AL 301, AL 340, AL 380 PROGRAM AND CLINICAL MANUAL

SCHOOL OF APPLIED STUDIES
RADIATION THERAPY PROGRAM
TOPEKA, KS

* 2024 – 2025 *

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Section 0
Orientation Information

MRI ENVIRONMENT – STUDENT SCREENING POLICY

Magnetic Resonance Imaging (MRI) utilizes a powerful magnet and radio waves to generate images of the body. MRI imaging may be used during the radiation therapy treatment planning process or in the treatment room as a form of image-guided radiation therapy (IGRT).

The strong **magnet used in MRI is always turned on** and can be hazardous to individuals entering the MR environment if they have certain metallic, electronic, or magnetic mechanical implants/devices/objects. Students with certain implanted devices, such as pacemakers, cochlear implants, defibrillators, neurostimulators, aneurysm clips, and some infusion pumps, will not be allowed in the MRI environment.

To ensure the safety of students, each radiation therapy student will be pre-screened for a possible history of injuries, such as an intraocular metallic foreign body, bullet, shrapnel or other type of metallic fragments. Individuals with bullets, shrapnel, or metallic fragments in the body could be at risk of these materials changing position and causing injury. The magnetic field of the scanner can also damage external hearing aids and cause a pacemaker to malfunction.

Loose metallic objects are especially prohibited in the MR room. These objects can become projectiles within the scanning room, causing serious injury or death and/or equipment failure. Prior to entering the MR environment, students must remove all metallic objects. Prohibited items include, but are not limited to:

- Any article of clothing that has a metallic zipper, buttons, snaps, hooks or under-wires
- Electronic devices such as beepers or cell phones
- Eyeglasses
- Hairpins, barrettes
- Hearing aids
- Jewelry (including body piercing jewelry), watches
- Keys
- Money clips, credit cards, bank cards, magnetic strip cards, coins
- Pens, safety pins, paper clips
- Pocket knife, nail clipper, tools
- Steel-toed boots/shoes

If there are questions or concerns regarding an implant, device or object, please consult the supervising staff **BEFORE** entering the MR Environment.

Radiation therapy students must be directly supervised by a registered radiation therapist or other appropriately credentialed staff at all times. This direct supervision policy is no different when participating in a rotation that involves MRI imaging. Students must comply with the assigned clinical site's policies and procedures pertaining to MRI safety. Clinical Preceptors may send a student home for failure to comply with the site's MR safety policies and procedures. Failure to comply with the MRI safety policies will lead to counseling as described in the Student Counseling policy within the program manual.

Students must complete the following MRI screening questionnaire. The questionnaire will be reviewed by the radiation therapy program Clinical Coordinator prior to the first day of clinical education. The completed MRI screening questionnaire will be placed in the student's school file for documentation. If the answer to any question in the questionnaire is "yes" or if there are questions or concerns regarding student safety due to potential dangers of implants or foreign bodies, the questionnaire will be shared with the Clinical Preceptor at the student's assigned clinical site. The Clinical Coordinator will work with the Clinical Preceptor to determine the student's eligibility to enter the MR environment. Additional screening may be required to ensure student safety.

If the status of the student's screening questionnaire responses should change at any point in the program, the student must notify the Clinical Coordinator immediately to re-evaluate the student's continued eligibility to enter the MR environment.

EXAMPLE MRI STUDENT SCREENING QUESTIONNAIRE

Students will be provided with a fillable form to complete at the time of Orientation.

Name _____

Please indicate if you have any of the following:

Yes	No	
		Aneurysm clip(s)
		Any injury involving metallic fragment or foreign body in the eye, other soft tissue, etc.
		Any type of prosthesis (eye, shoulder, etc.)
		Artificial heart valve, coil, filter and/or stent
		Cardiac pacemaker or implanted cardioverter defibrillator or internal electrodes
		Ear (cochlear) implant, middle ear implant and/or hearing aids
		Electronic implant or device
		External/internal drug pump for Insulin or other medicine
		Eye injury from a metal object (examples: metal shavings from welding, metal slivers)
		Implanted post-surgical hardware (surgical clips, pins, rods, etc.)
		Injured by a metal object (shrapnel, bullet, BB)
		IV access port
		Medication patch
		Metallic removable dental work, braces, retainers
		Neurostimulator or spinal cord simulator
		Ornamental body piercing
		Other
		Shunt or stent
		Spinal fixation device or spinal fusion
		Surgical clips, staples or surgical mesh
		Swan-Ganz or thermodilution catheter
		Tissue expander (breast)

Explain in further detail if you answered "yes" to any of the above questions: _____

_____

_____

_____

_____

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.

Student Signature: _____ Date : _____

Clinical Coordinator Signature: _____ Date : _____

A scientific calculator is allowed during program examinations. An example calculator is provided below.

Top 10 Ways to Impress Your Clinical Instructor

Advice Directly from Clinical Preceptors

1. Be on time and at your rotation, ready to work by the scheduled time.

2. No schoolwork, computer work, or exams/quizzes completed during clinical hours. Clinical time is reserved for hands-on experiences. If you have some specific questions regarding coursework, ask the staff when a good time would be to discuss those questions.

3. Ask questions related to your clinical experience; this shows interest. Just keep in mind questions may be better suited for outside the treatment room. When patients hear questions, they may think something is wrong.

4. Limit personal conversation. The patient should always be the focus!

5. Do not be afraid to jump in! No one will beg you to participate. If you show initiative early and often, the therapists will be more willing to teach.

6. During downtime, ask if there is something else you should be doing. If there is nothing else, go practice something.

7. Each week, discuss your objectives/goals with the Clinical Preceptor or therapist(s). If you hope to perform a competency evaluation, let them know three days or more in advance. If you feel that you do not understand a setup, ask if they could help you understand the concepts better.

8. When performing a competency evaluation, be sure to know your patient's name, diagnosis, histology, stage, prescription, and where they are in the treatment course. Also, be prepared to answer questions about anatomy, field borders, facts about the type of cancer, etc. See competency study guides in the clinical manual to help you prepare.

9. Take responsibility for yourself and your actions. No excuses. Avoid defending your actions if a therapist critiques your skills, instead thank them for the feedback. Learn from what you are told and apply your new knowledge.

10. Ask for feedback every few weeks so you can gauge your own progress. Ask the therapist who you have been working with what your strengths and weaknesses are, ask about ways to improve, ask if they feel you are taking initiative, ask if they feel you are demonstrating appropriate focus, and ask if there is anything more you should or could do.

Advice from the Class of 2024
WU Radiation Therapy Survivorship Tips

Question 1 - **What advice do you have for the incoming class about succeeding in the online didactic courses (all courses other than clinical)?**

- My advice would be to stay organized and to stay ahead. I tried to always work ahead, if possible, and more often than not it helped me stay less stressed.
- Start early. Since the entire class schedule is provided, with all due dates clearly available, start studying for tests and work on assignments early. It's easy to get overwhelmed when you allow time to slip by and you have two tests and three assignments due on the same day!
- Spend the time studying and use the resources provided by professors.
- Do not get too stressed out at the beginning of the semester. It sounds like a lot, but you have plenty of time to get it all done!
- Get a planner, write down every deadline.
- DONT WORK TOO MUCH :)
- Create a calendar with all the due dates. Find what style works for you, whether it's electronic, on the wall, in a planner, or all of them! I had multiple calendars to ensure that I never missed a due date. I also made a checklist for each course which included all the assignments, the due date, and a checkbox that I could mark off once it was completed. This helped me feel like I was getting somewhere with all the assignments.
- Organization is key!
- Prepare and organize as much as possible as soon as the classes open (download/print/read materials). Buy a desktop calendar to synchronize due dates for all classes to one place. Stay ahead of schedule (don't get behind). Listen & take notes during lectures. Take small breaks and breathe. It's hard, but it's only one year.
- Be sure to read the syllabus for each course.
- Use all of the resources! Don't just look at the handouts for the live classes. READ the textbook, look at study guides, worksheets, the key terms. It is all helpful!
- Study every week. This is fast-paced, and you will fall behind if you don't stay ahead.
- Don't get overwhelmed, it's going to all be okay, I promise. Use the study aids! The charts and glossary really helped me.
- Study! Study! Study! Do not wait until the last minute to complete assignments or take quizzes. Dedicate time for each class each week to help you prepare and be successful.
- Get a game plan when you are going to do your tasks and write it in your calendar!!! You will have to make a lot of sacrifices for 1 year.

Question 2 - What advice do you have for the incoming class about succeeding in the clinical courses?

- Take time before clinical begins to understand the policies, rotations, and what needs to be achieved each semester. This makes the year much smoother!
- My best advice would be to TRY, don't sit back, and take initiative every day.
- Be on time, leave on time, work hard while you are there, and never stop asking questions.
- Clinical is a yearlong job interview. Always act professional and don't be afraid to ask questions.
- Take initiative, ask questions, and participate in everything you're allowed to do. As a student, this is the time to make mistakes and learn. Whether you're learning to do something the first time, a better way to do it the second time, or perfecting your skills the 80th time, now is the time to do all that!

- Create a clinical notebook with helpful handouts and notes on specific set ups. This is helpful when you have down time to review and also as a handy cheat sheet until you get everything down.
- I've found that stepping out of my comfort zone helped me learn the most, especially when I made mistakes.
- Wanting to learn is key. I promise it will click eventually :)
- Be involved in everything you can. Do not be shy talking to patients.
- To succeed in clinical, you MUST get involved!!!!! This is a 365-day job interview. Stock linens, take linens out, get vac-locs lined up. Ask questions…to this day I ask questions because I may not understand a certain concept. Learn as much as you can in sim and the computer software. Jump on the opportunity to set up patients and watch (really watch) how they drive the machine.
- Ask for what you need (in a professional manner). If you need more hands on experience, ask how you can obtain that. If you need more practice with the electronic chart, ask if they have a "practice patient."
- If you need help understanding a procedure, write out the steps as you understand them and then ask the radiation therapists to check your steps.
- Don't be afraid to ask questions. They won't think they are "stupid" or that you are silly for asking them. It's the way to learn.
- No doing coursework at clinical.
- Be involved; Be humble; Don't be late.
- Make the most of your time while you are at clinic. When you are in this program, school is your job and clinic is where you are learning your skills to become a therapist. Try to connect what you are learning in class with what you are doing at clinic

Question 3 - The most challenging part of this online program was:

- The most challenging part of this program was transitioning from a radiology program that was in class to an online program.
- Just know that this program is finished in one year, then you can go back to having your regular life back!
- Time management---there's always so much going on!
- The most challenging part of this program was not having classmates in the same town to study with before exams. Eventually, classmates decided to form a study group using face-time. This was so great!
- Keeping track of all the assignments due. Organization is very important.
- The fast pace is challenging. It is very fast-paced, and you will have more than one test in a week. You have to put school as your number one priority, and you will be fine.
- Learning to put "life" on hold. There were many times that I wanted to go out to an event or to see friends instead of completing reading materials or studying for an exam. Once you learn to put the program first, you'll learn to succeed in it.
- If you take this program seriously, then you will succeed. Give 100%!

Washburn University
Radiation Therapy Program
ESSENTIAL FUNCTIONS FORM

Please read the following statements identifying the Essential Functions and answer the question at the end of the form. A radiation therapist must have sufficient strength and motor coordination required for the performance of the essential functions of a workday.

Mental/Concentration Demands: Candidates must be able to …….

- Concentrate for extended periods of time.
- Focus on a task for an extended period of time.
- Learn and retain new information.
- Apply theoretical concepts underlying the clinical practice of radiation oncology.

Manual Dexterity/Fine Motor: Candidates must be able to ……

- Stand, walk, crouch, stoop, bend, balance, twist at neck and waist, and reach/grasp above shoulders, in front of body, to sides of body, and below knees.
- Push and pull objects in excess of forty (40) pounds routinely: accessory equipment, wheelchairs, and stretchers.
- Lift 10-40 pounds unassisted to approximately six (6) feet from the floor and to a height of six (6) feet. Objects lifted include but are not limited to blocks, patients, film cassettes, patient films/charts, electron cones, accessory devices, and positioning aids.
- Be independently mobile within a building and between buildings.
- Show sufficient balance to protect and assist patient(s).
- Push wheelchairs and stretcher from waiting areas to treatment, simulation, and nursing rooms.
- Transport, reposition, move, and assist in moving a dependent patient from a stretcher or wheelchair onto a table.
- Demonstrate strength, agility, and flexibility to manipulate and position a patient.
- Have endurance and attention to engage in 8 hours of patient treatment each day, 5 days a week.
- Demonstrate fine motor coordination/dexterity to be able to grasp, handle, hold, cut, push, pull, and feel.
- Work in confined spaces such as assisting patients in a bathroom or working in an office with several people.
- Have full use of hands, wrists, shoulders, and work standing on feet 80% of the time.
- Perform CPR.
- Apply personal protective equipment.

Visual & Hearing: Candidates must be able to …….

- Assess the patient's condition by asking questions, listening to responses, observing condition and behavior.
- Read typewritten, handwritten, and computer information.
- Visually evaluation simulation and portal images.
- Visually monitor patient via TV camera/monitor.
- Distinguish colors and opacity.
- Depth perception in judging distances and spatial relationships.
- Distinguish sounds and voices over background noise.
- Hear patient communications over auditory monitoring system.
- Hear patient and coworker in a darkened treatment/simulation room.

Communication Skills: Candidate must be able to……

- Audibly communicate with clarity in person to exchange accurate information on a one-to-one basis, in a small group, large classroom setting, or large group.
- Communicate effectively in written and spoken English.
- Detect, interpret, and appropriately respond to verbal and non-verbal communication, acoustically generated signals (call bells, monitors, phones, alarms).

- Use therapeutic communication: attending, clarifying, coaching, and facilitating, and using and responding to nonverbal communication.
- Communicate effectively, efficiently and appropriately with peers, faculty, supervisors, other professionals, patients, and their significant others.
- Demonstrate sufficient observational skills to collect data on patient performance, and assure patient safety during treatment activities.
- Gather, analyze and correctly interpret information.

Exposures: Once accepted into the program, candidates may be exposed to….

- Blood, body fluids, and infectious disease.
- Potentially hazardous magnetic fields, ionizing radiation, and radioactive materials.
- Electrical hazards.
- Moderate noise from mechanical equipment.
- Other hazardous materials, toxic substances, and irritating particles.

Personal Traits: Candidates must be able to frequently…….

- Work within clinical environments, which involve exposure to persons with physical & mental disabilities; and to pain, grief, death, stress, communicable diseases, blood and body fluids, toxic substances, noxious odors, and irritating particles.
- Work with a diverse patient population including persons of various ages, ethnic, racial, religious, alternative lifestyle, and socioeconomic backgrounds without prejudice or repulsion.
- Conduct oneself in accordance with professional ethics.
- Exhibit teamwork skills and a spirit of cooperation and respect for peers, faculty, supervisors and other professionals, patients, and their significant others.
- Work around others and alone.
- Modify behavior/performance in the classroom or the clinic after feedback from the instructor or Clinical Preceptor.
- Show problem-solving ability sufficient to organize and complete multiple tasks accurately and within assigned periods.
- Independently initiate routine job tasks.
- Respond independently, effectively and quickly to an emergency.
- Maintain poise and flexibility in stressful or changing conditions.
- Deal with abstract and concrete variables, define problems, collect data, establish facts, and draw valid conclusions.
- Interpret instructions furnished in oral, written, diagrammatic or schedule form.
- Carry out detailed, simple to complex written or oral instructions.
- Comprehend medical records, documents, evaluations, manuals, journals, instructions in use and maintenance of equipment, safety rules, and procedures.
  Interact compassionately and effectively with the sick or injured.
- Function safely, effectively and calmly in stressful situations.
- Prioritize multiple tasks.
- Maintain personal hygiene consistent with tasks.

If there is a need for accommodations for didactic courses or clinical education, it is encouraged that a request be submitted before services should begin, although requests for accommodations may be made at any time while in the program. All requests shall be submitted to the Office of University Diversity and Inclusion at (785) 670-1629 or diversity.inclusion@washburn.edu.

EXAMPLE WASHBURN UNIVERSITY
RADIATION THERAPY PROGRAM
POLICY ACKNOWLEDGEMENT FORM

A fillable version of the form will be provided to students at the time of Orientation. Students are to please read and then initial each item. Direct any questions or concerns to the Program Director or Clinical Coordinator prior to initialing.

ACKNOWLEDGEMENT OF PROGRAM POLICIES AND PROCEDURES

____ I have read and fully understand the academic and clinical policies set forth by the Radiation Therapy Program and agree to abide by the requirements. I understand that I have responsibilities as a student in this program and that I may be dismissed from the program if I disregard these policies or ignore my role in the educational process.

AUTHORITY TO PROVIDE CREDENTIALS TO POTENTIAL EMPLOYERS

____ I hereby authorize the Faculty members of the Radiation Therapy Program at Washburn University to release information regarding my potential job skills, including academic and clinical performance. This may be done at my request or at the potential employer's request.

OR

____ I hereby authorize the Faculty members of the Radiation Therapy Program at Washburn University to release information regarding my potential job skills, including academic and clinical performance, **only** at my request.

AUTHORIZATION FOR RELEASE OF WRITTEN DOCUMENTATION

____ I hereby authorize the faculty of the Radiation Therapy Program to use any written documentation from the clinical internships (confidentiality of patient, facility, physician, and radiation therapy staff will be maintained), written documentation of practical examinations, and patient treatment scenarios of case analysis for educational purposes.

CLINICAL AFFILIATION REQUIREMENTS

____ I understand that I will be participating in clinical education during the course of my schooling in the Radiation Therapy Program. As a student in this program, I understand and agree to the following:

- I must abide by the rules, policies, and procedures of the clinical affiliate.
- If the clinical education site requests additional requirements such as (but not limited to) a drug screen (at student cost), attendance at their organization's orientation, completion of HIPAA/OSHA training, and additional immunizations not required by the University, I will complete the requested requirements. I understand that failure to follow policies of the clinical facility may result in removal from the program.
- I must have reliable transportation, and that I am responsible for all costs incurred during travel to and from the Clinical Site, i.e. gas, lodging, meals, etc.
- Despite being assigned to a primary clinical education site, it is possible that a rotation to another facility may be required to obtain experience in a certain procedure or due to issues related to site staffing or patient volume.
- In addition to Fall, Spring, and Summer semester clinical hours, clinical will also be held during the Winter Intersession, which is a component of the Spring semester and involves a 2-3 week period in December and January during which students attend clinical full-time, Monday-Friday.

- An affiliation agreement must be in place between the University and clinical facility. Special rotations outside of the primary assigned clinical site must be completed at a program approved affiliate site and must be approved by the Clinical Coordinator of the Radiation Therapy Program.

CONFIDENTIALITY AGREEMENT

____I understand that as a student in the Radiation Therapy Program at Washburn University, I will work with medical records of actual patients in health care facilities and in the classroom. As a student in the Radiation Therapy Program, I may receive direct or indirect information about current or former patients from other employees, other students, or faculty. It is imperative that confidentiality of the patients' records be maintained for legal and ethical reasons, including confirmation that a patient is receiving radiation therapy treatments. In fact, many state and national organizations providing licensure, certification, and registration have established policies and procedures regarding patient-confidentiality standards. Failure to protect patient privacy is considered an ethics infraction and may have an impact on one's future professional practice. Pertaining to Classroom and Clinical Patient Information/Confidentiality, I:

- Agree to keep all patient/client information confidential according to HIPAA Privacy laws.
- Understand that any student who breaches patient confidentiality in any manner, where sufficient evidence exists, may be dismissed from the clinical education site and from the Radiation Therapy Program.

CONSENSUAL AND FAMILIAL RELATIONSHIPS

____I understand that as a student in the Radiation Therapy Program at Washburn University, I am to report any familial and consensual relationships that may exist between myself and individuals within the program that hold positions of authority and manage, teach, supervise, advise or evaluates me in any way.

FLU VACCINATION

____I understand that I must obtain a flu vaccination and submit proof of the vaccine to the Clinical Coordinator no later than October 15th. I am aware that a clinical site may refuse my participation without evidence of having the flu vaccine or may require me to wear a mask at all times during flu season. I understand vaccination exemptions are made on a case-by-case basis and must be approved prior to starting the clinical rotation.

MAINTAINING CURRENT HEALTH INSURANCE COVERAGE

____I understand that it is the policy of the Radiation Therapy Program at Washburn University to obtain and maintain health insurance throughout the Radiation Therapy Program, including all academic semesters and clinical rotations. I agree to obtain health insurance and provide a copy of the insurance card and policy number prior to the program start date. Furthermore, I understand that the program may request documentation of health insurance coverage at any time during my education in the Radiation Therapy Program at Washburn University, and failure to do so is considered grounds for dismissal from the Radiation Therapy Program. I will notify the Program Director/Clinical Coordinator should any changes in health insurance coverage occur.

MAINTAINING CURRENT CPR AND ARRT CERTIFICATION

____I understand that it is the policy of the Radiation Therapy Program at Washburn University to obtain and maintain CPR certification and ARRT certification throughout the Radiation Therapy Program, including all academic semesters and clinical rotations. I agree to maintain CPR and ARRT certifications and provide a copy of the CPR and ARRT cards prior to the program start date, and at any time the certifications are renewed. Failure to maintain certifications may be considered **grounds for dismissal** from the Radiation Therapy Program.

ACADEMIC MISCONDUCT POLICY

____I understand that all students at Washburn University are expected to conduct themselves appropriately and ethically in their academic work and in the clinical setting. Inappropriate and unethical behavior includes (but is not limited to) giving or receiving unauthorized aid on examinations or in the preparation of papers or other assignments, knowingly misrepresenting the source of academic work, falsifying time records, or misrepresenting clinical documentation.

Academic integrity is vital for all students, including students in the healthcare field, because patients depend on professionals who act and respond ethically. Any action of academic dishonesty is grounds for dismissal from the program. Washburn University's Academic Impropriety Policy describes academically unethical behavior in greater detail and explains the actions that may be taken when such behavior occurs. For guidelines regarding protection of copyright, consult **Washburn Copyright Guidelines** **-** For a complete copy of the Academic Impropriety Policy, contact the office of the Vice President for Academic Affairs, Morgan 262, or go online **Washburn Academic Impropriety Policy**

STUDENT SUPERVISION

_____ I understand that I must be under **direct supervision** at all times, regardless of competency testing status. Under no circumstances should I perform a procedure without being directly supervised by qualified clinical education site personnel. The primary supervisors are registered radiation therapists employed by the clinical facility. In regards to rotations such as nursing and dosimetry, an appropriately licensed healthcare professional may provide direct supervision. Observation of student performance through closed-circuit monitors is **NOT** considered direct supervision. If I feel pressure at the clinical site to breach this policy, I MUST contact the Clinical Coordinator to resolve this issue.

STUDENT EMPLOYMENT

_____I understand that students may seek and obtain employment, outside of clinical education hours, while completing the Radiation Therapy program at Washburn University. Students may not work overnight shifts and then arrive for clinical education hours as this action puts the clinical site and their patients at risk. As well, it is the policy of the radiation therapy program that the scheduled didactic and clinical courses **be a priority** to the employed student. Assignments, meetings, clinical hours, etc. will not be rearranged to accommodate work schedules. If a student's employment is impacting his or her clinical performance (examples include appearing sleepy, failing to demonstrate initiative, or inconsistent/unfocused performance), the student may be asked to resign from the employment or withdrawal from the program.

- Employment of a student in a clinical affiliate facility cannot substitute for clinical education requirements. In cases where students are employed by the organization of the clinical site, employment hours will not be during scheduled clinical hours. Students will not receive any wage or salary from clinical affiliates for clinical education hours used to satisfy the clinical education requirement of the program.

- While in the employment of the health organization, the individual is not covered by the University liability or worker's compensation policy. As an employee of the health facility, the student is subject to all of the rules, policies, and requirements established by the employer.

PREGNANCY POLICY

The National Council of Radiation Protection (NCRP) advises that control measures should be taken to avoid or reduce the risk of ionizing radiation exposure to the human embryo or fetus. All pregnant students in the Washburn University Radiation Therapy Program must make the final decision as to their acceptance or non-acceptance of this risk.

Upon confirmation of pregnancy, the student initiates the first step of declaring her pregnancy by **voluntarily** notifying the Clinical Coordinator in **writing**. In the absence of the voluntary, written disclosure, a student cannot be considered pregnant. At any time, a student may retract her declaration of pregnancy by submitting the request **in writing** to the Clinical Coordinator.

_____I understand that if I am pregnant or become pregnant during my enrollment in the Radiation Therapy Program has an established Pregnancy Policy which I shall review in full.

SUBSTANCE ABUSE POLICY

_____I understand that it is the policy of the Radiation Therapy Program at Washburn University that students be unimpaired by the consumption of alcohol or a controlled substance in the classroom or clinical setting and should a student be found to be under the influence of drugs or alcohol, the student will be subject to **disciplinary action up to termination from the academic program** in which he or she is enrolled.

- University Policy – The Washburn University Student Conduct Code, approved by the Board of Regents, provides a procedure and rules by which a student will be afforded due process in the matter of alleged violations of university standards, rules and requirements governing academic and social conduct of students. Possession of alcohol and controlled substances on University property or in conjunction with University sponsored activities, except as expressly permitted by state law and University policies, is prohibited (See Student Conduct Code, II Violations P and Q). Directed Practice or Clinical Education is a University sponsored activity activated by student enrollment. A student shall be subject to disciplinary action or sanction upon violation of listed conduct proscriptions.

- Allied Health Program Policy – Allied Health education requires directed practice or clinical education in a variety of health care settings. Health care facilities may be located within Topeka, within North Kansas or outside the state of Kansas. The Student Conduct Code remains in force regardless of student location. Allied Health Programs follow a Code of Ethics, which requires every provider (as well as students) to maintain a competent level of practice. As students involved in clinical education are in direct contact with patients, it is the policy of the Allied Health Department that students performing in clinical education be unimpaired by the consumption of alcohol or controlled substances. Students, who are found to be under the influence of drugs or alcohol, are subject to disciplinary action up to termination from the academic program in which they are enrolled.

EXAM PROCTORING

_____I have been informed that the radiation therapy program has implemented testing security measures to ensure the integrity of student assessment in the online environment.

- Quizzes and exams will require the download of a special, free add-in (respondus lock-down browser) when the very first test is attempted; it will then be in place for future testing. This free add-in is a security measure which will lockdown the student's browser permitting only the examination window to be open.
- The proctoring system will require a microphone and web-camera. Students must present their WU I.D. card to the system prior to the examination. A digital photograph of the I.D. and student will be captured as the exam is initiated and students will be videotaped during the exam.

SOCIAL MEDIA POLICY

Social Media can provide students with an opportunity to collaborate and communicate in various, and many times, beneficial and effective means. For program purposes, social media can be defined, but not limited to the following: texting, blogs, emails, eLearn communications, and proprietary platforms such as X, Linkedin, Facebook, YouTube, Reddit, Tumblr, Instagram, Threads, Snapchat, TikTok, etc. Web content is by definition public information and as such, no confidential or personally identifying patient information will be published at any time. Postings on these networks that exude any unprofessional behavior should be avoided as it may reflect negatively on the University, the program and also the profession that a student represents. In addition, postings on these networks should also not reflect negatively on the clinical situation, clinical staff or any individuals. Recent court decisions have upheld the dismissal of students from academic programs where the actions could be deemed as materially disruptive to the education process, i.e. actions that could impact the future viability of the program, such as clinical sites being uncomfortable accepting students because of current behaviors.

It is important for students to understand that many state and national organizations providing licensure, certification, and registration have established policies and procedures regarding patient-confidentiality standards. Failure to protect patient privacy is considered an ethics infraction and may have an impact on one's future professional practice. Remember the following guidelines often referenced by others concerning the use of social media: be respectful, be careful, be responsible, and be accountable. What you post online is not personal and is almost always permanent.

Be aware that in many instances around the country, involving both employees and students, such communications are not discovered because the institution is lurking online trying to find these things, but eventually someone who gains access to the post tells someone who is connected to the institution and at that point, the institution and clinic program cannot ignore what is being posted.

_____I understand that failure to adhere to the Social Media policy may result in disciplinary procedures. In addition, failure to adequately protect the privacy of confidential patient information may result in dismissal from the clinical site and from the Radiation Therapy program.

Section 1
Program Information

Section 1:

Program Information

WELCOME

The Radiation Therapy Program, School of Applied Studies, Washburn University of Topeka, believes that quality patient care is provided by individuals receiving quality instruction, consistent with professional, educational and instructional guidelines.

Washburn is pleased to have you enrolled as a student in radiation therapy. You should be proud of your selection into this program, for enrollment is competitive. Acceptance into the program signifies belief in your ability to become a member of a rewarding profession.

The Radiation Therapy Program does require a commitment from an individual in terms of time. The scheduled theory classes and clinical education account for approximately 40 hours each week. The study time required by an individual will be beyond that. A more specific listing of hours and assignments may be found under Degree Requirements and Clinical Education Plan.

The program is designed to help you develop the knowledge, skills, and attitude required to successfully complete the program. As questions or problems arise, please feel free to discuss these with faculty. We are here to assist you as you develop into a professional.

This manual is designed to assist in the orientation of new students and to clarify policies and procedures governing actions and practices of radiation therapy students. It is expected that students will be familiar with the following information. This manual is subject to change and/or amendment at the discretion of the program and clinical faculty. After review, if you have any questions, please contact a faculty member for clarification. For additional information, refer to the University Catalog, which is available at the Washburn University Registrar's Office in Morgan Hall, and within the MyWashburn online portal.

REQUIREMENTS FOR CERTIFICATE OF COMPLETION

Summer Semester

AL 309 Introduction to Radiation Therapy	2 cr. hrs.

Fall Semester

AL 301 Clinical Radiation Therapy I	4 cr. hrs.
AL 302 Radiation Therapy Principles I	3 cr. hrs.
AL 303 Radiation Therapy Physics I	3 cr. hrs.
AL 311 Imaging in Radiation Therapy	3 cr. hrs.
AL 307 Simulation & Treatment Procedures I	3 cr. hrs.

Spring Semester

AL 304 Therapeutic Radiobiology	3 cr. hrs.
AL 305 Radiation Therapy Physics II	3 cr. hrs.
AL 310 Radiation Therapy Principles II	3 cr. hrs.
AL 340 Clinical Radiation Therapy II	4 cr. hrs.
AL 370 Simulation & Treatment Procedures II	3 cr. hrs.

Summer Semester

AL 380 Clinical Radiation Therapy III	3 cr. hrs.
AL 381 Radiation Therapy Seminar	3 cr. hrs.

40 Credit Hours Total

*Clinical course credit hours are based on the formula of 100-115 clinical clock hours equaling one credit hour.

**See the Washburn University's Catalog for description of courses offered.*

ASRT CURRICULUM GUIDE SUBJECTS

SUBJECT	COURSE
Clinical Practice	AL301, AL340, AL380
Ethics in Radiation Therapy Practice	AL302
Imaging and Processing in Radiation Oncology	RT(R), AL302, AL311
Introductory Law in Radiation Therapy	AL302
Medical Terminology	RT(R)
Orientation to Radiation Therapy	RT(R), AL309, AL302, AL310
Pathophysiology	AL307
Principles and Practice of Radiation Therapy I	AL302, AL307, AL311, AL305, AL340, AL310, AL380
Principles and Practice of Radiation Therapy II	AL302, AL307, AL370
Radiation Therapy Quality Management, Quality Assurance, Safety and Operations	AL310
Radiation Biology	RT(R), AL302, AL304, AL311
Radiation Physics	RT(R), AL303, AL304
Radiation Protection	RT(R), AL303, AL304, AL305
Radiation Therapy Patient Care	RT(R), AL301, AL302, AL340, AL370, AL380
Radiation Therapy Physics	RT(R), AL303, AL305
Research Methods, Evidence-Based Practice and Information Literacy	AL304
Sectional Anatomy	RT(R), AL311, AL340
Treatment Planning	AL302, AL303, AL307, AL304, AL305, AL340, AL370

PROGRAM MISSION STATEMENT

The Radiation Therapy Program is focused on the development of qualified radiation therapists who provide optimum patient care through technical competency and professional conduct.

PROGRAM GOALS AND OUTCOMES

Goal 1: THE PROGRAM GRADUATES WILL BE PREPARED FOR ENTRY LEVEL EMPLOYMENT AS A RADIATION THERAPIST.

Outcome 1: Students will complete the program.
Outcome 2: Graduates will pass the national certification exam on the first attempt within 6 months of graduation.
Outcome 3: Graduates will be gainfully employed in radiologic sciences within 12 months of graduation.
Outcome 4: Graduates will be satisfied with the overall quality of the program.
Outcome 5: Employers will be satisfied with the overall competency of program graduates.

*Program completion rates, first-time test taker rates, and employment rates are posted on the program's website (www.washburn.edu/radiation-therapy) under the Quality Indicator menu option.

Goal 2: STUDENTS WILL DEMONSTRATE CLINICAL COMPETENCE.

Outcome 1: Students will analyze pertinent data from treatment planning documents.
Outcome 2: Students will accurately position patients for treatment delivery.
Outcome 3: Students will evaluate images using various imaging technologies (MV, kV, CBCT) to ensure proper patient alignment.

GOAL 3: STUDENTS WILL DEMONSTRATE WRITTEN AND ORAL COMMUNICATION SKILLS.

Outcome 1: Students will demonstrate written communication skills.
Outcome 2: Students will provide patient education within scope of practice.

GOAL 4: STUDENTS WILL DEMONSTRATE CRITICAL THINKING.

Outcome 1: Students will solve challenges related to non-routine clinical situations.
Outcome 2: Students will demonstrate the ability to perform specialized procedures in the clinical setting.

GOAL 5: STUDENTS WILL ASSESS THE IMPORTANCE OF PROFESSIONAL AND LIFE-LONG LEARNING.

Outcome 1: Students will exhibit professional standards and behaviors.
Outcome 2: Students will assess the importance of professional development.

THE PROGRAM

The Radiation Therapy curriculum at Washburn University is a JRCERT accredited 40-credit hour, 13-month certificate of completion program. This program will provide the knowledge and cognitive skills underlying the intelligent performance of major tasks typically required for an entry level staff therapist. Graduates are registry eligible with the American Registry of Radiologic Technologists (ARRT).

ACCREDITATION

The Washburn University Radiation Therapy Program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT).

Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182
Phone: (312) 704-5300
Fax: (312) 704-5304

Standards of an Accredited Education Program in Radiation Therapy

The Joint Review Committee on Education in Radiologic Technology (JRCERT) promotes academic excellence, patient safety, and quality healthcare through the assessment of six program standards: Integrity, Resources, Curriculum and Academic Practices, Health and Safety, Assessment & Institutional/Programmatic Data.

A copy of the JRCERT'S Standards of an Accredited Educational Program in Radiation Therapy may be found by accessing the following link:

https://www.jrcert.org/accreditation-information/accreditation-standards-2021/

Students have the right to submit allegations against a JRCERT-accredited program if there is reason to believe that the program has acted contrary to JRCERT accreditation standards or that conditions at the program appear to jeopardize the quality of instruction or the general welfare of its students.

Contact of the JRCERT should not be a step in the formal institutional/program grievance procedure. The individual must first attempt to resolve the complaint directly with institution/program officials by following the grievance procedures provided by the institution/program. If the individual is unable to resolve the complaint with institution/program officials or believes that the concerns have not been properly addressed, he or she may submit allegations of non-compliance directly to the JRCERT.

Students can contact the JRCERT:

By Email: mail@jrcert.org

By Phone: (312) 704-5300

By Mail: JRCERT
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182

FACULTY

Faculty for the Radiation Therapy Program is as follows:

Kristina Collins, Program Director/Lecturer, 2015
RT(R) Washburn University Radiography Program 2008;
RT(R)(T) Washburn University Radiation Therapy Program 2009;
Bachelor of Health Science (BHS) Washburn University 2009;
Master of Health Science in Health Care Education (MHS) Washburn University 2019

Sean Conrad, Clinical Coordinator/Lecturer, 2019
Bachelor of Arts in Economics (B.A.) University of Kansas 2007;
RT(R) Washburn University Radiography Program 2011;
RT(R)(T) Washburn University Radiation Therapy Program 2012

COURSE SEQUENCE

The Radiation Therapy Program is 13 months in length. In addition to the didactic coursework, this program includes a comprehensive clinical component. Because of the didactic and clinical components, these courses may be out of sequence with other University course offerings. A program/clinical schedule is provided within this manual and on the program website.

ADVISORY COMMITTEE

A representative committee has been appointed to assist in the evaluation and coordination of the program. The advisory committee is representative of the stakeholders involved in or affected by the educational program; this includes one currently enrolled student.

REASONABLE ACCOMODATION

The Office of University Diversity and Inclusion is responsible for assisting in arranging accommodations and for identifying resources of campus for persons with disabilities. Qualified students with disabilities must register with the office to be eligible for services. The office MUST have current documentation on file in order to provide services. Documentation includes a diagnosis of a specific disability by a professional qualified in the area of the disability, states how the disability substantially limits a major life activity and explains how the disability affects the student's academic performance. Services are identified to meet the needs of individuals based on their specific disabilities, e.g. depression, physical or learning disability, and may include note takers, test readers/scribes, adaptive technology training, brailed materials, or other necessary accommodations. Requests for accommodations should be submitted at least TWO MONTHS before services should begin; however, if you have a current accommodation need, please contact the University Diversity and Inclusion staff immediately.

*Students may voluntarily identify themselves to the instructor for a referral to the University Diversity and Inclusion office.

Location: University Diversity and Inclusion office, Morgan Hall, Suite 105.
Phone: 785-670-1629
E-Mail: diversity@washburn.edu

ARRT EXAMINATION / CERTIFICATION

National certification requirements state that an individual must complete an approved course in Radiation Therapy and meet all degree requirements as listed by the sponsoring agency. Any incomplete course work will delay the individual's eligibility for the national examination. The examination is a computer-based examination which is scheduled by the student, within 90 days after graduation, at a local testing facility.

Candidates must comply with the "Rules of Ethics" contained in the *ARRT Standards of Ethics*. The Rules of Ethics are standards of minimally acceptable professional conduct for all registered Radiation Therapists and candidates. The Rules of Ethics are intended to promote the protection, safety and comfort of patients. Registered Radiation Therapists and candidates engaging in any of the conduct or activities noted in the Rules of Ethics, or who permit the occurrence of such conduct or activities, have violated the Rules of Ethics and are subject to sanctions.

One issue addressed by the Rules of Ethics is the **conviction of a crime**, including a felony, a gross misdemeanor, or a misdemeanor with the sole exception of speeding and parking violations. All alcohol and/or drug related violations must be reported. Offenses that occurred while a juvenile and that are processed through the juvenile court system are not required to be reported to ARRT. Conviction as used in this provision includes a criminal proceeding where a finding or verdict of guilt is made or returned but the adjudication of guilt is either withheld, deferred, or not entered, or the sentence is suspended or stayed; or a criminal proceeding where the individual enters a plea of guilty or nolo contendere (no contest).

Other violations addressed by the Rules of Ethics include **regulatory violations** and **honor code violations**. Regulatory violations deal with incidences of a regulatory authority or certification board denying, revoking, suspending or probating a professional license, registration or certification. Honor code violations deal with suspension, dismissal, or expulsion from an education program that served to meet the ARRT certification or registration requirements.

All potential violations must be investigated by the ARRT to determine eligibility. Registered Radiation Therapists and candidates who violate the Rules of Ethics **must report the potential violation within 30 days of its occurrence** because all Washburn University radiation therapy students already hold the professional designation of registered radiologic technologists. While it is difficult to report potential violations, note that nondisclosure of potential ethics violations can be more serious than the violation itself.

If an applicant is convicted between the time of application and the exam administration date, it is the applicant's responsibility to inform the ARRT immediately to begin the review process.

More information about the ARRT Rules of Ethics reporting requirements can be found online at www.arrt.org or by calling the Ethics Requirements Department at 651.687.0048 x 8580.

UNDERGRADUATE UNIVERSITY CATALOG

Individuals enrolled in the program should familiarize themselves with the following sections and policies in the Undergraduate University Catalog, which is available online in the MyWashburn portal.

1. Academic Probation, Suspension and Reinstatement
2. Academic Policies and Regulations
    a. Grading System
    b. Admission and Attendance
3. Academic Impropriety Policy
4. Course Withdrawal
5. Non-Discrimination Regulation and Procedure
6. Programs, Degrees and Graduation Requirements
7. Registration and Enrollment
8. Sexual Harassment
9. Student Conduct
10. Student Support Services
11. Tuition Refunds
12. University Accreditation

ADDITIONAL FEES

In addition to the University tuition and cost of books, a radiation therapy student is expected to provide:

1. Uniforms (scrubs or suitable work clothing) and white lab coat
2. Transportation to and from clinical site(s)
3. CPR certification and recertification fee(s)
4. Physical exam
5. Flu shot and other possible immunization/test (Hep B, Tdap, TB, etc)
6. Health insurance
7. Background check and drug screen ($105)
8. Name tag ($5-$10)
9. Trajecsys clinical management system ($100)
10. Scientific calculator; graphing calculators will not be available on the boards exam so it is best to have a standard calculator that can do scientific functions.
11. Graduation pin ($15 optional)

*Some clinical sites may have special requirements for students such as a student processing fee, attendance at organization's orientation training, or special background checks. Any additional expenses are the responsibility of the student. Students are notified of special requirements prior to the start of the program.

*Students are encouraged to become members of their state and national radiologic societies. Resources listed below:

--American Society of Radiologic Technologists – National professional society, https://www.asrt.org/

--Listing of State Societies - https://www.asrt.org/main/about-asrt/affiliates/affiliate-websites

Washburn University - Radiation Therapy Program
Fall Semester Adobe Connect On-line Meetings

Class sessions for didactic courses will be held each Monday of the fall semester.

Mandatory Didactic Lectures		
8:30am - 09:50am CST	AL311 – Imaging in Radiation Therapy	Kristina Simmons
10:00am - 11:20am CST	AL307 – Oncology, Simulation & Treatment Planning I	Kristina Collins
11:30am – 12:50pm CST	AL303 – Radiation Physics I	Kristina Collins
1:00pm – 2:20pm CST	AL302 – Radiation Therapy Principles I	Kristina Collins

There will be **Clinical** live class sessions as well. For the fall semester there will be 4 mandatory clinical sessions scheduled (as shown below). **PLEASE NOTE THERE IS ONE MANDATORY FRIDAY AFTERNOON CLINICAL CLASS SESSION.**

In addition, there will be a series of optional (but strongly recommended) clinical sessions held on Mondays during the semester. All dates for the fall semester are listed below.

Mandatory Clinical Lectures			
August 19	2:30 pm – 3:50 pm Central Time	AL301	Radiation Therapy
August 26	2:30 pm – 3:50 pm Central Time	AL301	Radiation Therapy
September 2	2:30 pm – 3:50 pm Central Time	AL301	Radiation Therapy
FRIDAY September 6	2:30pm – 3:50 pm Central Time	AL301	Radiation Therapy
Optional but Highly Recommended Clinical Lectures			
September 9	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
September 16	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
September 30	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
October 7	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
October 21	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
November 4	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
November 18	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus
December 2	2:30 pm – 3:50 pm Central Time	AL301	Topic provided in syllabus

Adobe Connect
Visual Quickstart Guide for Participants

Join a meeting

Adobe Connect rooms have persistent URL's, so they're always available in the same location.

1. If you have received an email invitation with the meeting URL, you can click on the link or enter the URL into your favorite web browser.

2. The meeting login screen appears. If you do not have a username or password for the Adobe Connect account, choose ***Enter as a Guest***, type in your first and last name, and click ***Enter Room***.

3. The meeting launches in your browser. If the meeting host has not yet arrived to the meeting or meeting security requires the host to approve your attendance, you will be placed in a waiting room.

4. Once the meeting host accepts you into the meeting, the meeting room interface appears.

Tip: Adobe Connect only requires that you have an internet connection and a modern web browser such as Chrome, Safari, FireFox, and Edge. A desktop application is also available which optimizes sharing your webcam and enables screen-sharing.

Meeting audio

Meeting hosts have control over how the audio portion of your meeting is conducted. They can choose to use Voice-over-IP (VoIP), Integrated Telephony, or Universal Voice (a non-integrated teleconference).

Option 1: Voice-over-IP

When this option is selected, you can hear meeting audio through your computer speakers. If a meeting attendee is speaking using VoIP, you will see a microphone icon next to their name.

In some cases, meeting hosts may give you the ability to broadcast audio using VoIP. When this is the case, a dialog will alert you that you have the rights to use your microphone. Clicking the ***Speak Now*** link will activate the microphone icon in the **Application Bar** at the top of your screen.

Tip: If you are having difficulty hearing, try refreshing your browser window. If you are having issues using VoIP, run through the Speaker/Microphone Setup to optimize your experience. Click the Meeting Options button (ellipsis in top right corner).

Option 2: Integrated Telephony

If the meeting host has set up the room to use an integrated teleconference, then Adobe Connect will prompt participants to select how they would like to hear the audio. You can select to listen through your computer speakers if the host has enabled this, you can view the dial-in information, or you can have Adobe Connect dial-out to your telephone by entering your phone number and clicking ***Call Me***. This dialog can also be launched by clicking the telephone icon in the **Application Bar.**

Option 3: Universal Voice

Adobe Connect can also bridge non-integrated audio conferences into a meeting room so that the meeting can be recorded and the audio can be broadcast through the computer speakers of the participants. If the meeting host has selected a non-integrated teleconference (Universal Voice), you can listen to the audio through your computer speakers. If you'd prefer to listen over the phone, you can click the telephone icon in the **Application Bar** to see the dial-in information.

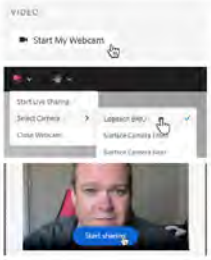
If the meeting host gives you the rights to speak, you can use your computer's microphone or your telephone handset to speak to the other meeting attendees.

Adobe Connect
Visual Quickstart Guide for Participants

Share webcam video

The meeting host may ask you to use your webcam to share video. When this is the case, a button enabling you to share your webcam will appear on the video pod. To share your camera, make sure your web cam is plugged in and click the ***Start My Webcam*** button. Your browser may prompt you for permission. After granting permission, a webcam video preview appears. If you're happy with the preview, click ***Start Sharing*** to share your video with all participants.

You can also click the webcam icon in the **Application Bar** to select your camera or pause your stream.



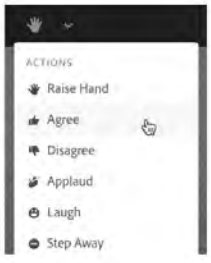
Change your status

Within a meeting, you can also change your status to provide feedback to the presenter and other attendees.

To change your status, click the arrow on the ***Status Options*** dropdown list on the **Application Bar** and select your desired status option.

If you select an option above the line such as ***Agree*** or ***Step Away***, you status remains until you choose ***Clear Status***. If you choose an option below the line such as ***Speed Up*** or ***Applause***, your status automatically clears itself after a number of seconds.

When you set your status, an icon appears next to your name in the **Attendees** pod.



Chat

To send a message to everyone, simply type your message in the chat pod and hit enter or click the send icon. Use the Pod Options menu (ellipsis in top-right) to set your chat color or change the text size.

If the meeting host has enabled private chat, you can send messages to a specific attendee or group within the meeting. To do this, use the Attendees pod to hover over the name of the attendee you'd like to chat with, and select ***Start Private Chat*** or click the + icon in the chat pod. Private chat messages show up in a separate tab.

If the host is using a Q&A pod instead of a Chat pod, then all messages are moderated and private chat is not available.

