinically competent.
1.1 Students will provide appropriate patient care
1.2 Students will demonstrate good patient positioning skills
1.3 Students will select appropriate technical factors
1.4 Students will demonstrate the proper use of radiation safety

Goal 2: Students will communicate effectively.
2.1 Students will demonstrate effective written communication skills
2.2 Students will demonstrate effective oral communication skills

Goal 3: Students will use critical thinking and problem solving skills.
3.1 Students will be able to modify standard imaging protocols to non-routine procedures
3.2 Students will demonstrate an appropriate approach to solving problems.

Goal 4: Students will evaluate the importance of professional growth and development.
4.1 Students will demonstrate professional integrity
4.2 Students will evaluate the value of professional organization membership

Goal 5: The program will graduate entry level technologists.
5.1 Students will pass the ARRT national certification on the first attempt.
5.2 Students pursuing employment will be gainfully employed within 12 months of graduation.
5.3 Students will complete the program
5.4 Students will be satisfied with their education.
5.5 Employers will be satisfied with the graduate’s performance.

G. PROGRAM STRATEGIC PLAN
In order to achieve our mission, objectives, and goals the program and its personnel will strive to:
- Continually assess the needs of students and employers in the field of medical imaging,
• Maintain and enhance affiliations with regional health care institutions and professional organizations,
• Appoint and retain highly qualified didactic faculty,
• Regularly and consistently evaluate the competence of students in the areas of technical expertise and professional development,
• Maintain an educational environment that encourages personal growth, recognizes academic successes, and provides adequate support mechanisms to further foster student success,
• Develop and disseminate continuing education materials to address the needs of rural health care practitioners, and
• Conduct appropriate research to contribute to the medical imaging profession.

H. STUDENT SERVICES
The Radiography Program would like to assure optimum student achievement while you are in the program. The University of Missouri provides many student resources on campus such as the Counseling Center, Health Services, Disabilities Center, Diversity Office, Title IX Office, MizzouRec, etc. These resources may be accessed from MU homepage current student link URL: http://missouri.edu/students/. The School of Health Professions Office of Student Services also provides comprehensive services for students and their support networks, as well as faculty, in the areas of recruitment, scholarships, admissions, advising, retention, graduation, and career and professional development.

We would highly encourage you to make use of these resources when needed. Please consult any of your faculty if you need help in locating the resources you need.
II. RADIOGRAPHY PROGRAM FACULTY

A. PROGRAM FACULTY

Tew, Patricia  
MS, RT (R)(CT)  
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Program Director  
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N214 Radiology  
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campc@health.missouri.edu

B. CLINICAL APPOINTMENTS

Hodge, Chuck, BS, RT(R)  
Brekke, Mark, RT(R)(CV)  
UMHC

Schmitter, Kala, RT(R)  
Perry, Kathy, RT(R)  
Keller, Bill, RT(R)(CT)(MR)  
UMHC – Missouri Orthopedic Institute  
UMHC – Ped Ortho Clinic  
UMHC – South Providence Medical Park

Brightwell, Susan, BHS, RT(R)  
VA Hospital

DeGraff, Cliff, BS RT(R)  
Williams, Klarissa  
Women’s and Children’s Hospital  
Women’s and Children’s Hospital

Pennell, Jon, BHS, RT(R)  
Lowenberg, Kim, RT(R)  
Boone Hospital  
Boone Hospital
## C. CLINICAL CONTACT NUMBERS

<table>
<thead>
<tr>
<th>Institution</th>
<th>Preceptor/Supervisor</th>
<th>Telephone</th>
</tr>
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<tbody>
<tr>
<td>UMHC 2nd floor</td>
<td>Chuck Hodge/Mark Brekke</td>
<td>882-8535</td>
</tr>
<tr>
<td>MOI</td>
<td>Kala Schmitter</td>
<td>884-1423</td>
</tr>
<tr>
<td>Pediatric Ortho Clinic</td>
<td>Kathy Perry</td>
<td>884-3396</td>
</tr>
<tr>
<td>OP/ER</td>
<td>Staff Technologist</td>
<td>882-9505</td>
</tr>
<tr>
<td>UP</td>
<td>Staff Technologist</td>
<td>882-2880</td>
</tr>
<tr>
<td>MRI Supervisor</td>
<td>Chris Jones</td>
<td>884-8003</td>
</tr>
<tr>
<td>CT Supervisor</td>
<td>Casey Camp</td>
<td>882-1837 (882-1518)</td>
</tr>
<tr>
<td>Evening Supervisor</td>
<td>Chris Robbs</td>
<td>882-8535</td>
</tr>
<tr>
<td>Special Procedures</td>
<td>Angie Creamer</td>
<td>882-8542</td>
</tr>
<tr>
<td>South Providence Medical Park</td>
<td>Michelle Vaughn, Bill Keller</td>
<td>882-4395</td>
</tr>
<tr>
<td>X-Ray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ellis Fischel Radiation Therapy</td>
<td>Adam Nowack</td>
<td>882-8644</td>
</tr>
<tr>
<td>Ellis Fischel Mammography</td>
<td>Kristy Olson</td>
<td>884-6272</td>
</tr>
<tr>
<td>Women’s and Children’s Hospital</td>
<td>Cliff DeGraff, Klarissa Williams</td>
<td>771-9411</td>
</tr>
<tr>
<td>MRI</td>
<td>Staff</td>
<td>771-9222</td>
</tr>
<tr>
<td>VA Hospital</td>
<td>Sue Brightwell</td>
<td>814-6414</td>
</tr>
<tr>
<td>US</td>
<td>Lanny Barber</td>
<td>814-6414</td>
</tr>
<tr>
<td>Nuc Med</td>
<td>Xiong (Shawn) Vang</td>
<td>814-6420</td>
</tr>
<tr>
<td>Boone Hospital Center</td>
<td>Jon Pennell, Kim Lowenberg</td>
<td>815-3701</td>
</tr>
<tr>
<td>MRI/CT</td>
<td>John King</td>
<td>815-6203/815-3414</td>
</tr>
<tr>
<td>Special Procedures</td>
<td>Mary Stevens, Justin Vestal</td>
<td>815-6253</td>
</tr>
<tr>
<td>UMC Veterinary Hospital</td>
<td>James Holland</td>
<td>882-7821</td>
</tr>
</tbody>
</table>
III. RADIOGRAPHY COURSE DESCRIPTIONS
(Alphabetical by course name)

RS 3130 BASIC RADIOGRAPHIC SKILLS - Radiographic film processing techniques, intensifying screens and sensitometry will be discussed. The x-ray tube, x-ray production and some of the factors which affect the quantity and quality of the x-ray beam as well as the x-ray image will also be introduced.

CDS 3460 CARDIOVASCULAR AND PULMONARY DIAGNOSTIC APPLICATIONS I - Problem-based study of cardiopulmonary anatomy and physiology using current imaging methods. Emphasis given to assessment of the acutely distressed cardiac or pulmonary subject, emergency pulmonary support and vascular access techniques

CDS 4460 CARDIOVASCULAR AND PULMONARY DIAGNOSTIC APPLICATIONS II - Advanced study of Cardiac dysrhythmias, hypertrophy, and infarction, emphasizing aspects of treatment employed during Advanced Cardiac Life Support.

RS 3941 CLINICAL EDUCATION 1 - First in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing radiographic procedures of the chest, abdomen, and extremities.

RS3942 CLINICAL EDUCATION 2 - Second in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the development of technical skills and procedural knowledge of routine radiographic procedures.

RS 4943 CLINICAL EDUCATION 3 - Third in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the transition to self-directed practice of routine radiographic procedures and the development of technical skills and procedural knowledge of more advanced radiographic procedures.

RS 4944 CLINICAL EDUCATION 4 - Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

RS 4945 CLINICAL EDUCATION 5 - Final clinical course. Supervised clinical experience emphasizing self-directed performance of complex radiographic procedures, continued competency in routine diagnostic radiography and the investigation of advanced modalities, while transitioning to reflective, critical, and strategic professional practice.

RS 4150 COMPUTED TOMOGRAPHY: PHYSICS & PROCEDURES - Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures.

RS 3120 FUNDAMENTALS OF RADIOGRAPHY - Orientation to radiology department, ethics, psychodynamics of patient care, medical legal considerations and radiation safety procedures.

RS 3170 IMAGING MODALITIES - The study of radiographic and fluoroscopic equipment with attention to automatic exposure devices, image intensification, and imaging detectors. Consideration will be given to equipment in such modalities as computed tomography, magnetic resonance imaging, ultrasound, nuclear medicine and radiation therapy.
RS 4980 IMAGING PATHOLOGY - Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

HlthSci 3900 INTRODUCTION TO THE RESEARCH PROCESS AND EVIDENCE BASE - An introduction to the basic quantitative and qualitative research techniques used in the health professions. Basic elements of research as well as strengths and weaknesses of various methodologies, Institutional Boards, research ethics, research design, validity and reliability will be covered.

RS 4140 MAGNETIC RESONANCE IMAGING: PHYSICS & PROCEDURES - Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations.

CDS 2190 MEDICAL TERMINOLOGY - Medical terminology based on a word building system. This course is intended for students majoring in Health Related Professions, Nursing and other helping professions, pre-med and biology.

CDS 4328 RADIATION BIOLOGY - Regulations and procedures for safe uses of radiation to heighten student understanding of radiation physics, radiation biology, and radiation safety.

CDS 4440 ORGANIZATION AND ADMINISTRATION - Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medico-legal aspects, interdepartmental relations and curriculum development.

RS 3140 PRINCIPLES OF RADIOGRAPHIC EXPOSURE - Theory and principles of X-ray technique; correlation of factors with application.

RS 4947 RADIOGRAPHY OVERVIEW - A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

RS 3110 RADIOGRAPHIC PROCEDURES 1 - This course is an introduction to basic radiographic positioning and procedures. Specific radiographic procedures of the chest, upper extremity, shoulder girdle, pelvis and lower extremity are taught.

RS 3180 RADIOGRAPHIC PROCEDURES 2 - Instruction in radiographic procedures of the upper and lower gastrointestinal system, urinary system, bony thorax, vertebral column, and cranium.

RS 3190 RADIOGRAPHIC PROCEDURES 3 - Instructions in advanced radiographic imaging techniques with emphasis in trauma radiography, vascular studies and other specialty radiographic procedures.

RS 3150 RADIOLOGIC PHARMACOLOGY - Pharmacological principles, biopharmaceuticals, pharmacokinetics, pharmacodynamics, drug classifications, drug names, administration routes, and infection prevention and control will be covered. Attention will be given to contrast agents relative to radiographic imaging. Ethical and legal implications will be explored.

RS 3160 RADIOLOGIC PHYSICS - Fundamental physics of electricity and radiant energy; principles of generation of electromagnetic radiation and applicable equipment; and
principles of digital image capture, display and storage.

**RS 4110 SECTIONAL ANATOMY** - A study of sectional anatomy intended to relate the anatomy with structures demonstrated on images from computed tomography, magnetic resonance imaging and diagnostic ultrasound.
RADIOGRAPHY PROGRAM

Courses and Instructors

Basic Radiographic Skills ................................................................. Sebacher
Cardiopulmonary & Diagnostic Applications 1 ......................... Allen
Cardiopulmonary & Diagnostic Applications 2 ......................... Moss
CT Physics & Procedures ............................................................. Tew
Fundamentals of Radiography .................................................... Allen
Imaging Modalities ................................................................. Allen
Imaging Pathology ................................................................. Sebacher
Introduction to the Research Process and Evidence Base .......... HLthSci Faculty
Medical Terminology ............................................................. Sebacher
MRI Physics & Procedures ....................................................... Camp
Organization & Administration .................................................. Lair
Procedures 1, 2, 3 (includes Film Critique & Trauma) ................. Tew
Principles in Radiographic Exposure ........................................ Sebacher
Radiation Safety & Biology ...................................................... Galen
Radiography Overview .......................................................... Sebacher
Radiologic Pharmacology ....................................................... Tew
Radiologic Physics ................................................................. Allen
Sectional Anatomy ................................................................. Tew
IV. RADIOGRAPHY POLICIES AND REGULATIONS

A. PROFESSIONAL ETHICS

1. ARRT Certification and Registration Requirements
   a. In accordance with ARRT’s “Equation for Excellence”, candidates for ARRT certification must meet basic requirements in the following three components: ethics, education, and examination.
   b. Successful completion of the requirements for a degree at the University of Missouri does not guarantee eligibility to take the American Registry of Radiologic Technologists’ certifying exam.
   c. It is important that the candidate understand that there is a moral character requirement for eligibility for examination. Eligibility for examination requires that the candidate be “of good moral character and must not have engaged in conduct that is inconsistent with the ARRT Rules of Ethics.” Issues that may prevent candidates from being eligible to sit for the ARRT exams or renew their registration include:
      (1) Criminal proceedings including:
          (a) Misdemeanor charges and convictions,
          (b) Felony charges and convictions,
          (c) Military court-martials; and/or
      (2) Disciplinary actions taken by a state or federal regulatory authority or certification board; and/or
      (3) Honor code violations
   d. The ARRT Ethics Committee conducts a thorough review of all convictions. Documentation required for a review includes written personal explanation of the activity and court records to verify the conviction, sentence, and completion of the sentence. Anything less than complete and total disclosure of any and all convictions will be considered as having provided false or misleading information to the ARRT. This is grounds for permanent denial of eligibility for certification. The ARRT may conduct criminal background searches whenever appropriate.
   e. If you have concerns regarding your eligibility to become a technologist or sit for the ARRT examinations, it is your responsibility to immediately 1) notify the program and 2) contact the ARRT ethics board at:
       The American Registry of Radiologic Technologists
       1255 Northland Drive
       St. Paul, MN 55120
       (651) 687-0048
       www.arrt.org

2. Healthcare Facility Requirements
   a. In order to assure our clinical sites of the high moral character of our students, all Radiologic Sciences students must submit to a Criminal Background Check and Drug Screening. Note: Students are responsible for all costs associated with these requirements. This Criminal Background Check accesses the statewide and national criminal records, child abuse/neglect records from the Division of Family Services, and
Employee Disqualification Lists maintained by the Departments of Mental Health and Health and Senior Services.