Troubleshooting

Issue	Solution
I cannot get into the meeting	If you are having trouble joining a meeting try the following: 1. Enter the meeting as a Guest user by entering in your First and Last Name in the Guest field. 2. Click the Help link on the Meeting Login page. This takes you to the Test Meeting Connection page where you can verify that your computer meets all necessary requirements. If you do not pass the test you will be given instructions for what you need to do. 3. Make sure popup blocking software is not blocking your meeting window.
I cannot hear any audio	1. Verify that your computer speakers are on and your computer's volume is at an audible level. 2. Check to see if the meeting host has provided teleconference information. If this is the case, you need to dial in via telephone to hear meeting audio.
Audio is choppy	1. This may be caused by insufficient bandwidth. Try quitting other applications that might be using bandwidth. If possible, use an ethernet cable instead of a wireless connection. 2. If you don't think it's a bandwidth issue, download and install the Adobe Connect desktop application.
I have been granted rights to speak, but no one can hear me	If you are having trouble sharing your voice try the following tasks: 1. Make sure your computer microphone is not muted. 2. Run through the Audio Setup Wizard. To do this, select ***Speaker/ Microphone Setup*** from the meeting options menu. The setup wizard guides you through two tabs in which your computer is tuned for optimal VoIP. 3. You may have elected to deny your browser access to your computer's microphone. To enable access, you will need to reload your browser window. To use mic, reload and grant mic permission from browser

Learn More

You can find additional resources by visiting the Adobe Connect User Community at www.connectusers.com

Computer System Requirements - Basically if it is cable or DSL, you are probably fine. Depending solely on satellite or low-bar 4G or 5G networks may not be sufficient.

	Operating System or Computer Model	CPU, RAM and Hard Drive	Connection Speed	Software
PC	Minimum: Windows 10 version 22H2 Recommended: Windows 11	Minimum: Intel or AMD 2 Core 8GB RAM 128GB SSD or 500GB HDD Recommended: Intel or AMD 4 core 16GB RAM 256GB SSD or larger	Minimum: High speed internet, at least 25 megabits. Recommended: High speed internet, 50 megabits or faster.	Microsoft 365 Adobe Acrobat Reader Firefox, Chrome, or Edge
Mac	Minimum: 2017 model or newer MacBook Air, or Pro Recommended: MacBook Air or Pro M1, M2, or M3 CPU	Minimum: 8GB RAM 128GB SSD Recommended: 16GB RAM 256GB SSD or larger	Minimum: High speed internet, at least 25 megabits. Recommended: High speed internet, 50 megabits or faster.	Microsoft 365 Adobe Acrobat Reader Safari, Firefox, Chrome, or Edge

Chromebooks are not recommended and will not support a variety of specialty software you may encounter in your classes. A PC or Mac matching the recommended configurations above would better serve you.

1. Latest versions of Adobe Acrobat Reader DC and Java.
    a. Free adobe downloads available at https://www.adobe.com/downloads.html
    b. Free Java available at https://www.oracle.com/java/technologies/downloads/
2. The current versions of Internet Explorer or Safari for Mac users is recommended. However, it is also recommended to have at least one alternate browser available. Alternate browsers that are supported include:
    a. Mozilla Firefox - https://www.mozilla.org/en-US/firefox/new/
    b. Google Chrome - https://www.google.com/chrome/browser/desktop/index.html
3. External Toolbars (Yahoo!, Google, MSN, Norton, MacAfee, etc.) disabled.
4. Pop-up blocker disabled or configured to allow pop-ups from www.washburn.edu and www.adobe.com.
5. JavaScript Enabled, AJAX Enabled
6. Must have computer speakers, microphone, and camera.
7. Set the timing of computer auto updates to a time that you will likely NOT be on the computer doing school work.
8. As a Washburn student, you can download the latest version of the Microsoft Office Suite. Download instructions are available on this page - https://washburn.edu/its/office-365/index.html#OfficeInstall

    If you have any questions or need assistance contact Washburn Online Support at 785.670.3000 or support@washburn.edu. For D2L support, please contact 1-866-888-1272 or washburn@d2l.com. D2L phone and email support is available 24/7. Additionally, students may access the widget on the D2L home page for 24/7 chat support.

    If seeking assistance from Washburn Online Support, it is helpful for students to be on their own computer. Support has great difficulty providing support to users who are trying to do things from a work computer or other computer where they cannot check or change the settings.

RADIATION THERAPY PROGRAM
TEXTBOOK LIST & ORDERING INSTRUCTIONS

Below is a listing of the required books for the entire length of the program. All books, except for the Mosby's Radiation Therapy Study Guide and Exam Review, must be ordered and in hand prior to the fall semester start date. Instructions for ordering books from the Washburn Bookstore are included (see next page). Book prices listed below are estimates through the university bookstore. WU Bookstore Return Policy: Students have until the last week in August to return books, and the material would have to be in new condition. The bookstore would pay the shipping costs back to the bookstore. The return policy is described in detail on the bookstore website.

Title: RADIATION THERAPY CLINICAL PRECEPTOR MANUAL Publisher: UMAPS Statement of Use: REQUIRED ***Found only at Washburn Bookstore.** **Approximately $17.50**	ISBN: 9780323596954 Edition: 5th, ©2021 Title: PRINCIPLES AND PRACTICE OF RADIATION THERAPY Author: Washington, Leaver, and Trad Publisher: ELSEVIER Statement of Use: REQUIRED **$247.99** **(N/A used at WU bookstore)**
ISBN: 9781930524989 Edition: 2nd, ©2018 Title: THE PHYSICS AND TECHNOLOGY OF RADIATION THERAPY Author: McDermott and Orton Publisher: Medical Physics Publishing Statement of Use: REQUIRED **$165** **$ 123.75 (used)**	ISBN: 9780323069342 ©2013 Title: MOSBY'S RADIATION THERAPY STUDY GUIDE AND EXAM REVIEW Author: Levy Publisher: Mosby Statement of Use: REQUIRED, Access Code Not Required But **Strongly Recommended** According to Past Graduates. $**127** **$84.75 (used)** *If not ordering prior to the fall semester, book must be ordered from a source other than the WU bookstore.
ISBN: 9781930524408 Edition: REV 09 Title: APPLIED PHYSICS FOR RADIATION ONCOLOGY Author: Stanton and Stinson Publisher: Med Physic Statement of Use: REQUIRED **$105.00** **$78.75 (used)**	ISBN: 9780964271524 Edition: 3rd Title: PORTAL DESIGN IN RADIATION THERAPY Author: Vann Publisher: DWV Enter Statement of Use: REQUIRED **$116.25** **$87.20 (used)**

Washburn University
Radiation Therapy Book Order Instructions

Contact (785) 670-1924 for Assistance

1. Access the website: washburn.edu/findmybooks
2. Login with your my.washburn credentials.
3. All program materials for the entire year will be displayed. (The only time to order books from the Ichabod Shop will be prior to August).
4. Make selections about new or used materials. When a selection is made for a material, select "Add to Cart."
5. When all selections for all materials have been made, select "Continue Checkout."
6. A summary of the shopping cart will display. Check to make sure all selected materials are in the summary, and then select "Continue Checkout."
7. You will be asked to indicate your substitution preferences in the event the bookstore doesn't have the condition (new/used) you had preferred. If you select "No," the item will be cancelled from your order.
8. You will be asked to indicate a preference about how to handle a circumstance in the course materials are changed by the program/instructor. Your options are 1) to have the book store add only required materials that have been changed, 2) add all materials that have been changed, or 3) do not add to the order despite changes. *Note, the program does not anticipate any changes!
9. You will be asked to indicate your substitution preferences in the event that course materials are changed AND you selected option 1 or 2 above. The options here are 1) to add new materials or 2) to add used materials to order in event of changes.
10. Now that preferences have been indicated, select "Payment Options."
11. Login or register with www.ichaabodshop.com to continue.
12. Select your delivery method:
    i. Materials can be picked up at the Ichabod Shop if you live locally
    ii. Materials can be shipped via UPS Ground
13. Click "Save & Continue."
14. Enter your shipping address, if you have not already done so.
15. If ordered by July 12, 2024, expand the promo code field and enter code "freeship24" to get free shipping on books.
16. Fill out payment information. If you are receiving financial aid and want payment to be recognized for financial aid, please select "Washburn Student Charge" as your payment method. The account number is your student ID number.
17. Click "Save & Continue."
18. Select "Place Order"
19. You will receive an email confirmation after placing the order. When your order is processed, you will receive another email with the subject line "Your order has been processed…"

Program Guidelines & Policies

Online learning requires a high level of commitment to ensure academic success.

The following are expectations of each radiation therapy student….

- Read the syllabus of each course.
- Develop a study plan or schedule that allows sufficient time to participate in class sessions and complete coursework. The guideline is 2 hours of study per week outside of live class sessions for every credit hour. This means one 3-credit hour course requires 6 hours per week of outside study.
- Complete reading assignments prior to class sessions and make notes of questions so they may be addressed in the class sessions.
- Complete learning activities by the designated due dates.
- Log into the online courses a minimum of 3 times per week; although daily is preferred.
- Report to live class sessions on time. Failing to log in within 3 minutes of the start time will be counted as an absence from the class.
- Adhere to the program and university academic impropriety policy.
    - Students are expected to conduct themselves appropriately and ethically in their academic work. Inappropriate and unethical behavior includes (but is not limited to) giving or receiving unauthorized ID on examinations, plagiarizing papers/assignments, knowingly misrepresenting the source of academic work, sharing exam questions/answers with classmates, collaborating on non-collaborative exams/assignments, falsifying clinical documents and concealing failed competencies.
    - Assignments and examinations must be completed by the enrolled student. Any violation of policy will result in the student being withdrawn from the program.
    - The instructor has the right to request materials used for assignments such as reference book, documents, and websites to verify that the submitted work is in fact an original document written by the student, in the student's own words. Students must give appropriate credit by referencing resources for content that is not original to the student.
    - Plagiarism is a violation of the Washburn University Academic Impropriety Policy. Therefore, if plagiarism or fraudulent actions are suspected, investigated, and confirmed, the student will be withdrawn from the program.
- Communicate with instructors early and often; instructors want to help students succeed.
- Treat faculty and classmates respectfully.
- Anticipate potential technical problems; have a back-up technology plan that includes alternate computer and Internet access.

Students may expect the following of the radiation therapy program instructors….

- Instructors will thoughtfully prepare a course syllabus, which provides course objectives, evaluation criteria, requirements for success, and information about university resources for students.
- Instructors will notify students of any changes to the course syllabus.
- Instructors will be available to students. This may take the form of email correspondence or telephone or web-based visits. Telephone or web-based visits will be scheduled at mutually convenient times.
- Instructors will be prepared for class sessions.
- Instructors will treat students respectfully.

- Instructors will typically complete grading of learning activities within 14 business days after the submission deadline.

Online Class Session Attendance Policy

Students are expected to attend all on-line class sessions. Reporting to a live class meeting more than 3 minutes beyond the start time will count as an absence. Meeting dates, times, and locations are posted within each course syllabus. Instructors will monitor attendance and participation throughout the entire meeting by calling on students, conducting polls, requiring student cameras to be turned on, breaking students into groups etc. If a student fails to participate in live class activities, it is presumed the student is absent.

Excused Absences – A total of 2 excused absences will be allowed per semester for each on-line course. For an absence to be considered excused, a student MUST notify the instructor of his or her absence by phone or e-mail BEFORE the scheduled meeting.

- **Excessive Absences** – More than 2 excused absences within a course or the occurrence of an unexcused absence will be subject to review and counseling by the instructor (see Student Counseling policy, section 2, pg. 45).
- **Grade/Point Reduction Procedure for Absences** – Each instructor will have the liberty to lower grades and/or deduct points from the final course grade for greater than 2 excused absences or if the student fails to notify the instructor of an absence prior to the scheduled class session.

More than two excused absences or failure to notify the instructor of an absence in advance will lead to the following grade deductions.

1. One additional absence beyond the 2 excused absences or failure to notify in advance = 2% deduction from final course grade and initiation of the Student Counseling Policy.
2. Two additional absences beyond the 2 excused absences or failure to notify in advance = 4% deduction from final course grade and continuation of the Student Counseling Policy.
3. Three additional absences beyond the 2 excused absences or failure to notify in advance = 6% deduction from final course grade and continuation of the Student Counseling Policy.
4. Four additional absences beyond the 2 excused absences or failure to notify in advance = 8% deduction from final course grade and continuation of the Student Counseling Policy.

Deadlines

Students are encouraged to check deadlines frequently. A multi-day window is generally given to complete learning activities. Abiding by the deadlines is necessary to succeed in the program.

Turn Around Time for Grading Assignments

Instructors will grade and post assignment grades within 14 business days after the assignment/exam deadline except when the instructor is on vacation or absent from the workplace.

Turn Around Time for Correspondence

Instructors generally will respond to correspondence (email/voicemail) within 2 business days after receipt except when the instructor is on vacation or absent from the workplace.

Experiencing D2L Technical Difficulty

It is likely that a technical difficulty will arise in D2L at some point during the program. If a student experiences technical difficulty and is unable to submit a test or assignment, the following steps must be taken. Instructors are not equipped to troubleshoot technical issues.

1. Locate an alternate computer or internet access to complete the assigned work.
2. If problem continues on the alternate system(s), the student must:
    a. Contact online support to report the technical issue 1-866-888-1272 or washburn@d2l.com.

b. Notify the instructor by phone/voicemail or e-mail to explain the technical difficulty.
c. On the next available work day, the technical difficulty will be investigated by the Washburn support team and instructor using background data that is collected in the learning management system.
d. Based on findings of the investigation, the instructor has the right to allow submission of the assigned work.

Experiencing General Technical Difficulty

If experiencing technical issues outside of D2L, for example MyWashburn email or downloading the Microsoft Suite, please contact Washburn's support services at 785.670.3000 or support@washburn.edu.

Student Conduct During On-line Course Discussions

To keep discussions productive, non-class related questions shall be discussed before and after the scheduled meeting time or via e-mail/phone. Private messaging, texting, or calling others during online sessions should not occur. The live sessions are intended to enhance student learning and allow interaction between the instructor and students. The live classes should be a safe environment to ask questions or seek clarification.

Students are expected to behave in a professional manner while participating in the on-line class meetings. Student misconduct will result in counseling (see Student Counseling Policy, section 2, pg. 45).

Quizzes and Exams

All quizzes and examinations administered on-line will be timed, closed-book and closed-note activities. The allotted time for on-line testing will be stated in the quiz or exam instructions. Generally, the time limit is set as 1 minute per question, which is the approximate time frame on the ARRT examination. The Radiation Therapy Program has implemented testing security measures to ensure the integrity of student assessment in the online environment.

- Quizzes and exams will require the download of a special add-in (Respondus Lock-Down Browser) when the very first test is attempted; from that point on, it will be in place for future testing. This free add-on is a security measure that locks down the student's browser permitting only the examination window to be open.
- The Respondus Lock-Down proctoring system will require a microphone and web-camera. Students must present their WU I.D. card to the system prior to the examination. A digital photograph of the I.D. and student will be captured as the exam is initiated and students will be videotaped during the exam.
- Testing results will not be released for printing. Instructors will release quizzes and exams for a limited period of review once the deadline has passed, all students have completed the test, and all questions have been graded. Students are welcome to contact the instructor of a course to further discuss testing results.

Exam Testing Expectations

When taking an online exam, guidelines must be followed. Failure to do so will result in the initiation or continuation of the Student Counseling Policy.

- Have your Washburn University ID card available to show to the camera.
- No other people permitted in the testing room.
- No communicating with anyone, this includes electronic communication. The only exception is if needing to contact a faculty member or support in the event of technical difficulties.
- No leaving the testing room.
- No resources on tabletop, work area, or walls of the testing room. Remove all textbooks, ebooks, notes, papers, post-it notes, calendars, mobile devices etc. unless they are specifically permitted

in written guidelines for a given exam (for example scratch paper or a calculator may be permitted in some cases).

- Accessing applications like Word, Excel, PowerPoint or other websites will be prevented.
- No music playing, no headphones, no earbuds.
- If you have a second monitor, it will be inaccessible; the system will cause the screen to turn to a solid color during the exam.
- No additional computers running in the testing room.
- Webcam must be focused on test taker at all times.
- Nothing can cover the lens of the camera at any time during the test.
- If a test permits scratch paper the student will have to show the blank paper at the beginning of the test. A reminder to do this is provided at the start of each exam.

LockDown Browser® & Respondus Monitor®

Student Quick Start Guide
Brightspace by D2L Edition

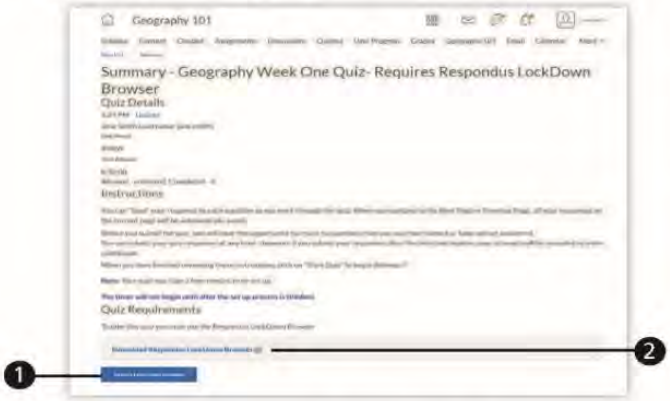
WHAT IS RESPONDUS LOCKDOWN BROWSER?

LockDown Browser is a locked browser for taking quizzes in Brightspace. It prevents you from printing, copying, going to another URL, or accessing other applications during a test. If a Brightspace test requires that Respondus LockDown Browser be used, you will not be able to take the test with a standard web browser.

LockDown Browser should only be used for taking Brightspace quizzes. It should not be used in other areas of Brightspace.

TAKING A QUIZ

1. Log into Brightspace with a regular browser, select the course and navigate to the quiz.
2. From this screen, either install LockDown Browser or launch it to take the test.



1. If the computer already has LockDown Browser installed, simply click the "Launch LockDown Browser" button.
2. If the computer does not have LockDown Browser installed, this link will enable you to install LockDown Browser to the computer.

3. If prompted to close a blocked program (e.g. screen capture, instant messaging), choose **Yes**.
4. If you are required to use a webcam to record yourself during a test, a Startup Sequence will guide you through a webcam check and other items required by the instructor.
5. Once a test has been started with LockDown Browser, you cannot exit the test until the **Submit** button is clicked.

USING WITH A WEBCAM (RESPONDUS MONITOR)

You may be required to use LockDown Browser with a webcam, which will record you during an online, non-proctored exam. (The webcam feature is sometimes referred to as "Respondus Monitor.")

Your computer must have a functioning webcam and microphone. A broadband connection is also required.

If an exam requires LockDown Browser ***and*** a webcam, follow steps 1-5 in the previous "Taking A Test" section. At this point the Startup Sequence for the webcam begins.

- You will first need to review and agree to the Terms of Use.
- The **Webcam Check** will confirm that your webcam and microphone are working properly. The first time the Webcam Check is performed on a computer, Adobe Flash Player will require you to select **Allow** and **Remember**.
- The remaining steps of the Startup Sequence will depend on settings chosen by your instructor. Follow the instructions and note your progress along the top of the screen.
- If you encounter a problem, select the **It's not working** link for troubleshooting tips.

The test will begin after the Startup Sequence is complete. You cannot exit LockDown Browser until the test is submitted for grading.

PROBLEMS?

If you have problems downloading, installing, or taking a test with Respondus LockDown Browser, contact your instructor or your institution's help desk.

LockDown Browser + Webcam

This course requires the use of LockDown Browser and a webcam for online exams. The webcam and microphone can be built into your computer or can be the type that plugs in with a USB cable (plug and play rather than one that requires software to be downloaded). Watch this short video to get a basic understanding of LockDown Browser and the webcam feature.

After viewing the video, download and install LockDown Browser from this link: http://www.respondus.com/lockdown/information.pl?ID=229915312 or navigate to the D2L test as usual and look for red text which indicates the Lockdown Browser is required; a link to download the browser will be present.

For additional details on using LockDown Browser + Webcam, search for, **LockDown Browser + Respondus Monitor Student Quick Start Guide**

System Requirements for Students

- Windows: 10 and 11
- Mac: 2019 or newer MacBook Air or Pro, macOS 12.0 or higher
- Google Chrome, Microsoft Edge, Firefox or the most current version of Safari for Mac.
- Web camera (internal or external) & microphone
- A broadband internet connection; hardwiring is best to keep connection stable.

Before You Attempt a Scored Test, Take the Practice Test

1. A practice quiz requiring the LockDown Browser + Webcam has been provided in your course for you to test that the Browser works on your computer.
2. Download the LockDown Browser by visiting http://www.respondus.com/lockdown/information.pl?ID=229915312. This downloading step only has to be completed once and then the LockDown Browser will be on your computer. To check that you have the latest version of Respondus LockDown Browser installed, launch the LockDown Browser and select the blue "i" (information – settings) button at the top, then select **Check for New Version**. Make sure you are using a version of the LockDown Browser that is 2.X or higher.
3. Below are the steps to follow for taking a quiz/exam requiring Respondus LockDown Browser + Webcam:
    1. Login to Desire2Learn using a standard browser.
    2. Navigate to the given course.
    3. In the given course, navigate to the quiz/exam by selecting "**Assessments**" from the navigation bar, then selecting "**Quizzes.**"
    4. When on the quizzes page, select the **title** of the quiz/exam.
    5. Select the **Launch LockDown Browser** option.
    6. Once the LockDown Browser has launched, follow the normal steps for starting a quiz/exam.

    Below are the steps to follow for **reviewing a quiz/exam attempt** using the Lockdown Browser:
    1. Login to Desire2Learn using a standard browser.
    2. Navigate to the course and quiz.
    3. Select the drop-down menu to the right of the quiz title. Select **Submissions**.
    4. On the following page, select **Launch LockDown Browser**.
    5. Once the LockDown Browser has launched, follow the normal steps for accessing a quiz attempt.

Suggestions for Subsequent Tests

1. After you have completed the practice quiz/exam, all other quizzes/exams will be accessed in the same manner: log into your Desire2Learn account in a supported browser, navigate to the given course, select **Assessments** from the navigation bar, then select **Quizzes** from the drop-down menu, on the **Quiz List**, select the link for the quiz to be taken, and finally select the **Launch LockDown Browser** button and follow steps to begin testing.
2. If prompted, either close a blocked program (e.g. screen capture, instant messaging) by choosing Yes. Alternately, close LockDown Browser and close the blocked program before restarting.
3. The Webcam Check will confirm that your webcam and microphone are working properly.
4. The remaining steps of the Startup Sequence will depend on settings chosen by your instructor. Follow the instructions and note your progress along the top of the screen.
5. If you encounter a problem, select the "It's not working" link for troubleshooting tips.
6. In most instances, you cannot exit LockDown Browser until the quiz is submitted for grading.

If Problems Arise

Most of these solutions require that you are the administrator of the computer in question, meaning that you can install and remove software as well as change software settings.

- A **Webcam Check** and **System Check** are always available in the **Help Center**. If you **receive a message for one of those, you can run tests from there.**
- **The Help Center** also has a **Need More Help?** Button which connects you with Respondus's live chat.
- At any time during the pre-exam steps, select the It's not work link for that step to access Respondus's live chat.
- Check that you have the latest version of Respondus LockDown Browser installed. To do so, launch the LockDown Browser and select the blue "i" (information – settings) button at the top, then select **Check for New Version**.
- After launching the LockDown Browser from programs or applications, select the **Help Center** button at the top. Search for your issue and its solution by selecting **Go To Knowledge Base**.
- If your issue is not resolved, please search for your issue on the Respondus Student Support FAQ https://web.respondus.com/student-help/
- If an answer cannot be found at these resources or if further assistance is needed, please contact support at 1-866-888-1272 or washburn@d2l.com.

1. Uninstall then reinstall Respondus LockDown Browser. As some updates are optional but not required, check for LockDown Browser updates as indicated above.
2. Close down any running applications including any background applications. In Windows, all applications can be viewed and closed in the Task Manager, which is accessed via CTRL+ALT+DELETE or CTRL+SHIFT+ESC. On a Mac, applications can be viewed and closed in the Activity Monitor, which is accessed in the Applications/Utilities folder.
3. Security Settings
    a. Make sure only one security application is running on your system (e.g.: Kapersky, Norton, McAfee, Sophos, etc.). Change the security level to medium. The means of doing this depends on the application.
    b. In that security application, if you are on a Windows machine, add **lockdown.exe** to the list of trusted applications. On a Mac, add **LockDown Browser** as a trusted application.
4. Perform a deep scan for viruses and malware. Remove and repair any components that are infected or affected.

Tips & Frequently Asked Questions:

1. Usually when LockDown Browser does not start up or there are issues when accessing an exam, it is a good indication that security settings or another application is interfering with the LockDown Browser start up and access to the school's learning management system. The following steps are recommended:
   a. Download and re-install the latest version of LockDown Browser from http://www.respondus.com/lockdown/information.pl?ID=229915312
   b. Close down all other applications including any background applications.
   c. Make sure only one security application is running on you system. Relax any security settings to "medium", add "lockdown.exe" (Windows) and "LockDown Browser" (Mac) as a "trusted program", and the school's learning management system address as a trusted site in any security settings.
   d. Do a deep scan for any virus, parasite or other malware infections.
2. **What is the webcam icon on the toolbar in LockDown Browser for?**

   If a course has at least one exam where Respondus Monitor is required, the webcam icon will appear on the toolbar for LockDown Browser. This enables a student to perform the webcam check prior to starting an exam where Respondus Monitor is required.
3. **If the Internet connection is lost temporarily during an exam, how does that affect the video?**
   a. If the Internet (or wi-fi) connection is lost for an extended period of time, you won't be able to continue with the exam, just as if you were only using LockDown Browser. You would need to restart the browser and your exam attempt.
   b. However, if disconnections to the Internet are brief, Respondus Monitor will attempt to re-establish the connection every 5 seconds. If the Internet connection is re-established, the video for that portion of time will be missing in the video review. The instructor will see an automated note in the "Comments" section indicating that a break occurred in the video (a thumbnail will indicate where the break occurred). Students will likely be unaware of a brief interruption because the webcam will automatically re-establish the connection once the Internet connection is restored.

You can contact Washburn support at 1-866-888-1272 or washburn@d2l.com.

Review of Plagiarism and Proper Reference/Citation

What is Plagiarism? Merriam-Webster defines plagiarism the act of stealing or passing off the ideas, words or works of another as one's own without crediting the source.

What Does Plagiarism Look Like? (Education World, 2002)

- "Quoting or paraphrasing material without citing the source of that material. Sources can include Web sites, magazines, newspapers, textbooks, journals, TV and radio programs, movies and videos, photographs/drawings, charts and graphs; any information or ideas that are not your own.
- Quoting a source without using quotation marks -- even if you do cite it.
- Buying a paper online or downloading a paper from a free site.
- Copying or using work done by another student.
- Citing sources you didn't use.
- Turning in the same paper for more than one class without the permission of both teachers."

How to Avoid Plagiarism? Acknowledge the work of another by giving credit. Even if the format of a citation is incorrect, it is best to acknowledge the author of the work.

What is a Citation? A specific source mentioned ***in the body of your paper***. The in-text citation format depends on if content is quoted or paraphrased. If quoted, the name of the author(s), year of publication, and page number(s) should be included at the end of the quote in parenthesis followed by a period. If the content is paraphrased the name of the author(s) and year of publication used.

What are References? A **list of the sources *you cited in the body of your paper***. The references come at the end of your paper, on a separate page titled References. Every source that is listed in your references also needs to be cited in the body of your paper.

APA Formatting of Common Sources – Use the examples below as a tool to properly give credit.

APA REFERENCE FOR BOOKS

One Author

Author, A. (Year Published). *Book title* (Edition ed.). Publisher. DOI (if available)

Two or More Authors

Author, A., Author B., & Author C. (Year Published). *Book title* (Edition ed., pages).

Publisher. DOI (if available)

Chapter in a Book Format

Author, A. (Year Published). Title of chapter. In first letter of first name. last name of editor

(Ed.), *Book title* (pp. pages of chapter). Publisher. DOI (if available)

Reference List Examples

Khan, F.M. (2010). *The physics of radiation therapy* (4th ed.). Lippincott Williams & Wilkins.

Khan, F.M. (2010). Interactions of ionizing radiation. In J. Pine, J. Murphy, J. Larkin (Eds.), *The physics of radiation therapy* (4th edition, pp. 54-62). Lippincott Williams & Wilkins.

Heifetz, R., Grashow, A., & Linsky, M. (2009). *The practice of adaptive leadership: Tools and tactic for changing your organization and the world*. Harvard Business Press.

In-text Citation Example

If quoting a direct statement from the text, enclose the quote with quotation marks. After the second quotation mark include (Khan, 2010, pp. 190-191). You should use the abbreviation "p." for one page or "pp." for multiple pages. Direct quotations that are 40 words or longer should be started on a new line and indented ½ inch from the left margin – The entire quotation should be typed on the new margin.

If paraphrasing you could use the author's name in a statement such as Khan (2010) states…OR if paraphrasing and not mentioning the author include the following (Khan, 2007). If you do not provide a direct quote, you only have to make reference to the author and the year of the publication, without including the page number in the in-text reference.

APA REFERENCE FOR DICTIONARY (in print)

Format

Institution or organization name (Year). Title of entry. In *Title of reference work* (edition, page numbers). Publisher.

Reference List Example (with editor):

Merriam-Webster, Incorporated. (1997). Goat. In *Merriam Webster's collegiate dictionary* (10th ed., pp. 499-500). Merriam-Webster, Incorporated.

APA REFERENCE FOR DICTIONARY (online)

Format

Institution or organization name (Year). Title of entry. In *Title of reference work*. URL

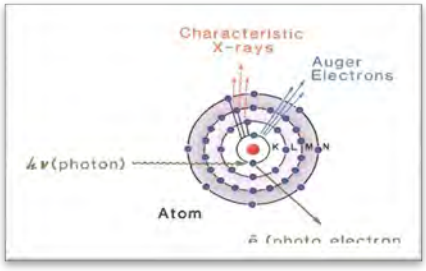
Reference List Example

Merriam-Webster. (2023). Photon. In *Merriam-Webster.com dictionary*.

APA REFERENCE FOR FIGURES (Images, Diagrams, and Graphs)

Format: Underneath the image, cite the resource from which the image is retrieved. Remember to include the page number where the image is found.

Example:



Adapted from Khan, F. M., (2010). Interactions of ionizing radiation. In J. Pine, J. Murphy, & J. Larkin (Eds.), The Physics of Radiation Therapy (4th ed., p. 59). Philadelphia, PA: Lippincott Williams and Wilkins.

APA REFERENCE FOR WEBPAGE OR PIECE OF ONLINE CONTENT

Format (date of publication & author available)

Lastname, F.M (Year, Month Date). *Title of page*. Site name. URL

Reference List Example

Price, D. (2018, March 23). *Photon radiation*. Medium.

https://radiationtherapy/chemotherapy-brachytherapy3af27e312d01

Format (date of publication available, no author) – Will require a retrieval date.

Title of page. (Year, Month Date). Site name. Retrieved Month Date, Year, from URL

Reference List Example

Photon Radiation. (2018, February 25). Cancer. Retrieved March 18, 2023,

from https://www.washburn.edu/radiation-therapy

Format (no date of publication)

Author or Group name. (n.d.). *Title of page*. Site name (if applicable). URL

Reference List Example

American Society of Radiation Therapy. (n.d). *Photon Radiation.* Cancer.

https://www.washburn.edu/radiation-therapy

APA REFERENCE FOR JOURNAL ARTICLE

Format:

Author, A., Author, B. (Year Published). Title of article. *Title of Periodical*, *volume number,* (issue number), page numbers. DOI (if available)

Reference List Examples

Trad, M.L. (2009). Mentoring radiation therapy students: A review and survey. *Radiation Therapist*, *18*(2), 101-108.

Cooperstein, S. E., & Kocevar-Weidinger, E. (2004). Beyond active learning: A constructivist approach to learning. *Reference Services Review*, *32*(2), 141–148.

Brownlie, D. (2007). Toward effective poster presentations: An annotated bibliography. *European Journal of Marketing, 41*, 1245-1283. doi:10.1108/03090560710821161

In-text Citation Example

If quoting a statement enclose the quote with quotation marks, after the second quotation mark include (Trad, 2009, p. insert page number after p.)
If paraphrasing you could use the author's name in a statement such as Trad (2009) states…….OR if paraphrasing and not mentioning the author include the following (Trad, 2009).

APA REFERENCE FOR ONLINE LECTURE NOTES AND PRESENTATION SLIDES

Format:

Author, A., Author, B. (Year, Month Date). *Title of presentation* [Lecture notes, PowerPoint slides, etc]. Publisher. URL.

Reference List Example

Collins, K (2023, April 3). *Introduction to Radiation Therapy* [PowerPoint slides]. https://www.washburn.edu/radiation-therapy/d2L-2023

In-text Citation Example

If quoting a statement enclose the quote with quotation marks, after the second quotation mark include (Meyer, 2023, p. insert page number after p.)
If paraphrasing you could use the author's name in a statement such as Meyer (2007) states…….OR if paraphrasing and not mentioning the author include the following (Meyer, 2007).

APA REFERENCE FOR INTERVIEW OR PERSONAL COMMUNICATION – This applies to personal communication between you and a specific individual, it does not apply to an interview between others that has been read. Interviews/personal communication do not provide recordable data and so an interview/personal communication does not need to be included in the reference list, but it should be cited within the document using the format below.

Example of an in-text citation

(J. Smith, personal communication, August 15, 2023)

TIPS FOR THE REFERENCE LIST -

- Place reference list on a separate page (not a separate file, just a new page in the same document).
- Title the page with References centered on the page (References should be in bold and centered at the top of the page, do not underline, or use quotation marks for the title).
- Text should be double-spaced, just like the rest of the document.
- References should be listed with the last names first and the first and middle names should be written as initials. The last name and first/middle initials should be listed for all authors of a particular work up to and including 20 authors. Separate each author's initials from the next author in the list with a comma and use ampersand (&) before the last author's name.
- List the references in alphabetical order by the last name of the first author of each work.
- When referring to the titles of books, chapters, articles, reports, webpages or other sources **other than academic journals**, capitalize only the first letter of the first word of the title and subtitle, the first word after a colon or a dash in the title, and proper nouns.
- Pay attention to capitalization, use of italics, and punctuation or lack thereof at the end of a reference.
- Indent the second (and all additional lines) of each individual reference using the .5 hanging indent on the ruler. This is called hanging indentation.
- **List only sources that are cited within the body of your paper** (do not list any other resources).

If you need additional help or have questions about appropriate citation, contact Scott Brackey (Health Science Librarian) at scott.brackey@washburn.edu.

Section 2
Clinical Guidelines & Policies

Section 2:
Clinical Guidelines

THE PATIENT

A Patient is the most important person in any hospital,
A Patient is not dependent on us – we are dependent on him,
A Patient is not an interruption of our work – he is the purpose of it,
A Patient does us a favor when he calls – we are not doing him a favor by serving him,
A Patient is part of our business – not an outsider,
A Patient is not a cold statistic – he is a flesh and blood human being with feelings and emotions like our own,
A Patient is not someone to argue or match wits with,
A Patient is a person who brings us his wants – it is our job to fill those wants,
A Patient is deserving of the most courteous and attentive treatment we can give him,
A Patient is the lifeblood of this and every other business.

CLINICAL EDUCATION DESCRIPTION

The radiation therapist is assigned to various rooms/rotations in the radiation oncology department and is expected to be proficient in all aspects of each room/rotation; therefore, didactic and clinical experiences play vital roles in a student's education and in the evolution of becoming an effective radiation therapist.

In order to ensure the student's clinical ability and understanding of the didactic relationship to the clinical setting, the competency evaluation system is utilized.

A student begins his/her clinical education by observation of general departmental procedures. Students then progress to clinical participation by assisting staff radiation therapists in the execution of duties (passive mode).

The student then moves to an active mode of assisting staff radiation therapists in the performance of radiation therapy treatments, simulation and treatment planning procedures, beam modification device fabrication, etc.

As the student gains experience, he/she will move into an active state of performance.

The student will eventually play a key role in treatment delivery or treatment planning always while under direct supervision of a staff radiation therapist or other appropriately credentialed personnel relevant to the clinical rotation.

When a student feels he/she has mastered a category of related procedures, a pre-competency checklist will be successfully completed prior to competency testing. Upon successful completion of the pre-competency checklist, a category evaluation for competency can be requested. Students will complete all competency requirements to complete the program. Continued competency evaluations will be held periodically to re-examine the student's clinical skills (see Semester by Semester Competency Requirements, section 3, pg. 8-9).

CLINICAL TERMINOLOGY

Competency: The ability to function within a realm of limited supervision and assume those duties and responsibilities as set forth in course and clinical objectives.

Competency Evaluation: The process by which a student's knowledge and skill related to a specific procedure in treatment, imaging, simulation, dosimetry, quality assurance, block room or nursing is evaluated. Radiation therapy students will complete 16 treatment delivery, 3 imaging, 6 simulation, 3 treatment accessory device, 6 dosimetry, 5 quality control, 2 data interpretation, 6 general patient care, and 6 participatory procedures.

Competency Evaluation Under "Simulated Conditions": Students will perform the procedure on either a phantom or a live subject (not a patient) and simulate the exposure of radiation to complete a competency evaluation. If students simulate a procedure, they will do so with the same level of cognitive, psychomotor, and affective skills required for performing the procedure on a patient. In the summer semester, three treatment machine competency evaluations can be performed under "Simulated Conditions." Dosimetry, treatment accessory devices, general patient care, and the participatory procedures may be performed either on patients or under simulated conditions; however, the preference is to complete competency evaluations on actual patients whenever possible.

Continued Competency Evaluation: A series of secondary competency evaluations that demonstrate a student's continued level of competency. Continued competency evaluations are completed during the Winter Intersession and Summer Semester.

Direct Supervision: A student will be directly observed **at all times** during clinical education. Successful completion of competency evaluations DOES NOT alter this requirement. While participating in nursing or dosimetry rotations, appropriately credentialed personnel will provide direct supervision. While completing treatment delivery or simulation rotations, a registered radiation therapist will provide direct supervision.

Evaluation of Clinical Site Experience: The process by which the student evaluates the Clinical Preceptor and clinical site staff in relation to their ability to effectively mentor and teach the student.

Pre-Competency Checklist: The process by which students and clinical site staff assess student readiness for competency testing. Prior to performing any primary treatment delivery competency or imaging competency evaluation, the student will successfully complete a pre-competency checklist.

Professional Development Evaluation: The process by which the Clinical Preceptor or other staff registered radiation therapist(s) evaluates student progress in the clinical setting.

CLINICAL EDUCATION DUTIES

Staff Radiation Therapists

Qualifications:

Hold ARRT certification or equivalent and active registration in the pertinent discipline.

Duties:

Assist & supervise students
Complete competency evaluations
Complete continued competency evaluations
Complete professional development evaluations

Clinical Preceptors

Qualifications:

Proficient in supervision, instruction and evaluation: two years full-time experience in the professional discipline; holds ARRT certification or equivalent and active registration in the pertinent discipline; knowledgeable of program goals and curriculum, clinical objectives and evaluation system.

Duties:

Schedule change approval
Professional development evaluation completion and review with student
Perform competency and continued competency evaluations
Inform students of hospital procedures & policies
Clinical orientation for new students
Communicate program goals & requirements to staff
Clinical education planning
Clinical demonstrations
Counseling
Assist & supervise students
Approve student time, tardy, & absence records
Inspect student uniforms

Washburn University Faculty

Duties:

Time Sheet computation
Tardy, absence, & compensation records
Professional development evaluation summary & review
Course syllabus preparation
Rotation objectives and general program/clinical schedule
Competency evaluations review, case study grading, and record-keeping
Clinical education planning
Counseling

CHAIN OF COMMAND

The chain of command in radiation oncology is as follows: Chief Radiation Oncologist, Radiation Oncologist, Department Director, Chief Radiation Therapist, Staff Radiation Therapist, and Student.

Each radiation therapist has the combined duty of:

1) Completion of patient treatment delivery or treatment planning: Includes providing proper patient care, completion of the correct treatment, maintaining accurate treatment records and maintaining the patient flow.

2) Instruction of students: Includes providing instruction in patient care, treatment delivery/planning, patient positioning skills, and professional development.

One method of positioning or treatment technique will be discussed by faculty to the student in the clinical course. The student should keep in mind that this is not the only acceptable method. The student should observe and learn the clinical site's protocol for patient treatment techniques and planning procedures.

The supervising radiation therapist is in charge of room/rotation. The radiation therapist has expertise which will be demonstrated to the student. Due to the comparison of clinical ability between the radiation therapist and student, the student demonstrates a greater need for practice with the technical aspects. The radiation therapist should not perform the majority of examinations, but rather progressively allow the student more and more hands-on experience.

The radiation therapist in each assigned area will also (on a daily basis):

a. Determine the time for the lunch break
b. Check for proper room cleanliness and supplies
c. Approve the student's arrival and departure times
d. Approve practice time
e. Allow time for questions to be asked
f. Purposefully provide feedback to the student to include positive comments and recommendations for improvement.
g. Discuss clinical goals such as competencies to be completed, etc.

*If the radiation therapist is not available to a student, the student should contact the Clinical Preceptor in the radiation oncology department or the program Clinical Coordinator.

*Students will remain under direct supervision at all times. Observation of student performance through closed-circuit monitors is **NOT** considered direct supervision.

CLINCAL EDUCATION PLAN

A plan for the clinical education segment of the program follows. The plan is flexible in design and may be altered to fit the needs of the student and/or department with approval from the Clinical Coordinator. The plan allows faculty to provide clinical education sites guidance for the scheduling of clinical experiences as well as for computing the credit hour value of each semester.

NOTE: Some didactic courses include a clinical experience as a part of a course project, report, or presentation. Examples include a review of the linear accelerator components and functions (fall semester), a 5-day morning quality control and/or equipment warm-up experience (spring semester), and observation/participation in the monthly quality control testing of a linear accelerator (spring semester). Depending on the clinical site, these experiences may require an alteration in clinical education hours. The experiences may be completed earlier in the morning, during the lunch break, in the evening, or on a weekend. Students will either adjust their clinical hours to compensate for the altered schedule or earn compensation time for the increased clinical hours associated with the defined experiences. The combination of didactic and clinical hours cannot exceed 40 hours weekly.

Total Program Clinical Hours = approximately 1196 hours.

AL301: Fall Semester Clinical
Clinical hours are T, W, Th 8am-4pm & 8am-12pm Friday
Approximately 420 clock hours (16 hours of personal time) = 4 credit hours

Week 1

Orientation to department involving meeting with the Clinical Preceptor to discuss performance expectations, hours, and schedule. An orientation checklist is to be completed by the Clinical Preceptor or other supervising registered radiation therapist within Trajecsys.

Clerical rotation of approximately 2-4 hours to learn about department flow, methods of scheduling, the phone system, location and contents of patient charts. A clerical checklist is to be completed by appropriate staff within Trajecsys.

Weeks 2 – 16

Nursing experience of approximately 1 week involving participation in consultations, follow-ups and status check appointments. Students should also observe patient interactions with the social worker and nutritionist/dietician. Students will follow at least 1 patient from consultation to treatment delivery to see the entire process.

Photon/Electron Block and Bolus experience as available throughout the semester involving participation in the construction of bolus and photon/electron blocks, which are required by the ARRT. Photon/electron block and bolus competencies may be completed at any point in the program; however, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting competencies. (see Daily Logsheet Requirements, section 3, pg. 34).

Simulation/Dosimetry experience of approximately 1 week involving observation and participation in the treatment planning process to gain a basic understanding of simulation/treatment planning. This is an introductory experience in the fall semester; students will focus on simulation and dosimetry skills more intensely in the spring semester. Custom immobilization device competencies may not be completed until the spring semester, however, students will demonstrate a minimum number of custom immobilization

device construction experiences within Trajecsys prior to attempting competencies (see Daily Logsheet Requirements, section 3, pg. 34).

Treatment delivery experience of approximately 12 weeks involving room preparation, patient alignment, patient communication, treatment record verification, etc. By the conclusion of the fall semester, students will successfully complete 7 treatment delivery competency evaluations. A maximum of 10 treatment competency evaluations may be completed in the fall semester.

AL340: Spring Semester – Consists of a Winter Intersession Period & Remaining Spring Semester

Clinical hours are T, W, Th 8am-4pm & 8am-12pm Friday; **except during the winter intersession** at which clinical time is schedule Monday-Friday for 8 hours.
Approximately 472 clock hours (24 hours of personal time) = 4 credit hours

Winter Intersession (A component of the Spring Semester)

The winter intersession is a component of the spring semester. This is a 2-3 week period in December and January during which students attend clinical full-time, Monday-Friday. Students will focus on treatment delivery and the completion of 4 continued competencies (retesting on 4 of the treatment delivery categories completed in the fall semester). Students may begin rotating into simulation as cases are available. Starting to participate in simulation procedures during winter intersession is particularly helpful for students placed at facilities that have a lower daily volume of simulation procedures. Because each week of winter intersession consists of 40 hours, students are not permitted to earn compensation time during this period (see Compensation Time Policy, section 2, pg. 13-14).

Remainder of Spring Semester (16 weeks)

Simulation experience of approximately 8 weeks culminating in the completion of the 6 ARRT simulation competency categories, the Special Treatment Simulation Procedure, and the 2 Treatment Accessory Device competencies for mask and abdomen/pelvis or thorax immobilization. Students will demonstrate a minimum number of custom immobilization device construction experiences within Trajecsys prior to attempting these competencies (see Daily Logsheet Requirements, section 3, pg. 34). To fulfill the intent of the simulation competencies, students will follow the simulation image data to the workstation or treatment planning computer and participate in the virtual simulation process. There is also a Patient Tattoo checklist to be completed during the simulation rotation by the Clinical Preceptor or other supervising registered radiation therapist within Trajecsys.

Photon/Electron Block and Bolus experience as available throughout the semester involving participation in the construction of bolus and photon/electron blocks, which are required by the ARRT. Photon/electron block and bolus competencies may be completed at any point in the program; however, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting competencies (see Daily Logsheet Requirements, section 3, pg. 34).

Dosimetry experience of approximately 3 weeks with a focus on treatment planning processes, monitor unit calculations, and plan evaluation approaches culminating in the completion of the 6 ARRT dosimetry competency categories. Upon completion of all dosimetry rotation requirements, students and Clinical Preceptors may elect to end the rotation early and the student will return to the treatment room.

Treatment delivery experience of approximately 4 weeks continuing to focus on gaining skills and applying judgment during patient alignment and treatment delivery processes and special procedures. Students will complete 3 imaging competencies for MV, KV, and Cone Beam CT (CBCT) imaging.

AL380: Summer Semester Clinical (Total of 9 Weeks)
Clinical is M,T,W,Th 8am-4pm & 8am-12pm Friday
Approximately 308 clock hours (8 hours of personal time) = 3 credit hours.

Nursing experience of approximately 1-2 weeks involving participation in consultations, follow-up, and status check appointments to review knowledge of radiation therapy side effects, recommend interventions for common side effects and vital signs.

Photon/Electron Block and Bolus experience as available throughout the semester involving participation in the construction of bolus and photon/electron blocks, which are required by the ARRT. Students will demonstrate a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting photon or electron block and bolus competencies (see Daily Logsheet Requirements, section 3, pg. 34).

Quality control knowledge validation by completion of the 5 ARRT quality control procedures. Students will also complete 2 data interpretation competencies which include the review of treatment data to ensure completeness and accuracy.

Treatment delivery experience of approximately 7-8 weeks continuing to focus on gaining skills and applying judgment during patient alignment and treatment delivery processes and special procedures. Students will complete 4 continued competencies (retesting on categories completed in the fall or spring semester). By the conclusion of the summer semester, students will successfully complete all ARRT competencies.

Students will participate and complete competency testing related to **brachytherapy** procedures, low volume/high-risk procedures including **Total Body Irradiation** (TBI) and **Craniospinal Axis** (CSA) procedures, **SBRT/SRS treatment**, **special treatment simulation procedure**, fabrication of **thermoplastic mask** and **immobilization device** for abdomen/pelvis as well as beam modification device construction including **electron or photon blocks**. These experiences can and should occur throughout the program year anytime the opportunity arises. The low volume/high-risk procedures of TBI and CSA competencies may need to be completed under simulated conditions because not all radiation oncology departments perform these procedures.

2024-2025 Program Calendar

May 1-25	Open Enrollment For Summer & Fall
July 1-Aug. 2	AL309 5-Week Course, No Live Sessions * July 3-last day for 100% tuition refund
July 22	Radiation Therapy Orientation
Aug. 19	1st Day of Fall Semester; Live Monday Sessions Begin (8:30am-3:50pm CST)
Aug. 20	1st Day of Clinical (T/W/Th 8am-4pm + 8am-12pm Fri)
Aug. 30	*Last Day to Receive 100% Tuition Refund
Sept. 2	Labor Day Holiday (No Class)
Oct. 14-15	Fall Break (No Class/No Clinical)
Oct. 21	Open Registration for Spring Semester
Nov. 3	Daylight Saving (Fall Back)
Nov. 27-29	Thanksgiving Break (No Clinical)
Dec. 6	Last Official Day of Fall Classes
Dec. 7-11	Finals Period (No Clinical During These Dates EXCEPT to Make Up Hours)
Dec. 16-20	Winter Intersession (part 1) Clinical Monday-Friday 8am-4pm; No Comp Time May Be Earned
Dec. 23-Jan 3	Winter Break (No Clinical)
Jan. 6 -17	Winter Intersession (part 2) Clinical is Monday-Friday 8am-4pm; No Comp Time May Be Earned
Jan. 20	Martin Luther King Holiday (No Class)
Jan. 21-24	No Clinical This Week
Jan. 27	Live Monday Sessions Begin (8:30am-3:50pm CST)
Jan. 28	Clinical Resumes, T/W/Th 8am-4pm + 8am-12pm Fri)
Jan. 31	*Last Day to Receive 100% Tuition Refund
Mar. 9	Daylight Saving (Spring Forward)
Mar. 17-21	Spring Break (No Class or Clinical)
Apr. 17- 18	No Clinical This Day
May 5-9	No Clinical EXCEPT to Make Up Hours
May9	Last Official Day of Spring Semester
May 10-14	Finals Period (No Clinical During These Dates EXCEPT to Make Up Hours)
May 19	Summer Clinical Begins (M-Th 8am-4pm, + 8am-12pm Fri)
May 26	Memorial Holiday (No Clinical)
May 27	AL381 Course Begins, No Live Sessions
June 19	Juneteenth Holiday (No Clinical)
July 4	4th of July Holiday (No Clinical)
July 17	Last day of AL381
July 18	Last Day of Summer Clinical-End of Program

Clinical Policies

ACTIVATION OF THE TREATMENT UNIT ("BEAMING ON")

Students are NOT to activate the treatment unit during the fall semester (AL301). However, students will become familiar with patient treatment charts (paper or electronic), reading the physician's prescription, verifying accurate dose records, knowing when images are needed, and knowing where treatment set up instructions and photographs are located. Students will also monitor the patient undistracted while treatment is being delivered.

Starting in the winter intersession, which is a component of the spring semester, students may be allowed to activate the treatment unit if ALL of the following elements are met:

1. Facility agrees to students activating the machine.
2. Student demonstrates emergency procedures & location of emergency off switches.
3. Student receives verbal approval from the supervising registered radiation therapist prior to each time the beam is activated.
4. A registered radiation therapist directly supervises the procedure. Failure of a student to obtain approval and direct supervision of a registered radiation therapist prior to activating the treatment machine may result in dismissal from the program.

BACKGROUND CHECK

A criminal background check will be required of all accepted Radiation Therapy students prior to the program start date. Successful completion of the Radiation Therapy program requires participation in clinical practicum courses. Students can only be placed in clinical practicum courses after a background check (at their expense) has been completed which discloses they do not present a criminal history of:

a. convictions of laws regulating controlled substances*;
b. convictions, at the felony level of crimes, as defined under Kansas Criminal Code (K.S.A. 21-3101 et seq.) and amendments thereto, which are crimes against persons, crimes against property, or sex offenses;
c. conviction of an offense requiring registry as a sex offender under the Kansas Offender Registry Act or any federal, military or other state law-requiring registry;
d. conviction, at the felony level of crimes, involving moral turpitude which include but are not limited to: perjury, bribery, embezzlement, theft, and misuse of public funds.

***Exception:** Persons who have been convicted of a misdemeanor illegal drug offense may be permitted to participate in the clinical practicum pursuant to the process for Management of Misdemeanor Illegal Drug Exception set out below.

MANAGEMENT OF MISDEMEANOR ILLEGAL DRUG EXCEPTION

1. If a background check report demonstrates a discrepancy, the Clinical Coordinator will contact the university contact who has access to the details of background check reports.
2. The university contact will determine the cause of the discrepancy and communicate it to the Clinical Coordinator.
3. The Clinical Coordinator will report findings from the university contact to the Program Director.
4. The university background check policy will be applied as follows:
    i. If offense is related to items a-d of the background check policy, the student will not be permitted to start the program.
    ii. If offense is a misdemeanor illegal drug offense and the student is currently on probation for the offense, the student will not be permitted to start the program.
    iii. If offense is a misdemeanor illegal drug offense and the student is NOT currently on probation for the offense, the student will be provided the following option.

1. Student may disclose the misdemeanor illegal drug offense to the Clinical Preceptor at the assigned clinical site.
2. Clinical Coordinator will follow-up with the Clinical Preceptor at the assigned clinical site about the student's disclosure.
3. If the disclosure prohibits student placement at the clinical site, the student will not be permitted to start the program.
4. If the disclosure does NOT prohibit student placement at the clinical site, the student will be permitted to start the program and student will be advised to complete the ARRT Pre-Application Ethics Review process - https://www.arrt.org/pages/earn-arrt-credentials/initial-requirements/ethics/ethics-review-preapplication

CELL PHONE USE

Cellular phones are NOT permitted to be turned on or used within the clinical setting. Please give family members the clinical education site's phone number in case of emergency situations.

CLINICAL ATTENDANCE – PART I (CLINICAL PRESENCE)

Students are required to clock into Trajecsys at the designated clinical start time. Upon clock-in, the student is to remain on the clinical site premises for the entirety of the scheduled shift. Leaving the clinical site during scheduled hours while remaining clocked into Trajecsys is strictly prohibited. It is considered as falsifying clinical records, which will result in student dismissal from the clinical education site and the Radiation Therapy Program.

If unforeseen circumstances or emergencies require the student to leave the clinical site during scheduled hours, the student must clock out and immediately inform the Clinical Preceptor and Clinical Coordinator.

*Please refer to the Trajecsys Guidelines (see section 2, pg. 53-59) for policies about submitting time exceptions for a partial/midday absence.

CLINICAL ATTENDANCE – PART II (ABSENCE & PERSONAL TIME)

A good attendance record for the clinical portion of the program is extremely important. Clinical rotations provide the varied experiences necessary in developing clinical skills and problem-solving ability. Absence from clinical results in missed experiences which are not possible to attain by any other method than completing the required number of clinical hours. Clinical absences reduce the number of days the student has to complete clinical education requirements. A good attendance record is also considered vital by future employers and clinical rotations give the facilities an opportunity to observe future employees.

If a clinical absence is unavoidable, the student will contact the assigned clinical affiliate and the Clinical Coordinator PRIOR to the scheduled clinical education hours. Allotted personal time is applied for any unavoidable absences. Failure to notify the clinical site prior to scheduled clinical hours will result in a deduction of two (2) percentage points from the final clinical grade per occurrence. Clinical attendance is reflected in the final grade in all courses involving clinical hours. Any unexcused occurrence will result in the following percentage point deductions.

1-8 hours	=	2% deduction
9-16 hours	=	4% deduction
17-24 hours	=	6% deduction
25-32 hours	=	8% deduction
33-40 hours	=	11% deduction
41-48 hours	=	15% deduction
49-56 hours	=	19% deduction

Two unexcused absences or failure to complete required clinical hours during any semester will

result in disciplinary action per the provided Student Counseling policy (see section 2, pg. 45).

Excused absences will not penalize the student's grade, BUT all time will be made up. Excused absences include the following:

1. The student or the student's child is **under physician care** (notification of absence to the Clinical Preceptor and Clinical Coordinator and submission of a physician's note sent to the Clinical Coordinator within 7 days of the absence).
2. The student or the student's child is required to complete a **mandatory quarantine** due to exposure or possible exposure to COVID-19 (notification of absence to the Clinical Preceptor and Clinical Coordinator and submission of a physician's note or local health department's note sent to the Clinical Coordinator within 7 days of the absence). The program will follow local public health authorities as to the recommendations for the length of the quarantine.
3. **Court appearance** (notification of absence to the Clinical Preceptor and Clinical Coordinator and submission of court document requiring appearance within 7 days of the court date).
4. **Funeral** (notification of absence to the Clinical Preceptor and Clinical Coordinator). Upon notification, three (3) days of leave of absence will be allowed for death in the immediate family. Immediate family members include parents, grandparents, spouse, brother, sister or child. These absences are not counted as personal days. Request for additional time off can be made based on extenuating circumstances. Leaves of absence requested because of the death of someone other than an immediate family member may be granted by special permission.
5. **Severe weather** absences are handled as such:
    - In the rare event that the University is closed due to weather, local students can make the decision for himself/herself about attending clinical. The student may use personal hours to cover the absence(s) or can make-up the time. Students in other areas of the country not impacted by local weather will not be excused from clinical.
    - In regards to other severe weather local to the student and clinical site, each student can make the decision for himself/herself about attending clinical. The student may use personal hours to cover the absence(s) or can make-up the time.
    - If the clinical education site closes or dismisses early due to severe weather, the Clinical Preceptor will communicate directly with the Clinical Coordinator of the program to confirm the closure/early dismissal.
    - Students citing severe weather as the reason for excessive absences will result in disciplinary action per the provided Student Counseling policy (see section 2, pg. 45).

A maximum of 16 hours of missed clinical time may be waived in the event of clinical site closure/early dismissal, or mandatory COVID-19 quarantine.

PERSONAL TIME: Each student will be allowed up to sixteen (16) hours of personal time in the fall semester, twenty-four (24) hours in the spring semester and eight (8) hours of personal time in the summer semester which does not affect the course grade. Students planning to use the personal time will notify the Clinical Preceptor immediately. Student will notify the Clinical Coordinator of any approved personal time prior to the absence. No personal hours can be carried over from the fall to the spring semester; however, up to eight (8) unused hours can be carried over from the spring to summer semester.

Students who attend clinical education must actively participate or they will be dismissed from the clinical site for the day. This kind of dismissal from the clinical site will be viewed as an unexcused absence, for which students will make up the missed hours and a penalty will be applied per the

Clinical Attendance policy provided above (see section 2, pg. 11-13).

Clinical hours missed during a given semester beyond the allotted personal time will be made up prior to the completion of that semester and will be scheduled with the approval of the Clinical Preceptor and Clinical Coordinator to ensure the combination of didactic and clinical hours **does not** exceed 40 hours weekly and does not occur on university observed holiday.

*Please refer to the Trajecsys Guidelines (see section 2, pg. 53-59) for policies about submitting time exceptions for any full day absence.

CLINICAL ATTENDANCE – PART III (EXCESSIVE ABSENCES)

Regular attendance during radiation therapy clinical (patient-related) is essential since it directly relates to skill development, along with maintenance of established skills. When a student misses either a block of time or multiple days on various occasions during a course, the student's clinical performance is directly impacted. A student cannot develop proficiency or maintain skill when not actively practicing on a routine, scheduled basis. Continuity of patient care cannot be sustained which is a listed item in the "Patient Care Partnership". The professional documents of "Code of Ethics" and "Practice Standards" also address quality patient care.

The clinical attendance policy (Part II) allows students 16 clock hours (2 days) of clinical absence during the fall semester, 24 clock hours (3 days) of clinical absence during the spring semester and 8 clock hours (1 day) of clinical absence during the summer semester. This totals 48 clock hours (6 days) for the entire clinical year. The policy also addresses grade deductions related to unexcused absences and tardies. Even when a student is under the care of a physician for a disability, he/she will contact the Washburn Office of University Diversity and Inclusion to arrange for a reasonable accommodation. A reasonable accommodation may not fundamentally alter the nature of the program.

A student will be withdrawn from any enrolled clinical course and given a failing grade (F) when excessive absence occurs. **Excessive absence is defined as missing 20% of the required clinical hours (beyond the allowed personal time given per semester described above).** Whether a student is under the care of a physician or not, the excessive absence policy applies. When a student receives a failing grade of a clinical course, this precludes them from continuing in the program due to course prerequisites.

CLINICAL EDUCATION FOCUS

The clinical emphasis is patient care and clinical skill development. Students should refrain from involvement in department politics and remain as neutral as possible. Should situations arise which affect or involve patient care, contact program faculty.

COMPENSATION TIME

A responsibility of any radiation therapist is to attend to the patient as well as completing the procedure. This necessitates placing the patient as a priority. A result of this priority is that breaks, lunch and/or departure time may be delayed. It is the responsibility of each student therapist to complete the procedure, whether it is through observation, assistance or performance.

Be aware that breaks and lunches will be taken as the patient schedule permits. Breaks are considered a privilege; however, the student should notify the Clinical Coordinator if a situation occurs in which a lunch break is not possible. **Compensation time will not be given for a missed lunch break**. It is recognized that a schedule for clinical hours is developed for each semester of education and although it may be a preference to leave as scheduled, the student's responsibility is not fulfilled until patient examinations are completed. If unable to stay late on a specific day

(doctor appointment, job obligation), the student should inform the Clinical Preceptor or faculty.

In requiring the student to complete patient procedures past the scheduled departure time, compensation time will be returned to the student as registered in Trajecys. Guidelines for this policy are as follows:

a. Compensation time will not accumulate until 15 minutes beyond the scheduled departure time. In order to receive the time for additional clinical education, the student will have arrived by the scheduled time on that day and have been in clinical beyond the usual 8 hours.
b. A student staying beyond the scheduled time but not for examination performance (waiting for a ride, performing lab evaluations) should sign out at the scheduled time.
c. A student wishing to use compensation time should notify the Clinical Preceptor at that facility prior to usage and also email the Clinical Coordinator within 48 hours.
d. No more than 2 hours of compensation time can be earned in a given month and it is strongly encouraged to use the comp time within the month it is earned.
e. If a student wants to carry over any comp time from month to month or into another semester, it will be pre-approved by the Clinical Coordinator. (A maximum of 8 hours can be carried over to the following semester.)

CONFIDENTIALITY

Students in the Radiation Therapy program work with medical records of actual patients in health care facilities and in the classroom. Students may receive direct or indirect information about current or former patients from other employees, other students, or faculty. Any information, whether written, oral or in electronic format, having any relevance to patient care, is strictly confidential and is to be maintained in a secure manner. Many state and national organizations providing licensure, certification, and registration have established policies and procedures regarding patient-confidentiality standards. Failure to protect patient privacy is considered an ethics infraction and may have an impact on one's future professional practice. The confidentiality of the patients' records must be maintained for legal and ethical reasons, including confirmation that a patient is receiving treatment.

PERTAINING TO STUDENT CONFIDENTIALITY:

- A student file will be kept in the Clinical Coordinator's locked office for the purpose of reference as well as having personal information on hand in the event of an emergency. Student records and personal information will be kept in strict confidence by the faculty of the program. Information about the student to outside parties will only be given out with the written authorization of the student.
- All clinical evaluation forms shared internally will be kept in strict confidence by the faculty of the program.

PERTAINING TO CLASSROOM AND CLINICAL PATIENT INFORMATION/CONFIDENTIALITY:

- Students will maintain strict confidentiality of all health information of patients at clinical sites during and after their clinical rotations.
- Students may neither use nor disclose health information of patients to which they have access, other than as expressly authorized by the clinical site.
- Students may not record any patient-identifiable information on personal documents.
- Students agree to keep all patient/client information confidential according to HIPAA Privacy laws.
- Students who breach patient confidentiality, where sufficient evidence exists, may be dismissed from the Radiation Therapy program.

CONSENSUAL AND FAMILIAL RELATIONSHIPS

The University prohibits any amorous relationship between students and educators, advisors, Clinical Preceptors or any other individuals in the clinical setting that hold positions of authority and manage, teach, supervise, advise, or evaluates the student in any way. Any individual aware of such a relationship is obligated to report it to the Clinical Coordinator or Program Director. In the event of a familial relationship between a student and any individual at the clinical setting or within the program, the relationship should be disclosed to the Clinical Coordinator or Program Director so a mitigation plan can be established to void issues of conflict of interest and potential for exploitation or the appearance of exploitation or favoritism.

COURSE GRADE COMPUTATION

When computing radiation therapy course grades, all components (exams, quizzes, homework, projects, evaluations, etc.) will be computed to the closest tenth point. (Example: 94.5, 89.3, or 86.8) All evaluation criteria will then be given the proper weights, added together, and rounded up to the closest whole number to determine the final grade. (Example: 84.5 = 85; 84.3 = 84)

Each program course will provide grade computation information in the course syllabus. In addition, grade deductions will be instituted for absences beyond the allotted personal time, more than 1 tardy in a semester and late submission of clinical paperwork.

COURSE GRADE DEFICIENCY

Enrollment in any Radiation Therapy course is based on acceptance to the program, as well as achieving and maintaining a minimum grade average. Since radiation therapy is a profession in which less than adequate performance may result in poor patient care or possible patient harm, high standards will be maintained to ensure the effectiveness and competency of graduates. Accordingly, the program grading system may be somewhat different than for other Washburn University courses. Achieving less than the minimum grade average will serve to bar one from enrolling in any subsequent Radiation Therapy courses. The program uses the following grading scale, with 75 being the minimum for passing. (A = 93 – 100; B = 85 – 92; C = 75 – 84; F = Under 75)

A student receiving a final grade of F or who withdrawals from a Radiation Therapy course will be removed from the program's course-of-study. To appeal a course grade, see Grade Appeal Policy located in the University Catalog located in the online MyWashburn portal.

DRESS CODE

Clothing is a form of non-verbal communication that reflects confidence in ability and judgment, personal behavior and sense of professional image. Patient's perceptions of competence and professionalism of the radiation therapist are often based on first impressions, which are then processed into stereotypic responses to the image the radiation therapist presents; thus, the first impression of the radiation therapist in uniform is the strongest statement of professionalism. It is essential that students present themselves as professionals; therefore, a strict dress code policy has been developed. This policy will be enforced and final authority for interpretation lies with the Program Director. Various items pertain to patient/student safety.

<u>General</u>

a. Students will follow the clinical facility's dress code policy regarding the appropriate work attire to wear.
b. All garments are to be clean, pressed, properly sized and in good repair.
c. Earrings, necklaces, rings, etc. may be worn in moderation. Earrings will be confined to the ear lobe. No dangling earrings are allowed for safety reasons. If a student has body piercing, only jewelry for ear piercing may be visible during clinical education experiences. Tongue piercings are not allowed. Necklaces are to be worn inside the shirt or blouse. Safety and patient care

concerns are the primary issues concerning this policy.

d. Hair, including beards and mustaches, will be clean, neatly groomed, and kept in such a way as not to interfere with student duties or safety. Hair longer than shoulder length will be tied back in a neat manner to prevent contamination and to decrease the spread of microorganisms.
e. Use of excessive fragrances will be avoided.
f. Personal hygiene practices to ensure cleanliness and absence of noticeable body odor.
g. A name tag should be worn at all times. Acceptable name tags include:
    - Washburn University student identification card obtained at orientation.
    - Navy blue ID badge with white lettering stating the student's name and identification of the individual as a Washburn University Radiation Therapy student.
    - Hospital issued badge with identification of the individual as a Radiation Therapy student.
h. A radiation monitoring badge will be provided and will be worn at all times.
i. Nails will be short and well-manicured (no fake nails).
j. Appropriate undergarments are to be worn at all times.
k. Shoes are to be kept clean and polished. Clogs and sandals are prohibited.
l. Students will abide by the clinical site's policy regarding the requirement to wear face coverings such as a face mask and/or face shield.

Note: Clinical Preceptors are allowed to send an individual home for failure to comply with the dress code. Any hours missed will constitute an unexcused absence and will be completed during finals week. Failure to comply with the dress code will lead to counseling as described in the Student Counseling policy (see section 2, pg. 45).

*Students will abide by the clinical facility dress code should it be more stringent than the university policy.

FOOD AND DRINK

Food and drinks are not permitted at the treatment console unless approved by the Clinical Preceptor.

Students are not permitted to receive food and drink deliveries during designated clinical hours. This includes but is not limited to deliveries from online food delivery services (ex, Grubhub, DoorDash, Uber Eats, etc.) or personal deliveries.

The student may request permission from the Clinical Preceptor for a delivery to occur during the designated lunch period. If permission is granted, students are responsible for the arrangement and payment of deliveries during designated breaks to cause no disruptions to workflow.

GRIEVANCE/DUE PROCESS

Within any education or work setting, grievances or complaints may arise for a variety of reasons. Due process refers to the formal resolution of a grievance or complaint. At the University level, policies and procedures exist in regards to Student Conduct, Academic Impropriety and Grade Appeal. These are presented in the University Catalog, which can be accessed via the online MyWashburn portal.

If an incident occurs in a didactic course, the student should try to address the problem with the involved course instructor. If satisfactory results are not obtained, the student should contact the Radiation Therapy faculty member (Program Director or Clinical Coordinator) who is not the assigned course instructor within 21 days after the occurrence. The Radiation Therapy faculty member will have 21 days to investigate, take action, and report back to the student. If satisfactory results are not obtained, the student has 7 days to submit a written petition to the Chairperson of Allied Health Department. Contact information for the Allied Health Department Chairperson can be obtained by calling the Allied Health Department secretary at 785.670.2176. The Chairperson has 14 days to respond. If satisfactory results have still not been obtained, the student has 7 days to submit a written petition as a final appeal to the Associate Dean of the School of Applied Studies

(SAS). The Associate Dean has 14 days in which to respond.

If an incident occurs in the clinical setting and is unrelated to an unsatisfactory clinical evaluation, the student should try to address the problem with the involved individual(s). If there is fear of reprisal, if the problem affects more than one student, or if the problem continues Clinical Coordinator or Program Director will intercede. The student should report any incident within 21 days after the occurrence. Radiation Therapy faculty will have 21 days to investigate, take action, and report back to the student. If satisfactory results are not obtained, the student has 7 days to submit a written petition to the Chairperson of Allied Health Department. Contact information for the Allied Health Department Chairperson can be obtained by calling the Allied Health Department secretary at 785.670.2176. The Chairperson has 14 days to respond. If satisfactory results have still not been obtained, the student has 7 days to submit a written petition as a final appeal to the Associate Dean of the School of Applied Studies (SAS). The Associate Dean has 14 days in which to respond.

GRIEVANCE POLICY FOR UNSATISFACTORY CLINICAL EVALUATION POLICY

It is recognized by program faculty and Clinical Preceptors that on occasion, an evaluation may be completed with which the student disagrees. Due to variations in clinical procedures and student performance, which exist during any evaluation, no set policy has been devised. Each situation will be evaluated on an individual basis. The following guidelines are offered:

- Professional Development Evaluations: A professional development evaluation is due on the 15th of the month (except December, May, and July).
    - Once the Clinical Preceptor or other supervising registered radiation therapist submits the evaluation, the evaluation will be hidden from the Clinical Preceptor and student for 7 days during which the Clinical Coordinator reviews the evaluation. If questions arise, the Clinical Coordinator will contact the Clinical Preceptor. A notification email will be forwarded to the student by the Clinical Coordinator to inform the student that the evaluation has been submitted. The forwarded email indicates the date on which the 7-day hidden period begins; from this date students will be able to calculate the release date for viewing.
    - After the 7 day hidden period has ended, the evaluations will automatically be released for viewing by the Clinical Preceptor and student.
    - Once released, students have up to 7 days to submit an acknowledgment in Trajecsys indicating they reviewed the evaluation with the Clinical Preceptor.
    - If the student disagrees with the evaluation result, he/she should contact the Clinical Coordinator within 7 days of the evaluation release date. The Clinical Coordinator will fact-find and make a ruling. If disagreement with the evaluation result persists, the student should contact the Program Director within 7 days. The Program Director will fact-find and make a ruling. If the student remains dissatisfied with the ruling, he/she should contact the Allied Health Department Chairperson in writing within 14 days. Contact information for the Allied Health Department Chairperson can be obtained by calling the Allied Health Department secretary at 785.670.2176.
- Competency Evaluations: The evaluator of the competency examination discusses the evaluation with the student upon completion. If the student disagrees with the evaluation result, he/she should contact the Clinical Coordinator within 7 days of the evaluation completion date. The Clinical Coordinator will fact-find and make a ruling. If disagreement with the evaluation result persists, the student should contact the Program Director within 7 days. The Program Director will fact-find and make a ruling. If the student remains dissatisfied with the ruling, he/she should contact the Allied Health Department Chairperson in writing within 14 days. Contact information for the Allied Health Department Chairperson can be obtained by calling the Allied Health Department secretary at 785.670.2176.

GRIEVANCE POLICY FOR STUDENT PROGRAM STATUS

Students appealing a decision related to acceptance into the program or termination of status in the program, should follow the steps outlined below.

A student must first attempt to resolve their dispute concerning program status through consultation with the Program Director or Clinical Coordinator. The Program Director or Clinical Coordinator must be notified in writing by the student of their intention to begin the appeal process. Such notification must be received within ten working days of the day the student receives notification of the decision related to acceptance into a program or termination of status in a program. If satisfaction is not obtained, the student may then appeal this decision to the Allied Health Department Chair. The Department Chair must be notified in writing by the student of their intention to continue the appeal process. Such notification must be received within ten working days of the day on which the student was notified of the Program Director or Clinical Coordinator's decision regarding the student's appeal. The process shall be terminated if notification is not received within the ten working days. Contact information for the Allied Health Department Chairperson can be obtained by calling the Allied Health Department secretary at 785.670.2176. The Allied Health Department Chair will fact-find and make a ruling. If the student is still not satisfied with the outcome, he/she may appeal to the **Student Program Status Appeals Committee (SPSA).** The Associate Dean of the School of the Applied Studies must be notified in writing by the student of their intention to continue the appeal process. Such notification must be received within ten working days of the day on which the student was notified of the Department Chair's decision regarding the student's appeal. The process shall be terminated if notification is not received within the ten working days.

Upon receiving an appeal from the student, the University Representative at each level (Program Director, Department Chair, or Dean) will reach and communicate a decision to the student as soon as possible, but not more than 30 working days from receipt of the appeal, unless exceptional circumstances occur and are communicated to the student. Meetings may be held remotely if any entity makes such a request.

It is critical that the student understand the following:

1. The burden of proof rests with the student who is responsible to present evidence to support his/her claim.
2. The decision of the SPSA committee is final.

In the final stage of the appeal process:

1. The student will submit a letter of appeal to the SPSA committee. In that letter of the appeal, the student must:
    a. Specifically detail what program policy is being challenged
    b. State clearly how that policy was applied to the student
    c. Articulate all arguments which support the student's appeal
2. The Program Director will submit any material used to make his/her recommendation.
3. The Allied Health Department Chair will submit any material related to his/her recommendation.
4. The SPSA committee will schedule the meeting(s) for arguments to be heard by the student and either the Program Director or Allied Health Department Chair.
5. The student will be allowed to make a presentation to the committee, however, only arguments stated in the appeal letter will be heard. The Program Director/Allied Health Department Chair will be allotted an equal amount of time to present. The amount of time allotted is at the discretion of the committee as long as both parties have equal time allowed. No one other than these individuals will be allowed to make a presentation at the hearing.
6. The student is allowed to bring a person with them for support. If the student decides to

bring another person with them to the hearing, then the student must sign a consent form in compliance with FERPA and the privacy of student records. The support person in attendance with the student may not address the committee though the student may ask for their advice during the hearing.

7. At the close of the hearing, a committee vote of more than 50% (e.g. 3 out of 4) is required to support the student's petition.
8. The Chair of the SPSA committee will notify in writing the student and the Allied Health Department Chair the decision of the committee.
9. The decision of the SPSA committee will be final and there will be no more appeals.

PROGRAM STATUS APPEALS COMMITTEE COMPOSITION (SPSA)

The SPSA committee will be composed of faculty from the SAS (School of Applied Studies) with the Associate Dean presiding as Chair of the committee. Members of the committee will be appointed by the Dean of the SAS. The Dean will seek to appoint members who do not have a conflict of interest with the petitioner. However, all appointments are final and cannot be challenged. The committee members will number no less than four and represent a minimum of two departments. The Associate Dean will not be a voting member of this committee.

HEALTH

All students are required to submit evidence of good health and immunization. Upon acceptance to the program, each student is provided information about Verified Credentials, the system designated for the collection of health records. The physical examination may be performed at University Student Health Services as an enrolled student at Washburn University; however, the student is required to pay for any required laboratory work. In addition to the completed physical examination, students will submit proof of immunizations by submitting copies of their immunization records or titer results to Verified Credentials. All immunization, background, and drug screen requirements will be completed and submitted prior to the program start date.

When students pay the fee to Verified Credentials, a pin is purchased and will be used to obtain and successfully pass a 10-panel drug screen within 30 days. Failure to complete the drug screen within the 30 day window will cause the student to purchase a second pin. A failed drug screen will lead to a standard retesting process. If failure of the drug screen is confirmed, the student will not be allowed to continue in the program.

Any illness or leave of absence requiring a physician's signature will be reflected in the student's file.

Injuries received at a clinical site during assigned clinical education will be treated at the student's expense.

INCIDENT REPORT

Students will submit an incident report for any incident for which a staff therapist would need to complete an incident report. Completion of the Incident Form in the Trajecsys system and direct communication with the Clinical Coordinator will be done within 24 hours of the incident. The Trajecsys form is located under the "Evaluations" tab on the main menu. The form requires the following information:

1. Date of report;
2. Date and time of incident;
3. Brief explanation of incident;
4. Confirmation that a copy of the organization's incident report form will be mailed within 7 days to the Clinical Coordinator.

INFECTIOUS DISEASE

Any student diagnosed as having a communicable disease will contact the Clinical Coordinator immediately. The Clinical Coordinator will contact the infection control nurse at the appropriate clinical site. Communicable diseases may include, but are not limited to the following: AIDS, hepatitis, resistant staph, strep throat, pneumonia, influenza, COVID-19, meningitis, German measles, scabies, impetigo, chickenpox, shingles or rubeola measles.

Students are reminded of the compromised status of their patients' health and immune systems. Students **should not** impose a health hazard on others.

Students exposed to infectious disease:

- Report the exposure to the Clinical Preceptor and program Clinical Coordinator.
- If disease-specific immunity cannot be demonstrated by laboratory studies, student will not report to clinical during the incubation period.
- If the exposure requires a quarantine, the program will follow local public health authorities as to the duration of the student's quarantine.
- If the condition becomes clinically evident, students may not return to the program until written medical clearance is obtained.

Students who have, or suspect they have, an infectious disease:

- Students who suspect they have a potentially infectious condition will see their physician for a diagnosis before returning to the program. If COVID-19 is suspected, students should self-isolate and contact the local public health authorities or healthcare provider.
- Students may not return to the program until written medical clearance is obtained and mandatory quarantine has been completed, if applicable.
- Report absence to the Clinical Preceptor and program Clinical Coordinator.

Students who have traveled from a location with public health restrictions:

- Students who, prior to the beginning of or during their clinical rotation, travel from a location with a public health travel restriction as established by the health officials where they reside shall notify the program Clinical Coordinator and Clinical Preceptor of the situation and the time they began their quarantine period.
- Subsequently, the student shall notify the above parties if, during the quarantine period, they either develop symptoms related to the disease.
- If the student obtains a medical test related to the infectious disease, the student shall notify the above parties of the positive or negative test results.
- Students may not return to the program until written medical clearance is obtained by a licensed health care provider.

LIABILITY INSURANCE

Washburn University provides all enrolled students in the Radiation Therapy program, as well as other allied health programs, with liability insurance. Additional coverage may be obtained, if desired, by the individual.

MRI ENVIRONMENT – STUDENT SCREENING

Magnetic Resonance Imaging (MRI) utilizes a powerful magnet and radio waves to generate images of the body. MRI imaging may be used during the radiation therapy treatment planning process or in the treatment room as a form of image-guided radiation therapy (IGRT).

The strong **magnet used in MRI is always turned on** and can be hazardous to individuals entering the MR environment if they have certain metallic, electronic, magnetic mechanical implants/devices/objects. Students with certain implanted devices, such as pacemakers, cochlear implants, defibrillators, neurostimulators, aneurysm clips, and some infusion pumps will not be allowed

in the MRI environment.

To ensure the safety of students, each radiation therapy student will be pre-screened for a possible history of injuries, such as an intraocular metallic foreign body, bullet, shrapnel or other types of metallic fragments. Individuals with bullets, shrapnel, or metallic fragments in the body could be at risk of these materials changing position and causing injury. The magnetic field of the scanner can also damage external hearing aids and cause a pacemaker to malfunction.

Loose metallic objects are especially prohibited in the MR room. These objects can become projectiles within the scanning room causing serious injury or death and/or equipment failure. Prior to entering the MR environment, students must remove all metallic objects. Prohibited items include, but are not limited to:

- Any article of clothing that has a metallic zipper, buttons, snaps, hooks or under-wires
- Electronic devices such as beepers or cell phones
- Eyeglasses
- Hairpins, barrettes
- Hearing aids
- Jewelry (including body piercing jewelry), watches
- Keys
- Money clip, credit cards, bank cards, magnetic strip cards, coins
- Pens, safety pins, paper clips
- Pocket knife, nail clipper, tools
- Steel-toed boots/shoes

If there are questions or concerns regarding an implant, device or object, please consult the supervising staff **BEFORE** entering the MR Environment.

Radiation therapy students must be directly supervised by a registered radiation therapist or other appropriately credentialed staff at all times. This direct supervision policy is no different when participating in a rotation that involves MRI imaging. Students must comply with the assigned clinical site's policies and procedures pertaining to MRI safety. Clinical Preceptors may send a student home for failure to comply with the site's MR safety policies and procedures. Failure to comply with the MRI safety policies will lead to counseling as described in the Student Counseling policy (see section 2, pg. 45)

Students must complete the following MRI screening questionnaire. The questionnaire will be reviewed by the radiation therapy program Clinical Coordinator prior to the first day of clinical education. The completed MRI screening questionnaire will be placed in the student's school file for documentation. If the answer to any question in the questionnaire is "yes" or if there are questions or concerns regarding student safety due to potential dangers of implants or foreign bodies, the questionnaire will be shared with the Clinical Preceptor at the student's assigned clinical site. The Clinical Coordinator will work with the Clinical Preceptor to determine the student's eligibility to enter the MR environment. Additional screening may be required to ensure student safety.

If any point in the program the status of the student's screening questionnaire responses should change, the student must notify the Clinical Coordinator immediately to re-evaluate the student's continued eligibility to enter the MR environment.

EXAMPLE MRI STUDENT SCREENING QUESTIONNAIRE

Name _____

Please indicate if you have any of the following:

Yes	No	
		Aneurysm clip(s)
		Any injury involving metallic fragment or foreign body in the eye, other soft tissue, etc.
		Any type of prosthesis (eye, shoulder, etc.)
		Artificial heart valve, coil, filter and/or stent
		Cardiac pacemaker or implanted cardioverter defibrillator or internal electrodes
		Ear (cochlear) implant, middle ear implant and/or hearing aids
		Electronic implant or device
		External/internal drug pump for Insulin or other medicine
		Eye injury from a metal object (examples: metal shavings from welding, metal slivers)
		Implanted post-surgical hardware (surgical clips, pins, rods, etc.)
		Injured by a metal object (shrapnel, bullet, BB)
		IV access port
		Medication patch
		Metallic removable dental work, braces, retainers
		Neurostimulator or spinal cord stimulator
		Ornamental BODY piercing
		Other
		Shunt or stent
		Spinal fixation device or spinal fusion
		Surgical clips, staples, or surgical mesh
		Swan-Ganz or thermodilution catheter
		Tissue expander (breast)

Explain in further detail if you answered “yes” to any of the above questions:

_____

_____

_____

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.

Student Signature: _____ Date : _____

Clinical Coordinator Signature: _____ Date : _____

PREGNANCY POLICY

The National Council of Radiation Protection (NCRP) advises that control measures should be taken to avoid or reduce the risk on ionizing radiation exposure to the human embryo or fetus. All pregnant students in the Washburn University Radiation Therapy program will make the final decision as to their acceptance or non-acceptance of this risk. The NRC currently states that the dose equivalent to the embryo/fetus during the entire pregnancy, due to the occupational exposure of a declared pregnant woman, cannot exceed 0.5 rem. The NCRP recommends that fetal exposure be restricted to an equivalent dose of 0.05 rem per month.

Based on the above information, these guidelines will be followed:

Upon confirmation of pregnancy, the student initiates the first step of declaring her pregnancy by **voluntarily** notifying the Clinical Coordinator in **writing** (see section 2, pg. 26 for Notification of Pregnancy Form). In the absence of the voluntary, written disclosure, a student cannot be considered pregnant. Please note that the student cannot elect to disclose to the clinical education site and not to the program, as they are one unit. All declaration of pregnancy must occur through the Clinical Coordinator.

If a student chooses to declare her pregnancy in writing to the Clinical Coordinator, detailed program policies will be reviewed to provide the student with a complete understanding of her status in the program whether she chooses to complete the program during her pregnancy or following pregnancy leave. At any time, a student may retract her declaration of pregnancy by submitting the request **in writing** to the Clinical Coordinator.

The student should, upon declaration of pregnancy **in writing**, seek counsel with the Medical Physicist or the Radiation Safety Officer of the facility in which she trains relating to her recent exposure history, acceptable exposure levels, and radiation protection procedures. Documents concerning protection of and dose to the embryo will be provided. The pregnant student should also seek the advice and counsel of her attending physician.

1. The student may voluntarily declare the pregnancy in writing to the Clinical Coordinator using the Notification of Pregnancy Form (see section 2, pg. 26). Once the pregnancy is declared, the student may elect from one of the following options **and submit a request to the Clinical Coordinator for the selected option in writing:**
    a. Elect to withdraw from the program,
    b. Elect to continue in the program without pregnancy modifications,
    c. Elect to continue in the program with pregnancy modifications,
    d. Elect to take a leave of absence from clinical, or
    e. Elect to take a leave of absence from the program.

2. If pregnancy is declared in writing to the Clinical Coordinator using the Physician's Awareness of Pregnancy Form (see section 2, pg. 28) AND the student elects to **continue in the program without pregnancy modifications**, the student will:
    a. Submit a completed Pregnancy Release Form (see section 2, pg. 27) by which the student accepts full responsibility for her own actions and the health of her baby. She relieves Washburn University, its faculty, and the clinical site of any responsibilities in case of adverse effects,
    b. Review with the radiation safety practices as outlined by NRC Regulatory Guide 8.13, revision 3, June 1999 (see section 2, pg. 29-35),
    c. Review the clinical facility's radiation protection guidelines with the Radiation Safety Officer or appropriate designee of the facility.

d. The declared pregnant student who elects to continue in the program without pregnancy modifications will follow the established program policies and meet the same clinical and education criteria as all other students before graduation as well as the requirements to sit for the national certifying examination.
e. The student will take maternity leave after giving birth. Leave should not be less than 6 weeks. The length of maternity leave will be determined by the student's attending physician.
f. Prior to returning from maternity leave, submit the Physician Release Form to the Clinical Coordinator (see section 2, pg. 38).

3. If pregnancy is declared in writing to the Clinical Coordinator using the Physician's Awareness of Pregnancy Form (see section 2, pg. 28) AND the student elects to **remain in the program with pregnancy modifications** the student will:
    a. Submit a completed Pregnancy Release Form (see section 2, pg. 27) by which the student accepts full responsibility for her own actions and the health of her baby. She relieves Washburn University, its faculty, and the clinical site of any responsibilities in case of adverse effects.
    b. Review with the radiation safety practices as outlined by NRC Regulatory Guide 8.13, revision 3, June 1999 (see section 2, pg. 29-35),
    c. Review the clinical facility's radiation protection guidelines with the Radiation Safety Officer or appropriate designee of the facility.
    d. The declared pregnant student who elects to continue in the program with pregnancy modifications will follow the program policies and meet the clinical and education criteria in accordance with established modifications.
    e. The student will take maternity leave after giving birth. Leave should not be less than 6 weeks. The length of maternity leave will be determined by the student's attending physician.
    f. Prior to returning from maternity leave, submit the Physician Release Form to the Clinical Coordinator (see section 2, pg. 38).

4. All students who have declared pregnancy in writing, regardless of their decision about modifications, will abide by the following rules regarding her radiation monitoring during her pregnancy:
    a. The declared pregnant student will sign clinical facility forms as necessary.
    b. The declared pregnant student will abide by the program and clinical facility radiation safety guidelines.
    c. The declared pregnant student will be provided with a second personnel radiation monitor with instructions to wear it at waist level and under the protective apron (when utilized).
    d. The student will submit radiation monitor report data within Trajecsys for the first and second radiation monitoring devices. The submitted radiation monitoring report data associated with the second badge should reflect that it is a fetal dose monitor. If at any time the second radiation monitoring device (fetal monitor) suggests the dose to the fetus may be approaching recommended limits, the individual will be removed from areas in which radiation hazards exist. The NCRP recommends that fetal exposure be restricted to an equivalent dose of 0.05 rem per month.

5. Should the student elect to take a **leave of absence** from **clinical education DURING her pregnancy**, the following will occur:
    a. The Clinical Coordinator will determine if an incomplete grade may be given for the course or if the student should withdraw from the clinical course.

b. A clinical leave of absence could result in a delay of graduation and/or sitting for the national certifying examination.
c. Prior to returning from a clinical leave of absence, the student must communicate her desire to return to the Clinical Coordinator and the student will be reinstated.
d. Prior to returning from a clinical leave of absence, the student must submit the Physician Release Form to the Clinical Coordinator (see section 2, pg. 38).

6. Should the student elect to take a **leave of absence** from the **program DURING her pregnancy**, the following will occur:
    a. The Program Director will work with faculty to determine if incomplete grades may be given for currently enrolled courses or if the student should withdraw.
    b. A program leave of absence could result in a delay of graduation and/or sitting for the national certifying examination
    c. Prior to returning from a program leave of absence, the student must communicate her desire to return to the Program Director and the student will be reinstated. Depending on the semester of leave, reinstatement would occur at the appropriate semester of the next academic year.
        a. Prior to returning from a program leave of absence, the student must submit the Physician Release Form to the Clinical Coordinator (see section 2, pg. 38).

7. Program Documentation:
    a. All forms related to the declaration of pregnancy will be maintained in the student's program file.
    b. Copies of all forms related to the declaration of pregnancy will be shared with the clinical facility.
    c. Conversations about the declaration of pregnancy whether via email or telephone will be documented and maintained in the student's program file.
    d. The Clinical Coordinator will communicate directly with clinical facility regarding pregnancy declarations and follow up to ensure discussions have taken place between student and facility regarding radiation safety guidelines and facility-specific policies.

NOTIFICATION OF PREGNANCY

Formal, voluntary notification is the only means by which the clinical facility and the Washburn University Radiation Therapy program can ensure the dose to the embryo-fetus. In the absence of the voluntary, written disclosure, a student cannot be considered pregnant. Written notification should be given to the Clinical Coordinator. Notification of the pregnancy will be communicated to appropriate faculty and personnel at the clinical site.

This form should be used for notification of pregnancy.

NOTIFICATION OF PREGNANCY

I, _____, am declaring that I am pregnant.

I became pregnant in _____(only the month and year need

to be provided).

_____ _____
STUDENT SIGNATURE DATE

_____ _____
PROGRAM DIRECTOR DATE

_____ _____
CLINICAL COORDINATOR SIGNATURE DATE

PREGNANCY RELEASE FORM

I, _____, a student of the Washburn University Radiation Therapy program currently assigned to _____ (Clinical Education Facility) am confirming my pregnancy. I understand the implications (of radiation and other hazards) stated in the Pregnancy Policy and NRC Appendix 8.13 (see pages 29-35), and agree to adhere to the stated guidelines. I will not hold Washburn University or the clinical education facility/facilities liable in case of abnormalities to this pregnancy which may be caused by radiation exposure.

_____ _____
Student Signature Date

Witnessed By: _____ _____
Radiation Safety Officer of Clinical Facility Date

Witnessed By: _____ _____
Chairman, Department of Oncology Date

_____ _____
Program Director Date

_____ _____
Clinical Coordinator Date

PHYSICIAN'S AWARENESS OF PREGNANCY

Student Name _____DOB _____

Washburn Identification Number (WIN) _____

The student named above is presently enrolled in the Washburn University Radiation Therapy program. Due to the nature of the program, the student may be exposed to ionizing radiation or other hazards (i.e., lifting, possible exposure to contagious disease, etc.). In order to determine the appropriate precautions, we need the following information:

1. Approximate date of conception: _____
2. Approximate date of delivery: _____
3. Present health status: _____

_____

_____

4. Will the student be under your care during her pregnancy? _____Yes _____No
5. Do you recommend her continuation with clinical education? _____Yes _____No
6. Do you recommend that she continue in the program? _____Yes _____No
7. Recommended date maternity leave to begin: _____
8. Recommended length of maternity leave: _____

Note: A written release is required before this student may return to clinical education.

_____ _____
Physician's Printed Name Physician's Phone Number

_____ _____
Physician's Signature Date

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REGULATORY GUIDE

OFFICE OF NUCLEAR REGULATORY RESEARCH

REGULATORY GUIDE 8.13

(Draft was issued as DG-8014)

INSTRUCTION CONCERNING PRENATAL RADIATION EXPOSURE

A. INTRODUCTION

The Code of Federal Regulations in 10 CFR Part 9, "Notices, Instructions and Reports to Workers: Inspection and Investigations," in Section 19.12, "Instructions to Workers," requires instruction in "the health protection problems associated with exposure to radiation and/or radioactive material, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed." The instructions must be "commensurate with potential radiological health protection problems present in the work place."

The Nuclear Regulatory Commission's (NRC's) regulations on radiation protection are specified in 10 CFR Part 20, "Standards for Protection Against Radiation"; and 10 CFR 20.1208, "Dose to an Embryo/Fetus," requires licensees to "ensure that the dose to an embryo/fetus during the entire pregnancy, due to occupational exposure of a declared pregnant woman, does not exceed 0.5 rem (5 mSv)." Section 20.1208 also requires licensees to "make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman." A declared pregnant woman is defined in 10 CFR 20.1003 as a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception.

This regulatory guide is intended to provide information to pregnant women, and other personnel, to help them make decisions regarding radiation exposure during pregnancy. This Regulatory Guide 8.13 supplements Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure" (Ref. 1), which contains a broad discussion of the risks from exposure to ionizing radiation.

Other sections of the NRC's regulations also specify requirements for monitoring external and internal occupational dose to a declared pregnant woman. In 10 CFR 20.1502, "Conditions Requiring Individual Monitoring of External and Internal Occupational Dose," licensees are required to monitor the occupational dose to a declared pregnant woman, using an individual monitoring device, if it is likely that the declared pregnant woman will receive, from external sources, a deep dose equivalent in excess of 0.1 rem (1 mSv). According to Paragraph (e) of 10 CFR 20.2106, "Records of Individual Monitoring Results," the licensee must maintain records of dose to an embryo/fetus if monitoring was required, and the records of dose to the embryo/fetus must be kept with the records of dose to the declared pregnant woman. The declaration of pregnancy must be kept on file, but may be maintained separately from the dose records. The licensee must retain the re-

uired form or record until the Commission terminates ch pertinent license requiring the record.

The information collections in this regulatory uide are covered by the requirements of 10 CFR Parts) or 20, which were approved by the Office of Man- gement and Budget, approval numbers 3150-0044 and 150-0014, respectively. The NRC may not conduct or onsor, and a person is not required to respond to, a llection of information unless it displays a currently alid OMB control number.