(1) Students who have a positive drug screen without a current, valid prescription for the substance in question will not be allowed to continue the program.

(2) Students listed on the Employee Disqualification lists will not be allowed to continue in the program.

(3) Students who have criminal convictions, but are not listed on the Employee Disqualification lists must submit to a Pre-application Review of Eligibility for the American Registry of Radiologic Technologists and be found eligible to sit for the ARRT examination in order to continue in the program. The student is responsible for all costs associated with this process. The student must begin this process as soon as possible to ensure timely processing and determination of eligibility to sit for the ARRT registry examination.

b. If, at any time subsequent to the pre-clinical background checks, proceedings or actions that reflect upon moral character arise, it is the student’s responsibility to 1) notify the program immediately about the incident and to 2) contact the ARRT ethics board to determine if they will be allowed to take the registry exam and become a technologist. (see A.1.e)

B. ESSENTIAL REQUIREMENTS

Radiography students and professional technologists must provide high quality patient care while performing diagnostic medical imaging procedures. Students who expect to enter and successfully progress through the professional phase of the Radiography Program must possess the knowledge, skills, attitudes and judgment to function in a broad variety of clinical situations with a diverse patient population. Candidates must demonstrate the capacity to develop emotional maturity and leadership skills to function effectively as a member of the medical team.

The Radiography Program has a responsibility to train competent radiologic technologists that demonstrate critical judgment, extensive knowledge, and well-honed technical skills. All students must possess essential skills and abilities necessary to complete the curriculum successfully. These include both academic standards (e.g., grade point average, exam scores, project evaluations) as well as the following technical standards:

Observation: The student/candidate must be able to participate actively in all demonstrations, laboratory exercises, group discussions, online presentations, and clinical experiences in the professional phase of the degree program. Such observations and participation usually requires the functional use of visual, auditory, and somatic sensations.

Communication: Students must have the ability to recognize, understand, and interpret required instructional materials including written documents, printed documents, computer-information systems, auditory information and non-book resources. They must be able to communicate with accuracy, clarity, efficiency and sensitivity when dealing with patients, nurses, doctors, preceptors, faculty, colleagues and others encountered in any clinic or academic setting.
Intellectual/conceptual, integrative, and quantitative abilities: Problem solving is an integral part of becoming an excellent radiographer. This requires that the student have the ability to measure, calculate, reason, analyze, evaluate and synthesize. Students must be able to use cognitive ability, exercise proper judgment, and efficiently complete all responsibilities. They must have the ability to follow standard precautions against contamination and cross contamination with infectious pathogens, toxins and other hazardous chemicals in order to protect their patients and themselves. The student must work in a safe manner, including the application of proper radiation safety standards. They must be able to identify and respond appropriately to emergencies and urgencies.

Psychomotor abilities: The student must have the ability to manipulate the stationary and mobile x-ray equipment, instruments, apparatus, and other medical devices. They must be able to manipulate knobs, buttons, switches, and computer devices that control radiation exposure and image production. They must be able to safely transfer patients to x-ray tables from such devices as wheelchairs, carts, stretchers, and hospital beds. Students must have sufficient motor function to successfully complete bedside radiographic examinations. Imaging procedures often require accurate and precise use of syringes, placement of intravenous catheters, and preparation of contrast media. Students must be able to withstand wearing heavy protective lead apparel (e.g., aprons, wrap-around skirts, vests, thyroid shields) for long periods of time.

Behavioral and social attributes: The student must possess the emotional health required for full utilization of his/her intellectual abilities, the exercise of good judgment, the prompt completion of responsibilities of patient care, and the development of mature, sensitive and effective relationships with other persons. They must demonstrate emotional stability to function effectively under stress and be able to adapt to changing environments inherent in the clinical setting. They must be able to acknowledge feedback and respond appropriately. The student is expected to possess the perseverance, diligence, and consistency to complete the didactic and clinical curriculum. Compassion, integrity, concern for others, commitment and motivation are personal qualities which each student should possess.

Because of the Essential Requirements of a radiographer, the Radiography Program strongly discourages the use of surrogates to perform these functions as a reasonable accommodation for persons with disabilities. It is necessary that each degree candidate herself or himself be able to observe and perform each task required by the curriculum of the Program which is written in accordance with our national organizations, the American Society of Radiologic Technologists (ASRT) and the American Registry of Radiologic Technologists (ARRT) and our national accreditation body, the Joint Review of Education in Radiologic Technology (JRCERT). Similarly, the Program does not consider a waiver of required examinations and competencies a reasonable accommodation for individuals with disabilities. All students must possess proficiency in a variety of abilities to fulfill Program and national organization requirements for an entry level radiography position. Students with disabilities, when appropriate, may be granted additional time on required examinations be examined in separate testing facilities, or accommodated in other reasonable ways. However, they will not be exempted from the requirements to take and pass such test.

The Essential Requirements should be used to assist students in determining whether accommodations or modifications are necessary to meet the performance levels. This policy applies to applicants and current students. If a student has a disability and requires accommodations to meet these requirements, the student must provide the Radiography
Program documentation from the Office of Disability Services upon admission to the program of study or as soon as a need is identified. The Program will endeavor to make reasonable modifications and accommodations for students with disabilities, without compromising the essential requirements.

The Radiography Program makes no pre-admission inquiries concerning an applicant’s disability. Information related to an applicant’s disabilities is not a part of the information reviewed by the Admissions Committee. Determination is made on an individual basis as to whether or not any accommodations or modifications can reasonably be made. Students who have questions regarding these technical standards or who believe they may need to request reasonable accommodations in order to meet the standards are encouraged to contact the MU Office of Disability Services (http://disabilityservices.missouri.edu/, S5 Memorial Union, Columbia, MO 65211, Voice: 573-882-4696 | TTY: 573-882-8054 | Fax: 573-884-5002 | E-mail: disabilityservices@missouri.edu) or the Radiography Program at 573-884-2623.

C. PROGRAM EVALUATION

1. A faculty member may use attendance, or lack of attendance, as a criterion in the determination of a course grade.

2. Once accepted into the Radiography Program, a student must achieve a "C" grade or above in all Radiography courses and earn a minimum of a 2.5 grade point average each semester. If the student does not maintain a 2.5 semester grade point average and/or fails to achieve a “C” or better in all radiography courses, the Radiography Faculty will review the situation with the option to recommend dismissal.

3. A mastery score of 75% is required to pass our national ARRT registry exam. In accordance with this standard, Radiography Program faculty use the following mastery, plus/minus grading scale: A = 97% - 100%, A- = 93% - 96%, B+ = 89% - 92%, B = 85% - 88%, B- = 81% - 84%, C+ = 78% - 80%, C = 75% - 77%. A minimum competency of 75% is required. Any test for which a student obtains a score of less than 75% must be repeated until competency is attained. However, the first score will be used to calculate the final course grade.

4. In addition to meeting the academic and clinical education requirements, students must possess and exhibit those personal qualities and characteristics that are associated with patient welfare and professional trust. These elements are a part of the regular overall evaluation process. Should it be determined that these qualities and characteristics are not present in sufficient degree and that satisfactory growth and progress in this area is not being demonstrated, the student is subject to removal from the program.

D. CLINICAL POLICIES & REGULATIONS

1. Incident Reports/Counseling

   a. Incident reports and counseling will be provided to students who fail to follow the policies and regulations of the Radiography Program. An incident report may result in the grade for Clinical Education being reduced by one letter grade. (See example in the Clinical Education Forms, Section I, page 1)
2. **Absence/Tardy**
   a. Tardy and unexcused absences will be made up as equivalent time prior to the beginning of the next semester. It must be scheduled in advance with the Clinical Coordinator. A first occurrence will result in the clinical grade being lowered 2 percentage points. The second occurrence will result in the clinical grade being lowered an additional 3 percentage points. The third occurrence will result in the clinical grade being lowered 4 more percentage points and the student will be placed on probation. If it happens a fourth time, the student will be subject to dismissal from the program.

   b. If absent or late the student **must** contact the following within an hour of the scheduled clinical assignment:

   c. Contact the Radiography Program (Clinical Educational Coordinator, Program Director or other faculty members). Messages may be left on the voice mail systems.

   d. Contact the clinical site (telephone numbers are found on page II-2). If at all possible, speak to the Preceptor rather than leaving a message.

   e. All absences beyond the allowed 40 hours of personal time must be made up prior to the beginning of the next semester. Students should consult with the Clinical Coordinator about an appropriate make up time and clinical assignment.

   f. Leaving your clinical assignment early without permission of the Clinical Coordinator and designated preceptor is considered an unexcused absence.

3. **Assigned Rotation**
   a. Students are expected to adhere to their clinical assignments. Each student is responsible to the assigned staff technologists except during classroom instruction periods or reassignment. Occasionally, you may be assigned to a rotation that does not receive many patients. If there are currently no patients in your rotation and there is another rotation at your clinical site with patients, you may go work in the other area provided that: (a) no other student is assigned and working that rotation and (b) you obtain the permission of the technologist with whom you are working. You should check back at least every half-hour with your original rotation to ensure that no patients have arrived. Your assigned rotation always takes precedence over other rotations.

4. **Conduct**
   a. Students should conduct themselves in a professional manner at all times.

   b. Questions pertaining to procedures in x-ray rooms should be asked discretely (avoid asking questions in front of patients).

   c. Students will not loiter in view of the patients.

   d. Chewing of gum, eating and drinking in front of patients is not allowed.

   e. Any problems of personal relationship should be brought to the attention of the clinical preceptor or Clinical Coordinator.
f. In accordance with the Code of Ethics for the profession of Radiologic Technology, students in the program will provide service to patients without discrimination. They shall:

(1) Exhibit no prejudice for sex, race, creed, religion,

(2) Provide service without regard to social or economic status,

(3) Deliver care unrestricted by concerns for personal attributes, nature of disease or illness.

g. Cell phones and other personal electronic devices must be turned off while in the clinical setting.

h. Students are to be engaged in the clinical learning experiences at all times. Studying should be planned for non-clinical times.

5. **CPR/ First Aid**

a. Students must be certified in cardiopulmonary resuscitation—CPR—(American Heart Association Basic Life Support for Healthcare Providers) and First Aid when they begin the clinical phase of the program. A copy of the certification cards will be kept in each student’s file. Students are responsible for all costs associated with this training.

6. **Drug Screening and Background Checks**

a. All students are required to obtain initial drug screening, periodic drug testing, criminal background checks as required by the assigned clinical affiliates.

b. Students are responsible for all costs associated with background checks and drug screenings.

7. **Overview of Medical Malpractice and Experiential Student Policy for General Liability**

Clinical experiences may require certain types of coverage. Below are highlights of coverages to fulfill those requirements.

**Healthcare Professional Liability (Medical Malpractice) insurance**

Health Care Professional Liability self-insurance, commonly referred to as medical malpractice, provides protection against claims resulting from injury to a patient arising out of the operations of a participating medical facility or because of injury arising out of the rendering of or failure to render professional services by a covered person. Coverage under the plan is afforded to University employees and recognized volunteers as well as enrolled students pursuing courses of instruction at or under the direction or auspices of a participating medical facility.

For more information on the university's program and to confirm that your unit is enrolled, and that the program responds to your situation, you may go to the following:

General Liability Insurance
General liability coverage applies to claims for bodily injury or property damage that students may be responsible for. Homeowners and renters policies may offer liability coverage to policyholders for locations other than their residence. It is recommended that students speak to their own or their parent’s insurance agent to determine if this applies to their situation.

The university does not routinely provide general liability coverage for students. This coverage is available for students to purchase if needed for internship type placements, called Experiential Liability. All enrolled students participating in internships that require general liability insurance and where the University has an agreement with the site are eligible to apply for coverage. The program provides protection to students against general liability claims at their clinical sites. All students must be current for the entire academic year. The cost of coverage for August, 2016 to August, 2017 is $17.00 per student.

Policy details:
- Liability coverage for students enrolled in course offerings, off-campus internships, or other work experience where there are agreements between the University and the cooperating employer, subject to carrier review
- Limits of $1 million per covered student with a $3 million annual aggregate limit for all covered students
- Proof of insurance can be provided to meet cooperating employer requirements
- Coverage for property damage is included and applies to tangible property and loss of use, whether or not it is caused by physical property damage.

Experiential Student Policy (ESP) Claim Examples
An insured student, while walking in a hallway at an internship site, accidently bumps into someone with a laptop. The individual falls and breaks his ankle, ESP could respond to the bodily injury. If the laptop is shattered or broken, ESP could respond to the property damage.

For more information, please contact the program administrator.

8. Reporting ARRT Rules of Ethics Violations
It is the student’s responsibility to report all violations of the ARRT Rules of Ethics immediately to the program and contact the ARRT regarding violations. This would include such items as criminal proceedings (misdemeanor charges and convictions, felony charges and conviction, military court-martials), disciplinary actions taken by a state or federal regulatory authority or certification board, or honor code violations. If in doubt, contact the program.
9. **Clinical Hours**

The program integrates classroom work and clinical rotations in an effort to maximize student learning. Formal clinical rotations are assigned every semester except the first summer of the program. During fall and spring semesters students will spend 20 hours per week at assigned clinical affiliates (total of 300 hours per semester). Students will obtain 300 hours of clinical experience their second summer semester. Trauma/emergency imaging experience is gained at the University Hospital in three, one week evening clinical rotations. The clinical work week falls within the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday, with the exception of the evening rotation during the Senior year. The evening rotation will not extend beyond 11:00 p.m. Starting time will vary in accordance with the student’s class schedule.

a. Students are required to attend clinical education, at assigned times. Scheduled lunch breaks will be observed (e.g., you are not permitted to work through the lunch break in order to leave the clinical setting early).

b. Students are required to record clinical time through the E*Value system (clocking in and out of the system). Time will be verified by the supervising technologist.

10. **Personal Appearance**

a. Uniforms: The MU Radiography Program has selected uniforms to reflect the professional image of Radiologic Technologists based on recommendations from various professional societies. Students should be in the designated program uniform when working in the clinical setting. Clinical attire shall consist of the following:

   1. Black scrubs
   2. Supportive leather or liquid impermeable shoes with closed toes and heels (i.e. no clogs)
   3. Name badge
   4. Dosimeter badge
   5. Optional

      1. White lab jacket or scrub jacket may be worn if desired. Other forms of jackets are not permissible.
      2. Black & Gold Fridays: students may wear a black Mizzou polo or black Radiography polo with khaki pants (not jeans) on Black & Gold Fridays.

The entire uniform must be kept clean and pressed at all times. When jackets are worn, they are to be buttoned at all times to maintain a professional appearance. Failure to wear the designated program uniform will result in your being sent home to change. Lost clinical time will either be taken from your personal time or you will be required to make-up equivalent time if your personal time has been exhausted.
b. Hospital Scrubs: Hospital issued scrubs may be worn only when assigned to the Mobile/Surgical rotation and there are scheduled cases that require you to wear the hospital issued scrubs.

c. Grooming and Accessories: clinical appearance standards must be in compliance with clinical affiliate policies. A professional appearance conveys a positive image to patients, visitors, and colleagues.

d. Good personal hygiene will be required at all times.

e. Students' hair, if longer than shoulder length, must be tied back or worn up. Beards and moustaches should be neatly trimmed.

f. Fingernails should not be excessively long. Artificial nails, nail art or nail piercings are not to be worn by patient caregivers and are not permitted at clinical sites.

g. Body piercings pose infection hazards to both the caregiver and patient. No visible body, facial, or tongue piercings will be permitted with the exception of the ears: only one stud earring per ear.

h. Jewelry and accessories may pose infection and safety hazards to caregivers and patients. Jewelry, other than rings, watches, and small earrings, is not to be worn.

i. Tattoos, if on parts of the body that are visible when the uniform is worn, must be small and tasteful as determined by the program faculty. Any tattoo that is not deemed appropriate must be covered when students are in clinical education.

11. Radiation Safety

a. Students will be provided with radiation dosimetry badges at the time they enter the professional phase of the program and will be required to wear these badges at all times when they are working in the clinical education sites and in laboratory sections where exposures are made. Badges must be turned in quarterly. Late fees and/or lost badge fees charged by the University Radiation Safety Office will be passed on to the student.

b. In accordance with ALARA (As Low As Reasonably Achievable), the Radiography Program sets personnel dose levels well below the annual regulatory limits. All students will review and initial their quarterly exposure reports with the Clinical Education Coordinator within 30 days of receipt of the exposure reports. In addition, students with any quarterly exposure above “minimal” on their quarterly report will receive counseling from the Clinical Education Coordinator.

c. An ALARA Investigation Report is required by the University of Missouri Radiation Safety Office for individuals with quarterly exposures above 125 mrem TEDE. An investigation will be initiated to determine the original cause of any registered dose and appropriate measures for reducing dose rate in the future. A written report of the findings is then submitted to the University Radiation Safety Office and a copy will be maintained in the student’s clinical education file.

d. Additionally, the University Radiation Safety Office maintains a permanent exposure history of all monitored personnel, including
students. The RSO provides a special annual report to all individuals with excessive accumulated annual exposure levels greater than 100 mrem/yr.

e. Continuous excessive exposure and/or failure to wear the dosimetry badge when required will result in disciplinary action and may lead to dismissal from the program.

f. Radiation safety in the energized laboratory: Student utilization of the exposure switch in our energized laboratory MUST be under the supervision of a qualified radiographer (ARRT registered) who is readily available. Students must observe all appropriate radiation safety procedures to assure good ALARA practices. Dosimeters must be worn during any laboratory procedures requiring activation of the exposure switch.

g. Students are required to adhere to good ALARA practices at all times in the clinical settings. The three cardinal principles of radiation safety – time, distance and shielding – will be used in the protection of patients, ancillary persons in the proximity of ionizing radiation, and themselves.

h. Due to the potential danger associated with the use of ionizing radiation, both to patient and operator, it is the strong belief of the administration of this program that only those who have proven their proficiency through passage of the national certifying test should be employed as radiologic technologists. As a result, no student should hold a position as a staff technologist before completion of the program.

12. Magnetic Resonance Safety

a. The following policies were developed using resources developed by the Medical, Scientific, and Technology Advisory Board and the Corporate Advisory Board of the Institute for Magnetic Resonance Safety, Education, and Research (IMRSER). Their resources are freely available at www.IMRSER.org and www.MRIsafety.com.

b. Due to the hazards associated with exposure to strong magnetic fields, all students will be screened before being allowed to enter any MR environment for clinical assignment or observation. Screening will be conducted by the clinical education coordinator. Screening will consist of student completion of a printed form to document the screening, review of the information on the form by the clinical education coordinator, and a verbal interview to verify the information on the form and to allow discussion of any question or concern that the individual may have before being permitted into the MR environment.

c. The screening procedure will utilize the “Magnetic Resonance (MR) Environment Screening for Individuals” as developed by the IMRSER. A copy of this form follows this policy.

d. For any positive responses on the screening form, the student will be asked to request verification from their personal physician.
regarding the MR compatibility of implanted devices. Verification must be received by the program before the student can be permitted to enter the MR environment.

e. Should a student have implants, materials or devices that prevent their entry into the MR environment, that student will not be allowed to complete clinical assignments or observations in MRI. The student will be provided with alternative clinical placements and completion of the MRI specialty assignment will be waived.

f. Following review of the completed form, the clinical education coordinator will interview each student to verify responses and emphasize the hazards associated with the MR environment. All questions will be addressed at that time.

g. Prior to entry into an MR environment, all students will also be educated regarding the hazards present and precautions that must be taken. They will be cautioned to inform the program immediately of any changes to their status regarding implants, devices and other internal objects.

h. Clinical settings have the right to conduct additional screenings during MR clinical placements, and to prohibit student entrance and/or request additional documentation as designated by institutional policy. Should a student be removed from the clinical site due to institutional screening policies, section e, above, will apply.
# Magnetic Resonance (MR) Environment Screening Form for Individuals*

The MR system has a very strong magnetic field that may be hazardous to individuals entering the MR environment or MR system room if they have certain metallic, electronic, magnetic, or mechanical implants, devices, or objects. Therefore, all individuals are required to fill out this form BEFORE entering the MR environment or MR system room. Be advised, the MR system magnet is ALWAYS on.

*NOTE: If you are a patient preparing to undergo an MR examination, you are required to fill out a different form.

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<tr>
<th>Date</th>
<th>Name</th>
<th>Age</th>
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<tr>
<td>month/day/year</td>
<td>Last Name</td>
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<th>Address</th>
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<td>City</td>
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1. Have you had prior surgery or an operation (e.g., arthroscopy, endoscopy, etc.) of any kind? □ No □ Yes
   If yes, please indicate date and type of surgery: Date ___/____/____ Type of surgery __________

2. Have you had an injury to the eye involving a metallic object (e.g., metallic slivers, foreign body)? □ No □ Yes
   If yes, please describe: __________

3. Have you ever been injured by a metallic object or foreign body (e.g., BB, bullet, shrapnel, etc.)? □ No □ Yes
   If yes, please describe: __________

4. Are you pregnant or suspect that you are pregnant? □ No □ Yes

![WARNING: Certain implants, devices, or objects may be hazardous to you in the MR environment or MR system room. Do not enter the MR environment or MR system room if you have any question or concern regarding an implant, device, or object.]

**IMPORTANT INSTRUCTIONS**

Remove all metallic objects before entering the MR environment or MR system room including hearing aids, beeper, cell phone, keys, eyeglasses, hair pins, barrettes, jewelry (including body piercing jewelry), watch, safety pins, paperclips, money clip, credit cards, bank cards, magnetic strip cards, coins, pens, pocket knife, nail clipper, steel-toed boots/shoes, and tools. Loose metallic objects are especially prohibited in the MR system room and MR environment.

Please consult the MRI Technologist or Radiologist if you have any question or concern BEFORE you enter the MR system room.

I attest that the above information is correct to the best of my knowledge. I have read and understand the entire contents of this form and have had the opportunity to ask questions regarding the information on this form.

Signature of Person Completing Form: ___________________________ Date ______/____/____

Form Information Reviewed By: ___________________________ Print name: ___________________________

☐ MRI Technologist ☐ Radiologist ☐ Other ___________________________ Signature: ___________________________
13. **Time Off**

a. Students will receive the regularly scheduled University breaks as follows: Fourth of July, Thanksgiving, the end of the fall semester, Martin Luther King Day, spring break, Memorial Day, Labor Day, and the end of the summer semester. **Note:** Students will return to Clinical Education 3 one week prior to the beginning of the summer semester. Student will be in clinical education full time (40 hours) during that week.

b. Students are eligible for 40 hours personal leave a year. This time off **must** be scheduled at least 48 hours in advance with the Clinical Coordinator unless it is due to an illness. Personal leave must be taken in no less than 1 hour increments. Any time taken off in excess of these 40 hours must be made up as equivalent time. The Clinical Coordinator must approve all make-up time in advance. No make-up time will be scheduled until the allotted 40 hours has been exhausted. **Personal leave cannot be used during the evening rotation.**

**E. HEALTH ISSUES**

1. A student's health is important to his/her ability to profit from and progress in his/her total education endeavor. If a student is ill, incapacitated by accident, or in generally poor health, he/she will be unable to study, attend class, and learn as effectively as otherwise. Consequently, the University of Missouri offers low cost access to medical care through Student Health Service. Services provided at the Student Health Clinic include outpatient medical care and the usual ancillary services such as laboratory, x-ray, and pharmacy, within the limits prescribed by the Director of Student Health. All needed services may not be covered. The professional staff consists of a full-time medical staff and consulting specialists. More information may be obtained from Student Health.

2. All students in the radiography program **must** have the two-step PPD test (tuberculin skin test) or chest x-ray if the PPD is contraindicated upon entry to the professional phase of the program and annually thereafter. Proof of this must be submitted to University of Missouri Student Health prior to the first day of class.

3. Students are required to comply with all immunization requirements of assigned clinical sites.

4. All students enrolling in University of Missouri for the first time are required to submit satisfactory medical information by completing the Reports of Medical History form for Student Health Service and the clinical sites. In some instances Student Health Service may require further information in the form of medical reports from physicians who have treated the applicant.