B. DISCUSSION

As discussed in Regulatory Guide 8.29 (Ref. 1), xposure to any level of radiation is assumed to carry ith it a certain amount of risk. In the absence of scien- fic certainty regarding the relationship between low ose exposure and health effects, and as a conservative ssumption for radiation protection purposes, the cientific community generally assumes that any expo- ure to ionizing radiation may cause undesirable bio- ogical effects and that the likelihood of these effects in- reases as the dose increases. At the occupational dose imit for the whole body of 5 rem (50 mSv) per year, the isk is believed to be very low.

The magnitude of risk of childhood cancer follow- ng in utero exposure is uncertain in that both negative nd positive studies have been reported. The data from hese studies "are consistent with a lifetime cancer risk esulting from exposure during gestation which is two o three times that for the adult" (NCRP Report No. 116, Ref. 2). The NRC has reviewed the available scientific literature and has concluded that the 0.5 rem 5 mSv) limit specified in 10 CFR 20.1208 provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total life- ime risk of leukemia and other cancers associated with adiation exposure during pregnancy.

In order for a pregnant worker to take advantage of the lower exposure limit and dose monitoring provi- sions specified in 10 CFR Part 20, the woman must de- clare her pregnancy in writing to the licensee. A form letter for declaring pregnancy is provided in this guide or the licensee may use its own form letter for declaring pregnancy. A separate written declaration should be submitted for each pregnancy.

C. REGULATORY POSITION

1. Who Should Receive Instruction

Female workers who require training under 10 CFR 19.12 should be provided with the information contained in this guide. In addition to the information contained in Regulatory Guide 8.29 (Ref. 1), this information may be included as part of the training required under 10 CFR 19.12.

2. Providing Instruction

The occupational worker may be given a copy of this guide with its Appendix, an explanation of the contents of the guide, and an opportunity to ask questions and request additional information. The information in this guide and Appendix should also be provided to any worker or supervisor who may be affected by a declaration of pregnancy or who may have to take some action in response to such a declaration.

Classroom instruction may supplement the written information. If the licensee provides classroom instruction, the instructor should have some knowledge of the biological effects of radiation to be able to answer questions that may go beyond the information provided in this guide. Videotaped presentations may be used for classroom instruction. Regardless of whether the licensee provides classroom training, the licensee should give workers the opportunity to ask questions about information contained in this Regulatory Guide 8.13. The licensee may take credit for instruction that the worker has received within the past year at other licensed facilities or in other courses or training.

3. Licensee's Policy on Declared Pregnant Women

The instruction provided should describe the licensee's specific policy on declared pregnant women, including how those policies may affect a woman's work situation. In particular, the instruction should include a description of the licensee's policies, if any, that may affect the declared pregnant woman's work situation after she has filed a written declaration of pregnancy consistent with 10 CFR 20.1208.

The instruction should also identify who to contact for additional information as well as identify who should receive the written declaration of pregnancy. The recipient of the woman's declaration may be identified by name (e.g., John Smith), position (e.g., immediate supervisor, the radiation safety officer), or department (e.g., the personnel department).

4. Duration of Lower Dose Limits for the Embryo/Fetus

The lower dose limit for the embryo/fetus should remain in effect until the woman withdraws the declaration in writing or the woman is no longer pregnant. If a declaration of pregnancy is withdrawn, the dose limit for the embryo/fetus would apply only to the time from the estimated date of conception until the time the declaration is withdrawn. If the declaration is

not withdrawn, the written declaration may be considered expired one year after submission.

5. Substantial Variations Above a Uniform Monthly Dose Rate

According to 10 CFR 20.1208(b), "The licensee shall make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman so as to satisfy the limit in paragraph (a) of this section," that is, 0.5 rem (5 mSv) to the embryo/fetus. The National Council on Radiation Protection and Measurements (NCRP) recommends a monthly equivalent dose limit of 0.05 rem (0.5 mSv) to the embryo/fetus once the pregnancy is known (Ref. 2). In view of the NCRP recommendation, any monthly dose of less than 0.1 rem (1 mSv) may be considered as not a substantial variation above a uniform monthly dose rate and as such will not require licensee justification. However, a monthly dose greater than 0.1 rem (1 mSv) should be justified by the licensee.

D. IMPLEMENTATION

The purpose of this section is to provide information to licensees and applicants regarding the NRC staff's plans for using this regulatory guide.

Unless a licensee or an applicant proposes an acceptable alternative method for complying with the specified portions of the NRC's regulations, the methods described in this guide will be used by the NRC staff in the evaluation of instructions to workers on the radiation exposure of pregnant women.

REFERENCES

1. USNRC, "Instruction Concerning Risks from Occupational Radiation Exposure," Regulatory Guide 8.29, Revision 1, February 1996.

2. National Council on Radiation Protection and Measurements, *Limitation of Exposure to Ionizing Radiation*, NCRP Report No. 116, Bethesda, MD, 1993.

APPENDIX

QUESTIONS AND ANSWERS CONCERNING PRENATAL RADIATION EXPOSURE

1. Why am I receiving this information?

The NRC's regulations (in 10 CFR 19.12, "Instructions to Workers") require that licensees instruct individuals working with licensed radioactive materials in radiation protection as appropriate for the situation. The instruction below describes information that occupational workers and their supervisors should know about the radiation exposure of the embryo/fetus of pregnant women.

The regulations allow a pregnant woman to decide whether she wants to formally declare her pregnancy to take advantage of lower dose limits for the embryo/fetus. This instruction provides information to help women make an informed decision whether to declare a pregnancy.

2. If I become pregnant, am I required to declare my pregnancy?

No. The choice whether to declare your pregnancy is completely voluntary. If you choose to declare your pregnancy, you must do so in writing and a lower radiation dose limit will apply to your embryo/fetus. If you choose not to declare your pregnancy, you and your embryo/fetus will continue to be subject to the same radiation dose limits that apply to other occupational workers.

3. If I declare my pregnancy in writing, what happens?

If you choose to declare your pregnancy in writing, the licensee must take measures to limit the dose to your embryo/fetus to 0.5 rem (5 millisievert) during the entire pregnancy. This is one-tenth of the dose that an occupational worker may receive in a year. If you have already received a dose exceeding 0.5 rem (5 mSv) in the period between conception and the declaration of your pregnancy, an additional dose of 0.05 rem (0.5 mSv) is allowed during the remainder of the pregnancy. In addition, 10 CFR 20.1208, "Dose to an Embryo/Fetus," requires licensees to make efforts to avoid substantial variation above a uniform monthly dose rate so that all the 0.5 rem (5 mSv) allowed dose does not occur in a short period during the pregnancy.

This may mean that, if you declare your pregnancy, the licensee may not permit you to do some of your normal job functions if those functions would have allowed you to receive more than 0.5 rem, and you may not be able to have some emergency response responsibilities.

4. Why do the regulations have a lower dose limit for the embryo/fetus of a declared pregnant woman than for a pregnant worker who has not declared?

A lower dose limit for the embryo/fetus of a declared pregnant woman is based on a consideration of greater sensitivity to radiation of the embryo/fetus and the involuntary nature of the exposure. Several scientific advisory groups have recommended (References 1 and 2) that the dose to the embryo/fetus be limited to a fraction of the occupational dose limit.

5. What are the potentially harmful effects of radiation exposure to my embryo/fetus?

The occurrence and severity of health effects caused by ionizing radiation are dependent upon the type and total dose of radiation received, as well as the time period over which the exposure was received. See Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Exposure" (Ref. 3), for more information. The main concern is embryo/fetal susceptibility to the harmful effects of radiation such as cancer.

6. Are there any risks of genetic defects?

Although radiation injury has been induced experimentally in rodents and insects, and in the experiments was transmitted and became manifest as hereditary disorders in their offspring, radiation has not been identified as a cause of such effect in humans. Therefore, the risk of genetic effects attributable to radiation exposure is speculative. For example, no genetic effects have been documented in any of the Japanese atomic bomb survivors, their children, or their grandchildren.

7. What if I decide that I do not want any radiation exposure at all during my pregnancy?

You may ask your employer for a job that does not involve any exposure at all to occupational radiation dose, but your employer is not obligated to provide you with a job involving no radiation exposure. Even if you receive no occupational exposure at all, your embryo/fetus will receive some radiation dose (on average 75 mrem (0.75 mSv)) during your pregnancy from natural background radiation.

The NRC has reviewed the available scientific literature and concluded that the 0.5 rem (5 mSv) limit

provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total lifetime risk of leukemia and other cancers. If this dose limit is exceeded, the total lifetime risk of cancer to the embryo/fetus may increase incrementally. However, the decision on what level of risk to accept is yours. More detailed information on potential risk to the embryo/fetus from radiation exposure can be found in References 2-10.

8. What effect will formally declaring my pregnancy have on my job status?

Only the licensee can tell you what effect a written declaration of pregnancy will have on your job status. As part of your radiation safety training, the licensee should tell you the company's policies with respect to the job status of declared pregnant women. In addition, before you declare your pregnancy, you may want to talk to your supervisor or your radiation safety officer and ask what a declaration of pregnancy would mean specifically for you and your job status.

In many cases you can continue in your present job with no change and still meet the dose limit for the embryo/fetus. For example, most commercial power reactor workers (approximately 93%) receive, in 12 months, occupational radiation doses that are less than 0.5 rem (5 mSv) (Ref. 11). The licensee may also consider the likelihood of increased radiation exposures from accidents and abnormal events before making a decision to allow you to continue in your present job.

If your current work might cause the dose to your embryo/fetus to exceed 0.5 rem (5 mSv), the licensee has various options. It is possible that the licensee can and will make a reasonable accommodation that will allow you to continue performing your current job, for example, by having another qualified employee do a small part of the job that accounts for some of your radiation exposure.

9. What information must I provide in my written declaration of pregnancy?

You should provide, in writing, your name, a declaration that you are pregnant, the estimated date of conception (only the month and year need be given), and the date that you give the letter to the licensee. A form letter that you can use is included at the end of these questions and answers. You may use that letter, use a form letter the licensee has provided to you, or write your own letter.

10. To declare my pregnancy, do I have to have documented medical proof that I am pregnant?

NRC regulations do not require that you provide medical proof of your pregnancy. However, NRC regulations do not preclude the licensee from requesting medical documentation of your pregnancy, especially if a change in your duties is necessary in order to comply with the 0.5 rem (5 mSv) dose limit.

11. Can I tell the licensee orally rather than in writing that I am pregnant?

No. The regulations require that the declaration must be in writing.

12. If I have not declared my pregnancy in writing, but the licensee suspects that I am pregnant, do the lower dose limits apply?

No. The lower dose limits for pregnant women apply only if you have declared your pregnancy in writing. The United States Supreme Court has ruled (in *United Automobile Workers International Union v. Johnson Controls, Inc.*, 1991) that "Decisions about the welfare of future children must be left to the parents who conceive, bear, support, and raise them rather than to the employers who hire those parents" (Reference 7). The Supreme Court also ruled that your employer may not restrict you from a specific job "because of concerns about the next generation." Thus, the lower limits apply only if you choose to declare your pregnancy in writing.

13. If I am planning to become pregnant but am not yet pregnant and I inform the licensee of that in writing, do the lower dose limits apply?

No. The requirement for lower limits applies only if you declare in writing that you are already pregnant.

14. What if I have a miscarriage or find out that I am not pregnant?

If you have declared your pregnancy in writing, you should promptly inform the licensee in writing that you are no longer pregnant. However, if you have not formally declared your pregnancy in writing, you need not inform the licensee of your nonpregnant status.

15. How long is the lower dose limit in effect?

The dose to the embryo/fetus must be limited until you withdraw your declaration in writing or you inform the licensee in writing that you are no longer pregnant. If the declaration is not withdrawn, the written declaration may be considered expired one year after submission.

16. If I have declared my pregnancy in writing, can I revoke my declaration of pregnancy even if I am still pregnant?

Yes, you may. The choice is entirely yours. If you revoke your declaration of pregnancy, the lower dose limit for the embryo/fetus no longer applies.

17. What if I work under contract at a licensed facility?

The regulations state that you should formally declare your pregnancy to the licensee in writing. The licensee has the responsibility to limit the dose to the embryo/fetus.

18. Where can I get additional information?

The references to this Appendix contain helpful information, especially Reference 3, NRC's Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure," for general information on radiation risks. The licensee should be able to give this document to you.

For information on legal aspects, see Reference 7, "The Rock and the Hard Place: Employer Liability to Fertile or Pregnant Employees and Their Unborn Children—What Can the Employer Do?" which is an article in the journal *Radiation Protection Management*.

You may telephone the NRC Headquarters at (301) 415-7000. Legal questions should be directed to the Office of the General Counsel, and technical questions should be directed to the Division of Industrial and Medical Nuclear Safety.

You may also telephone the NRC Regional Offices at the following numbers: Region I, (610) 337-5000; Region II, (404) 562-4400; Region III, (630) 829-9500; and Region IV, (817) 860-8100. Legal questions should be directed to the Regional Counsel, and technical questions should be directed to the Division of Nuclear Materials Safety.

REFERENCES FOR APPENDIX

1. National Council on Radiation Protection and Measurements, *Limitation of Exposure to Ionizing Radiation*, NCRP Report No. 116, Bethesda, MD, 1993.

2. International Commission on Radiological Protection, *1990 Recommendations of the International Commission on Radiological Protection*, ICRP Publication 60, Ann. ICRP 21: No. 1-3, Pergamon Press, Oxford, UK, 1991.

3. USNRC, "Instruction Concerning Risks from Occupational Radiation Exposure," Regulatory Guide 8.29, Revision 1, February 1996.[1] (Electronically available at www.nrc.gov/NRC/RG/index.html)

4. Committee on the Biological Effects of Ionizing Radiations, National Research Council, *Health Effects of Exposure to Low Levels of Ionizing Radiation* (BEIR V), National Academy Press, Washington, DC, 1990.

5. United Nations Scientific Committee on the Effects of Atomic Radiation, *Sources and Effects of Ionizing Radiation*, United Nations, New York, 1993.

6. R. Doll and R. Wakeford, "Risk of Childhood Cancer from Fetal Irradiation," *The British Journal of Radiology*, 70, 130-139, 1997.

7. David Wiedis, Donald E. Jose, and Timm O. Phoebe, "The Rock and the Hard Place: Employer Liability to Fertile or Pregnant Employees and Their Unborn Children—What Can the Employer Do?" *Radiation Protection Management*, *11*, 41-49, January/February 1994.

8. National Council on Radiation Protection and Measurements, *Considerations Regarding the Unintended Radiation Exposure of the Embryo, Fetus, or Nursing Child*, NCRP Commentary No. 9, Bethesda, MD, 1994.

9. National Council on Radiation Protection and Measurements, *Risk Estimates for Radiation Protection*, NCRP Report No. 115, Bethesda, MD, 1993.

10. National Radiological Protection Board, *Advice on Exposure to Ionising Radiation During Pregnancy*, National Radiological Protection Board, Chilton, Didcot, UK, 1998.

11. M.L. Thomas and D. Hagemeyer, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities, 1996," Twenty-Ninth Annual Report, NUREG-0713, Vol. 18, USNRC, 1998.[2]

[1]Single copies of regulatory guides, both active and draft, and draft NUREG documents may be obtained free of charge by writing the Reproduction and Distribution Services Section, OCIO, USNRC, Washington, DC 20555–0001, or by fax to (301)415–2289, or by email to <DISTRIBUTION@NRC.GOV>. Active guides may also be purchased from the National Technical Information Service on a standing order basis. Details on this service may be obtained by writing NTIS, 5285 Port Royal Road, Springfield, VA 22161. Copies of active and draft guides are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202)634–3273; fax (202)634–3343.

[2]Copies are available at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402–9328 (telephone (202)512–1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161. Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202)634–3273; fax (202)634–3343.

FORM LETTER FOR DECLARING PREGNANCY

This form letter is provided for your convenience. To make your written declaration of pregnancy, you may fill in the blanks in this form letter, you may use a form letter the licensee has provided to you, or you may write your own letter.

DECLARATION OF PREGNANCY

To:_____

In accordance with the NRC's regulations at 10 CFR 20.1208, "Dose to an Embryo/Fetus," I am declaring that I am pregnant. I believe I became pregnant in_____ (only the month and year need be provided).

I understand the radiation dose to my embryo/fetus during my entire pregnancy will not be allowed to exceed 0.5 rem (5 millisievert) (unless that dose has already been exceeded between the time of conception and submitting this letter). I also understand that meeting the lower dose limit may require a change in job or job responsibilities during my pregnancy.

_____
(Your signature)

_____
(Your name printed)

_____
(Date)

REGULATORY ANALYSIS

A separate regulatory analysis was not prepared for this regulatory guide. A regulatory analysis prepared for 10 CFR Part 20, "Standards for Protection Against Radiation" (56 FR 23360), provides the regulatory basis for this guide and examines the costs and benefits of the rule as implemented by the guide. A copy of the "Regulatory Analysis for the Revision of 10 CFR Part 20" (PNL-6712, November 1988) is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW, Washington, DC, as an enclosure to Part 20 (56 FR 23360).

Washburn University
School of Applied Studies
Department of Allied Health
Radiation Therapy Program
Physician Release Form

Student Name: _____

The student named above is presently enrolled in the Washburn University Radiation Therapy program. This release form is to be completed by the licensed physician responsible for providing postnatal care and assessment of the named student.

YES NO The physician has reviewed the program's Essential Functions (see pages 39-41 below), which detail the activities expected of a radiation therapy student in the clinical setting.

YES NO The physician has determined that the student is physically capable of returning to clinical activity **without** modifications.

YES NO The physician has determined that the student is physically capable of returning to clinical activity **with** modifications.

Please describe necessary modifications: _____

_____

_____

_____

Date on which student may return to clinical education: _____

_____ _____
Physician's Printed Name Physician's Phone Number

_____ _____
Physician's Signature Date

Washburn University
Radiation Therapy Program
ESSENTIAL FUNCTIONS FORM

Please read the following statements identifying the Essential Functions and answer the question at the end of the form. A radiation therapist must have sufficient strength and motor coordination required for the performance of the essential functions of a workday.

Mental/Concentration Demands: Candidates must be able to …….

- Concentrate for extended periods of time.
- Focus on a task for an extended period of time.
- Learn and retain new information.
- Apply theoretical concepts underlying the clinical practice of radiation oncology.

Manual Dexterity/Fine Motor: Candidates must be able to …….

- Stand, walk, crouch, stoop, bend, balance, twist at neck and waist, and reach/grasp above shoulders, in front of body, to sides of body, and below knees.
- Push and pull objects in excess of forty (40) pounds routinely: accessory equipment, wheelchairs, and stretchers.
- Lift 10-40 pounds unassisted to approximately six (6) feet from the floor and to a height of six (6) feet. Objects lifted include but are not limited to blocks, patients, film cassettes, patient films/charts, electron cones, accessory devices, and positioning aids.
- Be independently mobile within a building and between buildings.
- Show sufficient balance to protect and assist patient(s).
- Push wheelchairs and stretcher from waiting areas to treatment, simulation, and nursing rooms.
- Transport, reposition, move, and assist in moving a dependent patient from a stretcher or wheelchair onto a table.
- Demonstrate strength, agility, and flexibility to manipulate and position a patient.
- Have endurance and attention to engage in 8 hours of patient treatment each day, 5 days a week.
- Demonstrate fine motor coordination/dexterity to be able to grasp, handle, hold, cut, push, pull, and feel.
- Work in confined spaces such as assisting patients in a bathroom or working in an office with several people.
- Have full use of hands, wrists, shoulders, and work standing on feet 80% of the time.
- Perform CPR.
- Apply personal protective equipment.

Visual & Hearing: Candidates must be able to …….

- Assess the patient's condition by asking questions, listening to responses, observing condition and behavior.
- Read typewritten, handwritten, and computer information.
- Visually evaluation simulation and portal images.
- Visually monitor patients via TV camera/monitor.
- Distinguish colors and opacity.
- Depth perception in judging distances and spatial relationships.
- Distinguish sounds and voices over background noise.
- Hear patient communications over auditory monitoring system.

- Hear patient and coworker in a darkened treatment/simulation room.

Communication Skills: Candidate must be able to……

- Audibly communicate with clarity in person to exchange accurate information on a one-to-one basis, in a small group, large classroom setting, or large group.
- Communicate effectively in written and spoken English.
- Detect, interpret, and appropriately respond to verbal and non-verbal communication, acoustically generated signals (call bells, monitors, phones, alarms).
- Use therapeutic communication: attending, clarifying, coaching, and facilitating, and using and responding to nonverbal communication.
- Communicate effectively, efficiently and appropriately with peers, faculty, supervisors, other professionals, patients, and their significant others.
- Demonstrate sufficient observational skills to collect data on patient performance, and assure patient safety during treatment activities.
- Gather, analyze and correctly interpret information.

Exposures: Once accepted into the program, candidates may be exposed to….

- Blood, body fluids, and infectious disease.
- Potentially hazardous magnetic fields, ionizing radiation, and radioactive materials.
- Electrical hazards.
- Moderate noise from mechanical equipment.
- Other hazardous materials, toxic substances, and irritating particles.

Personal Traits: Candidates must be able to frequently…….

- Work within clinical environments, which involve exposure to persons with physical & mental disabilities; and to pain, grief, death, stress, communicable diseases, blood and body fluids, toxic substances, noxious odors, and irritating particles.
- Work with a diverse patient population including persons of various ages, ethnic, racial, religious, alternative lifestyle, and socioeconomic backgrounds without prejudice or repulsion.
- Conduct oneself in accordance with professional ethics.
- Exhibit teamwork skills and a spirit of cooperation and respect for peers, faculty, supervisors and other professionals, patients, and their significant others.
- Workaround others and alone.
- Modify behavior/performance in the classroom or the clinic after feedback from the instructor or clinical supervisor.
- Show problem-solving ability sufficient to organize and complete multiple tasks accurately and within assigned periods.
- Independently initiate routine job tasks.
- Respond independently, effectively and quickly to an emergency.
- Maintain poise and flexibility in stressful or changing conditions.
- Deal with abstract and concrete variables, define problems, collect data, establish facts, and draw valid conclusions.
- Interpret instructions furnished in oral, written, diagrammatic or schedule form.
- Carry out detailed, simple to complex written or oral instructions.

- Comprehend medical records, documents, evaluations, manuals, journals, instructions in the use and maintenance of equipment, safety rules, and procedures.
- Interact compassionately and effectively with the sick or injured.
- Function safely, effectively and calmly in stressful situations.
- Prioritize multiple tasks.
- Maintain personal hygiene consistent with tasks.

Are you able to perform all of the identified Essential Functions with or without reasonable accommodations? **Yes**_____ **No**_____

If there is a need for accommodations for didactic courses or clinical education it is encouraged that a request be submitted before services should begin, although requests for accommodations may be made at any time while in the program. All requests shall be submitted to the Office of University Diversity and Inclusion at (785) 670-1629 or diversity.inclusion@washburn.edu.

Applicant Name: (please print) _____

Applicant Signature_____Date_____

RADIATION PROTECTION GUIDELINES

The program's policies and procedures serve to promote the health, safety and optimal use of radiation for students, patients, and the general public.

Students will practice radiation protection for the patient, self, and others. Following are some radiation protection guidelines:

1. The student must always wear the monitoring device at collar level while in all clinical education areas. Monitoring device should be left in the department in the designated area when not being worn; they are not to be worn home.
2. Report any accidental damage to or loss of device to the Clinical Preceptor immediately.
3. Report equipment malfunctions to appropriate personnel.
4. For occupational radiation workers, NCRP Report #116 recommends:
    a. Annual effective dose equivalent limit of 5 rem (50 mSv).
    b. Cumulative effective dose equivalent limit of 1 rem X age in yrs (10 mSv X age)
5. For education and training purposes in which the student is under the age of 18 years:
    a. Annual effective dose equivalent limit of 0.1 rem (1 mSv)

Each clinical education setting will issue a radiation monitoring device to each student assigned to the site. If the student works as a "tech aide, student tech, radiographer, etc. at the clinical education setting, a separate radiation monitoring device must be worn during clinical hours other than the device provided by his or her employer. Each month or quarter, depending on the clinical site's standard interval, the radiation safety officer (RSO) at the clinical site will collect the monitoring device for processing and distribute a new monitoring device. The radiation monitoring report will be available at the clinical site without public release of personal identification such as social security number.

In coordination with the clinical site's standard interval, the student will electronically submit a copy of the radiation monitoring report to the program's Clinical Coordinator with all nonapplicable names redacted. Upon receipt, the Clinical Coordinator will arrange a time to review their radiation monitoring device report with the student. If monitoring devices are turned in monthly, a monthly review of the report with the Clinical Coordinator is necessary. If monitoring devices are turned in quarterly, a quarterly review of the report with the Clinical Coordinator is required. Students are required to ask the Radiation Safety Officer of clinical education site about the location of the report postings. **The review with the Clinical Coordinator must occur within 30 days of the student receiving the radiation monitoring report.**

- If the report values are less than the defined Level I value, no action is necessary.
- If the report values are between the Level I and Level II values, the Clinical Coordinator will communicate with the RSO at the clinical site and the student to review clinical activity and identify possible actions that would reduce future exposures.
- If the report value exceeds the established Level II values, the Clinical Coordinator will contact the RSO at the clinical site to inquire about the possible causes of the excessive dose and inquire about investigational activities. A report will be completed by the Clinical Coordinator and reviewed/approved by the clinical site RSO. Conclusions from the report will identify required modifications or corrective actions. A copy of the report will be reviewed with the student and provided to the student for signature.

See tables below for the NRC 10CFR20 annual occupational dose limits for adults and the investigational limits that will be utilized by the program.

10CFR20 Annual Occupational Dose Limits

Total Effective Dose Equivalent for Adults	5 rem or 0.05 Sv TEDE in calendar year
Lens of the eye	15 rem or 0.15 Sv LDE in calendar year
Individual organ	50 rem or 0.5 Sv (DDE + CDE) in calendar year
Skin or extremity	50 rem or 0.5 Sv SDE in calendar year

MONTHLY Occupational Safety and Health Administration as low as reasonably achievable investigational levels

	Level I (10% of annual limit)	Level II (30% of annual limit)
Total Effective Dose Equivalent	41mrem/month	125mrem/month
Sum of Deep Dose Equivalent to Any Individual Organ or Tissue Other Than Lens of Eye	416mrem/month	1250mrem/month
Eye Dose Equivalent	125mrem/month	375mrem/month
Willow Dose Equivalent	416mrem/month	1250mrem/month

QUARTERLY Occupational Safety and Health Administration as low as reasonably achievable investigational levels

	Level I	Level II
Total Effective Dose Equivalent	125mrem/quarter	375mrem/quarter
Sum of Deep Dose Equivalent to Any Individual Organ or Tissue Other Than Lens of Eye	1250mrem/quarter	3750mrem/quarter
Eye Dose Equivalent	375mrem/quarter	1125mrem/quarter
Willow Dose Equivalent	1250mrem/quarter	3750mrem/quarter

SEXUAL HARASSMENT

Sexual harassment may be defined as sexually-oriented behavior, demand, comment, or physical contact, initiated by an individual at the workplace, that is a term or condition of employment, a basis for employment decisions or that interferes with the employee's work or creates a hostile or offensive working environment. While the above statement is speaking of wage-related employment, the same may be applied in the education setting as a student. As such, a student has the right to report harassment.

Harassment situations should be reported to either the Clinical Coordinator or Program Director. When reporting harassment, the student will be asked to write down the incident(s) in detail. The statement should be notarized and reviewed with program faculty to be certain that all facts are clearly understood. If the student does not feel an adequate resolution has been achieved, he or she should contact Pam Foster [Equal Opportunity Office]. See Sexual Harassment Policy in the University Catalog. Students may review a complete copy of the policy and complaint procedures for sexual harassment, equal education and employment opportunity online under the student tab of MyWashburn.

SOCIAL MEDIA

Social Media can provide students with an opportunity to collaborate and communicate in various, and many times, beneficial and effective means. For program purposes, social media can be defined, but not limited to the following: texting, blogs, emails, eLearning communications, and proprietary platforms such as X, LinkedIn, Facebook, YouTube, Reddit, Tumblr, Instagram, Threads, Snapchat, TikTok, etc. Web content is by definition public information and as such, no confidential or personally identifying patient information will be published at any time. Postings on these networks that exude any unprofessional behavior should be avoided as it may reflect negatively on the University, the program and also the profession that a student represents. In addition, postings on these networks should also not reflect negatively on the clinical institution, clinical staff or any individuals. Recent court decisions have upheld dismissal of students from academic programs where the actions could be deemed as materially disruptive to the education process, i.e. actions that could impact the future viability of the program, such as clinical sites being uncomfortable accepting students because of current behaviors.

It is important for students to understand that many state and national organizations providing licensure, certification, and registration have established policies and procedures regarding patient-confidentiality standards. Failure to protect patient privacy is considered an ethics infraction and may have an impact on one's future professional practice. Remember the following guidelines often referenced by others concerning the use of social media: be respectful, be careful, be responsible, and be accountable. What students post online is not personal and is almost always permanent.

Be aware that in many instances around the country, involving both employees and students, such communications are not discovered because the institution is lurking online trying to find these things, but eventually someone who gains access to the post tells someone who is connected to the institution and at that point, the institution and clinic program cannot ignore what is being posted.

STUDENT COUNSELING AND DISMISSAL

The student disciplinary procedure will be initiated in the event of substandard, unethical, or inappropriate clinical or academic performance at the discretion of the Program Director, Clinical Coordinator.

Disciplinary sanctions that may be imposed include the following:

1. **Documented initial warning** – Depending upon the nature of the violation and at the discretion of the faculty and/or administrators of the Radiation Therapy program, the student may be given an initial verbal or a written warning.
2. **Disciplinary written warning** – If the student's clinical or academic conduct does not improve following the initial warning, program faculty will provide a second warning in writing including specific actions needed to improve performance.
3. **Disciplinary probation with a performance contract** – Student counseling and a performance plan for continuance or correction will be used if the problem(s) or complaint(s) concerning the clinical or academic performance of a student continues after an initial warning and written warning has been issued. Program faculty and student will sign the performance contract for documentation purposes. A performance contract may address a clinical deficit in which case the signature of the Clinical Supervisor may also be required. The student will be provided a timeline by which definite measurable improvement is to be demonstrated. A copy of the performance contract will be placed in the student file.
4. **Program dismissal** – If satisfactory improvement is not demonstrated by the given deadline cited in the performance contract, the student may be dismissed from the program.

*Depending on the particular circumstances, one or more progressive disciplinary steps may be skipped in instances of particularly serious violations and/or practices. For example, if **patient safety** is at risk related to a student's clinical progress or performance, the student can be withdrawn from the clinical course with a failing course grade and thus dismissed from the program.

Additionally, clinical education sites have the right to cancel a student's affiliation based on improper behavior. Further, an individual may be released from the radiation therapy program for **failure to follow University policies and procedures** as presented in Student Conduct and Academic Impropriety policies located in the University Catalog. While clinical education is conducted off-campus, said policies and procedures are still in force. The University policies are published in the University Catalog found in the MyWashburn portal.

STUDENT EMPLOYMENT

It is recognized that students may seek and obtain employment while completing the Radiation Therapy program at Washburn University. However, it is not acceptable for students to work night shift in which clinical hours would follow. **It is the policy of the radiation therapy program that the scheduled didactic and clinical courses be the number one priority of the employed student**. Assignments will *not* be rearranged to accommodate work schedules. If a student's employment is impacting his or her clinical performance (examples include appearing sleepy, failing to demonstrate initiative, or inconsistent/unfocused performance), the student may be asked to resign from the employment or withdrawal from the program.

Employment of a student in a clinical affiliate facility cannot substitute for clinical education requirements. In cases where students are employed at a clinical site, employment hours will not be during scheduled clinical hours. Students will not receive any wage or salary from clinical affiliates for clinical education hours used to satisfy the clinical education requirement of the program.

While in the employment of the health facility, the individual is not covered by the University liability or worker's compensation policy. As an employee of the health facility, the student is subject to all of the rules, policies, and requirements established by the employer.

STUDENT SUPERVISION

The student will be under **direct supervision** at all times, regardless of competency testing status. Under no circumstances should a student perform a procedure without being directly supervised by qualified clinical education site personnel. The primary supervisors are registered radiation therapists employed by the clinical facility. In regards to rotations such as nursing and dosimetry, an appropriately licensed healthcare professional may provide direct supervision. Observation of student performance through closed-circuit monitors is **NOT** considered direct supervision. Students and clinical sites are expected to follow this policy. If a student feels pressure at the clinical site to breach this policy, the student WILL contact the Clinical Coordinator to resolve this issue.

SUBSTANCE ABUSE

University Policy

The Washburn University Student Conduct Code, approved by the Board of Regents, provides a procedure and rules by which a student will be afforded due process in the matter of alleged violations of university standards, rules and requirements governing academic and social conduct of students. Possession of alcohol and controlled substances on University property, or in conjunction with University sponsored activities, except as expressly permitted by state law and University policies, is prohibited. The University Catalog is available in the online MyWashburn portal (see Student Conduct Code II, Violations P and Q). Clinical Education is a University sponsored activity activated by student enrollment. A student will be subject to disciplinary action or sanction upon violation of listed conduct proscriptions.

Allied Health Program Policy

Allied Health education requires directed practice or clinical education in a variety of health care settings. The Student Conduct Code remains in force regardless of student location. Allied Health programs follow a Code of Ethics, which requires every provider (as well as students) to maintain a competent level of practice. As students involved in clinical education are in direct contact with patients, it is the policy of the Allied Health Department that students performing in clinical education be unimpaired by the consumption of alcohol or controlled substances. Students, who are found to be under the influence of drugs or alcohol, are subject to disciplinary action up to termination from the academic program in which they are enrolled.

Procedure

1. Reasonable suspicion to believe a student is under the influence of alcohol or a controlled substance may exist when:
    a) a controlled substance or alcoholic or cereal malt beverage is in the possession of the student, on his/her person or under his/her control. Under his/her control includes, but is not limited to the student's locker, automobile, book bag, duffel bag; or,
    b) appearance of impairment, including, but not limited to: increased drowsiness, decreased motor coordination, changes in pupil size, excitation, euphoria, alcohol odor on the breath, intoxicated behavior without alcohol odor, increased or repeated errors, decreased concentration, memory problems, notable change in verbal communication (stuttering, loud, incoherent, slurred, etc.) or written communication, frequent or unexplained disappearance, irrational or aggressive behavior (verbal or physical) and/or disorientation.

2. The contact person (Clinical Preceptor etc.) will:
   a) Evaluate whether possession or behavior change(s) constitute reasonable suspicion that a student is under the influence of controlled substance(s) or alcohol;
   b) Document the conditions giving rise to the reasonable suspicion and will, with at least one witness, obtain from the student a listing of all medications, prescription and over-the-counter, the student is taking;
   c) Contact the appropriate administrator at the health facility and Clinical Coordinator to report the matter;
   d) Relieve the student from performing duties at the facility;
   e) Present, in the company of at least one witness, the student with consent/refusal form for laboratory testing of student's urine and/or blood samples, and
   f) In the event student consents to testing, arrange for the collection of the appropriate testing will be done there. If not, the student should be driven to a facility that can provide testing. The student is responsible for any costs associated with testing. Laboratory testing may include, but is not limited to, any or all of the following tests:
      1. Blood alcohol
      2. Urine drug screen for street/illegal drugs:
         a. amphetamines/methamphetamines
         b. cocaine
         c. class opiates
         d. phencyclidine (PCP)
         e. marijuana
         f. class barbiturates
         g. class benzodiazepines
      3. Urine drug screen for prescription drugs

3. The student, once relieved from performance of his/her duties, executing the consent/refusal form, and if consent is given, giving samples, will be provided transportation to his/her residence.

4. In the event test results are negative, the student may return to his/her health care assignment after consultation with Clinical Coordinator. If the results are positive, the matter will be reported to the Chair of Allied Health for appropriate action.

WASHBURN UNIVERSITY
ALLIED HEALTH DEPARTMENT
CONSENT FORM FOR DRUG AND ALCOHOL TESTING

I, _____, SS # _____, hereby consent to provide a urine and/or blood sample for the purpose of testing for the presence of controlled substance (unlawful drugs and prescription drugs) at a designated laboratory. I understand that I am responsible for payment of said laboratory testing. I authorize release of the test results to the appropriate Allied Health program Faculty at Washburn University. Test results may be released to other parties as applicable, such as the Chairperson of Allied Health. Call prior to faxing the report to Washburn University, Allied Health Department, 785-670-1027. I understand that refusing to provide a sample(s), tampering with samples or providing false information on a specimen's chain of custody form, may constitute grounds for termination in the educational program. I understand that failure to pass the drug/alcohol test may result in disciplinary action up to and including termination.

Laboratory testing includes the following tests:

_____

_____

_____

Student Signature: _____

Clinical Supervisor/Supervisor Signature: _____

Witness Signature: _____

Date and Time: _____

REFUSAL FORM FOR DRUG AND ALCOHOL TESTING

I, _____, SS# _____, do not consent to provide a urine and/or blood sample for the purpose of reasonable cause testing. I understand that refusal to participate in testing may result in my termination in the educational program.

Student Signature: _____

Clinical Supervisor/Supervisor Signature: _____

Witness Signature: _____

Date and Time: _____

Alcohol and Drug Policy

Washburn University, as an institution receiving federal financial aid for students in attendance, has adopted policies for prohibiting the use of alcohol and other drugs by students and employees in the workplace in compliance with the federal laws and regulations of the U.S. Department of Education. In addition, the University has adopted and implemented an alcohol and other drug prevention program. As part of this program, the University is required to provide the following information annually to all students and employees.

Washburn University prohibits the unlawful possession, use/consumption or distribution of illicit drugs and alcohol by students and employees on the University property or as part of any of its activities. The sale and/or possession of alcoholic beverages is prohibited on campus except as approved by the Washburn University Board of Regents. *(On occasion, state law does permit the University to designate "non-classroom instruction" areas where alcohol liquor may be consumed.)*

Violations of this policy, applicable city ordinances, or state law will result in disciplinary action as well as criminal prosecution. The Washburn University Student Disciplinary Code and Drug-Free Workplace Policy contain these prohibitions and establish appropriate sanctions for violation of University policy.

Summary of State and Federal Laws Concerning Alcohol and Other Drugs

Federal, state and local laws provide severe penalties for the unlawful possession, use, or distribution of illicit drugs and alcohol.

Under Kansas state statutes:

1. Possession of alcoholic liquor/cereal malt beverage by a person 18 to 20 years of age is a Class C Misdemeanor, punishable by confinement up to one month and/or a minimum fine of $200. The person also may be requested to submit to a State approved rehabilitation/education awareness program and/or perform 40 hours of community service.
2. Furnishing alcoholic beverages/cereal malt beverage to a minor may lead to imprisonment up to 6 months and/or a minimum fine of $200.
3. Possession of certain controlled substances may be punishable on a first offense with imprisonment of up to 23 months and/or a fine of up to $100,000.
4. Possession with intent to sell narcotics may lead, on a first conviction, to imprisonment of up to 57 months and/or a fine up to $300,000. Personal and real property used in connection with drug trafficking may be seized.

Under federal law:

1. Simple possession of controlled substances, other than for possession of a controlled substance with a mixture or substance with a cocaine base, is punishable on a first offense by one year in prison and/or a fine of up to $1,000.
2. First conviction for distribution of narcotics or controlled substances to a person under 21 years of age may result in a sentence of 20 years to life in prison and/or a $2,000,000 fine.
3. The distribution and/or manufacture of narcotics or controlled substance in or near schools, colleges, playgrounds, community centers, and video arcades is also punishable by imprisonment from 20 years to life and/or a fine of $2,000,000.

Enforcement

As required by law, University officials will forward to the appropriate law enforcement authorities any knowledge they have about suspected violations of laws relating to alcohol and other drugs.

Faculty and staff – sanctions
The *WU Policies, Regulations, and Procedures Manual* states that employees who violate the University's prohibitions on the use of alcohol and other drugs will be subject to disciplinary action, which may result in temporary suspension of employment without pay or permanent termination of employment with the University.

Students – sanctions
As prescribed in the Student Conduct Code, students who are found to be in violation of the University's policies on the use of alcohol and other drugs may be subject to disciplinary sanctions. These sanctions may include suspension from the University for a stated period of time or expulsion from the University with no possibility of return. The University also reserves the right to notify the parents of student under the age of 21 who have violated the University's alcohol and other drug policies.

LOCAL AND ON-CAMPUS REFERRAL INFORMATION

On Campus

Alcohol and other drug awareness information is available through Student Health Services, the Counseling and Testing Service, the Office of Student Life, the Alcohol and Drug Abuse Program in the School of Applied and Continuing Education, and the University Police Department. Staff members of the Counseling and Testing Services are available for students and employees to talk about possible substance abuse problems and to make appropriate referrals. In addition, a list of drug counseling and rehabilitation programs in the Topeka/Shawnee County area is available from the Washburn Human Resources Office and the Counseling and Testing Services.

Counseling Services – University-sponsored counseling services are located in Kuehne Hall (785-670-3100. Counselors provide initial assessment and referral resources if needed and a post-alcohol treatment (if done) update/follow up. Counseling Services will also provide similar assistance to Washburn faculty and staff.

Student Health Services (Morgan Hall 170, 670-1470) – Personnel are prepared to provide initial evaluation, referral and emergency medical support.

University Police Department (Morgan Hall 15, 670-1153) – University Police Department provides emergency assistance and maintains a 24-hour phone line.

Off Campus

Al-Anon & Al-Teen Family Groups http://www.kansas-al-anon.org/ https://al-anon.org/	Valeo Behavioral Health (Assessment and Outpatient): 330 SW Oakley St. Topeka, KS 66606 785-233-1730 www.valeotopeka.org
Women's Recovery Center 1324 SW Western Topeka, KS 66604 785-233-5885	Sims-Kemper Clinical Counseling and Recovery Services (Assessment and Outpatient): 1701 SW Medford Ave. Topeka, KS 66604 785-233-0666 www.sims-kemper.com
Battered Women's Task Force YWCA 225 SW 12th Topeka, KS 66612 785-354-7927	Mirror (Assessment and Outpatient): 2201 SE 25th St. Topeka, KS 66605 785-267-0561 www.mirrorinc.org
Alcoholics Anonymous 2100 SW Central Park Ave. Topeka, KS 66611 785-296-9309	Shawnee Regional Prevention and Recovery Services (Assessment) 2209 SW 29th St. Topeka, KS 66611 785-266-8666 https://parstopeka.org/

HEALTH EFFECTS OF ALCOHOL AND OTHER DRUGS

Alcohol

Alcohol is "legal", but it is a drug just the same. Alcohol kills more people and causes more diseases and social problems than all the other drugs put together.

Drinking can cause addiction, and it doesn't matter who you are or what you do for a living. Long-term, heavy drinking is linked to a range of health problems, including heart and liver disease, cancer, ulcers, pancreatitis, and stroke. On average, alcoholics' lives are shortened by 12 years because of drinking.

Drinking is of special concern for pregnant women. Women who drink alcohol during pregnancy may give birth to infants with physical deformities, brain damage, and mental retardation. Collectively, these symptoms are known as Fetal Alcohol Syndrome (FAS); and they are irreversible. If you are pregnant or nursing, do not drink or use drugs.

Other Possible Effects: high blood pressure; increased susceptibility to infection; impotence; diarrhea; enlarged heart; brain atrophy; deficits in problem solving, abstract thinking and difficult memory tasks; links to violence and aggression; accidental death and injury; dementia; blackouts; seizures; memory loss; hallucinations; nausea; and headaches.

Stimulants or Amphetamines *(Dexedrine, Methamphetamine or "Crystal", "Crank", and "Speed)*

This is a group of drugs that increases alertness and physical activity. Amphetamines increase heart and breathing rates and blood pressure, dilate pupils and decrease appetite. A user can experience insomnia, loss of appetite, sweating, dry mouth, blurred vision, and dizziness. In addition to the physical effects, users feel restless, anxious and moody, become excitable and have a false sense of power and security. People who use large amounts of the drug experience amphetamine psychosis --- they have auditory, visual and tactile hallucinations, feel intensely paranoid/suspicious, have irrational thoughts and beliefs (delusions), and are mentally confused. Amphetamine overdose can also cause cardiac arrhythmias, headaches, convulsions, hypertension, rapid heart rate, coma, and death. Amphetamines are psychologically and physically addictive.

Nicotine

Nicotine is the active chemical found in tobacco. Its chief hazards are cancer of the lungs, larynx, and mouth. Exposure to second-hand smoke also increases these health risks, even for a non-smoker. Nicotine is a highly addictive stimulant and contributes to approximately 340,000 Americans' deaths annually.

Caffeine

Caffeine is a stimulant found in coffee, tea, soft drinks, cocoa, and in some over-the-counter drugs (e.g., aspirin, diet pills, cough, and cold remedies). High doses may cause nausea, diarrhea, insomnia, headaches, nervousness/agitation, and trembling. Caffeine may increase rates of miscarriage and low birth weight. Caffeine withdrawal symptoms include fatigue, headache, nausea, and irritability.

Cocaine/Crack

Cocaine is an extremely addictive stimulant. The intense euphoria is short-lived and prompts users to use again and again. Physical effects of cocaine/crack use include increases in blood pressure, heart rate, respiration, and body temperature. Continued use produces insomnia, hyperactivity, anxiousness, agitation, and malnutrition. Overdoses can be lethal.

Anabolic Steroids

Steroids are lab-made versions of the male sex hormone, testosterone. Side effects include liver and kidney dysfunction, high blood pressure, heart disease, degeneration of the testicles, premature baldness, and acne. Abnormal aggression, mood swings and psychiatric symptoms are linked to steroid use.

Hallucinogens *(LSD, PCP, DMT, Mescaline, and Psilocybin)*

Hallucinogens are a group of very unpredictable drugs. "Bad trips" are not uncommon, and the user may experience morbid hallucinations and feel panicked, confused, paranoid and out of control. The heightened suggestibility and intensified emotions that hallucinogens create worsen any pre-existing emotional problems. Physical effects of hallucinogen use include dilated pupils; sweating; insomnia; loss of appetite; tremors; and increased body temperature, heart rate, and blood pressure.

Narcotics *(Opium, Morphine, Codeine, Heroin)*

Narcotics are used medically to relieve pain. Narcotics are also used inappropriately for their mood-altering effects and are both physically and psychologically addictive. Medical problems associated with narcotic abuse include infection of the heart valves, skin abscesses, congested lungs, liver disease, tetanus, anemia, and pneumonia. Death can occur from overdose.

Sedatives/Barbiturates *(Valium, Librium, Xanax, Quaaludes)*

Sedatives have appropriate medical uses but are also drugs of abuse. They cause slurred speech, disorientation and "drunken-like" behavior. They are physically and psychologically addictive. Withdrawal symptoms include anxiety, insomnia, tremors, delirium, convulsions, and possible death.

Marijuana

Marijuana has over 400 different chemical compounds and contains even more cancer-causing agents than are found in tobacco. Even low doses interfere with coordination, perception of time passage, reasoning and judgment, all of which make driving under its influence extremely dangerous. Marijuana use causes short-term memory loss, decreases sperm and testosterone production in men, and may disrupt the menstrual cycle and cause miscarriage and stillbirth in women.

TARDY

A good attendance record also includes promptness. Tardiness is a trait that is considered undesirable by clinical staff as well as future employers. Arrival beyond the scheduled clinical time is considered tardy. If a tardy is unavoidable, the student will contact the assigned clinical affiliate and the Clinical Coordinator PRIOR to the scheduled clinical education hours. Any time in excess of 30 minutes is considered an unexcused clinical absence. Be reminded that students are expected to be in their assigned area at the appropriate time.

One tardy is allowed per clinical course without a penalty. Each tardy of three (3) minutes (excluding the first occurrence) will result in a loss of 1 percentage point each to the given semester clinical course grade.

Three episodes of tardiness in the program (excluding the allowed semester tardy) will result in a documented initial warning. Two additional tardies in the program (excluding the allowed semester tardy) will result in a disciplinary written warning. Two more tardies (excluding the allowed semester tardy) will result in disciplinary probation with a performance contract. Two tardies beyond the probation phase will result in dismissal from the program (see Student Counseling policy, section 2, pg. 45).

TRAJECSYS

Trajecsys Report System™ is a web-based clinical record tracking system. This system permits the radiation therapy faculty to monitor, collect and store data regarding student performance in the clinical setting. Each enrolled student will be required to pay a one-time fee of $100.00 for the usage of this system during the 13 month program. Fees are subject to change without notice and may be subject to applicable state and local sales tax.

If a student withdraws from the program in the fall, full refunds from the Trajecsys system are available for 30 days following filing of the first time record or evaluation in the system; no refunds will be made thereafter.

Within this system, **students** will:

- Clock in and clock out each clinical day and maintain an accurate, up-to-date clinical time record.
- Check monthly updates from the Clinical Coordinator on the Trajecsys homepage.
- Track progress of competency evaluations.
- Confirm review of competency and professional development evaluations.
- Complete checklists and logs of skill-related activity.
- Submit scheduled self-evaluations and site evaluations.
- Access program/clinical policies.

Within this system, **Clinical Supervisors** and **designated staff** will:

- Approve student time records.
- Complete competency evaluations and performance evaluations.
- Complete student checklists.
- Review student log sheet activities for accuracy.
- Access program/clinical policies.

Within this system, the **Clinical Coordinator** will:

- Monitor and approve student time records.
- Review and approve competency evaluations and performance evaluations.
- Monitor completion of student checklists and log sheet activities.
- Provide monthly updates of student requirements on the Trajecsys homepage.

Trajecsys Website: http://www.trajecsys.com/
Trajecsys Support: 1-800-741-7964 Ext. 2

TRAJECSYS GUIDELINES

User Guide – Contains a short six minute video about the Trajecsys system for student reference.
Home Page – Please check the home page on a monthly basis for updated clinical announcements and deadlines.
Documents – Contains an electronic version of the clinical manual and policies.
Reports – Students can view a complete history of all student records including time records, competency, checklists and evaluation submissions as well as recorded log sheet activities.

Clocking In and Out – Students will need to follow the directions below to clock in/out:

1. Log onto Trajecsys
2. Select "clock in/out"
3. Choose site and clock in/out. The system will automatically log the student out after entry.
4. No other individual may clock a student in/out.
5. Tardies will be enforced; see attendance/tardy policy for details.
6. The Clinical Preceptor will verify clock hours on a weekly basis; if there are questions or concerns about a student's time record the Clinical Coordinator will be contacted.
7. Students' should NOT clock in/out for lunch.
8. Students are expected to be in clinical 8 hours each day. Clocking IN any time after the designated start time will result in a Tardy. Leaving the clinical site while remaining clocked in will result in student counseling and possible programmatic dismissal (see Student Counseling Policy, section 2. pg. 45).
9. Clocking OUT prior to the designated departure time will result in the use of student personal time or the student will be required to make-up the time if he/she does not have any personal time. If a student regularly clocks out early it will result in student counseling (see Student Counseling Policy, section 2, pg. 45).
10. Students have the ability to clock in/out using a mobile device, however, it is preferred that students use the facility's computer to clock in/out. On the rare occasion that a student might use their mobile device, students are required to allow for GeoTracking so that the student's coordinates are recorded. The student's location will be approved by the Clinical Coordinator in order for the clinical hours to be validated. In the event of computer unavailability please follow instructions below to file a time exception.

Tardy – If arriving late to clinical, students are to clock in as normal and then send an email to the Clinical Coordinator with a brief explanation of the incident. Please see tardy policy (section 2, pg. 53) for grade deductions associated with tardies.

Time Exceptions – Time exceptions are a component of Trajecsys in which students manually enter their clinical arrival and/or departure time. If used incorrectly, time exception can cause the student's clock in/out to be mismatched and the student will not receive credit for the time he/she has earned in the clinical setting.

Time exceptions may be filed from the clinical site or from the student's home computer. Time exception may be used on the occasion when there is no computer available, the student forgets to clock in/out, for logging an absence and for the rare incident the student is dismissed early by the clinical staff. Any incorrect usage of filing time exceptions will result in a 1 percentage point deduction from the final clinical grade for each occurrence in a given semester.

Computer Unavailability – If a computer is inaccessible or Trajecsys is unavailable, students should:

<u>Clocking In</u>

1. File a Time Exception by clicking on the Time Exceptions tab.

2. Choose clinical site.
3. Choose "Clock IN" for the exception.
4. Input student arrival time. (For example: If the student arrived at 8 am, enter 0800).
5. Check "No Computer" as the Reason.

Clocking Out

1. File a Time Exception by clicking on the Time Exceptions Tab.
2. Choose clinical site.
3. Choose "Clock OUT" for the exception.
4. Input departure time. (For example: If the student left at 4 pm, enter 1600).
5. Check "No Computer" as the Reason.

*If filing a time exception due to a computer unavailability becomes a regular event, the Clinical Coordinator will discuss other options with the student and Clinical Supervisor for accessing the system.

Forgetting to Clock In or Out – If a student forgets to clock in or out for a scheduled clinical day or a make-up day, the student should:

1. File a Time Exception by clicking on the Time Exceptions Tab.
2. Choose clinical site.
3. Choose either "Clock IN or Clock OUT" for the exception.
4. Input actual arrival or departure time. (For example: If the student left at 3 pm, enter 1500).
5. Check "Forgot" as the Reason.
6. **Fall Semester**: The student will be allotted 3 incidences without penalty. On the 3rd incident a warning will be issued. The 4th incident will result in a student counseling and a 2 percentage point deduction from the final clinical grade (see Student Counseling Policy, section 2, pg. 45.)
   Spring and Summer Semester: The student will be allotted 2 incidences without penalty. The 3rd incident will result in a student counseling with a 2 percentage point deduction from the final clinical grade. Each incident thereafter will result in a 1 percentage point deduction from the final clinical grade (see Student Counseling Policy, section 2, pg. 45.)

Absences – In the event of an absence, the student should do the following:

Planned Absence (All Day): File a Time Exception the day before or the day of the absence**.**

1. Inform the Clinical Preceptor at the site prior to the absence.
2. Email the Clinical Coordinator prior to or at the time of the absence
3. Click on the Time Exceptions Tab and chose clinical site.
4. Insert the date of the absence.
5. Check the "Absent" box.
6. In ALL CAPS under "explanation" insert a brief reason for the absence. For example: PERSONAL DAY, FUNERAL, COURT DATE, etc. (See Clinical Attendance policy, section 2, pg. 11-13).
7. Submit Time Exception.

Unplanned Absence (All Day): File a Time Exception within 48 hours of absence.

1. Inform the Clinical Preceptor at the site prior to the absence.
2. Email the Clinical Coordinator prior to or at the time of the absence
3. Click on the Time Exceptions Tab and chose clinical site.
4. Insert the date of the absence.
5. Check the "Absent" box.
8. In ALL CAPS under "explanation" insert a brief reason for the absence. For example: SICK, INCLEMENT WEATHER, etc. (See Clinical Attendance policy, section 2, pg. 11-13).

6. Submit Time Exception.

Partial Day Absences – Arriving Late or Leaving Early

1. Inform the Clinical Preceptor at the site prior to the absence.
2. Email the Clinical Coordinator prior to the time of the absence.
3. Do NOT file a Time Exception.
4. Clock in/out like normal.

Partial Day Absences – Mid-day Absence: (If the student has already clocked in for the day and plans to return to clinical after the absence, please follow the instructions below.)

1. Inform the Clinical Preceptor at the site prior to the absence.
2. Email the Clinical Coordinator prior to or at the time of the absence.
3. Do NOT clock out for the absence in the middle of the day. (Trajecsys only allows one clock in/clock out per day.)
4. File a Time Exception in place of "Clocking Out" at the end of the day. When entering the clock out time, subtract the length of the absence. For example the clock out time is normally 1600 and the length of the absence is 1 hour, file the clock out time as 1500.)
5. In the comments box put the reason for the absence and length of absences.

Make-Up Time – If making up time, the student should:

1. Obtain Clinical Preceptor approval to schedule make-up time.
2. Email the Clinical Coordinator in advance to acquire program approval for make-up time. Make-up time cannot exceed the limit of 40 hours per week between didactic and clinical education and cannot be scheduled on a university observed holiday.
3. Clock in/out like normal.

Early Dismissal – On the rare and limited occasion the student is dismissed early from clinical, the student should:

1. File a Time Exception by clicking on the Time Exceptions Tab.
2. Choose clinical site.
3. Choose "Clock OUT" for the exception.
4. Input usual departure time. (For example: If the student usually leaves at 4 pm, enter 1600).
5. Check "Finished early" as the Reason.
6. Provide an Explanation: To include the reason for the early dismissal and which staff approved the dismissal (For example: Finished treating patients early, Dismissed by Kristina Collins RT(R)(T) or Dismissed due to weather by Kristina Collins RT(R)(T), etc.).

View Time Totals – To view clinical time totals, the student should:

1. Choose the "Reports" tab from the main menu.
2. Select the desired dates for review.
3. Choose "Time Totals".
4. In the Status Column, "Approved records" are identified as an "A" and consist of the clinical hours approved by the Clinical Preceptor.
5. In the Status Column, "Unmatched records" are identified as a "U?" and consist of any clock in/out time that does not have a matching clock in/out time for that day.
6. In the Status Column, "Unapproved records" are identified as a "U" and consist of clinical hours that the Clinical Supervisor has not yet approved.

*Any falsified clinical hours will result in student dismissal from the program.

Daily Logsheets – Students will be required to record activity and level of participation for stereotactic procedures, motion management techniques, block room and bolus activities, and custom immobilization fabrication in Trajecsys. This is done by completing the following steps.

1. Choose the "Daily Logsheet" tab from the main menu.
2. Choose the clinical site.

3. Choose the amount that pertains to the particular activity and correlating level.
4. Choose the existing supervising employee or Add a New supervising employee (include email).
5. Click “Add Logsheet”.
6. Choose the “major study” the activity falls under (Treatment Accessory Device, , Motion Management, and Stereotactic Procedures).
7. Choose the “skill” the activity represents (Bolus, Custom Block (photon or electron), Immobilization Device or Thermoplastic Mold,.)
8. Choose the participation level at which the activity was performed.
9. Select the amount of time spent on the activity.
10. Select OK
11. If entering information related to a stereotactic activity, please enter the type of procedure in the comments box (Example: SBRT Lung, Fraction 2 of 3, SRS Brain, Fraction 1 of 1). For all other entries, click “OK” to bypass the comments box.
12. Select OK

*To view a history of all recorded log sheet activities, go to the Reports tab and select Skill Summary.

Student Evaluation of the Clinical Site Experience– On the 15th of every month (excluding December, May, and July), students will complete an evaluation of the Clinical Preceptor and clinical education site which will be viewed by the Clinical Coordinator ONLY. To complete the evaluation, the student should follow these steps:

1. Choose the “Evaluations” tab from the main menu.
2. Choose the “Student Evaluation of Clinical Site” form.
3. Select clinical site from the dropdown box.
4. Complete the evaluation and submit.
5. For each day the evaluation is late a 0.5% percentage point deduction from the student’s final clinical grade will apply for each occurrence in a given semester.

Student Self Evaluation – At certain points in each semester, students will need to complete a self-evaluation which will be viewed by the Clinical Preceptor and Clinical Coordinator. To complete the self-evaluation, the student should follow these steps:

1. Choose the “Evaluations” tab from the main menu.
2. Choose the “Student Self Evaluation” form.
3. Complete the evaluation and submit.
4. For each day the evaluation is late a 0.5% point deduction from the student’s final clinical grade will apply for each occurrence in a given semester.

Incident Form – Students will submit an incident report for any incident for which a staff therapist would need to complete an incident report. The student should email the Clinical Coordinator about the incident and submit the report within 24 hours of the incident. To complete the incident report form, the student should follow these steps:

1. Choose the “Evaluations” tab from the main menu.
2. Choose the “Incident Report Form”.
3. Select the staff member involved from the dropdown box.
4. Complete the form and submit.

Submit Student Acknowledgement on Completed Competency Evaluation – After a student has completed a competency he/she will log in and review the results and complete a post-submission comment stating that it has been reviewed. To submit student acknowledgment, the student should follow these steps:

1. Choose “Reports” from the main menu.
2. Click on “Skill Summary”.
3. Find the correlating category.
4. Click on the date of completion on the right.
5. Review the Competency Evaluation and any comments made.
6. Click on “Add Comment” on the bottom left of the page.
7. Select “Student Acknowledgment” from the dropdown box.
8. In the comment box, the student should state he or she has reviewed the competency.
9. Then “Add” student comment.
10. Student’s comments should only state that the evaluation has been reviewed. All other comments or communication regarding the evaluation should occur via email or a phone call with the Clinical Coordinator.
11. Students will submit their acknowledgment so that the competency can be verified by the Clinical Coordinator and recorded for a grade.

Submit Student Acknowledgment on Professional Development Evaluation Form – After a professional development evaluation has been submitted, there will be a 7 day period during which the evaluation is hidden from the Clinical Preceptor and student during which the Clinical Coordinator reviews the evaluation. If questions arise, the Clinical Coordinator will contact the Clinical Preceptor. A notification email will be forwarded to the student by the Clinical Coordinator to inform the student that the evaluation has been submitted. The forwarded email indicates the date on which the 7-day hidden period begins; from this date students will be able to calculate the release date for viewing. After the 7 day hidden period has ended, the evaluation will be automatically released to the Clinical Preceptor and student. Once released, the student will then have 7 days to submit an acknowledgment in Trajecsys indicating the evaluation has been reviewed with the Clinical Preceptor. There are several ways this can be accomplished, however, please follow these steps:

1. Choose “Reports” from the main menu.
2. Click on “Evaluation Summaries”.
3. Select the “Professional Development Evaluation form” template from the dropdown.
4. Filter by evaluator, subject, site, and dates (if not already pre-filled with accurate data).
5. Click on “Show Report”.
6. Review the evaluation. (If more than one evaluation has been submitted there will be more than one column with scores and multiple rows at the bottom for comments.)
7. Click the “Add Comment” box at the bottom right of the page.
8. Select “Student Acknowledgement” from the dropdown box.
9. In the comment box state that the professional development evaluation has been reviewed.
12. Then select “Add”.
13. Student’s comments should only state that the evaluation has been reviewed. All other comments or communication regarding the evaluation should occur via email or a phone call with the Clinical Coordinator.
14. Students will submit their acknowledgment so that the competency can be verified by the Clinical Coordinator and recorded for a grade

Comments – The comments section provides notifications when any feedback is given on evaluations. To view, the student should:

1. Choose the “Comments” tab from the main menu.
2. The student can review the comments from the main screen or choose “view” on the right for each individual comment.
3. After reviewing the comment, the student should “Mark As Read”.
4. Students are NOT to reply to any comments within the Trajecsys system. If the student has questions or concerns about any feedback given, the student is to speak directly to the Clinical Coordinator. The student is reminded to be open to feedback, as it is important in order to improve and grow as students and professionals.
5. Any misuse of the comments section will result in student counseling (see Student Counseling Policy, section 2, pg. 45).

Section 3
Clinical Objectives, Rotations, Checklists & Evaluation Forms

CLINICAL OBJECTIVES

- Recognize the scope of practice, professional standards of ethics, and legal limitations of radiation therapists.
- Adhere to accreditation, governmental, institutional, and departmental guidelines.
- Document and communicate errors and discrepancies in patient care and medical records.
- Apply concepts of teamwork.
- Perform simulation, localization, and therapeutic radiation therapy procedures in accordance with national patient safety standards.
- Deliver patient-centered care.
- Use safe patient-transfer techniques.
- Construct and prepare immobilization and beam modification devices.
- Apply the principles of radiation protection and safety.
- Evaluate and verify treatment plan prior to treatment delivery.
- Execute approved treatment plans in accordance with prescription.
- Assess the patient's condition prior to, during, and after delivery of a prescribed course of radiation therapy.
- Initiate medical interventions and/or life support procedures as necessary.
- Explain programs to promote and maintain patient health and wellness as needed.
- Anticipate potential complications and foster preventive care.
- Demonstrate effective written, oral, and nonverbal communication with patients and other members of the healthcare team.
- Document all aspects of patient care and management in the health record.
- Perform quality assurance procedures for all treatment delivery equipment, accessories, and treatment room doors.
- Identify equipment malfunctions and the necessary steps to resolve them.
- Employ MRI safety and practice concepts in simulation and treatment delivery.

CLINICAL EDUCATION ROTATIONS

Radiation therapy comprises the major components of radiation oncology from treatment planning to dose calculation to treatment delivery. The clinical education rotation areas include: clerical, nursing, block room, brachytherapy, simulation, dosimetry, and treatment room. The combination of didactic and clinical hours cannot exceed 40 hours weekly. Clinical experience is obtained through weekday scheduling. There are no evening, night, or weekend rotations. Objectives and guidelines are available within this manual for each of these clinical areas.

Fall Semester Rotations: The fall semester offers minor rotations in various areas of the department to provide a broad view of how the segments of the radiation oncology department work together and the order of procedures involved in preparing patients for treatment. The majority of the semester (about 12 weeks) is focused in the area of treatment delivery. It is best if the 12 weeks of treatment room experience are consecutive.

<u>1 Week Orientation to the Department & Clerical Rotation</u>

- Meeting with Clinical Preceptor to discuss expectations, hours, and schedule.
- Orientation of student to clinical education site.
    - Clinical Preceptor or other supervising registered radiation therapists to submit the Orientation Checklist in Trajecsys.
- Minor rotation (2-4 hours) in the clerical area to learn about the department flow, methods of scheduling, the phone system, location & contents of patient charts (electronic & paper).
    - Clinical Preceptor or appropriate supervising staff to complete the Clerical Checklist in Trajecsys.
- Consider introductory visits with the dietician, social worker, tumor registrar, etc.

<u>1 Week Equivalent Nursing Rotations</u>

- Participation in patient consultations, follow-up visits and weekly status check appointments with a focus on understanding the impact of a cancer diagnosis; maintaining patient confidentiality; reviewing x-rays & lab results; learning about risks of radiation therapy associated with each treatment site; identifying common treatment side effects & how they are managed; reviewing dietary recommendations; and performing vital signs & oxygen administration.
    - By the completion of the **program**, the Nursing Skills Checklist and 6 Patient Care competencies will be submitted.

<u>Treatment Accessory Device Experience throughout Semester</u>

- Students will obtain electron block fabrication experience. Photon block fabrication experience may be obtained if the opportunity arises. The block experience can be simulated via old simulation films, or printing DRR's on paper at a scale of 1 to 1. Block fabrication experiences will be logged in Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34).
- Custom bolus fabrication is a required ARRT competency. Bolus fabrication activity is to be logged within Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34).
- Custom block and bolus competencies may be completed at any point in the program; however, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting competencies**.**

<u>1 Week Simulation and Dosimetry Rotation</u>

- Minor rotation in simulation to provide an overview of how the various areas of radiation therapy department work together to prepare and deliver radiation therapy treatments.

12 Weeks Treatment Room Rotation

- Progressively gaining hands-on experience and proficiency with the treatment record, room setup, patient alignment, patient monitoring, treatment delivery, patient education/care, radiation protection/safety and image critique (weekly or daily).
- Prior to performing each primary treatment delivery competency, a pre-competency checklist will be completed to demonstrate the student's readiness for competency testing.
- Students may begin treatment competency testing the first week of October.
- Seven (7) treatment competencies are to be completed by the conclusion of fall semester. Students may complete a maximum of ten (10) treatment competencies in the fall semester.

*If the clinical site is a smaller facility, it may be useful for the student to participate in simulation procedures in the fall to increase the range of experience to be better prepared for competency completion in the spring.

*Observation of HDR or LDR brachytherapy is possible in any semester; a minimum of 1 observation and 1 competency testing procedure is required. Electronic brachytherapy **does not** meet the program requirements.

*Students will participate and complete competency testing related to low volume/high risk procedures including Total Body Irradiation (TBI) and Craniospinal Axis (CSA) procedures, and stereotactic body radiation therapy (SBRT) and stereotactic radiosurgery (SRS). These experiences can and should occur throughout the program year anytime the opportunity arises.

Winter Intersession Rotation (A component of the Spring Semester): The winter intersession is a component of the spring semester. This involves a 2-3 week period in December and January during which students attend clinical full time, Monday-Friday, for a total of 40 hours per week. Due to the number of hours attended during winter intersession, students are not permitted to earn compensation time during winter intersession as that would exceed the 40 hour per week limit. The focus of this rotation will be on the completion of 4 continued competency evaluations, which involve retesting on 4 of the 7 treatment delivery procedures completed in the fall semester so as to demonstrate continued competency despite variations in patient age, condition, diagnosis, or setup.

*If the clinical site is a smaller facility, it may be useful for the student to participate in simulation procedures in the fall to increase the range of experience to be better prepared for competency completion in the spring.

*Observation of HDR or LDR brachytherapy is possible in any semester; a minimum of 1 observation and 1 competency testing procedure is required. Electronic brachytherapy **does not** meet the program requirements.

Remainder of Spring Semester Rotations: The spring semester is focused on simulation and dosimetry skills.

8 Weeks Simulation Rotation

- Progressively gaining hands-on experience in the simulation/treatment planning process to include patient education, patient alignment, construction/usage of immobilization devices, obtaining and transferring images, recording measurements, documenting setup details, **following** image data to planning workstation or computer to participate in

contouring, isocenter placement, field selection, and review of treatment plan with personnel.

- Students will complete the 6 ARRT required simulation competencies and Special Treatment Participatory Simulation Procedure (e.g., 4D CT, SBRT, Gating, or Brachytherapy) upon successful completion of the module 1 assignment in AL340.
- Competency testing for thermoplastic mask and custom immobilization device for thorax or abdomen/pelvis (foaming agent, vacuum bag, etc.). Students will demonstrate a minimum number of custom immobilization device construction experiences within Trajecsys prior to attempting these competencies (see Daily Logsheet Requirements, section 3, pg. 34).
- Clinical Preceptor or another supervising registered radiation therapist to submit the Patient Tattoo Checklist in Trajecsys.

<u>3 Weeks Dosimetry Rotation</u>

- The dosimetry rotation is focused on the completion of hand-calculated monitor units and a computer generated isodose plans. Students will learn about calculation factors and formulas
  during the spring semester physics course and should be prepared to effectively participate in a dosimetry rotation by mid-March.
- Students will complete the module 2 assignment (dosimetry skills assignments) in AL340, which includes hand-calculations for gap, electron, single-open, parallel opposed, wedged, and weighted fields. Students will work on these dosimetry skills assignments at the clinical site and seek assistance from the dosimetry staff or program faculty as needed.
- Upon completion of the dosimetry skills assignments students will be eligible to complete the ARRT required dosimetry competencies.
  - For the 5 hand-calculated dosimetry competencies (electron, single-open, parallel opposed, wedged, and weighted fields), Clinical Preceptors will be e-mailed possible competency questions or the site may create similar competency questions for electron, single-open, parallel opposed, wedged, and weighted fields. Students will complete the competency calculations by hand and check the calculations with a second system (MU Check System). These two phases of the competency process provides students with the didactic knowledge of hand calculations and the practical knowledge of quick calculation systems commonly used in the clinical setting.
  - Once the 5 hand-calculated competencies are completed, the student's work will be checked by the supervising dosimetrist or physicist. If the student successfully completes the competencies, the supervising dosimetrist or physicist will sign and date the student's work. The 5 hand-calculations will be mailed to the Clinical Coordinator. The Clinical Preceptor will then complete a dosimetry competency form in Trajecsys to further evaluate and provide feedback on the student's performance of the hand-calculated competencies.
  - During the dosimetry rotation, students will also participate and eventually gain skills to independently create a computer generated isodose plan. For competency purposes, students will run 1 treatment plan <u>independently</u>, print the plan and obtain the signature of the supervising dosimetrist or physicist as verification of successful completion. The Clinical Preceptor will complete a competency form within Trajecsys to further evaluate and provide feedback on the student's performance of the computer generated plan.
- Upon completion of the dosimetry skills assignments and dosimetry competencies Clinical Preceptor/student may elect to shorten the rotation and the student would return to the treatment room. Clinical Preceptor/student may also elect to extend the rotation if the student wishes to gain additional experience in dosimetry.

4-5 Weeks Treatment Room Rotation

- Students continue developing treatment delivery skills, gaining confidence, and functioning more independently during treatment delivery procedures (ALWAYS under direct supervision).
- Prior to performing each primary treatment delivery or imaging competency, a pre-competency checklist will be completed to demonstrate the student's readiness for competency testing.
- Students will complete the 3 imaging competencies (MV, KV, and Cone Beam CT).

Treatment Accessory Device Experience throughout Semester

- Block Fabrication:
  - Electron and Photon block fabrication experience may be obtained if the opportunity arises, but because many facilities outsource electron blocks or no longer fabricate photon blocks, it can be simulated via old simulation films or printing DRR's on paper at a scale of 1 to 1. Please contact your clinical coordinator prior to simulating.
    Block fabrication experiences (electron/photon) will be logged in Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34).
- Custom block and bolus competencies may be completed at any point in the program; however, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting competencies**.**
- Bolus Fabrication:
  - Custom bolus fabrication experience is required.
  - Bolus fabrication activity is to be logged within Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34).
  - Custom bolus competencies may be attempted after the Logsheet requirements are met, but are not due until the end of the program.

Summer Semester Rotations:

1 Week Equivalent Nursing Rotations

- Students will revisit the nursing area of the radiation oncology department to reinforce patient care and patient education concepts. Important concepts to review include: vital signs, normal lab
  values, side effects of radiation therapy treatment, interventions used to address treatment side effects, elements of informed consent, tolerance doses, and characteristics of specific cancer.
- The Nursing Skills Checklist and the 6 Patient Care competencies will be submitted by the completion of the program.

Treatment Accessory Device Experience throughout Semester

- Block Fabrication:
  - Electron and Photon block fabrication experience may be obtained if the opportunity arises, but because many facilities outsource electron blocks or no longer fabricate photon blocks, it can be simulated via old simulation films or printing DRR's on paper at a scale of 1 to 1. Please contact your clinical coordinator prior to simulating.
  - Block fabrication experiences (electron/photon) will be logged in Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34).
  - Custom block competencies are due at the end of the program.
- Bolus Fabrication:
  - Custom bolus fabrication experience is required.

- Bolus fabrication activity is to be logged within Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34).
- Custom bolus competencies are due at the end of the program.

8 weeks Treatment Room Rotation

- The majority of the summer semester is spent in the treatment room with a focus on patient care, treatment alignment, image review, and problem solving.
- Completion of 4 continued competency evaluations are required, which involve retesting on 4 treatment categories previously tested in the fall or spring semester to demonstrate continued competency despite variations in patient age, condition, diagnosis, or setup.
- Prior to performing each primary treatment delivery competency, a pre-competency checklist will be completed to demonstrate the student's readiness for competency testing.
- Students will complete any remaining competencies as well as the brachytherapy requirements (if not already completed) during this time.
- Students are encouraged to participate in special procedures to acquire advanced skill sets.

Quality Control/Quality Assurance Experience

- Students will complete the 5 ARRT required quality control procedures.
- Students will complete 2 data interpretation competencies involving the review of treatment data to ensure completeness and accuracy.

SEMESTER BY SEMESTER COMPETENCY REQUIREMENTS

AL 301: Fall Semester

Required

- 7 primary treatment delivery competencies are required.
    - Competency testing may begin the first week of October.
    - To be eligible to complete competency testing on a treatment delivery procedure, a pre-competency checklist for that procedure will be successfully completed.
    - A maximum of 10 treatment competency evaluations may be completed in the fall semester, if additional testing opportunities arise.

Recommended

- 6 patient care competencies
    - Not due until the summer semester but may be completed at any point in the program.
- Treatment accessory device competencies.
    - Throughout the year, students will maintain a log sheet in Trajecsys of all block and bolus fabrication experiences ((see Daily LogSheet Requirements, section 3, pg. 34)
    - Students may not complete treatment accessory device competencies until the Logsheet requirements are met.
- Brachytherapy experiences will occur throughout the program as opportunities are available.
    - A minimum of 1 documented brachytherapy procedure experience with a case study is required before a student is eligible to attempt the brachytherapy participatory competency.
- SBRT/SRS treatment competency
    - Not due until the summer semester but may be completed at any point in the program.

Winter Intersession (A component of spring semester which includes approximately 3 weeks in December and January)

Required

- 4 continued treatment delivery competencies.
    - Continued competencies involve retesting on any 4 passed primary treatment delivery competencies from the fall semester.

Recommended

- 3 imaging competencies.
    - To be eligible to complete competency testing of an imaging procedure, a pre-competency checklist for that procedure will be successfully completed.
- Treatment accessory device competencies.
    - Throughout the year, students will maintain a log sheet in Trajecsys of all block and bolus fabrication experiences (see Daily Logsheet Requirements, 34).
    - Photon/electron block and bolus competencies are not due until the end of the program but may be completed at any point in the program. However, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting.
- Brachytherapy experiences will occur throughout the program as opportunities are available.
    - A minimum of 1 documented brachytherapy procedure experience with a case study is required before a student is eligible to attempt the brachytherapy participatory competency.

AL 340: Spring Semester

Required

- 6 simulation competencies.
- 1 special treatment participatory simulation procedure (e.g. 4D CT, SBRT, Gating, or Brachytherapy)
    - To be eligible to complete competency testing on simulation procedures, successful completion of the module 1 assignment in the AL340 is required.
- Treatment accessory device competencies.
    - Throughout the year, students will maintain a log sheet in Trajecsys of all block and bolus fabrication experiences (see Daily LogSheet Requirements, section 3, pg. 34)
    - Photon/electron block and bolus competencies are not due until the end of the program but may be completed at any point in the program. However, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting.
- 3 imaging competencies.
    - To be eligible to complete competency testing of an imaging procedure, a pre-competency checklist for that procedure will be successfully completed.
- 6 dosimetry competencies
    - To be eligible to complete competency testing on dosimetry procedures successful completion of the module 2 assignment in the AL340 is required.

Recommended

- Brachytherapy experiences will occur throughout the program as are available opportunities.
    - A minimum of 1 documented brachytherapy procedure experience with a case study is required before a student is eligible to attempt the brachytherapy participatory competency.
- SBRT/SRS treatment competency
    - Not due until the summer semester but may be completed at any point in the program.

AL 380: Summer Semester

Required

- Remaining primary treatment delivery competencies.
    - To be eligible to complete competency testing on a primary treatment delivery procedure, a pre-competency checklist for that procedure will be successfully completed.
- 4 continued treatment delivery competencies.
    - Continued competencies involve retesting on any 4 passed primary treatment delivery competencies from the fall or spring semesters.
- 6 participatory competencies which include total body irradiation, craniospinal axis, SBRT/SRS, special simulation, custom block and brachytherapy.
- 2 treatment accessory device competencies.
    - Throughout the year, students will maintain a log sheet in Trajecsys of all block and bolus fabrication experiences (see Daily LogSheet Requirements, section 3, pg. 34).
    - Students will complete treatment accessory device competencies by the end of the summer semester.
- 6 patient care competencies
    - Students will complete the patient care competencies by the end of the summer semester.
- 5 quality control procedure competencies
- 2 data interpretation competencies

GUIDELINES FOR ALL COMPETENCY EVALUATIONS

- Competency Evaluations will be completed by the Clinical Preceptor, other supervising registered radiation therapist or other appropriately credentialed personnel (nurse, dosimetrist, physicist)
- Once submitted, the competency evaluation is visible to the evaluator, student, and Clinical Coordinator.
- The Clinical Coordinator performs a weekly review of Trajecsys submissions. If questions arise the Clinical Coordinator will contact the Clinical Preceptor.
- Students then have up to 7 days from the time the competency evaluation has been submitted to complete an acknowledgment in Trajecsys indicating they reviewed the competency evaluation.
- After the student has acknowledged the competency evaluation in Trajecsys, the Clinical Coordinator validates the evaluation. Note that for each poor/fail rating, a 4% deduction is applied to the final evaluation score in Trajecsys. Then the Clinical Coordinator inputs associated score into D2L. Unacknowledged competency evaluation scores are not reported in D2L, resulting in student having to perform the competency again.
- If the student disagrees with the evaluation result, he/she should contact the Clinical Coordinator within one week of the evaluation completion date (see Grievance Policy for Unsatisfactory Clinical Evaluation, section 2, pg. 17).

PERFORMANCE EXPECTATIONS FOR ALL COMPETENCY EVALUATIONS

A primary competency evaluation with a score below 88% is considered failed. A continued treatment delivery competency evaluation with a score below 91% is considered failed.

In the event that 2 competency evaluations of any type are failed during the program, the Student Counseling Policy will be applied as follows:

1. **Documented initial warning** – Occurs when two competency evaluations of any type are failed.
2. **Disciplinary written warning** – Occurs when one additional competency evaluation of any type is failed beyond the initial two failed evaluations addressed in step 1.
3. **Disciplinary probation with a performance contract** – Occurs when one additional competency evaluation of any type is failed beyond the one failed evaluation addressed in step 2.
4. **Program dismissal** – Occurs when one additional competency evaluation of any type is failed beyond the one failed evaluation addressed in step 3.

LOW WORKLOAD GUIDELINES

Radiation therapy workloads consistently occur in peaks and valleys. During peak workload sessions, students actively participate and learning results. During the periods of low patient availability, however, students may fall into a non-learning mode. Rather than dismiss students early, Clinical Preceptors should consider stimulating the student to further the learning process. Listed below are suggestions:

1. Demonstrate room warm-up procedures.
2. Practice image acquisition, review and alignment utilizing offline review, phantoms, and imaging warm up procedures (MV, KV, CBCT)
3. Demonstrate the review of a patient chart/dose calculations.
4. Practice patient care techniques: BP, pulse, CPR, and O2 administration.
5. Practice using record & verify system, imaging equipment, linear accelerator controls, simulation controls.
6. Review daily/weekly images and judge the accuracy of the treatment position to gain experience and confidence in evaluation skills.
7. Perform QA tests with physicist if appropriate.
8. Practice answering common patient questions through role playing.
9. Review medical terminology (see terminology list).
10. Follow doctor or nurse on follow-up visits, consultations, and status checks.
11. Simulate positioning and procedures for non-routine set-ups: Cranial Spinal Axis, TBI, mantle, para-aortic, clinical whole brain set-up, SVC, or cord compression.
12. Practice hand dosimetry calculations or gap calculations (late spring/summer).
13. Go over the schedule in depth - diagnosis, treatment, films, etc.
14. Clean the assigned area.
15. Assist with supply orders.
16. Anatomy review (see anatomy guide).
17. Review isodose plans, identify what pertinent information can be gleaned from a plan.
18. Practice viewing DVHs and determine the dose a particular structure will receive throughout the course of treatment.
19. Become familiar with the charge codes used in therapy and what data is used to determine the appropriate charge for a given service.
20. Discuss possible machine faults or malfunctions and identify effective troubleshooting solutions.
21. Contact the Radiation Safety Officer to request online access for your latest Radiation Detection Report OR request a paper copy.

ANATOMY REVIEW

Head and Neck Anatomy:

- Bones of the skull, face, spine
- Salivary glands/ducts
- Brain anatomy
- Landmarks
    - Outer canthus
    - Infraorbital ridges
    - External occipital protuberance
    - Tragus
    - Tentorium cerebelli
    - EAM
    - Sella turcica
    - C4-5 = Larynx
    - T2-3 = Suprasternal notch
    - T4-5 = Angle of Louis
    - T9-10 = Xiphisternal junction
    - Iliac crest = L4-5
- Lymphatics of the Head and Neck
    - Submental
    - Submandibular
    - Anterior cervical/jugular
    - Posterior cervical/spinal accessory
    - Supraclavicular
- Waldeyers Ring
    - Nasopharyngeal tonsils
    - Palatine tonsils
    - Lingual tonsils

Chest/Thorax:

- Respiratory system anatomy
    - Naso/Oro/Hypo Pharnyx
    - Larynx
    - Trachea
    - Carina
    - Bronchi
- Cardiovascular system anatomy
- Lymphatics of the Chest/Thorax:
    - Paratracheal
    - Scalene
    - Carinal
    - Intrapulmonary
    - Bronchopulmonary (hilar)
    - Thoracic duct

Abdomen/Pelvis:

- Gastrointestinal anatomy
    - Mouth
    - Epiglottis
    - Esophagus
    - Stomach
    - Cardiac/pyloric sphincters
    - Small intestine
    - Large intestine
    - Splenic/Hepatic flexures
- Male reproductive system
- Female reproductive system
- Urinary system anatomy
    - Kidney: nephron
- Lymphatics
    - Pre-aortic (celiac, sup/inf mesenteric)
    - Thoracic duct
    - Cisterna chyli
    - Para-aortic
    - Sacral
    - Common iliac
    - Internal iliac
    - External iliac
    - Obturator
    - Inguinal
- Liver, Gallbladder, Pancreas anatomy

*Cross-sectional Anatomy review is also important. The *Portal Design in Radiation Therapy* (2nd Edition) provides some cross-sectional images from which to review.

*The AL311 Imaging in Radiation Therapy also presents significant information about cross-sectional anatomy.

TOLERANCE DOSES (TD5/5 & TD50/5)

	TD5/5	TD50/5	Injury
Bone Marrow	2.5Gy whole 30Gy (2/3)	4.5Gy whole 40Gy (2/3)	Pancytopenia, aplasia
Bladder	65Gy whole 80Gy (2/3)	80Gy whole 85Gy (2/3)	Contracture
Bone (mature)	60Gy	100Gy	Necrosis
Brain	45Gy whole 50Gy partial	60Gy whole 65Gy partial	Necrosis
Brachial Plexus	60Gy whole 61Gy (2/3)	75Gy whole 76Gy (2/3)	Nerve damage
Colon	45Gy whole 50Gy (1/3)	55Gy whole 65Gy (1/3)	Obstruction, fistula, ulceration
Ear	30Gy whole & partial		Acute serous otitis chronic serous otitis (55Gy)
Esophagus	55Gy whole 58Gy (2/3)	68Gy 70Gy	Stricture or ulceration
Femoral Head & Neck	52Gy whole & partial		Necrosis
Fetus	2Gy	4Gy	Death
Heart	40Gy whole 45Gy (2/3) 60Gy (1/3)	50Gy whole 55Gy (2/3) 70Gy (1/3)	Pericarditis
Kidney	23Gy whole 30Gy (2/3)	28Gy whole 40Gy (2/3)	Clinical nephritis
Lacrimal Gland	26Gy whole & partial		Dry eye
Lens of Eye	10Gy	18Gy	Cataract needing intervention
Liver	30Gy whole 35Gy (2/3)	40Gy whole 45Gy (2/3)	Liver failure
Lung	17.5Gy whole 30Gy (2/3)	24.5Gy whole 40Gy (2/3)	Acute, chronic pneumonitis
Optic Chiasm/Optic Nerve	50Gy whole	65Gy whole	Blindness
Parotid	32Gy whole & partial		Xerostomia
Rectum	60Gy whole 61Gy (1/3)		Severe proctitis, necrosis, stenosis, fistula
Salivary Gland (Parotid)	32Gy whole 32Gy (2/3)	46Gy whole 46Gy (2/3)	Xerostomia
Skin	55Gy 100cm2 70Gy 10cm2	70Gy 100cm2	Necrosis, ulceration
Spinal Cord	47Gy (20cm) 50Gy (5-10cm)	70Gy 70Gy	Myelitis, necrosis
Small Intestine	45Gy whole 50Gy partial (1/3)	55Gy 60Gy	Obstruction, fistula, perforation
Testis	1Gy	2Gy	Sterilization
Vagina	90Gy	100Gy	Ulcer, fistula

REVIEW OF TREATMENT SIDE EFFECTS & INTERVENTIONS

Effect	Dose	Treatment of Effect
Alopecia/Epilation	Occurs at 20Gy	• Discuss scalp care instructions
Increased Intracranial Pressure	Occurs due to tumor itself or radiation treatment of brain	• Corticosteriods such as Dexamethasone and Prednisone
Mouth Changes: Stomatitis, xerostomia, mucositis, taste changes	Dose dependent, all occur between 20-30Gy, becoming more severe with increased dose and more severe when rt is in combination with chemo (like methotrexate).	• Viscous xylocaine 2% mixed in water • 1:1:1 solution of Benadryl elixir, Maalox, xylocaine to swish and spit or swallow. • Miracle Mouth Wash • Soft bland diet
Xerostomia	Occurs at 20-30Gy Greater than 40-60Gy, dryness becomes permanent	• Salogen, Xero Lube, Saliva-aid, Moisture
Esophagitis, Pharyngitis, and Laryngitis	Occurs within 2-4 weeks (about 20-30Gy) Laryngitis occurs around 40Gy.	• Soft, non-spicy, nonacidic diet such as cottage cheese, yogurt, milk shakes, puddings, casseroles, scrambled eggs, meats/veggies in sauces/gravies. • Avoid hot/spicy foods or drinks, dry/coarse foods, crackers, nuts, potato chips, raw veggies, citrus fruits and juices, alcohol, caffeine • 1:3 lidocaine mixed with Mylanta or Maalox • Prevacid or Prilosec
Erythema	Faint erythema occurs around 30-40 Gy Erythema occurs around 40-60Gy	• Aloe Vera
Dry and Moist Desquamation	Both occur around 40-60Gy	• Hydrocortisone cream (2%) for irritated/inflamed skin. • Silvadene Cream • Topical Soaks: Blu-Boro or Domeboro
Fatigue	Depends on patient	• Check nutritional habits, help patient pace activities
Diarrhea	Occurs around 20-50Gy	• Low residue diet: white bread, baked, broiled or roasted meat, macaroni, cooked veggies, peeled apples/bananas. • Foods to avoid: whole grain breads/cereals, fried or fatty foods, milk or milk products, raw veggies, fresh fruit • Loperamide (Immodium AD), Pepto-Bismal, Kaopectate, Lomotil.
Cystitis	Occurs 30-40Gy	• For painful urination: Pyridium
Nausea and Vomiting	Occurs around 10-20Gy	• Fluid intake to prevent dehydration • Low fat, low sugar diet • Compazine, Kytril, Tigam suppositories, Zofran, Valium

Review acute and chronic effects and side effects of specific treatment areas (Principle & Practices text). Acute or early effects are defined as those appearing within 6 months post treatment. Example include edema, erythema, desquamation, denudation, hemorrhage, mucositis, esophagitis, fatigue, nausea/vomiting, loss of taste. Chronic or late effects are defined as those appearing more than 6 months after treatment. Examples include fibrosis, stenosis, necrosis, atrophy, lymphedema, telangiectasia, xerostomia, ulceration, myelitis, Lhermitte syndrome, scoliosis, stricture and obstruction.

REVIEW OF RADIATION THERAPY TERMS

Abdominoperineal Resection	An anterior incision into the abdominal wall, with the construction of a colostomy followed by a perineal incision to remove the rectum and anus and drainage lymphatics.
Absorption	The process whereby energy is taken out of a beam by a material and kept within that material.
Accelerated Fraction	Technique in which the overall treatment time is shortened through the use of doses per fraction less than conventional doses.
Acceptance Testing	Tests which are run on new machines to confirm the equipment does what it's supposed to do.
Adaptive Radiation Therapy (ART)	Modification to the radiation treatment plan delivered to a patient during a treatment session to account for temporal changes in anatomy (ex: tumor shrinkage, weight loss, internal motion) or changes in tumor biology/function (ex: hypoxia)
Adenocarcinoma	A type of carcinoma arising from epithelium which is glandular in nature.
Adjuvant Therapy	Use of one form of treatment in addition to another treatment.
Alopecia	Hair loss.
Alpha Particle	Particulate radiation, +2 charge, which consists of two protons and two neutrons similar to a Helium atom; emitted during nuclear decay.
Analgesics	Medication which serves to relieve pain. Narcotic analgesics = morphine, codeine, Demerol. Non-narcotic analgesics = acetaminophen, propoxyphene, aspirin.
Anaplastic	Cells which are undifferentiated.
Anemia	A decrease in the normal level of peripheral red blood cells.
Anesthetics	Medications which suppress sensation/feeling. Local anesthetics = procaine (Novocain), lidocaine (Xylocaine).
Angle of Louis	Sternal angle or junction of the manubrium and the body of the sternum, occurring at T4.
Antianxiety Medications	Medications which calm anxiety. Lorazepam (Ativan), diazepam (Valium) and Chlordiazepoxide (Librium).
Antibiotics	Medications which suppress the growth of bacteria. Erythromycin, penicillin, tetracycline.
Anticoagulants	Medications which slow the clotting of blood. Warfarin (Coumadin).
Anticonvulsants	Medications which inhibit or control seizures. Clonazepam (Klonopin), phenytoin (Dilantin).
Assault	The treat of touching a patient in a way that would cause injury.
Atomic Number	The number of protons in a nucleus.
Attenuation	The removal of photons and electrons from a radiation beam by scatter or absorption as it travels through a medium.
Autonomy	The right of patients to make decisions for themselves, free from interference of others.
Back Scatter	When radiation is scattered back to the source.
Back Scatter Factor	Ratio of the dose with scattering medium (tissue or phantom) to the dose at the Dmax without a scattering medium (in air or free space).
Barrett's Esophagus	A condition in which the distal esophagus is lined with columnar epithelium rather than stratified squamous epithelium. This condition usually occurs with gastroesophageal reflux. This condition is associated with an increased risk in the development of adenocarcinomas of the distal esophagus.
Battery	Act of harmful, unwanted, unwarranted contact.
Beam Flatness	The degree to which the dose is even across a beam profile. Flatness is defined across the central 80% of the beam at a depth of 10cm.
Beam Flattening Filter	A high density metal filter located on the carousel within the linear accelerator head. Functions to shape the x-ray beam in its cross sectional dimension, providing a more even dose distribution across the radiation field.
Beam Profile	A one dimensional representation of the variation of beam intensity.
Beam Stop	This is a device, which sits opposite the head of the gantry and is part of any linear accelerator housed in a vault with insufficient shielding.