5. As a student you are not covered under Workman’s Compensation; therefore, all students are urged to have some type of medical hospitalization insurance.

6. Students are required to report any illness, communicable disease or other condition that might affect the health of the student, patients, or staff to the Program Director and/or Clinical Education Coordinator as soon as they become aware of such condition.
F. MATERNITY

Students should be aware that there is a possibility of radiation injury to an unborn fetus with the greatest risk occurring during the first trimester.

A female student has the option of whether or not she wants to notify program officials of her pregnancy. If the woman chooses to voluntarily inform officials of her pregnancy, it must be in writing and indicate the expected date of delivery. Students electing to continue in the program will be issued fetal dosimeters that are subject to appropriate fetal dose limits. A student who notifies the program of her pregnancy has the following options:

Options:

1. **Option #1:**
   The student may continue the educational program without modification or interruption.

2. **Option #2:**
   The student may continue in the program with the following restrictions being imposed on clinical rotations:
   - The pregnant student will not participate in:
   - Fluoroscopic procedures
   - Portable procedures
   - Surgical procedures
   - Procedures involving radium-implant patients

   Substitute clinical rotations will not be provided. All clinical rotations missed by the student will be made up at the end of the program. This will result in a delay in the completion of the program.

   In addition to the clinical restrictions, the pregnant student will be expected to complete all of the requirements.

3. **Option #3:**
   A pregnant student may request a leave of absence not to exceed one year and either withdraw from, or attempt to complete the courses she is currently enrolled in. There would be a place reserved for the student in the next accepted class, and it would not be necessary to submit another application for admission to the program.

4. **Option #4:**
   A pregnant student may request to withdraw from the program for an indefinite period of time. If she wished to be reinstated, she must submit a Radiography Application and compete for readmission to the program. Any previous coursework taken would be reevaluated at the time of readmission to assure that competency has been maintained.

**Withdrawal of Pregnancy Declaration:** At any time following the declaration of pregnancy, a student may withdraw her declaration by submitting a request in writing to the program director. At the time of the withdrawal of the declaration, all additional monitoring will be terminated. If the student has chosen options other than option #1 at the time of the initial declaration, a plan for making up all missed coursework and clinical assignments will be developed with the program director. Graduation may still be delayed depending upon the amount of requirements to be made up.
G. STUDENT GRIEVANCE PROCEDURES

Student Grievance procedures for the University of Missouri may be found in the “M Book” (student handbook: http://mizzoulife.missouri.edu/resources/m-book/) and in the University of Missouri Collected Rules and Regulations (http://www.umsystem.edu/ums/rules/collected_rules).

In general, individuals should try to resolve their grievance at the lowest administrative level as possible. Within the School of Health Professions, this would be begin with the instructor and then proceed sequentially to the Program Director, Department Chair, and finally to the Dean. If the issue remains unresolved, the grievance would then proceed to the campus level.

The following are University of Missouri policies that are subject to change at the discretion of the Curators of the University of Missouri.

1. Appeal of Student Dismissal

   As stated in the SHP Faculty Policy Manual pages 17-19 (http://shp.missouri.edu/hrs/pdf/FacultyPolicyManual2015.pdf) (as of 11/25/15)

   a. “Programs/Departments must keep written documentation and follow due process (as described in M book) when dismissing a student.

   b. If the student wishes to appeal dismissal, he/she must file a written appeal to the Dean of the School of Health Professions within 10 working days. Throughout this Article, the term “working days” shall not include days between the last day of the final examination period and the first day of the succeeding semester. Within 20 working days of receiving the appeal, the Dean shall decide to uphold the dismissal, reverse it, or refer the matter to the School of Health Professions Student Affairs Committee.

   c. If the dismissal decision is upheld by the Dean, then the student has a right to appeal the decision to the Chair of School of Health Professions Student Affairs Committee. An appeal of dismissal must be made by the student in writing to the Chair of the School of Health Professions Student Affairs Committee within 10 working days of receiving notification of the decision of the Dean.

   d. Whether the matter is referred to the Student Affairs Committee by the Dean, or an appeal of the Dean’s decision is submitted by the student, the following procedures will be put into place:

      (1) When an appeal is presented to the Student Affairs Committee, that committee will convene a Student Appeals Committee within 10 working days of receiving the appeal. The Student Appeals Committee will consist of five (5) voting faculty who will render a decision and one (1) staff who will serve as recorder. No member of the Student Appeals Committee faculty shall hold an appointment in the program involved in the appeal. The committee’s first order of business shall be to elect a chair and then to proceed with the procedure described below.

      (2) The Student Appeals Committee shall set a hearing date no sooner than 10 working days or later than 20 working days from its initial
meeting. The student and his/her program director shall each submit a written statement of his/her position regarding the appeal to the Student Appeals Committee no later than five (5) working days prior to the hearing. Failure of the student to meet the deadline shall result in dismissal of the appeal. Failure of the program director to meet the deadline shall result in reversal of the action prompting the appeal. Both parties may submit names of individuals they wish to have testify on their behalf. The decision to invite an individual to testify shall be left to the discretion of the committee. The statements and lists of potential witnesses shall be addressed to the Chair of the Student Appeals Committee, School of Health Professions.

(3) Following receipt of each written statement and list of individuals identified to testify, copies will be made and sent to the student and program director by the committee chairperson using the most rapid method practical under the circumstances.

(4) Upon request, copies of relevant transcripts, correspondence and university/school/program policies regarding retention/probation/dismissal will be made available to the student, program director, and Student Appeals Committee.

(5) The committee shall invite the student and the program director to all hearings. The student and the program director may choose to be accompanied by one advisor. The committee may call those whose participation in the hearing is considered relevant to give testimony and to answer questions of committee members.

(6) All faculty of the Student Appeals Committee are under an obligation to commit themselves to follow procedures consistent with fairness to all parties concerned. Members of the committee will not discuss the appeal with anyone outside of the hearing process. Their findings will be based only upon the evidence presented to them in meetings at which all affected parties are present.

(7) The committee shall set forth the rules for the hearing. The chairperson may, for good cause and with concurrence of a majority of the entire committee, authorize deviation from the suggested format. In all such cases, the principal parties shall be notified promptly:

1. In each phase of a hearing the student shall be heard first and shall be primarily responsible for the presentation of his/her position.

2. An advisor of the student may advise and briefly explain his/her position but shall not address the committee beyond this introduction until the end of the testimony.

3. The program director shall be heard second in each phase of a hearing and shall be primarily responsible for the presentation of the position of the program.

4. A reasonable time limit shall be established for all testimony, and it will be made known to the principals when the written statements are distributed.
5. Every effort should be made to conduct the hearing as expeditiously as possible, with fairness to both parties.

6. In order to promote the truthful, unfettered exchange of information and ideas, all testimony pertaining to the hearing shall be held in confidence.

7. Only evidence and testimony relevant to the hearing may be introduced. The chairperson shall decide questions regarding the admissibility of evidence.

8. Brief summary statements may be made by the student, program director and each advisor.

9. A confidential recording of the student hearing shall be made and a transcript will be accessible to the parties involved and authorized representatives if requested.

10. At the conclusion of the hearing, the members of the committee shall meet in closed session to deliberate upon their findings. A majority vote of the entire committee shall be required on all decisions. The Student Appeals Committee shall make written notification of its decision to the student by certified mail, signature required, and to the program director and Dean of the School of Health Professions within seven working days from the closing date of the hearing.

11. Failure of the student to meet any deadline will result in dismissal of the appeal.”

   (http://conduct.missouri.edu/?page_id=610) (as of 6/04/15)

3. Academic Integrity (Academic Discipline)
   (http://facultycouncil.missouri.edu/handbook/article-6.html) (as of 6/04/15)

4. Americans with Disabilities Act (ADA)
   (http://ada.missouri.edu/) (as of 06/04/15)
   If you have special needs as addressed by the Americans with Disabilities Act and need any test or course materials provided in an alternative format, notify your instructor immediately. Reasonable efforts will be made to accommodate your special needs.

5. Discrimination Grievances
   (http://conduct.missouri.edu/wp-content/uploads/M-Book-2014-2015-Final-Draft-4.0-1-1.pdf on pg 6) (as of 06/05/15)
6. **Educational Fee Adjustments**


7. **Grade Changes**

   If you believe you have been graded unfairly you should **see your instructor**

   If still dissatisfied, you may appeal to the chairperson of the department. (If the course has a large number of sections, such as Math 10, it may have a course director. If so, you should see the director before appealing the grade to the department chairperson.)

   The chairperson will conduct an investigation. The chairperson, however, is not allowed to substitute his or her judgment for that of the instructor in regard to the quality of your work.

   If the instructor of the course is also the department chairperson, the dean of the school or college will handle grade appeals.

   No one may substitute personal judgment for that of the instructor in regard to the quality of your work. However, mathematical or mechanical errors that may have been made in scoring your examinations may be corrected.

   Review of student grades is done in accordance with the Faculty Handbook 

   In accordance with University policy, all grades of “I” (incomplete) must be completed within one (1) year. “I” grades automatically change to a grade of “F” after one (1) year.

8. **Sexual Harassment Policy**


9. **Student Access To Records**


10. **Allegation of JRCERT Standards Non-compliance**

    If there is an allegation of non-compliance with the JRCERT Standards, an individual may do the following:

    a. Before submitting allegations, the individual must first attempt to resolve the complaint directly with program/institution officials by following the due process or grievance procedures provided by the University of Missouri--Columbia.

    b. The JRCERT may be contacted at:

       Joint Review Committee on Education in Radiologic Technology
       20 North Wacker Drive, Suite 2850
       Chicago, IL 60606-3182
       (312) 704-5300
       email: mail@jrcert.org

    c. A record of the allegation will be filed by the Radiography Program

    d. Resolution and follow-up will be documented by the Radiography Program
V. CLINICAL EDUCATION PLAN

A. PURPOSE
Clinical Education provides the student with the opportunity to practice the skills and theory taught in the classroom, and to develop workplace skills necessary for professional practice. The clinical education plan is designed to allow the student to build confidence while completing progressively more difficult examinations and demonstrating continued competency in previously completed exams. Rotations are structured to provide consistent experiences for all students and to complement the didactic coursework. Exam performance, professionalism and critical thinking will be evaluated throughout this course sequence.

B. CLINICAL EDUCATION OUTCOMES
Upon completion of the Clinical Education course sequence, the student will be able to:
1. Consistently produce high quality radiographic examinations.
2. Uphold the principles of ethical and legal behavior.
3. Assess clinical situations and determine appropriate course(s) of action.
4. Facilitate effective communications with patients, families, fellow students, staff, physicians, and the general public.
5. Integrate patient care and assessment skills with exam performance.
6. Maintain the safety of self and others.

C. ASSESSMENT
The student’s progress toward achieving the clinical education objectives is measured each semester using the following assessment tools:
- Clinical Competency Evaluations
- Professional Development Evaluations
- Oral Examinations
- Additional Assignments

Evaluation tools for all clinical courses are administered through E*Value, a web-based system for tracking clinical experiences. Students will purchase a subscription to E*Value through the Mizzou Store (aka University Bookstore) on an annual basis each summer. The subscription will allow the students to input information into the E*Value system for the following year. Evaluation data and all stored documentation will remain accessible for viewing after graduation to assist in resume writing, etc.

D. LEVELS OF SUPERVISION
Students will have direct supervision by an ARRT registered radiographer at all times until they have successfully completed the competency testing for a procedure.

Once a student has successfully completed the competency testing for a procedure (i.e., "tested out" of a procedure) they may perform exams in that area with indirect supervision on patients the clinical staff determines the student can handle; however, a registered radiographer must be readily available if the student needs assistance.

All radiographs that have to be repeated must be performed in the presence of an ARRT registered radiographer.

Student Responsibilities
While performing examinations, all students, regardless of competency or educational level, will:
- Only perform examinations under the correct level of supervision.
- Make the supervising technologist aware of their competency level, as necessary, to ensure proper supervision.

**Direct Supervision of Students**
- Must take place on all procedures performed before competency is documented
- Must take place when any image is repeated.
- Must take place whenever the student's lack of experience may pose a significant risk to the patient. Such exams include:
  - Portables
  - Examinations in the Emergency Department
  - OR procedures
- In providing direct supervision of students, the radiologic technologist will:
  - Retain accountability for the exam
  - Remain in the room with the student during the procedure
  - Review requisitions in relation to the student's ability level
  - Evaluate the condition of the patient in relation to the student's knowledge level
  - Review positioning and technical factors prior to exposure of the patient
  - Review and approve the images prior to exam completion and release of the patient.

**Indirect Supervision of Students**
- May occur after documentation of competency for any given procedure.
- In providing indirect supervision of students, the radiologic technologist will:
  - Retain accountability for the exam
  - Remain immediately available (i.e., physically available in an adjacent hallway or room) to assist the student during the procedure regardless of student level of achievement
  - Review requisitions in relation to the student's ability level
  - Evaluate the condition of the patient in relation to the student's knowledge level
- Review and approve the images prior to exam completion and release of the patient.
E. CLINICAL COMPETENCY

In accordance with the 2016 Clinical Competency Requirements of the American Registry of Radiologic Technologists (ARRT), all students are required to demonstrate competency in thirty-seven (37) mandatory procedures and fifteen (15) of the thirty-four elective procedures. Those procedures are as follows:

<table>
<thead>
<tr>
<th>Mandatory Procedures</th>
<th>Elective Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chest Routine</td>
<td>Chest Lateral Decubitus</td>
</tr>
<tr>
<td>2. Chest AP (Wheelchair or Stretcher)</td>
<td>Sternum</td>
</tr>
<tr>
<td>3. Ribs</td>
<td>Upper Airway (Soft-Tissue Neck)</td>
</tr>
<tr>
<td>4. Thumb or Finger</td>
<td>Scapula</td>
</tr>
<tr>
<td>5. Hand</td>
<td>AC Joints</td>
</tr>
<tr>
<td>6. Wrist</td>
<td>Patella</td>
</tr>
<tr>
<td>7. Forearm</td>
<td>Calcaneus (Os Calcis)</td>
</tr>
<tr>
<td>8. Elbow</td>
<td>Toes</td>
</tr>
<tr>
<td>9. Humerus</td>
<td>Skull</td>
</tr>
<tr>
<td>10. Shoulder</td>
<td>Paranasal Sinuses</td>
</tr>
<tr>
<td>11. Trauma: Shoulder (Scapular Y, Transthoracic or Axillary)*</td>
<td>Facial Bones</td>
</tr>
<tr>
<td>12. Clavicle</td>
<td>Orbits</td>
</tr>
<tr>
<td>13. Trauma: Upper Extremity (Nonshoulder)*</td>
<td>Zygomatic Arches</td>
</tr>
<tr>
<td>14. Foot</td>
<td>Nasal Bones</td>
</tr>
<tr>
<td>15. Ankle</td>
<td>Mandible (Panorex acceptable)</td>
</tr>
<tr>
<td>16. Knee</td>
<td>Temporomandibular Joints</td>
</tr>
<tr>
<td>17. Tibia-Fibula</td>
<td>Sacrum and/or Coccyx</td>
</tr>
<tr>
<td>18. Femur</td>
<td>Scoliosis Series</td>
</tr>
<tr>
<td>19. Trauma: Lower Extremity *</td>
<td>Sacroiliac Joints</td>
</tr>
<tr>
<td>20. Cervical Spine</td>
<td>Abdomen Decubitus</td>
</tr>
<tr>
<td>21. Thoracic Spine</td>
<td>Intravenous Urography</td>
</tr>
<tr>
<td>22. Lumbosacral Spine</td>
<td>Pediatrics Upper Extremity</td>
</tr>
<tr>
<td>23. Cross-Table Lateral Spine</td>
<td>Pediatrics Lower Extremity</td>
</tr>
<tr>
<td>24. Pelvis</td>
<td>Pediatrics Abdomen</td>
</tr>
<tr>
<td>25. Hip</td>
<td>Pediatrics Mobile Study</td>
</tr>
<tr>
<td>26. Cross Table Lateral Hip</td>
<td>Upper GI Series (Single or Double Contrast)</td>
</tr>
<tr>
<td>27. Abdomen Supine (KUB)</td>
<td>Contrast Enema (Single or Double Contrast)</td>
</tr>
<tr>
<td>28. Abdomen Upright</td>
<td>Small Bowel Series</td>
</tr>
<tr>
<td>29. C-Arm Procedure (Multiple Projections)</td>
<td>Esophagus</td>
</tr>
<tr>
<td>30. C-Arm Procedure (sterile env.)</td>
<td>Cystography/Cystourethrography</td>
</tr>
<tr>
<td>31. Mobile Chest</td>
<td>ERCP</td>
</tr>
<tr>
<td>32. Mobile Abdomen</td>
<td>Myelography</td>
</tr>
<tr>
<td>33. Mobile Orthopedic</td>
<td>Arthrography</td>
</tr>
<tr>
<td>34. Pediatrics Chest Routine</td>
<td>Hysterosalpingography</td>
</tr>
<tr>
<td>35. Geriatric Chest Routine</td>
<td></td>
</tr>
<tr>
<td>36. Geriatric Upper Extremity</td>
<td></td>
</tr>
<tr>
<td>37. Geriatric Lower Extremity</td>
<td></td>
</tr>
</tbody>
</table>

* Trauma is considered a serious injury or shock to the body. Modifications may include variations in positioning, minimal movement of the body part, etc.
Demonstrating Clinical Competency

Developing clinical competency is a progressive process. The following describes the documentation of clinical performance using forms. We are in the process of converting to an electronic format. Information will be provided at that time.

1. **Introduction** The student must be introduced to the procedure in the classroom and laboratory settings. Once the student has successfully mastered the procedure didactically, they may begin clinical practice. This is documented with classroom tests and lab testing in the Positioning courses.

2. **Clinical Practice** The student should document clinical practice of the procedure through observation, assistance, and/or performance of the exam. Clinical practice must be documented for three exams before the student may competency test. The student may have access to all necessary guidance during the clinical practice exams. This is documented in the Px/Dx log within E*Value.

3. **Clinical Performance** The student must demonstrate the ability to successfully complete the exam without the assistance of the supervising technologist. The supervising technologist may stop the competency testing, if necessary, for the welfare of the patient, terminating the competency testing. If this occurs, the student should continue clinical practice and attempt to demonstrate clinical competence at another time. Once clinical competence is demonstrated, the student may perform that particular exam under indirect supervision. This is documented with a competency evaluation generated after 3 exams are logged in Px/Dx within E*Value.

4. **Graded Clinical Competency** Each semester, the student must demonstrate clinical competence for three of the completed exams in the selected category under the supervision of a Clinical Preceptor or Faculty member. The student’s performance on these three exams will be logged separately in Px/Dx under “Graded” within E*Value.

5. **Continued Competence** The student is expected to demonstrate continued competence in completed exams. This will be demonstrated by the completion of periodical examination during Clinical Education 2 – 5. Periodical examinations are selected from competencies completed in previous semesters, and may not be repeated for periodical credit (i.e. If a student periodical tests on a chest exam during Clinical Education 2, they may not use a chest exam toward their periodical requirements in Clinical Education 4.). The student’s performance on periodical exams will be logged separately in Px/Dx under “Periodical” within E*Value.

**Competency Objectives**

In order to demonstrate competency in a procedure, the student must be able to:

- Obtain and evaluate the requisition for the examination.
- Prepare the room, including the fluoroscopic equipment and contrast materials, if necessary.
- Verify patient identity
- Perform patient assessment.
- Select the appropriate image receptor.
- Utilize accessory equipment (e.g. sponges, sandbags) as necessary to appropriately manage patient condition.
- Manipulate selected equipment (e.g. C-arm, portable machine, x-ray tube, bucky, etc.) proficiently.
- Select proper exposure factors.
- Properly position the patient, image receptor, and x-ray tube for all projections.
- Use proper radiation protection procedures.
- Employ proper image processing functions
- Evaluate resultant images for diagnostic quality

Competency is documented within E*Value.
**Categories:** In order to facilitate the timely completion of the competencies, the required procedures have been divided into:

- **Basic Exams**
- **Complex Exams**
- **Elective Exams**

### Basic Exams

<table>
<thead>
<tr>
<th>Group 1 Chest/Abdomen</th>
<th>Group 2 Upper Extremity</th>
<th>Group 3 Lower Extremity</th>
<th>Group 4 Thorax/Shoulder</th>
<th>Group 5 Spine/Pelvis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdomen, supine (KUB)</td>
<td>Fingers or thumb</td>
<td>Foot</td>
<td>Chest, AP (wheelchair or stretcher)</td>
<td>Cervical spine</td>
</tr>
<tr>
<td>Abdomen, upright</td>
<td>Hand</td>
<td>Ankle</td>
<td>Clavicle</td>
<td>Thoracic spine</td>
</tr>
<tr>
<td>Chest, routine</td>
<td>Wrist</td>
<td>Tibia and fibula</td>
<td>Ribs</td>
<td>Lumbosacral spine</td>
</tr>
<tr>
<td></td>
<td>Forearm</td>
<td>Knee</td>
<td>Humerus</td>
<td>Hip</td>
</tr>
<tr>
<td></td>
<td>Elbow</td>
<td>Femur</td>
<td>Shoulder</td>
<td>Pelvis</td>
</tr>
</tbody>
</table>

### Complex Exams

<table>
<thead>
<tr>
<th>Abdomen, Portable</th>
<th>Pediatric Chest (≤ 6)</th>
<th>Trauma Lower Ext. (non-hip)</th>
<th>C-arm (more than 1 projection)</th>
<th>Esophagus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest, Portable</td>
<td>Geriatric Chest</td>
<td>Trauma Shoulder (Scapular Y, Transthoracic, or Axillary)</td>
<td>C-arm (in sterile environment)</td>
<td>Upper GI</td>
</tr>
<tr>
<td>Orthopedics, Portable</td>
<td>Geriatric Upper Ext.</td>
<td>Trauma Upper Ext. (non-shoulder)</td>
<td>Hip, Cross-Table Lateral Spine, Cross-Table Lateral</td>
<td>Skull</td>
</tr>
</tbody>
</table>

### Elective Exams

<table>
<thead>
<tr>
<th>Abdomen decubitus</th>
<th>Clavicle</th>
<th>Myelography</th>
<th>Pediatric (≤ 6) lower ext.</th>
<th>Scoliosis series</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/C joints</td>
<td>Cystography</td>
<td>Nasal Bones</td>
<td>Pediatric (≤ 6) mobile study</td>
<td>Small Bowel Series</td>
</tr>
<tr>
<td>Arthrography</td>
<td>ERCP</td>
<td>Orbits</td>
<td>Pediatric (≤ 6) upper ext. Sacroiliac joints</td>
<td>Sternal Toes</td>
</tr>
<tr>
<td>Barium enema</td>
<td>Facial Bones</td>
<td>Paranasal Sinuses</td>
<td></td>
<td>Upper Airway (soft tissue neck)</td>
</tr>
<tr>
<td>Calcaneus (Os calcis)</td>
<td>Intravenous urography</td>
<td>Patella</td>
<td>Sacrum &amp; coccyx</td>
<td></td>
</tr>
<tr>
<td>CXR, lateral decubitus</td>
<td>Mandible (panorex OK)</td>
<td>Pediatric (≤ 6) abdomen</td>
<td>Scapula</td>
<td>Zygomatic arches</td>
</tr>
</tbody>
</table>
Trauma is considered a serious injury or shock to the body and requires modifications in positioning and monitoring of the patient’s condition.
Pediatric refers to all patients aged 6 years or younger.
Geriatric refers to patients experiencing physical or cognitive impairment as a result of aging.

Note: The competency schedule has been developed to insure that all 17 complex and 12 different elective exams are completed over the clinical education experience.

Summary Table: Competency Exams to be completed in Clinical Education 1-5

<table>
<thead>
<tr>
<th>Competency Area</th>
<th>CE 1</th>
<th>CE 2</th>
<th>CE 3</th>
<th>CE 4</th>
<th>CE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Exam, Group 1: Check-off</td>
<td>All 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Exam, Group 2-5: Check-off</td>
<td>New Group</td>
<td>New Group</td>
<td>New Group</td>
<td>New Group</td>
<td>3 per Group = 12**</td>
</tr>
<tr>
<td>Basic Exam: Graded (from Group chosen)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Complex Exams: Check-off</td>
<td>2</td>
<td>5*</td>
<td>5*</td>
<td>5*</td>
<td>3**</td>
</tr>
<tr>
<td>Complex Exams: Graded</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective Exams: Check-off</td>
<td>0</td>
<td>4</td>
<td>4*</td>
<td>4*</td>
<td>3**</td>
</tr>
<tr>
<td>&quot;Periodical&quot;: Check-off Basic Exam, Groups 1-5</td>
<td>0</td>
<td>3</td>
<td>7*</td>
<td>9*</td>
<td>(18 as noted above)**</td>
</tr>
</tbody>
</table>

*Note: Complex, elective, and periodical exams may not be duplicated from previous semesters
**Note: May be duplicate periodical exams from other semesters

F. SEMESTER REQUIREMENTS
Requirements for each semester are listed below. Examples of forms for the exams may be found in Appendix A.