Bending Magnet	An element of high energy linear accelerators, which serves to transport or bend the stream of electrons upon leaving the accelerating tube so that the stream of electrons runs vertically down towards the patient.
Beneficence	Doing good.
Benign	Tumors that are well differentiated and encapsulated and slow growing.
Binding Energy	Atomic Binding Energy is the amount of energy required to remove an electron from an atom.
Bite Block	Positioning device utilized to immobilize and position the tongue and/or chin. Placed between the patient's teeth.
Bolus	Material that mimics tissue in terms of how it interacts with radiation. Examples include wet gauze, Vaseline gauze, paraffin wax, superstuff or superflab, water bags. Can be used to increase surface dose and to compensate for tissue irregularities.
Boost Fields	Fields used to deliver a high dose to a small volume; typically involves the GTV only.
Brachytherapy	Treatment method which uses radioactive sources to deliver a high dose from inside the patient.
Bragg Peak	Sharp increase in the dose distribution curve of a charged particle at a particular depth.
Bremsstrahlung Radiation	An interaction that occurs at the target in which high-speed electrons interact with the electrostatic field of the nucleus of the target atoms. The +/- attraction between the electrons and the nucleus causes the electrons to slow down and this change in speed results in the production of x-ray photons. Sometimes called "braking" radiation.
Cachexia	A state of general ill health and malnutrition with early satiety; electrolyte and water imbalances; and progressive loss of body weight, fat, and muscle.
Carcinomas	Tumors arising from the epithelium which include tissues that line or cover a surface or cavity.
Cellular Differentiation	The degree to which a cell resembles its cell of origin. A well differentiated cell is one that is mature and serves a specific function. A poorly differentiated cell is an immature cell.
Cerrobend	A form of Lipowitz metal used for designing custom shielding blocks. Consists of 50% bismuth, 26.7% lead, 13.3% tin, and 10% cadmium.
Cone Beam Computed Tomography (CBCT)	A form of CT using wider x-ray beam angles for scanning, allowing a much larger volume of anatomy scanned within one rotation.
Conventional Fractionation	Fractionation schedule which typically includes the prescribed radiation dose delivered in 180-200cGy increments, delivered once a day, five days a week.
Coronal Plane	Perpendicular to the sagittal plane. Divides body into anterior and posterior sections.
Cutie Pie Ionization Chamber	A portable ionization chamber survey meter used to make accurate measurements of low-intensity ionizing radiation fields.
Cyclotron	Charged particle accelerator used for generating proton and neutron beams.
Deglutition	The act of swallowing.
Digitally Reconstructed Radiograph (DRR)	Images that provide a Beam's Eye View of the treatment field anatomy and areas of treatment interest. Utilized for daily or weekly image alignment.
Dose Buildup Region	The region between the skin surface and the depth of D_{max}. A build-up region is characteristic of megavoltage irradiation. In this region the dose increases with depth until it reaches a maximum depth of D_{max}.
Dose Equivalent	Dose Equivalent = Absorbed Dose x Quality Factor. The unit is Sv or Rem.
Dose Maximum (D_{max})	The depth where 100% of the dose is deposited. For MeV energies, the D_{max} depth is below the skin surface, thus providing skin sparing. The depth of D_{max} primary depends on the beam energy. Co-60 = .5cm, 4MV = 1cm, 6MV = 1.5cm, 10MV = 2.5cm, 18MV = 3.5cm, 24MV = 4.0cm.
Dose Volume Histogram (DVH)	A plot of target or normal structure volume as a function of dose. A very useful tool which helps physicists and doctors evaluate plans.
Dynamic Wedge	Use of a moving collimator jaw to produce a wedge isodose distribution. Involves computerized shaping of isodose curves within the treatment field. Also referred to as a Virtual Wedge.
Dysphagia	Difficulty in swallowing. The sensation of food sticking in the throat.
Dyspnea	Difficult, labored, or uncomfortable breathing.
Elapsed Days	The total time or number of days a treatment course is protracted (always starts at 0; includes treatment days and non-treatment days).

Electron Gun	Component of the linear accelerator that is responsible for producing electrons and injecting them into the accelerator structure. Considered the cathode of the linear accelerator.
Empathy	Identifying with the feelings, thoughts, or experiences of another person.
Epidemiology	The study of disease incidence.
Epistaxis	Nosebleed
Erythema	Acute radiation effect, manifested by redness and inflammation of the skin or mucous membranes. Caused by dilation of the superficial capillaries.
Exit Dose	Dose at the exit surface of the patient or to a depth that is the equivalent of the depth of Dmax.
Exposure	Amount of ionization produced by photons in air per unit mass of air; units are roentgen ® or coulomb per kilogram (C/kg). 1 R = 2.58 X 10^{-4} C/kg
False Imprisonment	The act of restricting another using force or confinement without consent.
Feathering	Migration of a gap between treatment fields through the treatment course.
Fiducial Marker	Artificial markers placed internally or at the skin surface or fixed external to the patient to document location through various imaging modalities.
Field of View	Diameter of the CT scanning window.
Forward Planning	Process of entering dose-altering parameters and beam modifiers into the treatment plan by the planner. Type of planning utilized with treatments other than IMRT.
Fraction Dose	Dose per treatment.
Gamma Ray	Photon emanating from a nucleus. Identical to x-ray photons except for its origin from the nucleus rather than orbital electron shells.
Glioma	The most common type of CNS tumor.
Given Dose	The dose delivered at the depth of maximum equilibrium (Dmax). Also known as applied dose or Dmax.
Good Catch	A way to allow department members to report various issues they notice during the course of their day.
Grade	Method of categorizing the aggressiveness of a tumor based on the degree of differentiation.
Grief Cycle	Shock, Denial, Anger, Bargaining, Depression, Testing, Acceptance
Gynecomastia	Growth of glandular tissue in male breast. Benign condition that may be treated using radiation.
Half-Life	Time period in which the activity decays to one half the original value.
Half-Value Layer	Thickness of absorbing material necessary to reduce the x-ray intensity to half the original value.
Hematuria	Presence of blood in the urine. A common symptom of bladder and kidney tumors.
Hemoglobin	The iron containing protein component of red blood cells that transports oxygen.
Hemoptysis	Coughing up of blood from the respiratory tract.
Heterotopic Bone	Formation of new extra osseous bone in soft tissue surrounding a joint(s). A benign condition treated with radiation using a single high dose fraction.
High Dose Rate (HDR)	Brachytherapy treatment at a dose rate that exceeds 12Gy/hr.
Hinge Angle	The angle between the central rays of two intersecting beams. As hinge angle increases, the wedge angle decreases.
Hounsfield Units	(Hus) Units which correspond to the electron density of a specific tissue. Air = -1000, Water = 0, CSF = 15, Blood = 20, Muscle = 50, Bone = 1000.
Hyperfractionation	Fractional doses smaller than conventional, delivered two to three times per day to increase in the total dose in the same overall time.
Hypovolemic Shock	An emergency condition in which severe blood and fluid loss makes the heart unable to pump enough blood to the body. It can cause many organs to stop working.
Immunotherapy	Treatment approach which attempts to amplify the body's own defense system to fight.
Image-Guided Radiation Therapy (IGRT)	Imaging performed prior to treatment to compare the position of external set-up marks to internal anatomy as well as the treatment plan. May include EPID, in-room CT scanner, kV, MV, CBCT, ultrasound and others.
Image Matrix	Images seen on the monitor which are a display of cells in rows and columns.
Immunotherapy	Amplification of the body's disease fighting system to destroy cancer.
Informed Consent	Assurance the purpose, benefit, risk and any alternative options have been explained and understood.

Intensity Modulated Radiation Therapy (IMRT)	Therapy that delivers non-uniform exposure across the radiation field using a variety of techniques and equipment.
Interfraction Motion	Change in the target position from one fraction to another.
Intrafraction Motion	Changes or motion during the treatment administration – Occurs within the same fraction.
Intraoperative Radiation Therapy (IORT)	Radiation technique in which a single dose of 10 to 20Gy is delivered directly to the tumor bed with electrons or photons. Tumor bed is surgically exposed, allowing critical normal structures to be shielded or displaced out of the radiation beam.
Intrathecal	Into the space containing cerebral spinal fluid.
Inverse Planning	Treatment planning in which the clinical objectives are specified mathematically and computer software is used to determine the best beam parameters that will lead to the desired dose distribution. Type of planning utilized for IMRT treatments.
Isocenter	The point of intersection of the three axes of rotation (gantry, collimator, & table).
Isodose Curve	A two dimensional representation of how dose varies with position within a beam and along parallel and perpendicular directions; A collection of points all having the same dose.
Kwashiorkor	A protein malnutrition that includes an adequate intake of carbohydrates and fats but an inadequate intake or protein.
Klystron	A high power microwave amplifier used to power high energy lines
L'hermittes Syndrome	Pain resembling sudden electric shock throughout the body. It is produced by flexing of the neck or some cervical trauma.
Leukocytosis	A condition characterized by an elevated number of white cells in the blood.
Leukopenia	A decrease in white blood cell count.
Libel	Written defamation.
Linear Attenuation Coefficient	Describes the fraction of a beam of x-rays or gamma rays that is absorbed or scattered per unit thickness of absorber. It basically accounts for the number of atoms in a cubic cm volume of material and the probability of a photon being scattered or absorbed from the nucleus or an electron of one of these atoms.
Linear Energy Transfer	Energy absorbed per unit distance ionizing particles passing through a material.
Lomotil	An antidiarrheal medication that prevents spasms in muscles of the gut and bladder by relaxing them, and can slow the function of the bowel to treat diarrhea.
Low Dose Rate (LDR)	Brachytherapy treatment at a dose rate of less than 2Gy/hr.
Lymphedema	Swelling of the lymph due to excessive accumulation of fluid in the tissues.
Malignant	Tumors may range from well differentiated to undifferentiated, invasive, and more rapidly dividing.
Marasmus	Calorie malnutrition that is observed in patients who are slender or slightly underweight and characterized by weight loss of 7%-10% and fat and muscle depletion.
Mass Number	The number of protons + neutrons in a nucleus.
Meiosis	Process of germ cell division which results in 4 daughter cells with a haploid (23) number of chromosomes.
Mitosis	Process of somatic cell division which results in two daughter cells having diploid (46) number of chromosomes.
Mohs Surgery	A surgical method in which a skin cancer lesion is removed one layer at a time and examined microscopically.
Moist Desquamation	Skin starts to thin and then starts to weep because of loss of integrity of the epithelial barrier.
Monitor Unit	Unit of output measurement used for linear accelerators. Accelerators are calibrated so 1MU delivers 1cGy for a standard, reference field size at a standard reference depth at a standard source-to-calibration point.
Multileaf Collimator (MLC)	Part of the linear accelerator that allows treatment field shaping and blocking through the use of motorized leaves in the head of the gantry.
Myelosuppression	A reduction in bone marrow function.
Nadir	The lowest point and the time of greatest depression of blood values.
Near Miss	An event, circumstance, or incident which did not occur and was identified prior to treatment delivery.
Necrosis	Dead tissue
Neoplasia	New growth, applies to an abnormal growth process resulting in the formation of a neoplasm or tumor.
Nonmaleficence	Avoidance of harmful actions.

Nosocomial Infection	An infection that is acquired in a hospital. Also referred to as a hospital-acquired infection (HAI).
On Board Imaging (OBI)	Software and hardware requirements of a linear accelerator that allow the user daily image verification capabilities.
Organ at Risk (OAR)	Organ or critical structure that will be considered when planning a particular field, for example spine, small bowel, heart, lens of the eye.
Organ Segmentation	Process of identifying structures, target volumes or normal tissues, by creating contours around them.
Orthogonal Films	Images taken at perpendicular or 90 degree angles from each other.
Orthopnea	Difficulty breathing except in an upright position.
Osteonecrosis	Death of bone cells.
Otalgia	An earache
Output Factor	The ration of dose rate of a given field size to the dose rate of a reference field size.
Oxygen Enhancement Ratio	Response of cells to radiation in the absence of O_2 (hypoxic conditions) / in the presence of oxygen (oxic conditions).
PACS	Picture archiving and communication system used to store digital medical images.
Pair Production	X-ray interaction with matter in which the nuclear field causes a creation of an electron (negatron) and positron. The interaction has a threshold energy of 1.02Mev.
Palliative Care	Delivery of interventions aimed at relieving symptoms and side effects of the disease and of the treatment – Aims to improve the quality of life for the patient.
Parallel-Opposed Field Set	Two treatment fields that share common central axes, 180 degrees apart.
Parenteral Nutrition	The feeding of a person intravenously; total bypass of the GI system.
Particle Therapy	A form of external beam therapy using particles that are accelerated to high energies. Common particles used are protons and carbon, but others such as neutrons, helium, neon and silicon may be used.
Past Pointing	A technique used in a partial rotational therapy where the isocenter is placed beyond the target volume in order to achieve a more uniform distribution. The rule of thumb to find the depth of the isocenter is to multiply the tumor depth by 1.5cm.
Penumbra	The low dose regions along the edges of the beam. Geometric Penumbra = ss x {(SSD+depth)-SDD} / SDD
Percent Depth Dose	The ratio, expressed as a percentage, of the absorbed dose at a given depth to the absorbed dose at a fixed reference depth, usually $D_{max.}$
Photoelectric Effect	An x-ray interaction with matter where the photon energy is given entirely to an electron in an atom. $1/E^3$, Z^3
Photon	A packet of energy traveling through space at the speed of light (in a vacuum). Photons have no mass and no charge, it only has energy.
Physical Half-Life	The time required for half the nuclei of a specific radionuclide or radioactive substance to undergo radioactive decay.
Pixel	Picture Element; A pixel is defined as each cell on the image matrix.
Plummer-Vinson Syndrome	An iron deficiency anemia characterized by the esophageal webs and atrophic glossitis. It predisposes an individual to the development of esophageal cancer.
Points A & B	Concept of the Manchester System which defines the following: Point A= 2 cm lateral to the central canal of the uterus and 2 cm up from the mucous membrane of the lateral fornix, in the axis of the uterus Point B= 3 cm lateral to Point A and is used as a means of evaluating pelvic wall dosage.
Positive Ion	Occurs when a number of electrons is less than the number of protons.
Practical Range of Electrons	The depth beyond which the dosage of the electron beam drops to nearly 0%. Found by taking the MeV of the beam divided by 2 (MeV/2 = PR)
Proton	Positive particle in a nucleus. A proton is the nucleus of the common hydrogen atom.
Protraction	Period of time a course of treatment is given.
Purines	Adenine and guanine – their bases are attached to ribose.
Pyrimidines	Cytosine and thymine – a crucial property of the purines and pyrimidines is their ability to form hydrogen-bonded pairs composed of one purine and one pyrimidine, such as guanine-cytosine and adenine-thymine.

Quality Assurance	A systemic quality analysis and review of patient care data.
Quality Control	Component of quality assurance used in reference to the mechanical and geometrical tests of the radiation therapy equipment.
Rad	A basic unit of the amount of radiation deposited. It does not take into account the type of radiation, which can influence the effect on body tissues.
Radiolysis	The process of ionizing water resulting in the splitting of water molecules.
Reconstruction Time	The time it takes the computer to analyze and process the info received from the detectors of the CT and display it on a TV monitor.
Relative Biologic Effectiveness (RBE)	RBE – (relative biologic effectiveness): equals dose from 250 keV x-ray divided by dose from test radiation to produce the same biologic effect. As LET increases, RBE increases.
Rem	A basic unit of radiation dose equivalent, which is based on both the dose (rad/Gy) and type of radiation (Quality Factor). 100 rem = 1 Sievert.
Remote Afterloading	Afterloading using a treatment unit controlled from outside the treatment vault – Utilized with HDR Brachytherapy.
Rhabdomyosarcoma	A malignancy of skeletal muscle origin that can occur in many areas of the body and disseminates early. #1 sarcoma in children.
Roentgen	Exposure; Unit measuring the number of ionizations in the air (x or gamma rays).
Role fidelity	Concept that healthcare professionals will be faithful in their role.
Rotational Therapy	Conforms the target volume of high dose radiation to the cancerous tissue while minimizing radiation to the surrounding normal tissue. It has been used most commonly to treat prostate cancer in combo with hormonal therapy.
Sarcoma	A malignancy arising from other than epithelial tissue of the body. High tendency to metastasize to the lungs. These tumors arise from mesenchymal cells (connective tissues such as bone, cartilage, blood vessels, muscle).
Scatter	Process whereby photons are removed from a radiation beam, also the photons are removed.
Scatter Air Ratio	The ratio of the scattered dose at a given point to the dose in free space at the same point. The scatter air ratio is the difference between the tissue air ratio for a given field size and the tissue air ratio for a zero field size. SAR = TAR (d,r1) – TAR (d,0)
Scattering Foil	Thin metal sheet serves to expand the useful size of the therapy beam. Sits on the carrousel and rotates into position when an electron beam is programmed at the console.
Sentinel Node	The primary drainage lymph node.
Separation	Measurement of the thickness of a patient along the central axis or at any other specified point within the irradiated volume.
Sievert	The international unit of measurement for dose equivalent. 1 Sievert = 100 rems
Sliding Window	IMRT technique describing the movement of the MLC from one side of the field to the other within a narrow opening while the beam is on.
Skin Gap	A gap placed between two fields usually from previous treatment to an area close to where treatment will begin for the second time. It is used in order to prevent overdose to one area.
Skin Sparing	Effect whereby high-energy x-ray beams attain 100% dose at a depth greater than zero. The superficial tissues are “spared”.
Slander	Oral defamation.
Somatic Cells	Non-reproductive cells of the body; all cells of the body except the sex cells (germ cells).
Source to Axis Distance	The distance from the source of radiation to the axis of rotation of treatment room.
Source to Skin Distance	The distance from the source of radiation to the patient’s skin.
Spatial Resolution	Refers to the clarity or the measure of detail in a CT image.
Speed of Light	3×10^8m/sec or 3×10^{10}cm/s
Spread out Bragg Peak (SOBP)	The sum of several individual Bragg peaks at staggered depths. This provides a useful beam over a greater range in the patient.
Staging	Method of defining a tumor’s size and extent at the time of diagnosis.
Stenosis	Narrowing of a passage.
Stereotactic Ablative Radiotherapy (SABR)	A type of radiation therapy in which a few very high doses of radiation are delivered to small, well-defined tumors in the cranium. Also referred to as Stereotactic Radiotherapy (SRT)

Stereotactic Body Radiation Therapy (SBRT)	A type of radiation therapy in which a few very high doses of radiation are delivered to small well-defined tumors in the body.
Stereotactic Radiosurgery (SRS)	Use of a high energy photon beam with multiple ports of entry convergent on the target volume. Single fraction treatment.
Target Volume	The mass of the tissue to be treated to the tumor dose in order to ensure that the tumor volume is completely treated. The target volume includes the tumor and a margin of the tissue around the tumor.
Telangiectasia	Dilation of the surface blood vessels caused by loss of capillary tone, resulting in a fine spider vein appearance on the skin surface.
Tenesmus	Ineffective and painful straining during a bowel movement.
Thimble Ionization Chamber	Ionization chamber whose detector volume is in the shape of a sewing thimble.
Three-Dimensional Conformal Radiation Therapy (3D-CRT)	Three-dimensional image visualization and treatment-planning tools are used to conform isodose distributions to target volumes while excluding normal tissues as much as possible.
Thrombocytopenia	A reduction in the number of circulation platelets.
Time-Out	The process of reviewing the most crucial aspects of a radiation treatment delivery process immediately prior to activating the beam.
Tissue Air Ratio	Ratio of absorbed dose at a given depth in phantom to the absorbed dose at the same point in free space.
Tissue Maximum Ratio	Ratio of absorbed dose at a given depth in phantom to the absorbed dose at the same point at the level of D_{max} in phantom.
TLD	Solid state radiation detector that absorbs radiation energy and, when heated appropriately, emits an amount of light related to the energy absorbed. LiF is most common type of crystal used in TLD construction.
Tomotherapy	A treatment unit where the linear accelerator rotates continuously while the treatment couch moves through the gantry bore producing a spiral treatment beam.
Transmission Target	Type of target used in megavoltage x-ray machines in which the photon beam is in the same direction as electron stream. The target is in position when generating photon beams but retracts when employing an electron beam treatment.
Transverse Myelitis	A neurologic syndrome caused by inflammation of the spinal cord. It is uncommon but not rare. Myelitis is a nonspecific term for inflammation of the spinal cord. Transverse refers to involvement across one level of the spinal cord.
Treatment Volumes	GTV – the gross tumor palpable, visible, or demonstrable tumor. CTV – the visible (imaged) or palpable tumor plus any margin of subclinical disease that needs to be eliminated through the treatment planning and delivery process. ITV – margin around the CTV to account for physiologic movement or changes in the shape, size or position of the CTV during the course of treatment. PTV – the volume that includes the ITV plus margin for geometric uncertainties, such as patient motion, beam penumbra, and treatment setup differences.
Tumor Dose	Dose at the tumor prescribed by the radiation oncologist.
Urticaria	Hives
Veracity	Concept of truthfulness within healthcare.
Verification	Final check that each of the planned treatment beams covers the tumor or target volume and does not irradiate normal tissue structures.
Voxel	Volume Element; A Pixel and the slice thickness or volume.
Waveguide	Enclosed metal device in which microwaves travel.
Wedge	Servers to alter the angle of isodose lines at a specific depth in the patient. Wedges reduce the dose in areas of overlap between wedged-pair fields.
Wedge Angle	The angle between the slanted isodose line and a line perpendicular to the central axis of the beam.
Wedge Factor	The ratio of doses with and without the wedge, at the point in phantom along the central axis of the beam.
Window Level	Represents the central Hounsfield unit of all the CT numbers within the window width.
Window Width	The range of numbers displayed or the contrast on a CT image.

ORIENTATION TO CLINICAL SITE CHECKLIST
EXAMPLE – Actual Form is in Trajecsys

Directions

A department orientation will be provided to each radiation therapy student at their designated clinical site upon arrival. The orientation will include the elements listed below, which include radiation and health safety procedures for radiation therapy. Upon completion, it is the expectation that the clinical site's operational policies be followed by the student. Students will be sure to understand the policies of the clinical education site and should ask questions for clarification.

The clinical site staff will discuss and identify the following items to the student within the first week of clinical education. The Orientation Checklist will be submitted by the Clinical Preceptor or other supervising registered radiation therapist in Trajecsys.

Orientation Checklist

Staff Introductions: Introduction of student to all members of the radiation oncology department.	**No**	**Yes**
Department Tour: Include treatment rooms, simulation, dosimetry, nurse's station, patient exam rooms, physician offices, block room, dark room. Also include tumor registrar, dietician, and social worker offices if applicable.	**No**	**Yes**
Location of Restrooms: Identification of appropriate restrooms for staff/students.	**No**	**Yes**
Location of Break Room and/or Cafeteria: Identification of break room or cafeteria.	**No**	**Yes**
Linac Control Area: Explanation of privacy issues, visibility and purpose of cameras and two-way intercom, location, and function of emergency off buttons and machine interlocks. Discussion of safety issues related to treatment delivery.	**No**	**Yes**
Patient Records: Location of patient charts/films. Review of the patient chart/treatment record, if electronic a brief introduction of the electronic chart (prescription, treatment fields, recorded doses, patient images, and setup instructions). Students will need continued hands-on experience and training with the treatment record (electronic or paper) to develop proficiency over time.	**No**	**Yes**
Simulation Area: Identification of emergency off buttons, light switches for lasers and room lights, immobilization devices, contrast supplies, emergency supplies/medications, and biohazard trash cans/bags.	**No**	**Yes**
Block Room: Orientation to the block room and discussion of the safety issues associated with working in the block room and working with cerrobend.	**No**	**Yes**
Ancillary Equipment: Locations of fire alarms and extinguishers, as well as oxygen and suction units are identified.	**No**	**Yes**
Radiation Detection Devices: Identification of the radiation safety officer or individual who collects/distributes devices and location of exposure reports, as well as awareness of device collection interval (monthly/quarterly).	**No**	**Yes**
Important Numbers: Explanation of emergency numbers used in department such as numbers to call for code blue support, reporting of fire, calling for security, or requesting patient transport.	**No**	**Yes**
Patient Transportation: Explanation of how patients are transported to and from the facility; i.e.: Who is responsible for transporting patients?	**No**	**Yes**
Crash Cart: Location of crash cart (if applicable) and discussion of emergency protocols.	**No**	**Yes**
Safety Data Sheet: Location of SDS and discussion of its purpose.	**No**	**Yes**
Emergency Preparedness: Discuss appropriate actions in the event of emergencies such as fire, extreme weather, active shooter, bomb threat, or other evacuation situations.	**No**	**Yes**

Evaluator Information

Please provide your full name and credentials to help maintain an accurate and complete student record.	

CLERICAL ROTATION OBJECTIVES

Students will perform a minimum of a two (2) hour clerical rotation during the first week of clinical experience.

Rotation Objectives

- Discuss the necessary conditions for smooth patient flow when planning a therapy department considering the scheduling, transportation, and entrance/exit pathways to the treatment area.
- Evaluate the function and importance of the receptionist and billing clerk.
- Locate patient information utilizing the department's system.
- Discuss the department's procedure for scheduling patients for treatment, simulation, brachytherapy procedures, and physician appointments.
- Learn the department's telephone system and paging system if appropriate.
- Discuss how diagnostic radiographic images arrive at the oncology department and how images are returned.
- Learn about the facilities method of charging patients for services.
- Identify the essential information included in each patient's permanent therapy record.
- Observe the physician's summary note and total dose delivered to various types of cancer.

CLERICAL SKILLS CHECKLIST
EXAMPLE – Actual Form is in Trajecsys

Directions

Achievement of the clerical rotation objectives will better prepare the student for his or her clinical experience. The Clerical Skills Checklist will be submitted by the Clinical Preceptor or other supervising registered radiation therapist in Trajecsys.

Receptionist

Patient Flow	**No**	**Yes**	
Filing System	**No**	**Yes**	
Communication Systems	**No**	**Yes**	
Chart Information	**No**	**Yes**	

Billing

Patient charge procedure	**No**	**Yes**	
Identification of physician's summary and doses delivered to various types of cancer	**No**	**Yes**	

Evaluator Information

Please provide your full name and credentials to help maintain an accurate and complete student record.	

NURSING ROTATION

Students will rotate through nursing for the equivalent of 1 week in the fall semester and 1 week in the summer semester. Students will complete the Nursing Skills Checklist and the 6 ARRT Patient Care competencies.

A current CPR certification is sufficient to fulfill the CPR competency requirement – all students will maintain a current CPR certification throughout the program year.

Effort will be made to complete the nursing rotation requirements in the fall semester, however, the Nursing Skills Checklist and ARRT Patient Care competencies are not due until the summer semester.

Rotation Objectives

- Act in a professional manner at all times.
- Attend to each patient's safety and comfort.
- Observe the physical, emotional, mental, and spiritual effects of a cancer diagnosis on the patient and family.
- Maintain confidentiality in all patient situations.
- Observe the proper methods of assisting the physician in abdominal, ENT, pelvic, and breast examinations.
- Review radiographic images and/or laboratory results.
- Demonstrate the ability to attain accurate vital signs.
- Demonstrate the ability to accurately perform CPR if needed.
- Describe the various skin reactions appreciated within the treatment port and the measures that are taken for prevention and alleviation of the problems.
- Identify typical radiation-induced side effects relevant to site and discuss common interventions (instructions and/or medications) that may be used to alleviate or minimize the side effects.
- Discuss the chain of infection and isolation precautions that may be employed to reduce the transmission of the disease.
- Review lab values and identify the normal ranges for RBC, WBC, Platelets, Hematocrit, Hemoglobin, BUN, and Creatinine and determine levels at which treatment may be postponed.
- Operate support equipment such as oxygen tanks.
- Participate in a dietary consultation.
- Participate in a patient meeting with the department social worker or discuss common patient issues with a department social worker.
- Participate in the consultation of cancer patients.
- Participate in the follow-up appointments of radiation therapy patients.
- Participate in the weekly status check appointments of those patients receiving treatment.

NURSING SKILLS CHECKLIST

Example – Actual Form is in Trajecsys

Directions

This form serves to document various nursing related observations and experiences. Completion of the following will provide the radiation therapy student with a basic understanding of nursing procedures commonly conducted within radiation oncology departments. The Nursing Skills Checklist will be submitted by the supervising nurse in Trajecsys.

Did the student observe or participate in Vital Signs?			
Temperature	**No**	**Yes**	
Blood Pressure	**No**	**Yes**	
Apical Pulse	**No**	**Yes**	
Respiration	**No**	**Yes**	
Height and Weight	**No**	**Yes**	

Did the student observe or review Instruments for Specific Examinations?			
Oral cavity- Tongue Blade	**No**	**Yes**	
Eyes – Ophthalmoscope	**No**	**Yes**	
Ears – Otoscope	**No**	**Yes**	
Neurological – Percussion Hammer & Tuning Fork	**No**	**Yes**	
Gynecological – Vaginal Speculum/Vaginal Dilator	**No**	**Yes**	
Rectal Exam – Gloves and Lubricant	**No**	**Yes**	

Did the student observe or review Brachytherapy Instruments?			
Fletcher-Suite (GYN)	**No**	**Yes**	
Interstitial Needle	**No**	**Yes**	
Templates – Used for prostate implants	**No**	**Yes**	

Did the student demonstrate or describe the proper procedures for the following?			
Oxygen Set-up	**No**	**Yes**	
Suctioning, Oral & Tracheotomy	**No**	**Yes**	
Pap Smear with GYN Exam	**No**	**Yes**	
Stool for guaiac	**No**	**Yes**	
Collection for UA, Culture & Sensitivity	**No**	**Yes**	
Recognizing signs of adverse reaction to medications	**No**	**Yes**	

Did the student demonstrate or describe indications for patient referrals?			
Hospice	**No**	**Yes**	
American Cancer Society Programs – For example, Reach to Recovery or Road to Recovery	**No**	**Yes**	
Social Work/Pastoral Care	**No**	**Yes**	
Support Groups	**No**	**Yes**	
Transportation – vans, A&A, ACS to Volunteers	**No**	**Yes**	
Nutritionist/ Dietician	**No**	**Yes**	

Did the student observe & verbalize guidelines related to patient education regarding the following?			
Skin Care Instructions	**No**	**Yes**	
Dietary Instructions for the following cancer types:			
a. Head & Neck	**No**	**Yes**	
b. Chest	**No**	**Yes**	
c. Pelvis	**No**	**Yes**	
d. Weight Loss	**No**	**Yes**	
Pain Assessment	**No**	**Yes**	

Did the student complete the following actions in relation to Code Blue?				
Review Code Blue Protocol	**No**	**Yes**		
Identify Location of Crash Cart	**No**	**Yes**		

Did the student demonstrate or explain understanding of the follow in relation to Consent Forms?			
Purpose	**No**	**Yes**	
Timing	**No**	**Yes**	
Content form Components	**No**	**Yes**	

Evaluator Information	
Please provide your full name and credentials to help maintain an accurate and complete student record.	

PULSE AND RESPIRATION COMPETENCY

EXAMPLE – Actual Form is in Trajecsys

STUDENT, TEST	Pt. Care – Pulse & Respiration			Comments
PULSE AND RESPIRATION COMPETENCY **PROCEDURE…Did the student:** Identify and gain consent from the patient for the procedure?		**No**	**Yes**	
Explain procedure to the patient/answer questions.		**No**	**Yes**	
Wash hands prior to procedure.		**No**	**Yes**	
Have patient sit or lie down.		**No**	**Yes**	
Identify radial pulse with index and middle fingers, apply gentle pressure.		**No**	**Yes**	
Count beats for 1 minute, also assess strength and regularity.		**No**	**Yes**	
Observe rise and fall of chest, count each cycle for 1 minute while appearing to take pulse.		**No**	**Yes**	
Record results accurately.		**No**	**Yes**	
State normal range of an adult pulse and respiration.		**No**	**Yes**	
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate student record.				
STUDENT ACKNOWLEDGEMENT – **Student Use Only:** Student should complete a post submission comment after they have reviewed the evaluation.				

TEMPERATURE COMPETENCY

EXAMPLE – Actual Form is in Trajecsys

STUDENT, TEST	Pt. Care – Temperature			Comments
Temperature Competency **PREPARATION…Did the student:** Identify and gain consent from the patient for the procedure.		**No**	**Yes**	
Explain procedure to the patient/answer questions.		**No**	**Yes**	
Wash hands prior to procedure.		**No**	**Yes**	
Use protective devices, maintain asepsis.		**No**	**Yes**	
PROCEDURE…Student May Complete Tympanic OR Oral Reading Method **Tympanic…Did the student:** Place clean sheath on probe.		**No**	**Yes**	
Remove probe cover, dispose, wash hands.		**No**	**Yes**	
Record reading accurately.		**No**	**Yes**	
Identify the normal adult temperature value.		**No**	**Yes**	
Oral…Did the student: Place clean sheath on probe.		**No**	**Yes**	
Place probe under tongue, hold firmly until temperature registers automatically.		**No**	**Yes**	
Remove thermometer, read, wash hands.		**No**	**Yes**	
Record reading accurately.		**No**	**Yes**	
Identify the normal adult temperature value.		**No**	**Yes**	
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.				
STUDENT ACKNOWLEDGEMENT – Student Use Only				

BLOOD PRESSURE COMPETENCY

EXAMPLE – Actual Form is in Trajecsys

STUDENT, TEST	Pt. Care – Blood Pressure			Comments
BLOOD PRESSURE COMPETENCY **PREPARATION…Did the student:** Identify and gain consent from the patient for the procedure.		**No**	**Yes**	
Explain procedure to the patient/answer questions.		**No**	**Yes**	
Wash hands prior to the procedure.		**No**	**Yes**	
Use protective devices, maintain asepsis.		**No**	**Yes**	
PROCEDURE…Did the student: Explain procedure to the patient while waiting for patient to be at rest for a while.		**No**	**Yes**	
Place the patient in a comfortable position with arm extended and supported with palm facing up.		**No**	**Yes**	
Wrap cuff snuggly around upper arm, 2” above the brachial artery.		**No**	**Yes**	
Place gauge so it is read easily.		**No**	**Yes**	
Prepare for reading by inserting stethoscope tips in ears and placing the bell over artery.		**No**	**Yes**	
Tighten thumbscrew to close valve on the air pump and inflate cuff to 160mmHg.		**No**	**Yes**	
Loosen thumbscrew slowly and watch needle of gauge move slowly down numerically. Note that first and last distinct pulse sounds and the corresponding numbers on the gauge.		**No**	**Yes**	
When the diastolic pressure is no longer audible, release all pressure in the cuff and remove cuff from patient.		**No**	**Yes**	
Record systolic/diastolic reading accurately.		**No**	**Yes**	
State normal blood pressure range for an adult.		**No**	**Yes**	
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.				
STUDENT ACKNOWLEDGEMENT – Student Use Only				

PATIENT TRANSFER COMPETENCY

EXAMPLE – Actual Form is in Trajecsys

STUDENT, TEST	Pt. Care – Patient Transfer			Comments
PATIENT TRANSFER COMPETENCY **FROM WHEELCHAIR TO RADIATION THERAPY TABLE…Did the student:** Assess patient's ability to stand. Determine if additional assistance is needed.		**No**	**Yes**	
Place wheelchair alongside the table.		**No**	**Yes**	
Lock wheelchair and raise footrests.		**No**	**Yes**	
Insure all lines, catheters, and monitoring equipment will transfer without pulling.		**No**	**Yes**	
Maintain physical contact and support while helping patient reach a standing position.		**No**	**Yes**	
At this same time, reassess patient's ability to stand unassisted. If unable to stand unassisted, seat the patient, and call for assistance.		**No**	**Yes**	
If able to stand unassisted, maintain physical contact, and assist patient to table and into the appropriate treatment position (supine, prone).		**No**	**Yes**	
FROM GURNEY TO RADIATION THERAPY TABLE…Did the student: Determine the appropriate number of people needed to safely complete the patient transfer.		**No**	**Yes**	
Explain the move to the patient.		**No**	**Yes**	
Adjust table or gurney heights so the gurney is slightly higher than the table.		**No**	**Yes**	
Lock gurney and table.		**No**	**Yes**	
Have patient cross arms over chest.		**No**	**Yes**	
Insure all lines, catheters, and monitoring equipment will transfer without pulling.		**No**	**Yes**	
Position one person on the side of the gurney away from the table, this person insures gurney stability with their body weight. Position the second person on the opposite side of the table. The third person (if available) should guide the head and watch the lines.		**No**	**Yes**	
First person will roll patient towards them a quarter turn to enable the slider board to be positioned under patient.		**No**	**Yes**	
The second (and third) will pull patient onto the slider – never push patient onto the slider.		**No**	**Yes**	

Ensure patient is securely on the table before unlocking or removing the gurney.	**No**	**Yes**	
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.			
STUDENT ACKNOWLEDGEMENT – Student Use Only Student should complete a post-submission comment after they have reviewed the evaluation.			

OXYGEN ADMINISTRATION COMPETENCY

EXAMPLE – Actual Form is in Trajecsys

STUDENT, TEST	Pt. Care – Oxygen Administration			Comments
OXYGEN ADMINISTRATION COMPETENCY **PROCEDURE…Did the student:** Identify and gain consent from the patient for the procedure.		**No**	**Yes**	
Explain procedure to the patient/answer questions.		**No**	**Yes**	
Wash hands prior to procedure.		**No**	**Yes**	
Use protective devices, maintain asepsis.		**No**	**Yes**	
Observe setup of existing oxygen administration.		**No**	**Yes**	
Recreate exact administration scheme (from transport tank to wall outlet or vice versa).		**No**	**Yes**	
Evaluate positioning of or demonstrate use of nasal cannula.		**No**	**Yes**	
Demonstrate ability to determine PSI on a portable oxygen tank.		**No**	**Yes**	
Demonstrate setting flow meter at wall outlet.		**No**	**Yes**	
Demonstrate setting flow meter for portable oxygen tank.		**No**	**Yes**	
Identify location, in chart, where oxygen orders/levels are documented.		**No**	**Yes**	
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.				
STUDENT ACKNOWLEDGEMENT – Student Use Only Student should complete a post-submission comment after they have reviewed the evaluation.				

DAILY LOG SHEET OVERVIEW

Throughout the program, students will log specific activities in Trajecsys under the "Daily Logsheet" tab. Note the minimum number of activities to be logged below.

Electron Block or Photon Block Fabrication

- Students will log a **minimum of ten** custom electron block fabrication activities at the level of "Completed Independently" prior to attempting competency testing.
- Custom photon block fabrication is encouraged if the opportunity arises but is not required because this procedure is infrequently performed in today's radiation therapy departments.
- *If outsourced to a third part, please contact Sean Conrad for instructions.

Bolus Construction

- Students will log a **minimum of five** custom bolus fabrication activities at the level of "Completed Independently" prior to attempting competency testing.

Custom Immobilization Devices

- Students will log a **minimum of 20** custom immobilization device activities at the level of "Assisted" or higher prior to attempting competency testing.
- Log entries will include:
    - Custom immobilization devices for thorax (e.g. foaming agents, vacuum bags)
    - Custom immobilization devices for abdomen/pelvis (e.g. foaming agents, vacuum bags)
    - Thermoplastic mold

Stereotactic Procedures

- Students will keep a log of stereotactic treatments throughout the year. Stereotactic procedures may be stereotactic radiosurgery, stereotactic radiotherapy or stereotactic body radiotherapy.
- Students will log a **minimum of 10** stereotactic procedures at the level of "Assisted" or higher.
- Students will complete a participatory competency for an SBRT/SRS treatment.

Motion Management

- Students will keep a log of motion management experiences throughout the year. Motion management activities may include, but are not limited to, respiratory gating, abdominal compression or forced shallow breathing, and deep breath hold techniques.
- Students will log a **minimum of 10** motion management experiences across a minimum of **2** different patient cases at the level of "Assisted" or higher.

BRACHYTHERAPY EXPERIENCES & PARTICIPATORY COMPETENCY

Both Low Dose Rate and High Dose Rate brachytherapy procedures are acceptable to meet the program requirements. Electronic brachytherapy is **not** acceptable to the program requirements.

Prior to attempting competency testing for brachytherapy, one typed case study (following the below format) addressing at least one brachytherapy procedure will be emailed to the Clinical Coordinator within two weeks of the procedure date. The case study is to be completed during/after the brachytherapy procedure.

Helpful resources for completing the case studies and preparing for the competency evaluation include chapters 16 of *Applied Physics for Radiation Oncology* by Stanton and Stinson, chapter 17 of *The Physics & Technology of Radiation Therapy* by McDermott & Orton, and chapter 14 of *Principles and Practice of Radiation Therapy* by Washington/Leaver (5th edition).

The case study will include the following information:

1. Date of procedure.
2. Patient's diagnosis.
3. Type of implant.
    a. Interstitial, intracavitary, endobronchial, endovascular, surface, etc.
    b. LDR or HDR brachytherapy
    c. Permanent or temporary
4. Criteria evaluated by the doctor to determine that brachytherapy is an acceptable treatment option for the specific patient.
5. Benefit, in this particular case, of brachytherapy vs external beam therapy.
6. Radioactive source used.
7. Half-life, average energy, and air kerma strength of radioactive source used.
8. Description of dose specification/prescription, critical structures, and calculation method.
9. Discussion of radiation safety issues related to brachytherapy applied before, during, and after the procedure such as source storage, source preparation, surveys, transport of sources, and documentation.
10. Description about how the patient was assessed by the radiation oncology team before, during, and after the brachytherapy procedure.
11. Reflection of student's experience (thoughts, reactions, and impressions).

<u>Brachytherapy Objectives:</u>

a. Discuss Quality Assurance aspects of brachytherapy: pre-implant testing procedure, calibration of source, leak testing, storage area survey, and sources in/out log.
b. Identify radiation safety issues related to brachytherapy treatments from personnel exposure, sign posting requirements, emergency actions if source does not retract, if source is lost, if patient has a heart attack or expires with sources in place.
c. Describe the various forms of brachytherapy: interstitial, intracavitary, surface implants, HDR vs. LDR.
d. Identify commonly used sources and discuss their characteristics.
e. Review the objective of brachytherapy treatment planning, dose specification, calculation methods (Patterson-Parker/Manchester, Quimby, Paris, TG-43 model, other).
f. Review critical structures related to specific implant procedures.
g. Observe how sources and applicators are prepared and returned: applicator maintenance, loading of applicators, unloading and cleaning of applicators, transport of sources.
h. Describe record keeping requirements for brachytherapy programs.
i. Participate in radiation surveys and discuss when they are needed: patient survey, room/area survey, and area radiation monitor.
j. Review safety concepts related to brachytherapy delivery: ALARA, cardinal principles of radiation protection, maximum permissible doses for public vs. occupational limits, benefits of afterloaders, signage.

EXAMPLE BRACHYTHERAPY CASE STUDY

Brachytherapy observations require the submission of a case study within two weeks after the date of the procedure. The case study will include the following information and resemble the same format as below.

1. Adenocarcinoma of the prostate, left lobe.
2. 3/31/24
3. Permanent prostate seed implant
4. The patient was given a questionnaire to fill out. The questionnaire asked questions such as the patients' urgency to urinate, weak urine stream, nocturia, frequency, intermittency, and emptying of the bladder. The answers were totaled up and given a number to determine if the patient would be a candidate for implants. A volume study was performed to measure the size of the prostate. If a patient has a prostate size over 50 cubic cm they would have to have a hormone shot and wait for the prostate to decrease in size before the implants could be done, or have to consider external beam therapy. The patient has been diagnosed with Adenocarcinoma of the prostate, left lobe. The patient's Gleason score on the right was benign, the left was 3+4=7 with a PSA of 5.982. There is no perineural invasion or lymphovascular invasion. With all the information the stage is T1c, NO, MO. The prostate is moderate in size with no nodularity or induration. The disease is localized to the left lobe of the prostate; there is no nodal involvement or metastatic disease. The patient had a prostate height of 36mm, width of 46mm, and length of 39mm for an overall size of 36.9 cubic cm. Since the patient did not have any nodal involvement and the prostate was within the size limit, seed implants could be considered as a treatment option.
5. The patient was a candidate for monotherapy and leaning toward seed implant but also considered a radical prostatectomy. The patient decided to proceed with the seed implant. A volume study was performed to measure the size of the prostate. The patient decided that seed implants would best fit his lifestyle and is scheduled for surgery on 4/2/22.
6. Iodine 125
7. Half life of Iodine 125 is 39.4 days. The average energy is 0.028. Iodine 125 at .38mCi/seed was used for the patient's implant.
8. The patient underwent a volume study for the prostate. The prostate was measured and given the size of the prostate a prescription was written for 145Gy and 90 seeds of I-125 at 0.38 mCi/seed were ordered for the surgery. Since the patient is having seeds implanted into the prostate, structures of concern are the bladder, rectum, and urethra. Ultrasound guidance and fluoroscopy are used to visualize the prostate and ensure the seeds are not being placed outside the prostate wall. Once the patient is out of surgery, they are taken to CT and scanned. The scan is then contoured and the doses calculated for the urethra and rectum.
9. The radiation sources are kept in a locked storage room, with a sign on the outside saying "Caution Radioactive Materials" until the day of surgery. Before the procedure, the technologist reviews the grid with the oncologist to verify where the needles will be placed in the grid. The grid is printed on a piece of paper and a permanent marker is used to place an X on the letter and number where the needles are to be placed. After the patient has been given sedation, a catheter is placed into the bladder. To help visualize the urethra, a diluted contrast is used to inflate the balloon of the catheter. During the procedure, a urologist places the needles while the oncologist verifies the placement of each needle. To protect the therapist from handling the cartridges with the seeds in them, a shielded holder is used to pass the cartridges from the sterile tray to the oncologist. After the procedure is over, a Geiger counter is used to survey the linens, trash, floor, catheter bag, and sterile tray; all of these must measure under background radiation level. The patient is also measured at the surface and at a distance of one meter. The distance at one meter

must be less than 1MR per hour. If any sources are unused, paperwork must be filled out and they must be packaged back up, clearly labeled radioactive material, and shipped back to the company.

10. The patient came to the Radiation Oncology for the initial consultation and patient assessment where a thorough history and physical was obtained. A bowel prep was given to the patient prior to the seed implant. During the procedure, the patient was closely monitored and radiation protection was practiced for all parties involved. Once the procedure was complete, a cystoscopy was performed to check the bladder for migrant seeds and the patient was sent to recovery in a post-op suite. While in recovery, the patient had to void prior to being discharged. The urine was strained to ensure there were no seeds within the urine. Discharge instructions were provided to the patient where it was recommended to keep a distance of three feet or greater from small children and pregnant women. The use of a condom was advised for the first week after the implant. Due to the swelling of the prostate as a result of the surgery, a prescription of Flomax was given to the patient to make it easier for him to urinate. The patient was told that there would be a CT scan in one month to re-count the seeds and verify the distribution. If there were any concerns at that point, it could be addressed with external beam radiation or supplemental seeds. An additional follow up was scheduled for three months where they will check his PSA.
11. This was the first seed implant that I was able to stand in on. At first, I stood back and watched as the room and patient were prepped and the time outperformed. Throughout the procedure, I was observing what everyone was doing. The patients are given a prep to clean their bowels out before the exam but about halfway through the exam, the patient did defecate around the ultrasound probe. The treatment does seem more invasive than external beam therapy but in the end, it saves the patient from having to come in five days a week for weeks for external beam therapy. Since his cancer was found at an early stage and involved on one side, I can understand why the patient chose the more invasive yet shorter treatment procedure. He was able to come in and have the implants done, recover, and be back to his daily routine faster than if he was to have external beam.

BRACHYTHERAPY PARTICIPATORY COMPETENCY EVALUATION

Directions: The ARRT has instituted a participatory brachytherapy competency requirement. Per the ARRT's definition, participation means the candidate takes an active role in the procedure and understands the critical concepts vital to the success of the procedure.

At the time of evaluation, the student will have completed a minimum of 1 brachytherapy experience and a submitted typed case study for each experience as discussed in the previous page.

A registered radiation therapist, dosimetrist and/or physicist will evaluate the student's participatory performance using the criteria established in the competency evaluation form. Under NO circumstances should an N/A be awarded for any of the elements on this evaluation. If a task cannot be physically demonstrated, it will be discussed verbally or knowledge evaluated through questioning.

If the student fails a brachytherapy competency, it will be recognized by the Clinical Coordinator during Trajecsys review. The student may contact the Clinical Coordinator at any time to discuss the failed competency. The student will discuss his/her performance with the evaluating therapist and inquire about steps for improvement. When the student and supervising therapist agree that the student is ready to attempt anther brachytherapy competency, the competency will be completed and the supervising therapist will submit a new competency evaluation in Trajecsys.