RS 3941 Clinical Education 1 (3).
(1) Clinical Competencies
   (a) Competency Check-Off evaluations for all exams in Basic Exam, Group 1
   (b) Competency Check-Off evaluations for all exams in Basic Exam, Groups 2-5 (must have been covered in procedures class prior to testing).
   (c) Competency Check-Off evaluations for 2 Complex Exams (must have been covered in procedures class prior to testing).
   (d) 3 Graded Competency Evaluation from the chosen basic category
(2) Professional Development Evaluation
(3) Oral Exams (2)
(4) Additional Assignments

RS 3942 Clinical Education 2 (3).
(1) Clinical Competencies
   (a) Competency Check-Off forms for all exams in one Basic Exam, Group 2-5
   (b) 5 Competency Check-Off evaluations for Complex Exams
   (c) 4 Competency Check-Off evaluations for Elective Exams
   (d) 3 Graded Competency Evaluations from the chosen basic category
   (e) 3 Periodical Check-Off evaluations for exams from the basic category for the previous semester
RS 4943  Clinical Education 3 (3).
Complex, Elective and Periodical exams may not be duplicated from previous semesters.
(1) Clinical Competencies
   (a) Competency Check-Off evaluations for all exams in one basic category
   (b) 5 Competency Check-Off evaluations for Complex Exams
   (c) 4 Competency Check-Off evaluations for Elective Exams
   (d) 3 Graded Competency Evaluations from the chosen basic category
   (e) 7 Periodical Check-Off evaluations for exams from the basic categories for the previous semesters
   (f) Specialty Objectives, as assigned
(2) Professional Development Evaluations
(3) Oral Exam (1)
(4) Additional Assignments

RS 4944  Clinical Education 4 (3).
Complex, Elective and Periodical exams may not be duplicated from previous semesters.
(1) Clinical Competencies
   (a) Competency Check-Off evaluations for all exams in one Basic Exam, Group 2-5
   (b) 5 Competency Check-Off evaluations for Complex Exams
   (c) 4 Competency Check-Off evaluations for Elective Exams
   (d) 3 Graded Competency Evaluations from the chosen basic category
   (e) 9 Periodical Check-Off evaluations for exams from the basic categories for the previous semesters
   (f) Specialty Objectives, as assigned
(2) Professional Development Evaluations
(3) Oral Exam (1)
(4) Additional Assignments

RS 4945  Clinical Education 5 (3).
Periodicals completed this semester may be duplicates of Periodicals completed in previous semesters.
(1) Clinical Competencies
   (a) 3 Graded Competency Evaluations from any complex category
   (b) 18 Periodical Check-Off evaluations
      (i) 3 procedures from Upper Extremity
      (ii) 3 procedures from Lower Extremity
      (iii) 3 procedures from Thorax/Shoulder
      (iv) 3 procedures from Spine/Pelvis
      (v) 3 procedures from Complex Exams
      (vi) 3 procedures from Elective Exams
   (c) Specialty Objectives, as assigned
(2) Professional Development Evaluations
(3) Additional Assignments
G. SPECIALTY ROTATIONS

Specialty Objectives
As the students progress through the clinical education course sequence, they will complete clinical rotations in areas beyond routine radiography. These rotations are designed to enhance the student’s clinical experience and provide perspective into the possibilities open to medical imaging professionals. Each specialty area has designated objectives. Satisfactory completion of specialty objectives is required for successful completion of the clinical education course in which the rotation occurs. Responses to the following will be submitted electronically by the first day of the rotation following your specialty rotation. The specialty objectives are as follows:

CARDIAC CATHETERIZATION LAB
i) Describe the procedure for determining the patient's baseline physiologic values (ECG, O2 saturation, pulse, etc.) before beginning cardiac catheterization procedures.
ii) Identify the indications and contraindications for contrast media and typical medications used in the cath lab.
iii) Describe patient management procedures for arrhythmias.
iv) Describe change in ventricular pressure with respect to change in time (dp/dt) and how it is determined.
v) Describe the procedure for performing cardiac output measurements, including the Fick method, green dye and thermal dilution.
vi) Explain the indications for inserting temporary or permanent pacemakers.
vii) Explain the indications for and principles of intra-aortic balloon pumping.

DUAL ENERGY X-RAY ABSORPTIOMETRY (DEXA)
i) Describe the quality control and assurance practices for DEXA equipment and the frequency for testing.
ii) Explain the importance of precision assessments and how to achieve them.
iii) Identify lumbar spine, proximal femur and forearm anatomy and recognize abnormal or unusual anatomy and correct patient positioning for scan acquisition and analysis.
iv) Recognize vertebral fracture significance in osteoporosis and techniques for acquiring VFA scans.
v) Recognize how technical errors impact clinical interpretation and patient care.
vii) Discuss the use of non-pharmacologic therapy (exercise, calcium, Vitamin D) for the management of osteoporosis.
viii) List the pharmacologic options available for the treatment of osteoporosis and their mechanism of action.
ix) Document 10 successful DEXA exams.

ELECTROCARDIOGRAMS (ECG)
i) Describe the proper hook-up procedure for a 12-Lead ECG.
ii) Identify basic normal ECG waveform morphology.
iii) Distinguish between basic ECG arrhythmia and artifact.
iv) Document 10 successful EKG exams.
SPECIAL PROCEDURES & INTERVENTIONAL RADIOLOGY
i) Explain the procedure of obtaining patient consent and the importance of obtaining patient consent.
ii) List the most common catheter entry sites.
iii) Describe the types of contrast used, why they are used, how the appropriate one is selected, and the method of delivery.
iv) Describe the sterile technique procedures observed.
v) Explain patient preparations needed for various exams.

vi) Describe the personnel needs in this area.

vii) Record your observations for 3 different procedures routinely done at your rotation site. Include such items as name of exam/procedure, reason for performing it, gender and age of patient, how the procedure was performed, results (technologist or physician interpretation), general cost estimate, and any other pertinent information.

viii) Give a brief description of the equipment used at your site. Your description might include such things as type of equipment, manufacturer, approximate installation date, site selection, hours of operation, etc.

ix) List the responsibilities of the technologist(s).

NUCLEAR MEDICINE
i) Briefly describe the basic principles of nuclear medicine.
ii) Explain why Tc-99m is commonly used in nuclear medicine studies.
iii) Describe the sources of radiopharmaceutical used at your site.
iv) List the major instrumentation found in a nuclear medicine suite and the uses of each.
v) Give a brief description of the nuclear medicine suite at your observation site (location of equipment, room layout, etc). Comment on the work flow efficiency with such a design.

vi) Describe the procedures/precautions used to control radiation exposure.

vii) Record observations for 4 procedures routinely performed at your rotation site. Include such information as: exam name, reason for performing the exam, gender, age, steps in the procedure, results (technologist or physician interpretation), estimated cost of the procedure, and other possible diagnostic imaging exams involved in the patient’s diagnosis. Remember to preserve patient confidentiality.

viii) List the responsibilities of the technologist.
ix) List three clinical indications for bone scanning and know what structures, other than the skeleton, are normally visualized on bone scans.
x) Compare x-rays and gamma rays.
ULTRASOUND
i) Briefly describe the principles of diagnostic medical ultrasound.
ii) Describe any patient preparations needed for ultrasound exams.
iii) Explain the relationship between frequency and penetration.
iv) List and discuss the types of transducers used at your rotation site.
v) Discuss the limitation of ultrasound as a diagnostic tool.
vi) State the purpose of coupling agents.
vii) Discuss common artifacts found in ultrasound (e.g., phantoms, missing structures, shifted structures, hyperechoic and hypoechoic problems, incorrect shape, improper size, etc.) and their effect on diagnoses.
viii) Describe the image recording options at your rotation site.
ix) Record your observations for four procedures routinely done in ultrasound. Include such information as: name of exam, reason for exam, gender, age, steps in the procedure, results, (technologist or physician interpretation), estimated cost of the procedure, and other possible diagnostic imaging exams involved in the patient’s diagnosis. Remember to preserve patient confidentiality.
x) List the responsibilities of the technologist.

MAMMOGRAPHY
i) Describe the quality control processes required, how they are performed and how often they are completed.
ii) Explain BI-RADS and why its use is recommended.
iii) Describe the qualifications for technologists, radiologists and medical physicists working in an ACR accredited mammography department.
iv) Describe the types of information that must be submitted for ACR accreditation testing.
v) Explain the significance of proper compression for mammography.
vi) Describe the questions asked when obtaining a mammography history and why each is important.
vii) State the purpose of a baseline mammogram.
viii) Explain why single emulsion film is generally used in mammography, rather than double emulsion film.
ix) Explain the process of needle localization in mammography.
x) Explain what Computer Aided Diagnosis is and how it works.

RADIATION THERAPY
i) Explain the two goals of Radiation Therapy.
ii) Explain the use of contrast media during therapy simulations.
iii) Describe the purpose of port films.
iv) Explain the three major methods of cancer treatment.
v) Explain what tumor/target volumes mean (e.g.: gross tumor volume, clinical target volume, planning target volume, treated volume, irradiated volume).
vii) Discuss the limitations of radiation therapy. (Include clinical factors, physical and technical factors, biological factors, etc.)
vii) List the five stages of grief. Describe how these can impact cancer patients.
viii) Explain why immobilization is critical in radiation therapy.
ix) List three common side effects of radiation therapy.
x) Explain why double checks and quality control are vital in radiation therapy.
x) List the responsibilities of the technologist.
MAGNETIC RESONANCE IMAGING

i) Describe the process for interviewing and screening patients before an MRI exam. Why is it done?

ii) Describe the patient preparation after their interview and screening. Include such items as proper clothing for the exam, explanation of procedures to the patient, possible pre-medications, noise control, etc.

iii) Claustrophobia can be a problem in MRI examinations. Describe methods used to control or alleviate this problem.

iv) Briefly describe the basic principles of MRI.

v) List the advantages and disadvantages of open MRI.

vi) Discuss the possible hazards of MRI.

vii) Describe the strategies used to control motion on MRI images.

viii) Record observations for 4 procedures routinely done at your MRI rotation facility. Include: exam performed, reason for the exam, gender, age, procedure (patient position, use of contrast, imaging sequence, etc.), and results (technologist or physician interpretation), general cost estimate of the procedure, and other diagnostic exams that may be involved in the patient's diagnosis.

ix) Give a brief description of the equipment at your site. Include such things as type of equipment, manufacturer, approximate installation date, strength of the magnet, site selection at the facility, hours of operation, etc.

x) List the responsibilities of the technologist(s).

COMPUTED TOMOGRAPHY

i) Describe the general patient preparation procedures used in the department. Include such things as proper clothing for the exam, explanation of exams, when consent forms are necessary, NPO instructions, etc.

ii) Briefly describe the basic principles of CT.

iii) Discuss strategies used to control motion on CT images.

iv) Discuss the importance of breathing instructions during CT exams.

v) List the contrast agents used in CT. When, where, how, and why are they used? Are they different from the contrast used in general radiography?

vi) Discuss the advantages and disadvantages of helical or spiral CT vs regular CT. Single slice vs. multirow or multidetector CT.

vii) Discuss the possible hazards of CT exams.

viii) Record observations for 4 procedures routinely done at your CT location. Include such items as (but not necessarily limited to): exam performed, reason for the exam, gender, age, procedure (patient position, use of contrast, imaging sequence, etc.), results (technologist or physician interpretation) general cost estimate of the procedure, and other diagnostic imaging exams that may be involved in the patient’s diagnosis.

ix) Give a brief description of the equipment at your site. Include such things as type of equipment, manufacturer, approximate installation date, site selection at the facility, etc.

x) List the responsibilities of the technologist.
AFTER-HOURS IMAGING
Students will be assigned an evening rotation for one week (20 hours) during their senior year. During this rotation, students will perform and/or assist with emergency and portable procedures.

i) Differentiate between the daytime workload and the after-hours workload in an imaging department.

ii) Explain the importance of having imaging services available 24/7.

iii) Describe how the expectations of the after hours technologists differ from those of daytime technologists.

iv) Explain the necessity of creativity and improvisation in positioning and why this may be more important to technologists with limited staff.

v) Explain the process of prioritizing workload and why this is necessary for after-hours technologists.

READING ROOM

i) Describe how attention to detail on the part of the technologist impacts the quality of patient care.

ii) Describe ways of insuring that patients receive the most accurate diagnosis (and therefore, treatment). Relate your suggestions to your reading room observations.

MOBILE IMAGING

i) Differentiate between mobile imaging and regular diagnostic imaging.

ii) List the benefits to the patient of mobile imaging.

iii) Describe how the duties of the technologists differ.

iv) Document observations for 4 different exams.

VETERINARY IMAGING

i) Differentiate between veterinary imaging and human diagnostic imaging.

ii) Explain how technical factors are determined in veterinary imaging.

iii) Discuss the importance of communication in a veterinary practice and how it would differ from a human imaging practice.

iv) Document observations for 4 different exams.