BRACHYTHERAPY COMPETENCY
EXAMPLE – Actual Form is in Trajecsys

STUDENT, TEST	Brachytherapy Participatory Competency						
GENERAL BRACHYTHERAPY QUALITY ASSURANCE CONCEPTS **The student demonstrated an understanding of the following critical concepts through active participation and/or questioning:**							**Comments**
Performs or describes relevant pre-implant quality control testing procedures.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Discusses method of source calibration.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Defines the standard frequency for sealed source leakage testing.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs or describes the procedure for surveying a radioactive source storage area.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Indicates the procedure for logging sources in/out and states how long records are maintained.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Describes actions to take in event of emergency such as if source fails to retract, source is lost, patient suffers medical emergency, or patient expires.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Describes information that should be documented after emergency action is taken.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
GENERAL BRACHYTHERAPY IMPLANT CONCEPTS **The student demonstrated an understanding of the following critical concepts through active participation and/or questioning:**							**Comments**
Identifies advantages of brachytherapy over external beam radiation therapy.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies disadvantages of brachytherapy over external beam radiation therapy.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Provides the definition of interstitial implant.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Provides the definition of intracavitary implant.		**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Provides the definition of surface or topical implants.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Differentiates between temporary and permanent implants.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
States the dose rate associated with low dose rate brachytherapy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
States the dose rate associated with high dose rate brachytherapy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
GENERAL SOURCE HANDLING CONCEPTS **The student demonstrated an understanding of the following critical concepts through active participation and/or questioning:**						**Comments**
Describes the radiation protection techniques used in handling radioactive sources: L-block, forceps, radiation ring devices.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Describes the manner in which radioactive sources are transported.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
GENERAL RADIATION SURVEY CONCEPTS **The student demonstrated an understanding of the following critical concepts through active participation and/or questioning:**						**Comments**
Recognizes the purpose of brachytherapy related radiation surveys.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Participates in or describes procedure for surveying a patient after implantation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Participates in or describes procedure for surveying adjacent room & hallway of a hospitalized brachytherapy patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
GENERAL RADIATION SAFETY CONCEPTS **The student will demonstrate an understanding of the following critical concepts through active participation and/or questioning:**						**Comments**
Defines ALARA.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Lists the 3 cardinal principles of radiation protection.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Reports the annual effective dose equivalent limit for the general public.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Reports the annual occupational effective dose equivalent limit.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies safety features specific to high dose rate brachytherapy compared (emergency off, timer, uninterrupted power supply etc).	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies the benefits of remote afterloaders.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
States the Nuclear Regulatory Commission's (NRC) requirements for posting signs in and around radioactive storage areas.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies the radiation detection device most commonly used to locate a lost brachytherapy source.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PROCEDURE AND IMPLANT TECHNIQUE **The student demonstrated an understanding of the following critical concepts through active participation and/or questioning:**						**Comments**
Discusses type of applicator used in the brachytherapy procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs or describes imaging procedures used before the implant.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs or describes imaging procedures used after implant.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Review of radioactive source characteristics relevant to brachytherapy procedure:						
Identifies radioactive source used in the brachytherapy procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Reports half-life of source used in brachytherapy procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Reports average energy of source used in brachytherapy procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Reports air kerma strength of source used in brachytherapy procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
IMPLANT DOSIMETRY SYSTEM **The student demonstrated an understanding of the following critical concepts through active participation and/or questioning:**						**Comments**
Defines the goals of brachytherapy treatment planning.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Identifies dose specification/prescription.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Discusses calculation method (Patterson-Parker or Manchester, Quimby, Paris, TG-43, other).	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies critical structures of interest.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT ASSESSMENT **The student will demonstrate an understanding of the following critical concept through active participation and/or questioning:**						**Comments**
Student took an active role with the Radiation Oncology Team in patient assessment before, during and after the relevant brachytherapy procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**						

TREATMENT ACCESSORY DEVICES

The program requires students to gain hands on experience in the fabrication of electron blocks, photon blocks (if available), bolus materials, and custom immobilization devices throughout the program year. The student's activities throughout the program year will be recorded in Trajecsys under the "Daily Log Sheet" tab (see Daily LogSheet Requirements, section 3, pg. 34).

Achievement of the treatment accessory device objectives and the 4 ARRT Treatment Accessory Device competencies will provide the student with entry level knowledge and skills regarding custom block and custom bolus fabrication and the construction/use of immobilization devices.

Treatment Accessory Device Objectives

a. Discuss the purpose of block fabrication in radiation therapy treatment delivery.
b. Explain the method of custom block construction.
c. Discuss the typical alloy used in block fabrication.
d. State required safety measures pertaining to the usage of this alloy.
e. Locate, identify and discuss the equipment necessary for block fabrication.
f. Identify custom block specifications like block thickness, maximum transmission, and distance from patient.
g. Review concepts of transmission, half value layer (HVL), homogeneity coefficient, and beam hardening.
h. Observe, assist, and perform in all block activities. Through an increasing level of performance fabricate electron and photon blocks (if available). The technical design will include block cutting, block adjustments, and verification of block accuracy.
i. Discuss MLC as a method of beam shaping. The discussion will include MLC configuration/leaf attributes, limitations of MLC, and quality assurance of leaf positions.
j. Discuss the purpose and construction of bolus and tissue compensators.
k. Explain the importance of effective immobilization in radiation therapy treatment delivery.
l. Construct and prepare immobilization.
m. Apply appropriate immobilization techniques paying attention to straightening, leveling, and patient comfort.
n. Identify appropriate applications of various immobilization devices.
o. Provide effective patient instruction and address commonly asked patient questions regarding immobilization.

Treatment Accessory Devices Part 1 – Custom Immobilization Devices

Custom immobilization devices are key elements of radiation therapy simulation as they help ensure accuracy of patient position and field alignment. Students will log any and all experiences using foaming agents, vacuum bags, and thermoplastic molds throughout the year in Trajecsys under the "Daily Log Sheet" tab. A **minimum of 20** activities will be recorded at the level of "Assisted" or higher prior to competency testing.

When logging immobilization device experiences in Trajecsys, the two categories to log are:

1. Custom Immobilization Devices for Thorax or Abdomen/Pelvis
2. Thermoplastic Molds

Ultimately, students will pass the 2 ARRT competencies for custom thorax or abdomen/pelvis immobilization device and thermoplastic mold. These competencies are NOT to be attempted until the spring semester once the minimum number of experiences have been logged as described above. These competencies can be found in Trajecsys under the "Comp Evals" tab in Trajecsys.

See Performance Expectations for all Competency Evaluations (section 3, pg. 10) in the event of a failed competency.

TREATMENT ACCESSORY COMPETENCY
CUSTOM IMMOBILIZATION DEVICES FOR THORAX OR ABDOMEN/PELVIS
(e.g. Foaming Agents, Vacuum Bags)
EXAMPLE – Actual Form is in Trajecsys

CUSTOM DEVICE THORAX OR ABDOMEN/PELVIS – includes foaming agents, vacuum bags, etc. **Did the student…**			Comments
Appropriately plan for immobilization device construction by gathering required supplies and preparing equipment.	**No**	**Yes**	
Effectively educate the patient regarding the fabrication procedure to obtain the patient's cooperation.	**No**	**Yes**	
Properly position patient on the table, straightening and leveling the patient prior to the construction of the immobilization device.	**No**	**Yes**	
Efficiently construct the device, achieving the prescribed treatment position.	**No**	**Yes**	
Appropriately document settings and label the device (per site's procedure).	**No**	**Yes**	
COMMENTS **Feedback is fundamental to the learning process. Please share additional comments about the student's performance.**			
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.			
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**			

TREATMENT ACCESSORY COMPETENCY
THERMOPLASTIC MOLD
EXAMPLE – Actual Form is in Trajecsys

THERMOPLASTIC MOLD OR AQUAPLAST **Did the student…**			Comments
Appropriately plan for immobilization device construction by gathering required supplies and preparing equipment.	**No**	**Yes**	
Effectively educate the patient regarding the fabrication procedure to obtain the patient's cooperation.	**No**	**Yes**	
Properly position patient on the table, straightening and leveling the patient prior to the construction of the immobilization device.	**No**	**Yes**	
Assure that the temperature of the heated thermoplastic mold is appropriate before placing on the patient's skin.	**No**	**Yes**	
Efficiently construct the device, achieving the prescribed treatment position.	**No**	**Yes**	
Appropriately document settings and label the device (per site's procedure).	**No**	**Yes**	
COMMENTS **Feedback is fundamental to the learning process. Please share additional comments about the student's performance.**			
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**			
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**			

Treatment Accessory Devices Part 2 – Custom Blocks and Bolus

Students will obtain electron block creation and/or fabrication experience through the program year. Photon block fabrication is also encouraged IF the facility has photon block fabrication capabilities. The block fabrication experience can be simulated using old simulation radiographs or DRR's that are printed at a scale of 1 to 1, please discuss with Clinical Coordinator.

To demonstrate sufficient experience in the fabrication of custom blocks and bolus, students will keep a log of all block fabrication experience throughout the program year. A **minimum of five (5) custom bolus and ten (10) electron blocks will be constructed and logged at a level of "Completed Independently." Photon block may be logged as well if the opportunity is available**.

All treatment accessory activities should be recorded in Trajecsys under the "Daily Log Sheet" tab. The above mentioned required number of activities will be logged prior to attempting any treatment accessory device competencies.

Ultimately, the student will pass the 2 ARRT competencies for custom electron **or** photon block fabrication and custom bolus fabrication. These competencies may be attempted at any point in the program; however, students will document a minimum number of photon/electron block and bolus construction experiences within Trajecsys prior to attempting the competency, but are not due until the end of the **program**. These competencies can be found in Trajecsys under the "Comp Evals" tab in Trajecsys.

See Performance Expectations for all Competency Evaluations (section 3, pg. 10) in the event of a failed competency.

EXAMPLE TREATMENT ACCESSORY COMPETENCY
CUSTOM BOLUS
EXAMPLE – Actual Form is in Trajecsys

APPLICATION AND KNOWLEDGE OF BOLUS			Comments
Demonstrate correct placement of pre-fabricated bolus (super-flab or super-stuff).	**No**	**Yes**	
Create a 1cm bolus using wet gauze, paraffin wax, or other approved material.	**No**	**Yes**	
State three clinical uses for bolus.	**No**	**Yes**	
Define skin sparing and explain the impact that bolus has on skin sparing for both electron and photon treatment.	**No**	**Yes**	
Discuss the effect of air gaps on bolus applications and how the air gaps can be minimized during usage.	**No**	**Yes**	
COMMENTS **Feedback is fundamental to the learning process. Please provide additional comments about the student's performance.**			
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain and accurate and complete student record.**			
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**			

EXAMPLE PARTICIPATORY COMPETENCY
CUSTOM BLOCK PROCESS (PHOTON OR ELECTRON)
EXAMPLE – Actual Form is in Trajecsys

SAFETY ELEMENTS **Did the student…**			Comments
Identify location of the Safety Data Sheet and state its purpose.	**No**	**Yes**	
State the metals that make up the alloy called Cerrobend.	**No**	**Yes**	
Describe risks associated with Cerrobend exposure.	**No**	**Yes**	
Discuss safety precautions that should be used when working with Cerrobend.	**No**	**Yes**	
FABRICATION PROCEDURE **Did the student…**			Comments
Accurately perform block fabrication or third-party outsourcing, per site's protocol.	**No**	**Yes**	
Identify required thickness of electron blocks to achieve acceptable transmission.	**No**	**Yes**	
Identify how many half-value layers make up a typical photon block (if applicable).	**No**	**Yes**	
Indicate methods by which the accuracy of photon blocks can be verified (if applicable).	**No**	**Yes**	
State the acceptable level of transmission through an electron or photon block.	**No**	**Yes**	
State the minimum distance electron or photon blocks will be from a patient's skin and why.	**No**	**Yes**	
COMMENTS **Feedback is fundamental to the learning process. Please provide additional comments about the student's performance.**			
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain and accurate and complete student record.**			
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**			

TREATMENT DELIVERY ROTATION

Students will perform treatment delivery procedures throughout the clinical phase of the program. There are 16 mandatory ARRT primary treatment delivery competency requirements; of these 3 primary treatment delivery competencies can be completed under simulated conditions in the final summer semester.

Requirements to become eligible for primary treatment delivery competency testing:

1. The Radiation Therapy Treatment Room Checklist will be submitted by the Clinical Preceptor or other supervising registered radiation therapist prior to attempting pre-competency checklists.
2. A pre-competency checklist will be successfully completed for **each** ARRT treatment delivery procedure prior to attempting competency testing. Pre-competency checklists will be submitted by the Clinical Preceptor or other supervising registered radiation therapist in Trajecsys.

Additionally, students will "retest" on a certain number of primary treatment delivery competences through the Continued Competency process to demonstrate continued knowledge and skill development (see Semester by Semester Competency Requirements, section 3, pg. 8-9)

Total Body Irradiation, Brachytherapy, SBRT/SRS, Special Simulation, Custom Block and Craniospinal Axis competency requirements are a separate ARRT competency category called Participatory Procedures (see ARRT Competency Requirements, pg. 52-57). In Participatory Procedure competencies, students take an active role in the procedure and demonstrate understanding of critical concepts vital to the success of the procedure, but may not do all steps of the procedure independently. Participatory Procedure competencies may be completed on actual patients or may be completed under simulated conditions in the final summer semester, if necessary.

While completing the treatment delivery rotation, students will log all **motion management** (respiratory gating, abdominal compression, and/or breath hold techniques) as well as **stereotactic radiosurgery, stereotactic radiotherapy, and/or stereotactic body radiotherapy procedures** experiences in Trajecsys under the "Daily Logsheet" tab (see Daily Logsheet Requirements, section 3, pg. 34).

Rotation Objectives

- Provide consistent radiation protection for the patient and operator.
- Attend to each patient's safety and comfort.
- Act in a professional manner at all times.
- Incorporate HIPAA requirements into clinical practice.
- Demonstrate proper body mechanics.
- Observe proper isolation techniques.
- Communicate effectively with patients, physicians, nurses, physics staff, and other professionals.
- Demonstrate the ability to provide patient education and answer questions.
- Demonstrate the ability to effectively read the treatment prescription and recorded doses.
- Deliver a prescribed course of treatment adhering to acceptable departmental, institutional, governmental, and professional standards.
- Demonstrate the ability to accurately record treatment doses and document necessary information such as portal images, shifts, and changes in SSD.
- Demonstrate proper treatment alignment and develop efficiency with treatment setup protocols.
- Demonstrate proper usage and care of equipment.
- Critically assess images (weekly portals or daily acquisitions) for positioning accuracy.
- Demonstrate competency through the evaluation process of all ARRT treatment categories.
- Demonstrate continued knowledge through the completion of continued competency testing.
- Validate manual and computer dosimetric calculations.
- Demonstrate the ability to perform non-routine treatment procedures such as Cord Compression and SVC treatment emergencies.

RADIATION THERAPY TREATMENT ROOM CHECKLIST
EXAMPLE – Actual Form is in Trajecsys

Directions

Listed below are activities that radiation therapists incorporate into their daily routine when treating patients. These activities become second nature to an experienced therapist and may be overlooked when mentoring a radiation therapy student. The Radiation Therapy Treatment Room Checklist strives to ensure that important information is explicitly shared with students to support their learning. This checklist will be submitted by the Clinical Preceptor or other supervising registered radiation therapist in Trajecsys prior to the student completing any pre-competency checklists. Completion of this checklist when students rotate to a new treatment machine is recommended.

Emergency Stops			
Location	**No**	**Yes**	
Effect on Equipment	**No**	**Yes**	

Lasers			
Location of all lasers	**No**	**Yes**	
Visualize laser convergence	**No**	**Yes**	

Control Panel on Treatment Couch			
Move table (vert, long, lat, couch rotation)	**No**	**Yes**	
Know important functions (SSD, Fd light, EXT buttons, etc.)	**No**	**Yes**	
Know how to clear interlock when panel gets locked or thumb wheel gets jammed	**No**	**Yes**	

Hand Pendant			
Move table (vert, long, lat, couch rotation)	**No**	**Yes**	
Move gantry, collimator	**No**	**Yes**	
Know important functions (SSD, Fd light, Auto buttons, etc.)	**No**	**Yes**	
Retract/load MLC	**No**	**Yes**	
Know how to clear interlocks on pendant	**No**	**Yes**	
Know where to stand or position self when rotating gantry to avoid collisions	**No**	**Yes**	

Field Size (inside treatment room)			
Manually set field size (symmetric and asymmetric Y1, Y2, X1, X2)	**No**	**Yes**	
Automatically set field size (according to patient settings)	**No**	**Yes**	
Visualize half beam block	**No**	**Yes**	

Imager Pendant			
Move Imager into position, retract, move out	**No**	**Yes**	
Move Image detector (MV) to include field light (vert, long, lat)	**No**	**Yes**	
Know how to clear pendant interlocks	**No**	**Yes**	

Accessory Devices			
Attach accessory mount	**No**	**Yes**	
Insert wedge, cone and block (photon and electron)	**No**	**Yes**	

Patient Shifts			
Manually make patient shifts from inside the treatment room. (Even if facility makes shifts automatically from console area)	**No**	**Yes**	
Understand the impact of the shift on the numerical value of table coordinates	**No**	**Yes**	

Treatment Chart			
Identify prescription	**No**	**Yes**	
Identify photo ID/setup photos	**No**	**Yes**	
Identify consent form	**No**	**Yes**	

General Interlocks			
Understand parameter settings/table tolerances. (Stay highlighted on monitor until cleared within acceptable limits)	**No**	**Yes**	
Identify where treatment interlocks are shown on monitors	**No**	**Yes**	

Other Important Table Functions			
Table locks	**No**	**Yes**	
Emergency pendant	**No**	**Yes**	

Radiation Therapy

1. Introduction

ARRT BOARD APPROVED: **JANUARY 2021** EFFECTIVE: **JANUARY 1, 2022**

Candidates applying for certification and registration under the primary eligibility pathway are required to meet the Professional Education Requirements specified in the *ARRT Rules and Regulations*. ARRT's *Radiation Therapy Didactic and Clinical Competency Requirements* are one component of the Professional Education Requirements.

The requirements are periodically updated based upon a practice analysis which is a systematic process to delineate the job responsibilities typically required of radiation therapists. The result of this process is a task inventory which is used to develop the clinical competency requirements (see section 4 below) and the content specifications which serve as the foundation for the didactic competency requirements (see section 3 below) and the examination.

2. Documentation of Compliance

Verification of program completion, including Didactic and Clinical Competency Requirements and all degree-related requirements including conferment of the degree, will be completed on the Program Completion Verification Form on the ARRT Educator Website after the student has completed the Application for Certification and Registration.

Candidates who complete their educational program during 2022 or 2023 may use either the 2017 Didactic and Clinical Competency Requirements or the 2022 requirements. Candidates who complete their educational program after December 31, 2023 must use the 2022 requirements.

3. Didactic Competency Requirements

The purpose of the didactic competency requirements is to verify that individuals had the opportunity to develop fundamental knowledge, integrate theory into practice and hone affective and critical thinking skills required to demonstrate professional competency. Candidates must successfully complete coursework addressing the topics listed in the ARRT Content Specifications for the Radiation Therapy examination. These topics would typically be covered in a nationally-recognized curriculum such as the ASRT Radiation Therapy Curriculum. Educational programs accredited by a mechanism acceptable to ARRT generally offer education and experience beyond the minimum requirements specified in the content specifications and clinical competency documents.

4. Clinical Competency Requirements

The purpose of the clinical competency requirements is to verify that individuals certified by the ARRT have demonstrated competence performing the clinical activities fundamental to a particular discipline. Competent performance of these fundamental activities, in conjunction with mastery of the cognitive knowledge and skills covered by the certification examination, provides the basis for the acquisition of the full range of procedures typically required in a variety of settings. Demonstration of clinical competence means that the candidate has performed the procedure independently, consistently, and effectively during the course of his or her formal education. The following pages identify the specific procedures for the clinical competency requirements. Candidates may wish to use these pages, or their equivalent, to record completion of the requirements. The pages do NOT need to be sent to the ARRT.

General Performance Considerations

- **Patient Diversity**

  Demonstration of competence should include variations in patient characteristics such as age, gender, and medical condition.

- **Simulated Performance**

  ARRT defines simulation of a clinical procedure routinely performed on a patient as the candidate completing all possible hands-on tasks of the procedure on a live human being using the same level of cognitive, psychomotor, and affective skills required for performing the procedure on a patient.

  ARRT requires that competencies performed as a simulation must meet the same criteria as competencies demonstrated on patients. For example, the competency must be performed under the direct observation of the program director or program director's designee and be performed independently, consistently, and effectively.

  Simulated performance must meet the following criteria:
  - Simulation of procedures requires the use of proper equipment without activating the x-ray beam.
  - A total of three radiation treatment procedures may be simulated.
  - If applicable, the candidate must evaluate related images

  Examples of acceptable simulated performance include setting up another person for a treatment without activating the beam and evaluating a related portal image from a teaching file.

- **Elements of Competence**

  Demonstration of clinical competence requires that the program director or the program director's designee has observed the candidate performing the procedure independently, consistently, and effectively during the candidate's formal educational program. The exception is for procedures categorized as "participatory" as explained in 4.2.6.

- **Scope of Competence Assessment**

  The following is intended to offer a general guide to competence assessment in each of the three domains. It is recognized that most activities fall into more than one domain.
  - Cognitive Domain: As part of providing treatment, candidates should demonstrate their understanding of concepts related to anatomy, physiology, pathology, and dose to critical structures. Candidates should also recognize complications and side-effects commonly associated with each treatment procedure. If facilities have a limited number of treatment options, candidates should also describe alternative treatment procedures (e.g., IMRT, IGRT, stereotactic) and explain how those procedures might apply to a given case.
  - Psychomotor Domain: Candidates should demonstrate competence performing activities such as verifying treatment parameters, setting-up the treatment unit, positioning the patient, monitoring the patient during treatment delivery, and documenting treatment delivery.
  - Interpersonal Domain: Candidates should demonstrate ongoing sensitivity to and compassion for each patient's physical and emotional well-being, interact with members of the radiation therapy treatment team in a positive and productive manner, and maintain high ethical standards.

The duration of clinical training may not allow students to follow patients over the entire course of treatment. However, some provision should be made to permit candidates to interact with at least one patient and monitor the patient's progress over the continuum of their treatment planning and delivery.

Radiation Therapy Specific Requirements

- **General Patient Care**

  Candidates must be CPR certified and demonstrate competence in the remaining six patient care activities. The activities should be performed on patients whenever possible, but procedures may be demonstrated in a clinical lab environment if state or institutional regulations prohibit candidates from performing the procedures on patients.

- **Quality Control Procedures**

  Candidates must demonstrate competence in five quality control activities.

- **Treatment Simulation Procedures**

  Candidates must demonstrate competence in six treatment simulation procedures. It is expected that the candidate will participate with appropriate personnel at the following levels of responsibility*: perform, discuss, and review. All simulation procedures must be demonstrated on patients and reviewed with appropriate personnel.

  Demonstration of competence includes considerations related to radiation safety, equipment operation, patient and equipment monitoring, patient positioning and marking, treatment volume localization, imaging procedures, record keeping, and patient management and education.

  *Level of participation may depend on state or institutional requirements.

- **Dosimetry**

  Candidates must demonstrate competence calculating doses for six treatment plans. Calculations should be performed for actual patients; however, calculations may be completed in a clinical lab exercise if demonstration on actual patients is not feasible.

- **Treatment Accessory Devices**

  Candidates must demonstrate competence in fabricating three devices.

- **Participatory Procedures**

  Candidates must participate in four treatment procedures, one special treatment simulation procedure, and one treatment accessory device process that may be infrequent yet critical. Participation means that the candidate takes an active role in the procedure and understands the critical concepts vital to the success of the procedure. Participation may be performed in a clinical lab exercise if necessary.

- **Radiation Treatment Procedures**

  Candidates must demonstrate competence in 16 radiation treatment procedures. Thirteen procedures must be demonstrated on patients. Three procedures may be demonstrated in a clinical lab environment. Demonstration of competence does not require actual delivery of treatment dose. Demonstration of competence includes considerations related to radiation safety, equipment operation, patient and equipment monitoring, patient positioning, treatment volume localization, dose to critical structures, image acquisition and registration (e.g., MV, kV, CBCT), dose verification, record keeping, and patient management and education.

Clinical Competency Requirements

General Patient Care Procedures	**Date Completed**
CPR Certified	
Vital Signs – Blood Pressure	
Vital Signs – Pulse	
Vital Signs – Respiration	
Vital Signs – Temperature	
O_2 Administration	
Patient Transfer	
Quality Control Procedures	
Linear Accelerator	
Laser Alignment	
Imaging Systems	
Beam Output and Symmetry	
Simulator	
Laser Alignment	
QC Water Phantom (e.g., CT Number)	
Simulation Procedures	
Brain	
Head and Neck	
Thorax	
Breast	
Pelvis	
Skeletal	
Dosimetry	
Single Field	
Parallel Opposed Fields	
Weighted Fields	
Wedged Fields	
Computer Generated Isodose Plan	
Electron Field	
Treatment Accessory Devices	
Custom Bolus	
Custom Immobilization Devices (e.g., Foaming Agents, Vacuum Bags)	
Thermoplastic Mold	
Participatory Procedures	
Total Body Irradiation (TBI) Treatment	
Craniospinal Treatment	
Brachytherapy Treatment	
SBRT/SRS Treatment	
Special Treatment Simulation Procedure (e.g., 4D CT, SBRT, Gating, or Brachytherapy)	
Custom Block Process (Photon or Electron)* *may or may not include actual block fabrication (e.g., third party outsourcing)	

Radiation Treatment Delivery Procedures	Date of Pre-Competency Checklist	Date of Competency Testing	Patient or Simulated	Date of Continued Competency
Brain				
Primary				
Metastatic				
Head and Neck				
Multi-field				
Thorax				
Multi-field (non-IMRT)				
IMRT and/or Volumetric arc therapy				
Breast				
Tangents Only				
Tangents with Supraclavicular				
Tangents with Supraclavicular and Posterior Axilla Boost				
Special Set-up (e.g., Photon or Electron Boost, Prone, IMRT, Gating)				
Abdomen				
Multi-field				
Pelvis				
Multi-field Supine				
Multi-field Prone				
Skeletal				
Multi-field Spine				
Extremity				
Electron Fields				
Single				
Photon or Electron				
Abutting Fields				

Multi-field includes two or more fields, and may include 3D conformal, IMRT and/or volumetric arc therapy (unless specified otherwise).

Washburn University Radiation Therapy Program Defined Competencies

Imaging Competency	Date of Pre-Competency Checklist	Date of Competency Testing
MV		
KV		
CBCT		

Data Interpretation Competency	Date of Competency Testing
Verification Simulation	
Radiation Therapist Treatment Chart Check	

TREATMENT COMPETENCY OVERVIEW

Pre-Competency Checklist:
Prior to performing a primary treatment delivery or imaging competencies, students will successfully complete a pre-competency checklist for each procedure. The goal of the pre-competency checklist is to confirm a student's readiness to demonstrate competency.

Primary Treatment Delivery Competency:
The ARRT requires the student to demonstrate competence in 16 treatment delivery procedures of which 13 procedures will be demonstrated on actual patients. Competencies performed "Under Simulated Conditions" cannot be completed until the Summer Semester. If the student is at a facility in which the mandatory procedure is either not performed or rarely performed at the site, then the student should discuss the options with the Clinical Preceptor. The student will also email the Clinical Coordinator about the situation and maintain communication throughout the year in terms of competency status (see Semester by Semester Competency Requirements, section 3, pg. 8-9).

Continued Competency:
Students are required to complete a total of eight (8) continued competencies during the Winter Intersession and Summer Semester. A total of four (4) should be completed during the Winter Intersession and are re-tests of the categories achieved in the fall semester. The remaining four (4) continued competencies are to be completed throughout the summer semester and are re-testing of the categories tested in the fall or spring semester. The goal of the continued competencies is to show that the student demonstrates continued proficiency in the exams throughout the year.

Participatory Competency:
Students are required to complete six (6) participatory procedures which include TBI, CSA, SBRT/SRS, Special Simulation Procedure, Custom Block and Brachytherapy. The brachytherapy competency, if completed on an actual patient, can be either LDR or HDR cases. Electronic Brachytherapy **DOES NOT** meet the program requirements for the brachytherapy experience. The TBI and CSA competencies may be completed during the fall, spring, or summer semester if the procedure is completed on a patient. If students are unable to complete the TBI, CSA and Brachytherapy competency on an actual patient, students may complete the competencies under simulated conditions during the summer semester.

GUIDELINES FOR RADIATION TREATMENT PROCEDURE COMPETENCY TESTING

1. The first three (3) days of a new clinical rotation it is recommended the student should:
   a. **OBSERVE** – step back during the actual patient set-up and watch what the therapists are doing.
   b. **LISTEN** – listen to what the therapists are discussing with the patient regarding his/her well-being.
   c. **PRACTICE** – during slow periods of time in-between patients, go into the room and practice with the hand controls, placing the blocks and wedges, etc. Become familiar with all aspects of the room.

2. All students progress at different rates. In the fall semester, students generally begin treatment competency evaluations the first week of October. The supervising radiation therapist will agree that the student's skill level is acceptable for a competency attempt.

3. Student Responsibilities for Competencies:
   a. Prior to performing treatment competencies, the student will successfully complete a pre-competency checklist for the selected primary treatment delivery competency. The pre-competency checklists demonstrate a student's readiness for competency testing.
   b. Once the student and the supervising therapist agree that it is appropriate to begin the competency evaluation process, the student is to pick out the patient for competency three (3) clinical days or more in advance and inform the Clinical Preceptor of such.
   c. The student will initiate a conversation with the supervising radiation therapist about the therapist's evaluation expectations.
   d. The student is responsible for learning all details of the patient's case and will complete a typed case study addressing the patient's diagnosis, stage/grade of disease; medical history; social history; presenting symptoms; treatment approach; alternative treatment approaches; relevant critical structures; possible treatment induced side effects; and explain how the case coincides with or contradicts current research about the specific type of cancer.
   e. The student should review the competency study guides available in this manual to prepare for questions that may be asked by the evaluating therapist during the competency testing procedure.
   f. If the student fails the treatment competency, it will be recognized by the Clinical Coordinator during Trajecsys review. The student may contact the Clinical Coordinator at any time to discuss the failed treatment competency. After the student performs the procedure a minimum of three times, the student will attempt the competency again. The supervising therapist will submit a new competency evaluation in Trajecsys.

4. Therapist Responsibilities for Competencies:
   a. Allow the student to observe and practice during the first three (3) days of a new rotation.
   b. After day 3, one therapist will progressively step back (time permitting) to allow the student increased hands-on experience. It may be helpful to actually decide each clinical day, the role of the student. One day the student might use the pendant for setups, the next day the student will function without the pendant, the next day the student is responsible for acquiring every patient's treatment record, etc.
   c. During competency testing, allow the student to lead the procedure.
   d. Question the student to verify his/her level of understanding of the set-up by having the student critique port films, answer questions about oncology/pathology, identify anatomy,

discuss relevant critical structures, etc. Use open-ended questions to make the student verbalize answers beyond “yes” or “no.”

e. Complete the appropriate competency form in Trajecsys, providing written and verbal feedback in a timely manner.
f. Discuss the results of the competency evaluation with the student.
g. If the student fails the treatment competency, the student should perform the procedure a minimum of three times, the therapist may re-evaluate the student and submit a new competency form within Trajecsys.

5. Day of Competency:
   a. Student will confirm the desire to complete a competency evaluation prior to the patient arriving.
   b. The student is responsible for reviewing the patient’s treatment chart and will be able to state the patient’s diagnosis, the prescription, when portal images are due, and the cumulative dose.
   c. The student is responsible for having the room completely set-up prior to the patient entering.
   d. The student is responsible for escorting the patient from the waiting room to the treatment room.
   e. The student is responsible for conversation and assessment of the patient’s physical and emotional state.
   f. The student is to be the lead person during the procedure; a therapist may assist but not lead.
   g. The student should be prepared to answer questions regarding the patient’s case, treatment set-up, dose record, related anatomy, and critical structures.

COMPETENCY EVALUATION ~ REMEDIATION OF FAILED COMPETENCY

Failed attempts will be the score factored into the student's clinical grade. If a student fails an evaluation attempt, the following procedure will be followed:

- The student will discuss his or her performance with the evaluating therapist.
- The student will inquire about steps to improve his or her performance.
- The student will review the text and other written material pertaining to the competency.
- The student will continue the assignment to that particular area for additional practice.
- The student will perform the procedure a minimum of 3 times prior to re-testing.
- The student will then be re-evaluated by a Clinical Preceptor.
- It is ultimately the student's responsibility to communicate with the Clinical Coordinator regarding the failed competency and plans for re-evaluation.

Competency Performance Expectations

A primary competency evaluation with a score below 88% is considered failed. A continued treatment delivery competency evaluation with a score below 91% is considered failed.

In the event that 2 competency evaluations of any type are failed during the program, the Student Counseling Policy will be applied as follows:

1. **Documented initial warning** – Occurs when two competency evaluations of any type are failed.
2. **Disciplinary written warning** – Occurs when one additional competency evaluation of any type is failed beyond the initial two failed evaluations addressed in step 1.
3. **Disciplinary probation with a performance contract** – Occurs when one additional competency evaluation of any type is failed beyond the one failed evaluation addressed in step 2.
4. **Program dismissal** – Occurs when one additional competency evaluation of any type is failed beyond the one failed evaluation addressed in step 3.

STUDY GUIDES FOR TREATMENT DELIVERY COMPETENCY TESTING

General Information:

Directions: Address the following questions or statements:

- What is the Radiation therapist's responsibility in understanding the patient's medical history?
- State the importance in identifying a patient by two methods?
- State the importance of escorting the patient in and out of the treatment room?
- Why is a comprehensive approach to treatment, involving dietary/social work/spiritual health, beneficial to cancer patients?
- What is accomplished by the weekly status checks of the patient by the physician?
- List common immobilization devices and what types of setups they are used for?
- What are the possible side effects to skin that can result due to irradiation?
- Why are port films taken on a weekly basis?
- If SBRT/SRS – list the steps for the imaging process.
- If SBRT/SRS – What is the importance of verifying the dose?
- What is the importance of verifying SSD's?
- What impact does a wrong SSD have on a patient's treatment?
- What is the isocenter?
- What is the difference between SSD and SAD treatment techniques?
- Why is quality assurance testing such an important aspect of radiation therapy?
- How often are treatment charts (calcs, doses, etc.) checked?
- What impact does a cancer diagnosis have on a patient?
- What impact does a cancer diagnosis have on a family?
- Define the following terms:
    - Tumor dose
    - Cumulative dose
    - Cord dose
    - Verification
    - SAD
    - SSD
    - b.i.d.
- Review the patient treatment chart (whether paper or computerized), learn where to locate the prescription, learn to read the prescription, learn what other data is recorded on a daily basis; learn to confirm the accuracy of any cumulative doses.

WHOLE BRAIN: In preparation for the competency, consider the following:

- What are the traditional field borders for a whole brain field? (from Portal Design in Radiation Therapy, 3rd Edition)
- What is a whole brain field typically used to treat?
- What is a typical dose used in the treatment of whole brain fields?
- What are possible side effects of treating the whole brain?
- Why is a patient receiving whole brain treatment prescribed steroids to take during the course of treatment?
- List an example of a steroid that may be prescribed.
- Symptoms of increased intracranial pressure included: (depends on lobe affected)
- A separation measurement of the head is taken, it measures 16cm. For an SAD setup, what would the right and left lateral SSD's read?
- A separation of the head is taken, it measures 16cm. For an SSD setup, what would the right and left lateral SSD's read?
- Review the anatomy of the Central Nervous System.

EXTREMITY: Directions: Address the following questions or statements.

- Treatment of an extremity is commonly for the purpose of:
- What is a typical treatment schedule (dose, fractions, dose/fraction) for an extremity?
- What is the importance of sparing 1-2cm of tissue from receiving dose?
- What are possible side effects of treating an extremity?
- For a humerus field, the collimator of the AP field is rotated 10 degrees to match the angle of the humerus. When rotating the PA field, does the collimator position stay the same?
- What instructions are given to a patient concerning skin care?
- Review skeletal anatomy (humerus, femur, tib/fib, hip).

SPINE: Directions: Address the following questions or statements.

- Treatment of the spine is commonly performed to treat:
- The spinal cord has a dose tolerance of?
- What factors impact the dose tolerance of the spine (or any other organ)?
- The spinal cord extends from/to:
- Review common landmarks and what they represent. For example T10 = xiphoid?
    - C2-3 =
    - C4 =
    - C6 =
    - T2 =
    - T4 =
    - T7 =
    - T10 =
    - L4/5 =
- How would an SAD treatment technique of the spine differ from an SSD technique?
- What are possible side effects of treating the spine?
- What is a typical dose for treating metastatic spine lesions?
- Is blocking typically used in a spinal field?
- Review the anatomy of the spinal cord and vertebral bodies.

SKIN: Directions: Address the following questions or statements.

- What are the three main forms of skin cancer?
- What is the most common skin cancer in the US?
- Are photons or electrons usually used for treatment of skin cancer?
- What is the basic difference between photon and electron irradiation?
- Why would bolus be used in treatment of skin cancer lesions?
- What types of material can be used to construct bolus material?
- What would be the impact to the patient if the therapist forgets to place the bolus?
- Why is radiation used for lesions of the ear, nose, eye, mouth rather than surgery?
- What are possible side effects of irradiating the skin?
- Are treatment fields for skin lesions commonly SSD or SAD?

RESPIRATORY: Directions: Address the following questions or statements.

- What are the main forms of lung cancer?
- What lung cancer is notorious for metastasizing to the brain early?
- With what symptoms does a lung cancer patient present?
  What are possible acute and chronic side effects of treating the lung?
- What critical structures are of concern with treating the lung?
- A patient with lung cancer is treated with AP/PA fields for the first 22 fractions and then the fields change to obliques. What is the purpose of changing to oblique fields?
- Under what circumstances are the SCV nodes included in the treatment field?
- What is the Superior Vena Cava Syndrome?
- Define the following terms:
    - Anoxia
    - Hemoptysis
    - Apnea
    - Carina
    - Asphyxia
    - Brachial Plexus
    - Aspirate

- Review anatomy of the respiratory system.

BREAST: Directions: Address the following questions or statements.

- Discuss the various forms of breast cancer.
- Discuss the prognostic factors related to breast cancer.
- How does lumpectomy + radiation compare to mastectomy for early stage breast cancer?
- Why are lumpectomy scars or mastectomy scars boosted?
- What type of radiation is typically used for scar boost?
- Discuss the purpose of bolus.
- Discuss why air gaps under the bolus are not helpful in achieving the desired effect.
- When treating a medical tangent field, the therapist notices that there is a flash on the patient's upper arm (above the axilla). What impact could this have on the patient if not adjusted?
- When treating a supraclavicular field, what is the purpose of turning the patient's head away from the affected side?
- As a general rule, photon fields cannot match, due to the divergence of the beams, without resulting in hot spots. What makes it possible for the tangent photon fields and supraclavicular photon field to match?
- How much lung tissue in the treatment field is acceptable?
- What side effects result from external beam treatment of the breast?

PELVIS: Directions: Address the following questions and statements.

- What form of cancer fall under the category of male reproductive and genitourinary tumors?
- What forms of cancer fall under the category of gynecologic tumors?
- What forms of cancer fall under the category of gastrointestinal or digestive tumors?
- What is the most common form of genitourinary tumor?
- What is the most common form of gynecological tumor?
- What is the most deadly form of gynecological tumors?
- What is the most common form of gastrointestinal tumors?
- What critical structures of the pelvis will be considered when treating the pelvic area?
- What are the main lymph nodes in the region of the pelvis?
- What are the possible side effects of treating the pelvis?
- What instructions are given to patients for treatment when treating the pelvic area?
- What medications can be used to help reduce the side effect of diarrhea?
- Why is the prone position commonly used for treatment of colorectal cancer and even some gynecological cancers?
- List standard total curative doses for:
    - Prostate cancer:
    - Colorectal cancer:
    - Bladder cancer:
    - Endometrial cancer:
    - Esophageal cancer:
    - Cervical cancer:
- What is the role of brachytherapy for the treatment of gynecologic tumors:
- What is an APR scar and why would it be important to bolus it during treatment of the pelvis for colorectal cancer?
- What role does chemotherapy have in treatment of colorectal and esophageal cancer?
- What is the impact of the patient receiving both chemotherapy and radiation therapy simultaneously?
- Review anatomy of the GU, GI and GYN systems.

ENDOCRINE: Directions: Address the following questions or statements.

- What endocrine related cancers are seen in radiation therapy?

- What is the most common endocrine malignancy?
- Are pituitary tumors primarily malignant or benign?
- Describe the treatment fields used to treat pituitary tumors.
- What total dose is used to treat pituitary tumors?
- What critical structures will be considered when treating a pituitary tumor?
- During portal image verification of a pituitary field, it is impossible to take a port film of a vertex field due to the gantry angle. What can a therapist do to verify the isocenter position of the field prior to treatment?
- Discuss the possible side effects of treatment of an endocrine tumor.
- Discuss the anatomy of the endocrine system.
- What is a typical total dose for treatment of breast cancer?
  A patient comes in for treatment and complains that her skin in the treatment area is itching. What instructions / medications may be recommended to the patient?
- To what organs does breast cancer typically metastasize?

TOTAL BODY IRRADIATION: Directions: Address the following questions or statements.

- The role of TBI when treating leukemia is:
- Leukemia is the #1 cancer in which group: 1) adults 2) children
- Describe the typical schedule of a TBI treatment course.
- What are the potential side effects of total body irradiation?
- Why is a low dose rate used when treating total body?
- Why are proper isolation techniques so important when treating TBI patients?
- The purpose of lung transmission blocks is to:
- Define the following terms:
  - Leukocytosis:
  - Leukopenia:
  - Leukemia:
  - Bone marrow:
  - Stem cells:
  - Nadir:

CRANIOSPINAL AXIS: Directions: Address the following questions or statements.

- Which fields make up a craniospinal axis technique?
- The goal of a craniospinal axis setup is to:
- Give one example of a type of cancer whose treatment plan involves craniospinal axis treatment.
- What is the purpose of a skin gap between the lower border of the whole brain fields and the upper border of the PA spine field?
- What are possible side effects of a craniospinal axis treatment?
- What total dose is typically delivered to the brain (including posterior fossa boost) and spine using the craniospinal axis technique?
- Find the necessary skin gap if the length of the first field is 22cm and the length of the second field is 38cm. All fields are treated at 100cm SSD and the depth is 6cm.
- Discuss the importance of patient immobilization when treating a craniospinal axis field.

PRE-COMPETENCY CHECKLIST
(Treatment Delivery Competency)
EXAMPLE – Actual Form is in Trajecsys

Prior to performing a primary treatment delivery competency, a pre-competency checklist (per competency procedure) will be completed to show readiness for competency testing. The checklist is to be completed by the Clinical Preceptor or another supervising therapist within Trajecsys. All objectives will be successfully met prior to performing the correlating competency.

The student will demonstrate the following criteria:	Yes	No
1. Data Interpretation • Demonstrates location of prescription. • Demonstrates understanding of prescription content. • Compares patient's cumulative dose against prescribed total dose. • Assesses need for imaging, diode readings and/or SSD verifications. • Selects appropriate treatment plan/course/phase for treatment.		
2. Treatment Room Preparation • Accurately and efficiently prepares room for specified patient. • Demonstrates ability to use or adjust immobilization devices and employ auxillary equipment during treatment, if applicable.		
3. Greeting of Patient • Identifies correct patient using 2 forms of appropriate identification. • Properly introduces self to patient. • Assists patient as needed. • Properly explains procedure and/or addresses patient questions. • Maintains patient-focused conversation. • Demonstrates empathy.		
4. Patient Assessment • Assesses patient status through observation and questioning • Provides accurate patient education within scope of practice. • Recognizes when patient should be referred to nursing staff or physician.		
5. Patient Positioning • Properly positions patient on table, using immobilization device(s) properly. • Accurately reproduces setup in a timely fashion. • Verifies SSDs and/or other pre-determined measurements • Assesses setup in regards to match lines, shifts, skin gaps, etc. • Confirms all record and verify parameters have been met. • Informs patient to remain still for treatment.		
6. Treatment Delivery • Performs procedural timeout prior to beam activation. • Verifies setup data with registered radiation therapist. • Describes use of intercom and beam off process in case such action is needed. • Demonstrates or describes operation of console controls for beam activation. • Closely monitors patient during treatment delivery. • Transitions to next treatment field efficiently. • Accurately records daily doses, MU settings & cumulative dose(s).		

The student will demonstrate the following criteria:	Yes	No
7. Professionalism • Performs procedure with professional confidence. • Performs procedure while maintaining professional work standards. • Demonstrates adherence to ethical standards.		
8. Image Critique *(may be simulated using previous films)* • Identifies pertinent gross anatomy. • Identifies pertinent critical structures. • Critically evaluates image for accurate positioning.		
9. Safety Issues • Performs procedure at an acceptable pace. • Makes certain treatment delivery is accurate by drawing and checking match lines, confirming flash, verifying relationship of light field to treated area (i.e. field shape and location "make sense" for area being treated.) • Ensures safety by using equipment properly, stands on correct side of the table when rotating the gantry, inserts accessories safely, and employs MRI safety and practice concepts in treatment delivery, if applicable.		
10. Communication • Provides clear instructions to patient as needed. • Effectively answers patient questions & addresses patient concerns. • Communicates discrepancies to appropriate members of the treatment team.		

Primary Treatment Delivery Competency
Case Study Requirement

Email a typed case study (following the format below) for each primary treatment delivery competency, TBI, CSA, SBRT/SRS competency (if performed on a patient rather than simulated) to the Clinical Coordinator **at least** 1 day prior to performing the competency.

Each case study will include the following information. An example is provided on the next page.

1. Diagnosis
2. Stage
3. Grade
4. Patient's Medical History
5. Social History
6. Symptoms
    a. What did the patient present with upon diagnosis?
7. Treatment
    a. Prescription
    b. Type of treatment (3DCRT, IMRT, Arc, etc.)
    c. Field structure (4 field, Tangents, Parallel Opposed, 7-field IMRT, 2 Arcs, etc.)
    d. Imaging schedule
    e. Are there specific nodes to be included in the fields?
    f. Is the patient receiving concurrent chemo?
    g. Did the patient have surgery?
8. Alternate Treatment Options
    a. *Example:* If the patient was prescribed IMRT treatments, consider why 3DCRT or arc therapy was not prescribed.
    b. *Example*: Consider why the patient is not a good candidate for brachytherapy.
    c. *Example*: Consider why daily CBCT was selected rather than weekly portal imaging.
9. Relevant Critical Structures
10. Side Effects
    a. Discuss side effects that may be expected with this form of treatment, including alleviation methods.
    b. Consider whether the patient is currently experiencing side effects related to the treatment and what interventions have been prescribed or recommended to manage the side effect(s).
11. Evaluation of Case Against Research or Known Facts of Cancer Type
    a. Evaluate of how the case coincides or contradicts current research about the cancer's epidemiology, etiology, and presentation.
        i. Did the patient present with the typical symptoms for the diagnosis?
        ii. Did the patient have any typical risk factors that are associated with the given cancer type?
        iii. Does the patient's age/gender/ethnicity correlate to the typical age/gender/ethnicity for the given cancer type?

EXAMPLE TREATMENT COMPETENCY CASE STUDY

Each primary treatment delivery competency requires the submission of a case study prior to completing the competency. The case study will include the following information and resemble the same format as below. Students are required to email the typed case study to the Clinical Coordinator at least 1 day prior to the scheduled competency date.

Name: Student **Competency Category:** Pelvis-Multiple Field Supine

DIAGNOSIS & STAGE & GRADE
This patient has been diagnosed with invasive transitional cell carcinoma of the bladder. During a cystoscopy aggressive resection was attempted with approximately 50g of tumor resected. Pathology reported a high grade transitional cell carcinoma. It is locally advanced without evidence of metastatic disease.

MEDICAL HISTORY
This patient experienced menarche at age 14 and menopause at age 50. She was pregnant 6 times and gave birth six times. Her last pregnancy was at age 32. The patient's family history is significant for colon cancer in her mother who died of the disease. She has one sister with cancer (type unknown). Her current medications include Actonel, Vitamin D, Calcium, Coumadin, Ferrous Sulfate, Zoloft and Strattera.

SOCIAL HISTORY
The patient is an 80-year-old Caucasian female. She is married and has six grown children. She has been a homemaker all of her life. She and her husband are from Kansas and have lived there all of their lives. She has a history of tobacco use, approximately 60-pack per year for over 50 years but quit 3 years ago. She denies any alcohol use.

SYMPTOMS
The patient started having multiple episodes of gross hematuria which prompted a cystoscopy. The cystoscopy noted a massive tumor involving the bladder; virtually 60-70% of the entire bladder along the floor, trigone, and neck region were affected. Resection of the tumor was done at the time of the cystoscopy. Metastatic evaluation including a PET/CT scan showed a 6.7cm mass arising in the right trigone of the urinary bladder highly suspicious for pedunculated bladder neoplasm. No other abnormities were noted and no evidence of metastatic disease was identified.