VENIPUNCTURE

i) List the most common venipuncture sites.

ii) Describe the types of evacuated tubes used, and how the appropriate one is selected.

iii) Describe the sterile technique procedures observed.

iv) Document 15 successful blood draws.

IN-SERVICE TRAININGS

i) Summarize the key elements of the training. Include examples to illustrate each element identified.

ii) Apply new ideas to professional practice.

iii) Connect training to the strategic initiatives for the facility hosting the training. Describe how this training may or may not be useful in other settings.

PROFESSIONAL CONFERENCE

i) Experience the process of participating in and documenting continuing education activities.

ii) Apply new ideas to professional practice.

iii) Begin building a network of professional peers.

iv) Evaluate written and oral presentation skills.
H. CRITERIA FOR CLINICAL EDUCATION GRADE ASSIGNMENT

Each semester, the student’s clinical education grade will be determined by the contents of their Clinical Portfolio, their Professional Development evaluations, their performance on Oral Exams, and successful completion of all clinical assignments (site evaluations, critical thinking assignments, etc.). Weighting of the evaluation criteria for grade determination will be distributed in the course syllabus at the beginning of each semester. All grades will be assigned in accordance with the program grading scale. A minimum of a C is required for all courses.

Grading Scale:

<table>
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<th>Grade</th>
<th>Minimum Percentage</th>
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<tr>
<td>A</td>
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<tr>
<td>A-</td>
<td>93 to 96.9%</td>
</tr>
<tr>
<td>B+</td>
<td>89 to 92.9%</td>
</tr>
<tr>
<td>B</td>
<td>85 to 88.9%</td>
</tr>
<tr>
<td>B-</td>
<td>81 to 84.9%</td>
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<tr>
<td>C+</td>
<td>78 to 80.9%</td>
</tr>
<tr>
<td>C</td>
<td>75 to 77.9%</td>
</tr>
</tbody>
</table>

**Clinical Education grades may be reduced in accordance with the rules and regulations pertaining to tardiness, absence without permission and incidence reports.

In CE 1 – 4, grades will be weighted as follows:

- Graded Clinical Competencies – 22.5%
- Check-off comps – 7.5%
- Professional Work Trait evaluations – 30%
- Oral Examinations – 30%
- Other Assignments – 10%

For CE 5, grades will be weighted as follows:

- Graded Clinical Competencies – 25%
- Check-off comps – 10%
- Professional Work Trait evaluations – 30%
- Other Assignments – 35%
I. CLINICAL EDUCATION DOCUMENTATION

i) E*Value

E*Value is a web-based clinical tracking system that is used by our program to document your clinical hours, clinical competency completion and professional development in the clinical setting. The system requires a subscription, which is purchased through the Mizzou Store prior to each summer session. "Clinicals" are a crucial part of radiography education. E*Value provides tools to help you manage, monitor and document your clinical experience.

1) Accessing E*Value – You will find E*Value at www.e-value.net.
2) Clocking In and Out – Timeliness is an important part of professionalism. You will clock in and out of clinics using the Time Tracking function. To do this, go to the Time Tracking tab> Clock In/Out >Make sure that you have clinical hours selected. (If Carla has entered personal time for you, it may default to personal time.) Select the CE course you are in. Select the site you are assigned to. If you don’t see the correct site, uncheck the “scheduled sites only” box and look again. Choose the technologist you are working with, and click Clock In. (Remember to clock out at the end of the day.)
3) Logging Clinical Comps (competencies) - When you are ready to perform an exam all by yourself, you let your supervising technologist know that you are ready to “comp”, then, once you have completed the exam, log the exam in the Case Logs portion of E*Value. Case Logs tab>Log New Case> Enter your clinical site, the technologist you are working with and the CE course you are enrolled in. When you are selecting the procedure, note that you will need to choose “Graded” for Graded comps and non-designated procedures for “regular” comps. If you did not perform the exam independently under direct supervision, do not log it.
   Didn’t get it quite right? Go to Case Logs tab> Review & Manage Submitted Case Logs. This area allows you to edit your case log entry rather than entering a new one. You can also see a list of everything you have entered.
4) Reviewing Evaluations - You can access the results of all types of evaluations, including your clinical comp evaluations and your professional development evaluations, through the Reports tab> Evaluation Student Reports > Completed Evaluations about Students. Set the dates to the semester or weeks you are wanting to look at and select the evaluation type. You can see more than one evaluation type by holding down the shift key and clicking on the evaluations you want to see, or just leaving the Evaluation Type set on All Types.
   You can also access this information through Reports > Schedule Report. Select the dates you are interested in to see your day by day schedule. Again, clicking on the site name will give you the map and contact information.
5) Seeing Your Clinical Schedule - To see where you are assigned, click Home tab > Other Tasks > Calendar Your clinical assignments will be displayed. If you click on the site, it will give you a map to the clinical site and contact names and numbers. These can come in handy if you need to call in sick. You can also access this information through Reports > Schedule Report. Select the dates you are interested in to see your day by day schedule.
6) Changing Your Profile – You can change your User Name and Password under the Home tab > Other Tasks > Change Password
7) Accessing the Student Handbook – Also under the Home tab > Other Tasks> Search Documents > General Purpose, you will find an electronic copy of this handbook, as well as pictures of the radiography classes.
ii) Clinical Forms (examples of the forms may be found in Appendix A)

(1) Personal Leave Request – If you are taking time off of clinicals (must be requested 48 hrs in advance) or have to call in sick, you will need to fill out a personal leave request. These blue forms are located in the bins in the hallway outside Lewis 606 or can be printed from the blackboard course site.

(2) Incident/Student Counseling Report – This form is used to document discussions between the faculty and the student regarding disciplinary matters.

(3) Clinical Competency Form

(4) Graded Clinical Competency Form

(5) Professional Development Form

J. TIPS ON HOW TO SURVIVE YOUR CLINICAL ROTATIONS

The Basics

- **Be Punctual:**
  Always show up on time or call if you will be more than 10 minutes late. NEVER leave early without letting someone know. Be sure to fill out a blue slip for the personal time you take. If you are using personal time, call the clinical site and the program (884-9680). This is your responsibility. Do NOT ask the program to notify the clinical site for you, or ask the clinical site to call the program.

- **Dress Appropriately:**
  Wearing your name tag and dosimeter is of the utmost importance. If you show up without either, you will be asked to use personal time to return home and get it.

- **Be the Professional You Want to Become:**
  We are what we repeatedly do. Excellence, therefore, is not an act but a habit. While Aristotle wrote that decades ago, it is still applicable today. Be calm, quiet, assured. Behave the way you expect the healthcare professionals taking care of you to act. Don’t curse, talk about your night out drinking or the fabulous sex you had. Don’t giggle. Patients and their families often assume that any laughter is about them. We want our patients to feel welcome and comforted, not made fun of. If you are in an exam room or patient’s room on a portable, make sure ALL conversation is focused on the task at hand and includes the patient. If it isn’t, it can wait.

In the Exam Room

- **Be Aggressive:**
  Taking x-rays can be intimidating at first. Everything is new and you don’t feel comfortable with the controls of the table or the tube yet. Don’t let it scare you. Be Aggressive. Get in there and be as involved as you possibly can be. If you have seen an exam once or twice, ask the technologist to let you do the positioning while they walk you through it. They won’t let you mess it up and it will build your confidence and get you ready to test. Most of the time they will be more than happy to let you do that. If it happens to be a busy day, please don’t be upset if the technologists ask you to watch. Speed comes with practice and soon you will be turning out exams as fast as the rest of the staff. If you feel you are repeatedly denied the opportunity to perform an exam under supervision, please tell your Clinical Preceptor or me.
• **Be Industrious:**
  Make the most of the education you’ve paid for. Remember that the clinical hours are for your benefit rather than for the benefit of the clinical affiliate. That is not saying that they don’t enjoy having you in the department just that they can survive without you. View performing exams as a privilege, not a chore. Practicing on all types of exams (including chests) is extremely important to your becoming a GOOD tech. Those who graduated from Mizzou before you want to see its reputation for turning out quality technologists continue. Do NOT sit in the break room if there is an exam being performed. Do NOT wait for a tech to ask if you want to go with them. Be there. Few things are as annoying as feeling like you have to beg a student to come learn. Again, don’t wait to be asked. If you are asked to do something, the answer is always YES. The techs WILL stop asking and shortly after that may ask not to work with you. If your assigned area is not busy, watch and help in another area. If your area is busy, don’t be the one always making the exposures. Get in there and ask to perform the exam. If you are unsure, the technologist is always there for guidance. If nothing is going on, grab another student and practice positioning in an empty room, go watch the radiologists read films, watch an ultrasound, CT or special procedure. Please don’t do your homework, knit, or read your latest novel. The techs may do it, but it looks bad. Sitting in the waiting room watching TV, surfing the internet, and/or texting your friends is strictly prohibited. DO NOT get your phone out ANYWHERE in the hospitals for any reason. If you need to check the time, wear a watch.

• **Be Inquisitive:**
  Every tech does things a little differently. If you have not seen a particular technologist perform an exam, it is best to watch the first time or two. (Say something like: “Marge showed me how she positions for lateral knees, but I would like to see what you do differently.”) Ask thoughtful questions that clarify the process for you. This allows you to create a method of doing things that works best for you. Be careful about where you are asking your questions – Ask them in the work area or quietly behind the control panel, not in front of the patient, which can make the patient feel like they are not getting the best care. It is VERY important not to argue with the technologist. (Especially things like: “That’s not how we learned it in class.”) Telling them about another tech’s methods is not a good idea. They already work in the field and know what works for them. Ask them why it works for them. Use this to develop your own methods. Avoid repeatedly asking the same question, as this indicates that you didn’t listen to the answer the first time. Technologists (and their bosses) like students who act like they want to learn.

• **Be Precise:**
  Strive to make every image look “textbook”. If you can’t, get help. If it’s still not possible due to patient condition, make a note on the order telling the radiologist why this is your best work. Pay attention to little things. Markers and patient identification must be correct. Inattention can result in a patient having the wrong leg amputated or a chest tube being placed in the wrong patient. As a technologist, a mistake like that can (and probably should) get you fired. Incidentally, the technologists cosigning your films can be held responsible for your mistakes. Be careful.
• **Be Responsive:**
  Pay attention to what your technologists and preceptors are telling you. They aren’t just talking to hear themselves talk. They are trying to help you. Listen to what they have to say. If they mention that writing techniques down is a good way to learn what techniques to set, get a notebook and put it to use. Make sure they see you acting on their suggestions. If they mention that you are a little loud in the work area, carefully monitor your volume at all times after that. (I have trouble with this, and have had to work hard to keep my voice down.) People want to see that you are taking action on the feedback you get. If you aren’t acting on their feedback, they will stop giving it.

**Common Courtesy**

• **Be Polite:**
  Do not block computer terminals, sinks, storage cabinets or doorways. (These things shouldn’t be a problem if you are with the techs doing the exams.) Don’t change settings on chairs, put your feet on the furniture or rearrange things. This is not your home; don’t act like you own the place. Do not taunt, degrade, or otherwise harass anyone - technologists, fellow students, anyone - even just in fun. If you can’t say something nice, don’t say anything at all.

• **Avoid Complaining:**
  Don’t complain about technologists, supervisors, or doctors while in the department. If you must vent, call a friend after you get home. Be careful who you complain to, it could get back to the wrong people and affect your chances for employment. Avoid being around people who complain. Their attitude can rub off on you. You could even gain the reputation as a troublemaker by hanging around with people who always complain. I have found that I am happier with my job if the people around me are happy with theirs. (or at least if I don’t know about their unhappiness…)

**The Ultimate Goal**

Let’s face it, the goal of getting your radiography degree is not so you can bask in the warmth of all the knowledge you’ve acquired, it’s to **get a job**.

• **Your clinical hours are your key to a job.** The supervisors and techs are watching you from day one.
• Be a willing learner, cheerful, a team player.
• Be punctual and courteous.
• Smile more than you frown.
• Tackle every job with as much enthusiasm as possible.
• Don’t pass an image that isn't your best work.
• These are the things that will land you a job. You’re not staying in town when you graduate? These are the people who write the references to the town you are going to. It’s up to you what they have to say.
• **You have the keys, it’s up to you to unlock the door.**

In short, following these guidelines will help you to have the best clinical experience (and the best professional development evaluations) possible. These ideas apply to all clinical sites and to technologists hoping to climb the career ladder as well as students.
VI. APPENDICES

A. APPENDIX A: EXAMPLES OF CLINICAL FORMS

1. Personal Leave
2. Incident/Student Counseling Report
3. Clinical Competency Form
4. Graded Clinical Competency Form
5. Professional Development Form
Appendix A: Form Examples

1. Personal leave:

Radiologic Sciences
Clinical and Diagnostic Sciences Department
School of Health Professions

PERSONAL LEAVE REQUEST

Student Name: ________________________________

Date(s) Requested: ________________________________
(Month) / (Day) / (Year)

Total Time of Leave (hours): ________________________________

Student Signature: ________________________________ Date: ________________

Clinical Coordinator Signature: ________________________ Date: ________________
2. Incident Counseling Report:

University of Missouri
Radiography Program
Counseling Report

Student: ____________________________  Reason for Conference:  
Date of Incident: ________________  □ Uniform
Date of Conference: ________________  □ Professional Judgment

Related Program Policy:

Incident:

Response:

Plan for resolution:

Student Comments:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

I have seen the statement of the incident. I have discussed this matter with the Clinical Coordinator. My signature represents this discussion.

Signature of Student ____________________________ Date ____________

Signature of Clinical Coordinator ____________________________ Date ____________
3. Clinical competency

Subject:  
Evaluator:  
Site:  
Period:  
Dates of Activity:  
Activity: Clinical Education 1  
Form: Clinical Competency

(Question 1 of 4 - Mandatory)

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<td>Proper patient ID correlation</td>
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<tr>
<td>Patient history obtained</td>
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<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Instruct &amp; assist patient properly</td>
<td>1.0</td>
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<td>0</td>
</tr>
<tr>
<td>Select appropriate film</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Select bucky or table-top</td>
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<td>0</td>
</tr>
<tr>
<td>Manipulate equipment to correct position</td>
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<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Position anatomical area correctly</td>
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<tr>
<td>Part centered to film correctly</td>
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<td>2.0</td>
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<tr>
<td>Utilize immobilizing devices correctly</td>
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<td>Central ray angled properly</td>
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<td>2.0</td>
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<tr>
<td>Collimate beam properly</td>
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<tr>
<td>Shield patient</td>
<td>1.0</td>
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<td>0</td>
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<tr>
<td>Doors closed</td>
<td>1.0</td>
<td>2.0</td>
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</tr>
<tr>
<td></td>
<td>1.0</td>
<td>2.0</td>
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</tr>
<tr>
<td>-----------------------------</td>
<td>-----</td>
<td>-----</td>
<td>---</td>
</tr>
<tr>
<td>Correct markers used</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Select correct technique</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Use correct breathing instructions</td>
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<tr>
<td>Overall speed and proficiency adequate</td>
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<tr>
<td>Knowledge of anatomy</td>
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**Technologist Comments:**  
(Question 2 of 4 - Mandatory)

**Score:**  
(Question 3 of 4)

**Was the student competent?**  
(Question 4 of 4 - Mandatory)

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<tr>
<td>1</td>
<td>2</td>
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</table>
4. Graded Clinical Competency

Subject:
Evaluator:
Site:
Period:
Dates of Activity:
Activity: Clinical Education 1
Form: Clinical Competency Graded

Student must score 85 or higher to pass. When calculating the score, subtract the total number of points associated with missed items from 100.

*ITEMS WITH ASTERISKS REPRESENT A VALUE OF 16 POINTS. Thus, if not performed, student automatically repeats exam. All other numbered skills are at the denoted values.

(Question 1 of 8 - Mandatory)

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<td>0</td>
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<tr>
<td>Table and tube in position</td>
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<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Equipment prepared (aprons, contrast, etc.)</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Films, grids and markers available</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>* INTERPRET REQUISITION ACCURATELY *</td>
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(Question 2 of 8 - Mandatory)

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<th>Patient Care</th>
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<tr>
<td>* PROPER PATIENT-ID CORRELATION *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Proper introduction and procedure explanation</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Patient history obtained</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
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### Appropriate body mechanics and patient transport

<table>
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<tr>
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<tbody>
<tr>
<td>1.0</td>
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* **INSURE PATIENT PRIVACY** *

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### Introduction of physician when appropriate

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### Good communication skills

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</tr>
</tbody>
</table>

### Technical Factors

(Question 3 of 8 - Mandatory)

<table>
<thead>
<tr>
<th>Technical Factors</th>
<th>No</th>
<th>Yes</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>* SELECT APPROPRIATE kV *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>* SELECT APPROPRIATE mAs *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>* PROPER USAGE OF PHOTO TIMING *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Selection and use of accessories</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Manipulate equipment properly</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Use of proper film size</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>* APPROPRIATE USE OF MARKERS *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Efficiency and smoothness</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
</tbody>
</table>

* **PATIENT ID FLASHED ON FILM** *

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Radiation Protection

(Question 4 of 8 - Mandatory)

<table>
<thead>
<tr>
<th>Radiation Protection</th>
<th>No</th>
<th>Yes</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. * DOORS CLOSED *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>2. * ASCERTAIN PROBABILITY OF PREGNANCY *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>3. * USE OF GONADAL SHIELD *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>4. * USE OF APRONS AND GLOVES *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
</tbody>
</table>
5. * COLLIMATE TO FILM SIZE OR SMALLER * | 1.0 | 2.0 | 0
6. * FILM BADGE WORN * | 1.0 | 2.0 | 0
7. * DID NOT REPEAT FILM * | 1.0 | 2.0 | 0

(Question 5 of 8 - Mandatory)

<table>
<thead>
<tr>
<th>Positioning Skills</th>
<th>No</th>
<th>Yes</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. * POSITION ANATOMICAL AREA CORRECTLY *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>2. Utilize immobilizing devices</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>3. * PROPER CR - PART - FILM ALIGNMENT *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>4. * CR ANGLED PROPERLY *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>5. * USE OF APPROPRIATE S. I. D. *</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>6. Extraneous objects removed from area of interest</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>7. Appropriate breathing instructions</td>
<td>1.0</td>
<td>2.0</td>
<td>0</td>
</tr>
</tbody>
</table>

General Comments  (Question 6 of 8)

Score  (Question 7 of 8)

Was the student competent?  (Question 8 of 8)

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
# 5. Professional Development Form

**University of Missouri Radiography Program**

**PROFESSIONAL DEVELOPMENT EVALUATION FORM**

<table>
<thead>
<tr>
<th>Student:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**Length of time in clinical education:**
- [ ] CE1
- [ ] CE2
- [ ] CE3
- [ ] CE4
- [ ] CE5
- [ ] Midterm
- [ ] Final

**Instructions:** A radiographer’s conduct in the clinical setting is a major indicator which the general pubic uses to judge a department’s professional level. Appropriate conduct is a broad category encompassing a number of considerations. Evaluate the students on their abilities and consider length of time in clinical education.

## 1. Student’s Comprehension of Examinations: understanding of information, responsibilities, procedures, materials, equipment and techniques required to produce quality radiographs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The student demonstrates comprehensive knowledge of the basic concepts.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>The student demonstrates above average knowledge of the basic concepts.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>The student demonstrates adequate knowledge of the basic concepts.</td>
<td>7.5 pts</td>
</tr>
<tr>
<td>4.</td>
<td>The student lacks knowledge of some phases of the basic concepts.</td>
<td>5 pts</td>
</tr>
<tr>
<td>5.</td>
<td>The student has inadequate knowledge of the basic concepts.</td>
<td>0 pts</td>
</tr>
</tbody>
</table>

## 2. Quality of Work: accurate, thorough and neat; recognizes mistakes and takes corrective action.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Meets highest standards of accuracy and thoroughness.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>Work is consistently well done; seldom makes errors.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>Quality of work is satisfactory but not consistent.</td>
<td>7.5 pts</td>
</tr>
<tr>
<td>4.</td>
<td>Poor work quality; makes repeated mistakes.</td>
<td>0 pts</td>
</tr>
</tbody>
</table>

## 3. Organization of Work: the ability to use time constructively and productively.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Consistently plans procedures and needs no instructions to proceed; highly productive.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>Plans procedures and occasionally needs instructions to proceed; starts work promptly.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>Sometimes has difficulty organizing procedures; needs to be told when to do things.</td>
<td>7.5 pts</td>
</tr>
<tr>
<td>4.</td>
<td>Inadequate knowledge; has difficulty organizing procedures and often needs instruction to proceed.</td>
<td>0 pts</td>
</tr>
</tbody>
</table>

## 4. Quantity of Work: the volume of work accomplished.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Does more work than expected, accurate.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>Completes appropriate amount of work in the time expected.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>Slow; does just enough to get by.</td>
<td>7.5 pts</td>
</tr>
<tr>
<td>4.</td>
<td>Does not always complete work; works very slowly.</td>
<td>0 pts</td>
</tr>
</tbody>
</table>

## 5. Patient Rapport: the ability to interact with patients.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Instills confidence in patients through communication and concern; aware of patient’s needs; considerate.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>Aware of patient’s needs; good patient rapport.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>Does not anticipate patient’s needs; responds to requests only.</td>
<td>7.5 pts</td>
</tr>
<tr>
<td>4.</td>
<td>Minimal communication with patient; avoids active patient contact.</td>
<td>0 pts</td>
</tr>
</tbody>
</table>

## 6. Reaction to Criticism: accepts and demonstrates a willingness to comply with directions, suggestions and criticism.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Receptive, has insight regarding professional limitations, willingness to learn.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>Benefits from criticism, is willing to learn from mistakes.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>Defensive, has no insight regarding professional limitations.</td>
<td>0 pts</td>
</tr>
</tbody>
</table>

## 7. Interpersonal Relationships: the ability to communicate, interact and deal effectively with supervisors, peers, patients and other employees.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Well thought of by others; tactful and diplomatic; promotes teamwork.</td>
<td>10 pts</td>
</tr>
<tr>
<td>2.</td>
<td>Uses average amount of tact and diplomacy; gets along with others.</td>
<td>8.5 pts</td>
</tr>
<tr>
<td>3.</td>
<td>Sometimes curt with patients and/or peers; should be more considerate and tactful.</td>
<td>7.5 pts</td>
</tr>
<tr>
<td>4.</td>
<td>Consistently interacts poorly with supervisors, patients and/or peers.</td>
<td>0 pts</td>
</tr>
<tr>
<td>6. Initiative: the energy and motivation displayed in starting and completing tasks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✘ Self-starter; always accepts responsibility; seeks additional work. ............... 10 pts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✗ Usually a self-starter; works well when given responsibility. ...................... 8.9 pts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✗ Accepts responsibility as required but does not pursue additional responsibility. 6.1 pts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✗ Does only what is required; needs frequent encouragement to start and complete tasks. 7.5 pt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✗ Puts forth little effort; does just enough to get by. .................................. 0 pts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Judgment: the ability to reason, interpret and use discretion in carrying out assignments.</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Uses sound reasoning in making decisions and reaching conclusions in most situations. .... 10 pts</td>
</tr>
<tr>
<td>✗ Reasons and makes judgments in satisfactory manner........................................... 8.5 pts</td>
</tr>
<tr>
<td>✗ Limited ability to reason and make judgments; assignments could be better thought out. .... 7.5 pt</td>
</tr>
<tr>
<td>✗ Reasoning slow or illogical; frequently reaches decisions or conclusions that are poor. ...... 0 pts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Attendance/Punctuality: the overall attendance/promptness record.</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Excellent attendance record.......................................................... 10 pts</td>
</tr>
<tr>
<td>✗ Rarely absent or late ........................................................................ 9.3 pts</td>
</tr>
<tr>
<td>✗ Attendance or punctuality is satisfactory......................................... 8.5 pts</td>
</tr>
<tr>
<td>✗ On time, but not in assigned area...................................................... 7.5 pt</td>
</tr>
<tr>
<td>✗ Consistently late; wanders; not easily located.................................... 0 pts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Consistently presents a professional image; always well groomed and careful about appearance. 10 pts</td>
</tr>
<tr>
<td>✗ Satisfactory personal appearance; clean and neat and in accordance with dress code. ................ 8.5 pts</td>
</tr>
<tr>
<td>✗ Satisfactory personal appearance, sometimes needs reminding of dress code. ......... 7.5 pt</td>
</tr>
<tr>
<td>✗ Careless about personal appearance.................................................... 0 pts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12. Professional Ethics: integrity, patient confidentiality, loyalty and impressions the student makes concerning professional judgment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Conducts self in an appropriate professional manner at all times................................................................. 10 pts</td>
</tr>
<tr>
<td>✗ Usually conducts self in an appropriate professional manner.................................................................................. 9.3 pts</td>
</tr>
<tr>
<td>✗ Adheres to professional standards of conduct in an acceptable manner. ........................................................................ 8.5 pts</td>
</tr>
<tr>
<td>✗ Often does not follow professional standards of conduct when dealing with others.............................................. 7.5 pt</td>
</tr>
<tr>
<td>✗ Consistent negative attitude, rude, arrogant to patients and fellow radiographers.............................................. 0 pts</td>
</tr>
</tbody>
</table>

Total Points: __________ / 120

Evaluator Comments: 

Student Comments: 

Evaluator Signature: __________  Date: __________

Student Signature: __________  Date: __________