TREATMENT
The patient is not a candidate for definitive surgical resection or aggressive combination chemotherapy but has been deemed a candidate for radio sensitization doses of cisplatin. Definitive radiation treatment using 3DCRT. 4 field technique has been prescribed to deliver 180cGy/fraction to a total dose of 65Gy with a field reduction scheduled at 45Gy. The fields include the following nodes: perivesical, obturator, external iliac and internal iliac nodes.

ALTERNATIVE TREATMENT OPTIONS
Other possible options for radiation therapy treatment to the pelvis could have been Arc therapy or IMRT. Daily IGRT could be beneficial due to the high degree of movement and placement uncertainty of the bladder. However, due to the necessary field size to include lymph nodes, a four field technique was chosen for this patient.

RELEVANT CRITICAL STRUCTURES
Since the patient is being treated using a conformal four-field technique, other structures that would be of concern include the small bowel and rectum. Contrast may be used at the time of simulation in order to help the physician and dosimetrist visualize critical structures when planning the patient's treatment.

SIDE EFFECTS
A patient who is undergoing radiation treatment for bladder cancer may experience dysuria and cramping. Because of the location it is also possible for the patient to have diarrhea as some of the small bowel and rectum may be included in the treatment field. To help reduce side effects, the patient may be simulated with an empty bladder which would allow for a smaller treatment field. The side effects can usually be managed by maintaining the recommended diet and using antidiarrheal medications and pyridium when instructed.

EVALUATION
This patient has been diagnosed with high grade transitional cell carcinoma of the bladder without any evidence of metastatic disease. Bladder cancer is the 5th most commonly diagnosed cancer in the U.S.: 4th in men and 9th in women. Transitional cell is the most common histology of bladder cancer. This patient had several risk factors which included smoking, a family member with colon cancer (certain types of colon cancer are related to bladder cancer), being over the age of 65 and being Caucasian. As well, the patient presented with the primary symptom of bladder cancer; gross hematuria.

TREATMENT DELIVERY COMPETENCY
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

UNDER SIMULATED CONDITIONS			Comments:
The competency category is 1 of the competencies designated by the ARRT. Out of the 16 competency categories, 13 procedures will be demonstrated on patients – 3 procedures may be performed under simulated conditions. Simulating a procedure is to be done with the same level of cognitive, psychomotor, and affective skills required for performing the procedure on the patient. This procedure is not done or rarely done at the facility and therefore the student completed the competency under simulated conditions.	**Yes**	**No**	

DATA INTERPRETATION						**Comments**
a. Demonstrates location of the prescription.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Demonstrates understanding of the prescription content.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Compares patient's cumulative dose against prescribed total dose.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Assesses need for imaging, diode readings, SSD verifications.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Selects appropriate treatment plan/course/phase for treatment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

TREATMENT ROOM PREPARATION						**Comments**
a. Accurately and efficiently prepares room for specified patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Demonstrates ability to use or adjust immobilization devices and employ auxillary equipment during treatment, if applicable.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
GREETING OF PATIENT						**Comments**
a. Identifies correct patient using 2 forms of appropriate identification.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Properly introduces self to patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Assists patient as needed.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Properly explains procedure or addresses patient questions.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Maintains patient-focused questions.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
f. Demonstrates empathy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT ASSESSMENT						**Comments**
a. Assesses patient status through observation and questioning.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Provides accurate patient education within scope of practice.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Recognizes when patient should be referred to nursing staff or physician.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT POSITIONING						**Comments**
a. Properly positions patient on table, using immobilization properly.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Accurately reproduces setup in a timely fashion.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Verifies SSDs and/or other predetermined measurements.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Assesses setup in regards to match lines, shifts, skin gaps, etc.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Confirms all record and verify parameters have been met.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
f. Informs patient to remain still for treatment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
TREATMENT DELIVERY						**Comments**
a. Performs procedural timeout prior to beam activation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

b. Verifies setup data with registered radiation therapist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Describes use of intercom and beam off process in case such action is needed.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Demonstrates or describes operation of console controls for beam activation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Closely monitors patient during treatment delivery.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
f. Transitions to next treatment field efficiently.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
g. Accurately records daily doses, MU settings, and cumulative doses.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PROFESSIONALISM						**Comments**
a. Performs procedure with professional confidence.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Performs procedure while maintaining professional work standards.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Demonstrates adherence to ethical standards.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
IMAGE CRITIQUE						**Comments**
a. Identifies pertinent gross anatomy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Identifies pertinent critical structures.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Critically evaluates image for positioning accuracy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SAFETY ISSUES						**Comments**
a. Performs procedures at an acceptable pace.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Makes certain treatment delivery is accurate by drawing match lines, confirming flash, verifying relationship of light field to treated area (i.e. field shape and location “make sense” for area being treated.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Ensures safety by using equipment properly, stands on correct side of the table when rotating the gantry, inserts accessories safely, and employs MRI safety and practice concepts in treatment delivery, if applicable.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

COMMUNICATION						**Comments**
a. Provides clear instruction to patient as needed.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Effectively answers patient questions and addresses patient concerns.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Communicates discrepancies to appropriate members of the treatment team.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS Please include any additional comments and/or feedback in regards to the student's performance.						
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.						
STUDENT ACKNOWLEDGEMENT – Student Use Only Student should complete a post-submission comment after they have reviewed the evaluation.						

SBRT/SRS PARTICIPATORY COMPETENCY EVALUATION

Directions: The ARRT has instituted a participatory SBRT/SRS competency requirement. Per the ARRT's definition, participation means the candidate takes an active role in the procedure and understands the critical concepts vital to the success of the procedure.

At the time of evaluation, the student will have completed a minimum of 10 Stereotactic Treatment experiences, per the Logsheet requirements (see section 3, pg. 34) and a submitted typed case study.

A registered radiation therapist, dosimetrist, and/or physicist will evaluate the student's participatory performance using the criteria established in the competency evaluation form. Under NO circumstances should an N/A be awarded for any of the elements on this evaluation. If a task cannot be physically demonstrated, it will be discussed verbally, or knowledge evaluated through questioning.

If the student fails a SBRT/SRS competency, it will be recognized by the Clinical Coordinator during Trajecsys review. The student may contact the Clinical Coordinator at any time to discuss the failed competency. The student will discuss his/her performance with the evaluating therapist and inquire about steps for improvement. When the student and supervising therapist agree that the student is ready to attempt anther brachytherapy competency, the competency will be completed and the supervising therapist will submit a new competency evaluation in Trajecsys.

SBRT/SRS TREATMENT – PARTICIPATORY COMPETENCY
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

PURPOSE						**Comments**
a. Accurately states the rationale for the use of stereotactic procedures.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DATA INTERPRETATION						**Comments**
a. Demonstrates understanding of the location of the prescription and understanding of the prescription content.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
TREATMENT ROOM PREPARATION						**Comments**
a. Accurately and efficiently prepares room for specified patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
GREETING OF PATIENT						**Comments**
a. Identifies correct patient using 2 forms of appropriate identification and properly introduces self to patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Properly explains procedure or addresses patient questions within scope of practice.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT POSITIONING						**Comments**

a. Properly positions patient on table, using stereotactic immobilization.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Demonstrates ability to employ management devices, if applicable (i.e., respiratory gating equipment, abdominal compression, optical tracking system, etc).	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Accurately reproduces setup in a timely fashion.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Verifies SSDs and/or other predetermined measurements.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Confirms all record and verify parameters have been met.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
TREATMENT DELIVERY						**Comments**
a. Performs procedural timeout prior to beam activation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Verifies setup data with registered radiation therapist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Accurately operates treatment unit after radiation oncologist and physicist have approved the clinical and technical aspects of beam delivery.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Closely monitors patient during treatment delivery.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Completes all required treatment delivery documentation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
f. Accurately captures billing charges, per institution's guidelines.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
IMAGE CRITIQUE						**Comments**
a. Identifies pertinent gross anatomy and critical structures.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Critically evaluates images for positioning accuracy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SAFETY ISSUES						**Comments**
a. Adheres to institutional guidelines regarding the supervision by the Radiation Oncologist and Medical Physicist during stereotactic procedures	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Performs procedures at an acceptable pace.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

ADDITIONAL COMMENTS Please include any additional comments and/or feedback in regards to the student's performance.	
EVALUATOR INFORMATION Please provide your full name and credentials to help maintain an accurate and complete student record.	
STUDENT ACKNOWLEDGEMENT – Student Use Only Student should complete a post-submission comment after they have reviewed the evaluation.	

TREATMENT DELIVERY ROTATION – IMAGING PROCEDURES

Students will gain experience with the treatment console and imaging software throughout the clinical phase of the program. While students are prohibited from “beaming on” in the fall semester, students will play an active role in the treatment delivery and image alignment processes.

The program has defined three mandatory Imaging Competencies to be completed in the Spring Semester. Completion of the MV, KV, and Cone Beam CT competencies will provide students with entry-level knowledge and skills regarding image acquisition and alignment.

Requirements to be eligible to complete the imaging competencies:

- A pre-competency checklist will be completed prior to performing an imaging competency. The pre-competency checklists and competencies will be submitted by the Clinical Preceptor or other supervising registered radiation therapist in Trajecsys.

See Performance Expectations for all Competency Evaluations (section 3, pg. 10) in the event of a failed competency.

Rotation Objectives

- Provide consistent radiation protection for the patient and operator.
- Attend to each patient’s safety and comfort by critiquing imaging in a timely fashion.
- Act in a professional manner at all times.
- Incorporate HIPAA requirements into clinical practice.
- Demonstrate proper usage and care of imaging equipment.
- Demonstrate the ability to effectively answer patient questions and addresses patient concerns regarding imaging.
- Critically assess image for positioning accuracy and treatment field alignment.
- Communicate discrepancies to appropriate members of the treatment team.
- Demonstrates understanding of manual matching with image comparison as well as the IGRT process for verification/localization.

PRE-COMPETENCY CHECKLIST
(Imaging Competency)
EXAMPLE – Actual Form is in Trajecsys

Prior to performing an imaging competency, a pre-competency checklist will be completed (per competency procedure) to show readiness for competency testing. The checklist is to be completed, per imaging competency, by the Clinical Preceptor or other supervising registered radiation therapist within Trajecsys. All objectives will be successfully met prior to performing competency.

The student will demonstrate the following criteria:	Yes	No
1. Data Interpretation • Identifies documentation for necessity of image. • Demonstrates understanding as to why the selected type of imaging is being performed. • Shows knowledge of advantages and disadvantages of the applicable imaging format.		
2. Communication • Provides clear instructions to the patient as needed. • Effectively answers patient questions and addresses patient concerns regarding necessity of imaging. • Informs patient to remain still for imaging process as well as scheduled treatment to follow. • Communicates discrepancies to appropriate members of the treatment team.		
3. Safety • Appropriately identifies imaging equipment. • Follows recommended order of operations regarding extension of imaging arms and gantry rotation. • Ensures safety by using equipment properly. • Verifies safety by closely monitoring the rotation of the imaging equipment in relation to patient position on table. • Performs image alignment and critique at an acceptable pace. • Closely monitors patient during imaging process.		
4. Image Console Preparation • Demonstrates knowledge of proper hand pendant usage for arm extension and retraction. • Demonstrates knowledge of imaging console usage for arm extension and retraction. • Accurately and efficiently prepares treatment software for specified patient. • Demonstrates ability to accurately select and mode up appropriate imaging format.		
5. Imaging Process • Applies appropriate techniques or modifies window levels to enhance image details, reduce image distortion, and localize specific anatomy. • Requests physician approval of imaging, when applicable. • Accurately performs imaging process from start to finish. • Demonstrates knowledge of exiting imaging software and transitioning to treatment software efficiently.		

The student will demonstrate the following criteria:	Yes	No
6. Image Evaluation & Critique • Discuss field border landmarks for standard treatment fields. • Identifies pertinent gross anatomy and normal anatomical structures via applicable imaging format. • Identifies pertinent critical structures. • Determines accuracy of patient positioning via image alignment. • Verifies accuracy of isocenter and treatment field placement via image alignment. • Comparison analysis of image for verification/localization • Understanding of manual matching with image comparison as well as IGRT process for verification/localization. • Identifies various treatment planning and anatomical contours as well as their representation on a Cone Beam CT image (if applicable.) • Demonstrates understanding of patient shifts versus isocenter shifts. • Utilizes fiducials or markers for alignment, if applicable.		
7. Image Assessment • Recognizes need of physician or dosimetry notification when image demonstrates abnormalities. • Demonstrates understanding of site standard regarding table shift limits. • Demonstrates understanding of site standard regarding repeat-image requirements. • Accurately performs repeat-image (if applicable.) • Completes necessary documentation in respect to the imaging process. • Accurately schedules patient's future images per physician's request.		
8. Professionalism • Performs procedure with professional confidence • Performs procedure while maintaining professional work standards. • Demonstrates adherence to ethical standards.		

IMAGING COMPETENCY
MV, KV, and Cone Beam CT
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

DATA INTERPRETATION: The student will demonstrate the following criteria:						**Comments**
Identifies documentation for necessity of image.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates understanding as to why the selected type of imaging is being performed.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Shows knowledge of advantages and disadvantages of the applicable imaging format.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
COMMUNICATION: The student will demonstrate the following criteria:						**Comments**
Provides clear instructions to the patient as needed.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Effectively answers patient questions and addresses patient concerns regarding necessity of imaging.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Informs patient to remain still for imaging process as well as the scheduled treatment to follow.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Communicates discrepancies to appropriate members of the treatment team.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SAFETY: The student will demonstrate the following criteria:						**Comments**
Appropriately identifies imaging equipment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Follows recommended order of operations regarding bringing out of imaging arms and gantry rotation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Ensures safety by using equipment properly.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies safety by closely monitoring the rotation of the imaging equipment in relation to patient position on table.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs image alignment and critique at an acceptable pace.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Closely monitors patient during imaging process.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
IMAGE CONSOLE PREPARATION & IMAGING PROCESS: The student will demonstrate the following criteria:						**Comments**
Demonstrates knowledge of proper hand pendant usage for arm extension and retraction.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of imaging console usage for arm extension and retraction.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately and efficiently prepares treatment software for specified patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates ability to accurately select and mode up appropriate imaging format.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Applies appropriate techniques or modifies window levels to enhance image details, reduce image distortion, and localize specific anatomy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Requests physician approval of imaging, when applicable.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately performs imaging process from start to finish.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of exiting imaging software and the transition to treatment software efficiently.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
IMAGE EVALUATION & CRITIQUE: The student will demonstrate the following criteria:						**Comments**
Discuss field border landmarks for standard treatment fields.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies pertinent gross anatomy and normal anatomical structures via applicable imaging format.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Identifies pertinent critical structures.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Determines accuracy of patient positioning via image alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies accuracy of isocenter and treatment field placement via image alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Comparison analysis of image for verification/localization.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Understanding of manual matching with image comparison as well as the IGRT process for verification/localization.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Identifies various treatment planning and anatomical contours as well as their representation on a Cone Beam CT image, if applicable.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates understanding of patient shifts versus isocenter shifts.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Utilizes fiducials or markers for alignment, if applicable.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
IMAGE ASSESSMENT: The student will demonstrate the following criteria:						**Comments**
Recognizes need of physician or dosimetry notification when image demonstrates abnormalities.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates understanding of site standard regarding table shift limits.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates understanding of site regarding repeat-image requirements.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately performs repeat-image, if applicable.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Completes necessary documentation in respect to the imaging process.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately schedules patient's future images per physician's request.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PROFESSIONALISM: The student will demonstrate the following criteria:						**Comments**
Performs procedure with professional confidence.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs procedure while maintaining professional work standards.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates adherence to ethical standards.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT **STUDENT USE ONLY** **Student should complete a post-submission comment after they have reviewed the evaluation.**						

FAQ ABOUT COMPETENCIES

When can I start primary treatment delivery competency testing? Prior to completing primary treatment delivery competency testing, students will complete a pre-competency checklist for the selected procedure. Students may then begin competency testing the first week of October IF the supervising staff agrees that the student is prepared for such testing.

Do I have to complete all of the required pre-competency checklists prior to performing my first treatment delivery competency? No, you will only complete the pre-competency checklist for the procedure you plan to attempt competency. Example: You will successfully complete the primary brain pre-competency checklist prior to attempting a primary treatment delivery competency for primary brain.

What happens if a pre-competency checklist is not successfully completed? The goal of the pre-competency checklists is to help the student and clinical site staff determine student's readiness for competency testing. Unsuccessful completion indicates the need for continued learning. Although a score is not attached to the pre-competency checklist, it will be successfully completed prior to moving on to competency testing.

Is a case study required for all treatment delivery competencies? A case study will be completed for all primary treatment delivery competencies (not continued competencies) that are performed on an actual patient, which is always the preference (only 3 primary treatment delivery competencies can be completed under simulated conditions). Additionally, case studies are required for brachytherapy procedures, SBRT/SRS, TBI and CSA, if these are to be performed on an actual patient.

Can I complete the patient care competencies in the fall semester? Yes, the patient care competencies of blood pressure, pulse, respiration, temperature, patient transfer, and oxygen administration may be completed in the fall semester, although they are not due the end of the program. The nursing professionals within the department may submit competency evaluations in Trajecsys for these categories. Current CPR certification will be held throughout the program year and is sufficient for meeting the CPR competency requirement.

Do the treatment accessory device competencies for photon/electron block and bolus have to wait until the summer semester? Throughout the program year, students will document any and all block cutting and bolus experience on the Daily Log Sheet in Trajecsys (see Daily Logsheet Requirements, section 3, pg. 34). The competency testing for photon/electron blocks and bolus do not have to wait until the summer semester but may be completed at any point in the program after logging the minimum number of activities.

My site says I'll never see certain treatment procedures. How am I supposed to complete competency evaluation? You will have to be patient to see what procedures present themselves throughout the program year. Keep in mind that 3 of the 16 mandatory treatment delivery competencies can be completed under simulated conditions in the summer semester. If concerned about access to certain procedures or equipment, students will communicate this concern to the Clinical Coordinator as soon as it is identified.

My site does not perform Total Body Irradiation or Craniospinal Axis treatments. How can I achieve these competency requirements? These may be completed under simulated conditions, but not until the summer semester. There will be additional resources made available to students to prepare for the simulated experience.

Can I complete more than 7 primary treatment delivery competencies in the fall semester if I have the opportunity to do so? Yes, the program requires a minimum of 7 primary treatment delivery competencies, but students may complete a maximum of 10 if the opportunity arises.

What are continued competencies? Continued competencies are a method of reassessing clinical skills and knowledge after competency testing. The intent is to demonstrate continued knowledge and the ability to adapt to varying patient characteristics like age, gender, health status, etc.

Do I have to run the console and demonstrate knowledge of the treatment record (paper & electron record) for competency testing? Yes, this is a criteria of the treatment delivery competency forms. Students will be able to run the console and display knowledge of the treatment record either through demonstration or verbal explanation.

When can I start to complete competency testing for procedures that will have to be completed under simulated conditions? If a site has limited exposure to certain treatment competencies, 3 primary treatment delivery competencies may be done under simulated conditions. It is the preference of the program to have all procedures completed on actual patients if possible. Primary treatment delivery competencies and TBI/CSA competencies performed under simulated conditions cannot be completed until the summer semester.

What happens if I fail a competency? The Clinical Preceptor or other supervising registered radiation therapist will complete the evaluation form in Trajecsys and will review the evaluation with the student to offer meaningful feedback. Additionally, the student may contact the Clinical Coordinator at any time to discuss the failed treatment competency. The failed competency will be recognized by the Clinical Coordinator during the weekly Trajecsys review. After the student performs the procedure a minimum of three times, the student may reattempt the competency and the Clinical Preceptor or other supervising registered radiation therapist will submit a new competency evaluation in Trajecsys (see Performance Expectations for all Competency Evaluations, section 3, pg. 10).

How many competencies can I fail? If a student fails two competencies or has failed two attempts on the same competency category, the Student Counseling process will begin (see Section 2, pg. 45).

Can more than one treatment delivery competency be completed on a given patient? No, each competency will be completed on a separate patient.

My site was slow to allow hands-on experience and now I don't know if I can complete 7 competencies by the end of the fall semester. What should I do? You should be talking to the program Clinical Coordinator early and often to avoid such circumstances. Students cannot be passive; rather they will take initiative to communicate with their clinical site staff about the program requirements, deadlines, objectives, etc. Taking no action until the end of the semester will not serve a student well. Communication with the clinical site staff and program faculty is essential.

Does the abutting field treatment delivery competency include photon-to-photon abutment, electron-to-electron abutment, or electron-to-photon abutment? Per the ARRT, photon-to-photon abutment, electron-to-electron abutment, and electron-to-photon abutment meet the requirement as long as the student understands the concept of the abutment and the three abutment circumstances differ.

SIMULATION ROTATION

Students will complete a short rotation through simulation in the fall semester to gain a broad understanding of the radiation oncology department. The bulk of the simulation experience will occur during the spring semester.

Logsheet, checklists, and competency requirements associated with this rotation include:

1. Students will log experiences with **motion management techniques** (respiratory gaiting, abdominal compression, and/or breath hold techniques) in Trajecsys under the Daily Logsheet tab (See Daily Logsheet Requirements, section 3, pg. 34).
2. Students will log any and all experiences with **immobilization device construction** in (masks, vacuum bags, foaming agents, etc.) in Trajecsys under the Daily Logsheet tab (See Daily Logsheet Requirements, section 3, pg. 34).
3. **2 treatment accessory device competencies** for thermoplastic mask and immobilization for thorax or abdomen/pelvis are required by the end of the spring semester.
4. **1 participatory special treatment simulation** (e.g. 4D CT, SBRT, Gating, or Brachytherapy)
5. **6 ARRT simulation competencies** are required by the end of the spring semester.
    a. All of the ARRT simulation competencies **WILL be performed on actual patients**. The ARRT does accept conventional and CT simulation procedures as long as the intent of the competency is met which means **students who complete CT simulation procedures will follow the image data to the simulation workstation or treatment planning computer to participate in isocenter placement, volume contouring, critical structure contouring, field selection/design, and analysis of treatment plans.**
6. The **patient tattoo checklist** is to be completed by the end of the spring semester.

See Performance Expectations for all Competency Evaluations (section 3, pg. 10) in the event of a failed competency.

<u>Rotation Objectives</u>

- Provide consistent radiation protection for the patient and operator.
- Attend to each patient's safety and comfort.
- Act in a professional manner at all times.
- Demonstrate proper body mechanics.
- Effectively communicate with physician and physics staff regarding the treatment planning procedure.
- Demonstrate the location of the signed consent form in the patient's chart.
- Demonstrate an understanding of the treatment prescription.
- Provide clear information to the patient regarding the procedure.
- Demonstrate the ability to answer patient questions.
- Demonstrate knowledge of patient positioning and effective use of immobilization localization devices.
- Display ability to operate the simulation equipment.
- Demonstrate knowledge regarding treatment field delineation and required measurements.
- Display knowledge regarding treatment volume localization and isocenter placement.
- Display consideration of dose to critical structures and the process of structure contouring.
- Describe methods of determining a patient's external contour, definition of internal structures, and volumes of interest used in treatment planning.
- Accurately obtain necessary images.
- Accurately record patient set-up, immobilization methods, SSD, separation measurements, table top measurement, and document setup with appropriate photographs.

SIMULATION COMPETENCY
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

DATA INTERPRETATION **The student will demonstrate the following criteria:**						**Comments**
a. Demonstrates location of the prescription or preliminary instructions.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Demonstrates understanding of the prescription or preliminary instruction content.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Verifies presence of signed patient consent form.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SIMULATION ROOM PREPARATION **The student will demonstrate the following criteria:**						**Comments**
a. Cleans and prepares room prior to patient procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Prepares supplies/equipment for immobilization device construction and usage.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Prepares contrast agents and brachytherapy necessities (i.e.: wires, seeds, fiducials, etc.) as applicable	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

GREETING OF PATIENT **The student will demonstrate the following criteria:**						**Comments**
a. Identifies correct patient using 2 forms of appropriate identification.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Properly introduces self to patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Assists patient as needed.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Demonstrates empathy and compassion.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT EDUCATION & COMMUNICATION **The student will demonstrate the following criteria:**						**Comments**
a. Properly explains procedure using terminology understandable to the patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Allows patient to ask questions and effectively addresses patient questions.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Maintains patient-focused conversation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Provides accurate patient education within scope of practice.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT POSITIONING **The student will demonstrate the following criteria:**						**Comments**
a. Properly positions patient on table.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Straightens and levels patient on table.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Accurately creates or uses immobilization devices.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Aligns patient according to procedure protocol.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
e. Marks patient according to procedure protocol.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
f. Obtains applicable measurements according to procedure protocol (if applicable).	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT SAFETY **The student will demonstrate the following criteria:**						**Comments**
a. Tends to patient safety and employs MRI safety and practice concepts in simulation, if applicable...	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Assesses BUN and creatinine levels if IV contrast is to be used.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Completes required paperwork (questionnaire/consent) if IV contrast is to be used.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Monitors patient for possible contrast reactions (if applicable.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

e. Closely monitors patient during simulation procedure and image acquisition.	**Poor/ Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ACQUISITION OF DATA **The student will demonstrate the following criteria:**						**Comments**
Conventional Simulation Element (if applicable) – *Please select "No" if not applicable*.	**Yes**		**No**			
a. Acquires films and records necessary details such as SID or SFD.	**Yes**		**No**			
b. Processed exposed film cassettes.	**Yes**		**No**			
c. Obtains contour and/or measurement used to make treatment plan.	**Yes**		**No**			
CT Simulation Element						**Comments**
a. Performs CT scan for region of interest.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. In an effort to reduce patient dose, utilized protocols for area of interest.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Adjusts imaging parameters such as slice thickness and FOV.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Transmits network images to workstation or treatment planning system.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
TREATMENT DESIGN/PLANNING **The student will demonstrate the following criteria:**						**Comments**
a. Participates in isocenter placement.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Participates in contour of target volumes and critical structures.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Participates in determining treatment beams/fields.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Participates in review of CT images and evaluation of treatment plan with appropriate personnel.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION: The student will demonstrate the following criteria:						**Comments**
a. Records patient position and other relevant setup information on measurements such as immobilization device, device settings, indexing values, patient position, special procedure devices (e.g. brachytherapy, SBRT, Gating, etc).	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Records pertinent measurement readings (if applicable)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

c. Obtains photographs of patient setup and marks.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT EDUCATION & DISMISSAL **The student will demonstrate the following criteria:**						**Comments**
a. Educates patient regarding proper care of simulation markings and treatment instructions (i.e. Bladder fill expectations)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Informs patient of the schedule for verification on first day of treatment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Escorts patient back to waiting room.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Cleans Room	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGMENT **STUDENT USE ONLY** **Students should complete a post-submission comment after they have reviewed the evaluation.**						

PATIENT TATTOO CHECKLIST

EXAMPLE – Actual Form is in Trajecsys

The student will demonstrate the following criteria:		
1. Safety Elements • Discuss the importance of obtaining patient consent prior to tattoo application.	**Yes**	**No**
• Identify all necessary Universal/Standard precautions associated with blood and bodily fluids.	**Yes**	**No**
• Describe the basic concepts involved with maintaining a sterile technique/environment.	**Yes**	**No**
• Discuss the proper technique used to clean the area (skin) both before and after the insertion of the needle.	**Yes**	**No**
• Describe the importance of proper communication prior to needle insertion.	**Yes**	**No**
• Identify the proper technique of disposal of contaminated needle.	**Yes**	**No**
2. Application Procedure • Accurately describe the reason for applying permanent tattoos.	**Yes**	**No**
• Correctly identify and locate all tools involved in the application process.	**Yes**	**No**
• Properly explain the step-by-step application process according to the site's protocol.	**Yes**	**No**
• Discuss the importance of stabilizing the skin before and during the insertion of the needle.	**Yes**	**No**
• Accurately identify characteristics that constitute an acceptable tattoo per site's requirements.	**Yes**	**No**
• Describe the importance of communicating the process to the patient prior to application.	**Yes**	**No**

SPECIAL TREATMENT SIMULATION PARTICIPATORY PROCEDURE COMPETENCY EVALUATION

Directions: The ARRT has instituted a participatory Special Treatment Simulation Procedure (e.g., 4D CT, SBRT, Gating, or Brachytherapy). Per the ARRT's definition, participation means the candidate takes an active role in the procedure and understands the critical concepts vital to the success of the procedure.

A registered radiation therapist, dosimetrist, and/or physicist will evaluate the student's participatory performance using the criteria established in the competency evaluation form. Under NO circumstances should an N/A be awarded for any of the elements on this evaluation. If a task cannot be physically demonstrated, it will be discussed verbally or knowledge evaluated through questioning.

If the student fails the Special Treatment Simulation Procedure competency, it will be recognized by the Clinical Coordinator during Trajecsys review. The student may contact the Clinical Coordinator at any time to discuss the failed competency. The student will discuss his/her performance with the evaluating therapist and inquire about steps for improvement. When the student and supervising therapist agree that the student is ready to attempt anther brachytherapy competency, the competency will be completed and the supervising therapist will submit a new competency evaluation in Trajecsys.

SPECIAL TREATMENT SIMULATION PARTICIPATORY PROCEDURE COMPETENCY

EXAMPLE – Actual Form is in Trajecsys

(e.g., 4D CT, SBRT, Gating, or Brachytherapy)

COMPETENCY SCORING:

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DATA INTERPRETATION **The student will demonstrate the following criteria:**						**Comments**
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c. Prepares contrast agents and brachytherapy necessities (i.e.:	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

wires, seeds, fiducials, etc.) as applicable						
GREETING OF PATIENT **The student will demonstrate the following criteria:**						**Comments**
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c. Completes required paperwork (questionnaire/consent) if IV contrast is to be used.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

d. Monitors patient for possible contrast reactions (if applicable.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
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b. Records pertinent measurement readings (if applicable).	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
c. Obtains photographs of patient setup and marks.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT EDUCATION & DISMISSAL: The student will demonstrate the following criteria:						**Comments**
a. Educates patient regarding proper care of simulation markings and treatment instructions (i.e. Bladder fill expectations)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
b. Informs patient of the schedule for verification on first day of treatment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

c. Escorts patient back to waiting room.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
d. Cleans Room	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGMENT **STUDENT USE ONLY** **Students should complete a post-submission comment after they have reviewed the evaluation.**						

DOSIMETRY ROTATION

Students will complete a short rotation in dosimetry during the fall semester to gain a broad view of the radiation oncology department; however, their primary dosimetry rotation will occur in the spring semester.

The spring dosimetry rotation is often completed in combination with the spring simulation rotation. This is particularly important for facilities using CT Simulation or Post-CT planning, as the student will "follow" the CT simulation data to the treatment planning computer to satisfy the intent of the ARRT competencies. The 6 ARRT dosimetry competencies will be completed by the conclusion of the spring semester.

See Performance Expectations for all Competency Evaluations (section 3, pg. 10) in the event of a failed competency.

Rotation Objectives

- Discuss the primary aim of treatment planning.
- Verify patient treatment chart by reviewing prescription, dose calculations, daily dose recordings, and cumulative dose recordings.
- Display an understanding of the following treatment volumes: tumor volume, target volume, planning target volume, treated volume, and irradiated volume.
- Differentiate between the treatment planning terms: maximum, minimum, mean, modal & median dose.
- Describe International Commission on Radiological Units (IRCU) recommendations on dose variance within a target volume and the effect that variances may have on cure rates, local control, and tolerance.
- Analyze dose volume histograms relative to treatment planning.
- Discuss the different calculation factors used for SSD and Isocenter setups.
- Review isodose plans and discuss what useful information can be gathered from the plan.
- Describe the general influencing factors that distinguish various isodose curves.
- Determine internal and external patient factors that influence the beam's distribution and apply isodose correction methods.
- Describe methods of determining a patient's external contour, definition of internal structures, and volumes of interest used in treatment planning.
- Identify organs and tissues at risk and their dose limitations using published tolerance dose tables.
- Discuss the integral dose concept.
- Describe the interrelationships of the various factors used in treatment calculations.
- Calculate the absorbed dose to off-axis points of interest.
- Describe the past pointing technique.
- Calculate equivalent squares using various methods that consider the limitations of each.
- Describe the effect of asymmetric beam collimation on dose distribution.
- Describe methods for determining dose distribution at points outside the treatment field.
- Calculate dose under a block using manual and computerized methods.
- Describe the multiple junction shift methods.
- Examine hot and cold regions that occur with the various matching methods.
- Describe possible procedures used to provide a permanent record of matching fields.
- Describe the considerations in the clinical application of special electron treatments, including total skin irradiation and arc therapy.

- Practice gap calculations and hand monitor unit calculations for single-open fields, parallel-opposed fields with field shaping, wedged fields, weighted fields, and electron beam fields.
- Calculate “rule of thumb” % depth dose for 10%, 50%, 80%, and 90% lines for various electron energies.
- Participate in at least two (2) brachytherapy planning cases and associated radiation safety procedures.
- Discuss “what if” type scenarios regarding treatment or planning errors. For example, what is the most appropriate action to take if…….
    1. A therapist treats without bolus for 1 fraction when bolus is prescribed daily?
    2. The therapist notices halfway through a patient’s treatment that the table is rotated 4 degrees in error?
    3. The field light goes out half-way through treatment?
    4. The TV monitor becomes non-functional half-way through a treatment?
    5. The wrong patient is treated?
    6. The power terminates the beam during treatment?
    7. A brachytherapy patient suffers a heart attack while the source is in place?
    8. The HDR source fails to retract?
    9. The morning QA results for x-ray output are not within acceptable limits?

DOSIMETRY ROTATION

PRIOR to completing the 5 hand calculated monitor unit competencies, the student WILL submit solutions to the module 2 assignment (dosimetry skills assignment) in AL340. Students may work on the dosimetry skills assignment at clinical while in the dosimetry rotation. Once all the dosimetry requirements are complete, the Preceptor/Student may elect to end rotation early.

- Students will have a basic answer key to the dosimetry skills assignment so they can determine if they are on the right track.
- A more detailed answer key will be provided to each Clinical Preceptor by e-mail prior to the spring semester. This detailed answer key is meant to help the site personnel understand the expectations of the assignment; the site **should not** provide the detailed answer key to the student as they need to complete the work in order to gain proficiency.

Students will complete competencies for single, parallel opposed, wedged, weighted, and electron beam fields by completing hand calculations in which they read a prescription, determine the appropriate factors, and solve for monitor units. Students are expected to complete the dosimetry competencies by hand by then verify their work using a second system (MU Check System). This two-phase process provides students with the didactic knowledge of hand calculations and the practical knowledge of quick calculations systems commonly used in the clinical setting.

For the **5 hand-calculated competencies**, the clinical site may create competency calculations based on current patient data or the site may select from possible competency calculations provided by the Clinical Coordinator to the Clinical Preceptor via email prior to the spring semester.

- Each calculation competency will be signed by the supervising dosimetrist or physicist to verify the accuracy of the work.
- The Clinical Preceptor or other supervising registered radiation therapist will submit the Dosimetry Competency – Monitor Unit Calculation form within Trajecsys.
- Students will submit the hand-calculated calculations to the Clinical Coordinator.

For the **computer generated isodose plan competency**, students will independently run a treatment plan according to the site's guidelines and the prescription the student is provided. This includes calculating doses for each field, considering critical structures, evaluating the plan, etc.

- Once the plan has been completed, students will print the calculations and isodose plan, and the supervising dosimetrist or physicist will sign the plan as confirmation that the work is accurate.
- Students will also type responses to the following questions related to the generated isodose plan:
    - Why was the energy selected for this particular patient?
    - What critical structures were you trying to avoid with this plan and what are the dose tolerances for these structures?
    - How did you determine the isocenter?
    - Were any special modifications made to the treatment plan? (Wedge, compensator, weighted fields, etc.)
    - How was beam arrangement determined? (i.e. – Why do we use tangent fields for breast patients, lateral beams for whole brain, AP/PA, etc.)
    - Why was the given treatment technique selected for this patient? (IMRT, 3D-CRT, etc.)
- Students will mail the printed calculations and isodose plan to Clinical Coordinator.
- The Clinical Preceptor or other supervising registered radiation therapist will submit the Dosimetry Competency – Computer Generated Isodose Plan form within Trajecsys to further evaluate the student's performance.

A score will not be given until the Clinical Coordinator has received the six competencies in the mail (with signatures from dosimetry/physics) and the competency form has been submitted in Trajecsys by the Clinical Preceptor or other supervising registered radiation therapist.

CRITERIA FOR DOSIMETRY COMPETENCY COMPLETION

Dosimetry Competency Preparation:

1. Evaluate Patient Chart
   a. Identify treatment prescription
   b. Identify prescribed total dose
   c. Identify daily dose
   d. Identify fractional schedules (hyper vs. accelerated fractionation)
   e. Identify patient diagnosis

Elements of the Process:

1. Identify Appropriate Anatomy
   a. Gross Anatomy
   b. Critical Structures

2. Define Various Treatment Volumes/Terms
   a. Gross tumor volume
   b. Clinical target volume
   c. Planning target volume
   d. Treated volume
   e. Irradiated volume
   f. Maximum, minimum, mean, modal & mean doses

3. List General Tissue Tolerance Doses
   a. Small bowel
   b. Spinal cord
   c. Kidney
   d. Liver
   e. Lens of the eye
   f. Optic nerve
   g. Lung

Dosimetric Factors:

1. Define/Describe Terms and Apply Appropriately
   a. Tumor Dose
   b. Cumulative Dose
   c. Field size/distance relationship
   d. Inverse square law
   e. SSD technique
   f. SAD technique
   g. Tissue inhomogeneity
   h. Isodose curves
   i. Factors affecting isodose curves
   j. Wedge
   k. Bolus
   l. Compensator

2. Discuss Calculation Factors and Their Relationships
   a. Percent depth dose
   b. Tissue maximum dose
   c. Tissue air ratio
   d. Output factor
   e. Tray factor
   f. Wedge Factor
   g. Inverse square factor
   h. Mayneord's factor
   i. Machine output

Calculations:

1. Calculate Monitor Units for the Following (*by hand and then verified by a second system*):
   a. Electron MU calculation
   b. Single, Open field calculation
   c. Parallel opposed field
   d. Weighted field calculation
   e. Wedged field calculation
2. Independently Create a Computer Generated Treatment Plan
3. Run basic plans using treatment planning computer.
4. Analyze and discuss plans with appropriate personnel

DOSIMETRY COMPETENCY
Monitor Unit Calculation
EXAMPLE – Actual Form is in Trajecsys

DIRECTIONS - Students will independently complete the dosimetry calculations, as it is required by the ARRT. *No N/A marks are accepted*			
SINGLE FIELD - Did the student…			**Comments**
Interpret prescription for necessary components of monitor unit calculation.	**No**	**Yes**	
Accurately select correct tissue absorption factor (pdd, TMR, TPR) per physician's prescription.	**No**	**Yes**	
Demonstrate ability to figure open and blocked equivalent square field sizes (if applicable).	**No**	**Yes**	
Independently perform hand calculation to solve for correct monitor units.	**No**	**Yes**	
Verify monitor unit calculation by use of a second system (MU Check System).	**No**	**Yes**	
PARALLEL OPPOSED FIELDS **Did the student…**			**Comments**
Interpret prescription for necessary components of monitor unit calculation.	**No**	**Yes**	
Accurately select correct tissue absorption factor (pdd, TMR, TPR) per physician's prescription.	**No**	**Yes**	
Correctly determine tumor dose per field.	**No**	**Yes**	
Demonstrate ability to figure open and blocked equivalent square field sizes (if applicable).	**No**	**Yes**	
Independently perform hand calculation to solve for correct monitor units.	**No**	**Yes**	
Verify monitor calculation by use of a second system (MU Check System).	**No**	**Yes**	
WEIGHTED FIELDS **Did the student…**			**Comments**
Interpret prescription for necessary components of monitor unit calculation.	**No**	**Yes**	
Accurately select correct tissue absorption factor (pdd, TMR, TPR) per physician's prescription.	**No**	**Yes**	
Correctly determine tumor dose per field based on weighting provided in problem.	**No**	**Yes**	
Demonstrate ability to figure open and blocked equivalent square field sizes (if applicable).	**No**	**Yes**	
Independently perform hand calculation to solve for correct monitor units.	**No**	**Yes**	
Verify monitor unit calculation by use of a second system (MU Check System).	**No**	**Yes**	
WEDGED FIELDS **Did the student…**			**Comments**

Interpret prescription for necessary components of monitor unit calculation.	**No**	**Yes**	
Accurately select correct tissue absorption factor (pdd, TMR, TPR) per physician's prescription.	**No**	**Yes**	
Correctly determine necessary attenuation factors based on information provided in problem.	**No**	**Yes**	
Demonstrate ability to figure open and blocked equivalent square field sizes (if applicable).	**No**	**Yes**	
Independently perform hand calculation to solve for correct monitor units.	**No**	**Yes**	
Verify monitor unit calculation by use of a second system (MU Check System).	**No**	**Yes**	
ELECTRON FIELD **Did the student…**			**Comments**
Interpret prescription for necessary components of monitor unit calculation.	**No**	**Yes**	
Independently perform hand calculation to solve for correct monitor units.	**No**	**Yes**	
Verify monitor unit calculation by use of a second system (MU Check System).	**No**	**Yes**	
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**			
STUDENT ACKNOWLEDGMENT **STUDENT USE ONLY** **Student should complete a post- submission comment after they have reviewed the evaluation.**			

DOSIMETRY COMPETENCY
Computer Generated Isodose Plan
EXAMPLE – Actual Form is in Trajecsys

DIRECTIONS **Students will independently complete the dosimetry calculations, as it is required by the ARRT. *No N/A marks are accepted***			
Interpret dose prescription.	No	Yes	
Identify gross anatomy and critical structures.	No	Yes	
Demonstrate understanding of treatment volumes (Gross Tumor Volume, Clinical Target Volume, Planning Target Volume, Treated Volume, and Irradiated Volume)	No	Yes	
Demonstrate knowledge of general tissue tolerance doses.	No	Yes	
Accurately contour necessary structures based on treatment constraints.	No	Yes	
Correctly place isocenter per physician request.	No	Yes	
Properly consider beam placement/field arrangements.	No	Yes	
Accurately align beam to isocenter.	No	Yes	
Demonstrate ability to accurately create Digitally Reconstructed Radiograph.	No	Yes	
Properly create MLC for accurate blocking (if applicable).	No	Yes	
Demonstrates knowledge of correct operation of treatment planning computer.	No	Yes	
Assess need to modify parameters of treatment to achieve optimum dose distribution (isocenter depth, gantry angles, fields size, etc.)	No	Yes	
Independently perform and run basic treatment plan.	No	Yes	
Demonstrate ability to analyze and discuss plan with appropriate personnel.	No	Yes	
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**			
STUDENT ACKNOWLEDGEMENT **STUDENT USE ONLY** **Student should complete a post-submission comment after they have reviewed the evaluation.**			

QUALITY ASSURANCE

A combination of the knowledge acquired in the didactic courses with the hands-on experience obtained in the clinical setting will provide students with an entry level knowledge of quality control and quality assurance procedures necessary in the radiation oncology department.

Competency Requirements:

- Students will complete competencies for linear accelerator beam output & symmetry, linear accelerator laser alignment, linear accelerator imaging system, simulator Water Phantom and simulator laser alignment. The 5 ARRT Quality Control procedures are not to be completed until the **summer semester**.
    - Students are expected to work, under direct supervision, with the dosimetry or physics staff to participate in quality control procedures.
- The program has defined two data interpretation competencies to be completed in the summer semester. Completion of the Verification Simulation and Radiation Therapy Treatment Chart Check competencies will provide students with entry-level knowledge related to the review of treatment data to ensure accuracy.

See Performance Expectations for all Competency Evaluations (section 3, pg. 10) in the event of a failed competency.

<u>Rotation Objectives</u>

- Discuss the purpose of quality assurance procedures in the radiation oncology department.
- Describe the procedure for assuring accuracy of manual and electronic records.
- Explain the purpose, procedures, and frequency for manual and electronic treatment documentation.
- Identify errors in treatment documentation, if applicable.
- Display an understanding of TG66 and TG142 recommendations regarding quality assurance procedures.
- Provides tolerance values by the TG66 and TG142.
- Differentiates between the quality control devices and demonstrates an understanding as to how each device works.
- Demonstrates the ability to accurately complete the quality control procedures per site's protocol.
- Effectively communicates with necessary staff regarding the procedure.
- Analyze results of quality assurance procedures.
- Identify corrective measures (if any) to take based on quality assurance results.
- Identifies patient safety concerns if results are out of tolerance.
- Provides clear reasoning as to how or why the tests could be out of tolerance.
- Accurately describes environmental influences on testing results of beam output and symmetry.

QUALITY CONTROL PROCEDURES
Linear Accelerator – Beam Output & Symmetry
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

PURPOSE **The student will demonstrate the following criteria:**						**Comments**
Accurately explains the purpose for verifying beam symmetry and beam output.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately addresses patient safety concerns if beam output and symmetry are out of tolerance.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
MATERIALS AND METHODOLOGY **The student will demonstrate the following criteria:**						**Comments**
Accurately states frequency of performing beam output and symmetry checks (daily and monthly; photon and electron.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Selects appropriate quality control device and demonstrates understanding about how the quality control device works to measure beam output.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Accurately aligns device (ensure device is level, sets correct SSD, field size, selects correct cone size for electrons) and connects device to portal.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Prepares computer for testing (opens software programs, selects correct settings on program, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Sets accurate testing parameters at treatment console (machine in standby, sets correct MU, selects correct beam energy.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs procedure accurately and timely for all beam energies being tested per site protocol.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Easily navigates the software program and workstation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Follows all safety protocols prior to beaming on.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
EVALUATION AND INTERPRETATION OF RESULTS **The student will demonstrate the following criteria:**						**Comments**
Accurately evaluates and interprets the beam output and symmetry using the software system; notices any discrepancies in measurements.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of and follows site policy in regards to output and symmetry tolerances for photon and electron energies.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
State tolerance values for daily and monthly beam output and symmetry for photon and electron energies per TG142 recommendations.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
CORRECTIVE MEASURES **The student will demonstrate the following criteria:**						**Comments**
Describes site policy and follows (if applicable) site policy for any out of tolerance results (verify setup, repeat test, notify physics staff, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Knows policy and corrective actions for reporting out of tolerance test results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION **The student will demonstrate the following criteria:**						**Comments**
Follows site policy for documenting results	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Demonstrates knowledge on how often qualified physics personnel should review documentation of results and how long those results are maintained	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SOURCES OF MALFUNCTION **The student will demonstrate the following criteria:**						**Comments**
Provides examples or reasoning as to how or why test could be out of tolerance (influencing factors, setup errors, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately describes the environmental influences on testing results (humidity effect on temperature and pressure that influences amount of ionizations produced.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates ability to troubleshoot if a malfunction were to occur.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**						

QUALITY CONTROL PROCEDURES
Linear Accelerator – Laser Alignment
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

PURPOSE: The student will demonstrate the following criteria:						**Comments**
Accurately explains the purpose for performing laser alignment check.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately addresses patient safety concerns if lasers are not aligned.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
MATERIALS AND METHODOLOGY: The student will demonstrate the following criteria						**Comments**
Accurately states frequency of completing laser alignment check per TG142 recommendations.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Selects appropriate quality control device to perform the test.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Independently sets up the device to perform the test.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately uses device to verify laser alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies alignment of wall and ceiling lasers.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of correct operation of linear accelerator equipment during procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge and expertise in laser alignment process.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Performs procedure in a timely manner.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
EVALUATION AND INTERPRETATION OF RESULTS: The student will demonstrate the following criteria						**Comments**
Accurately evaluates and interprets laser alignment localization.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge in visually determining correct vs. incorrect laser alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Shows knowledge of and follows site policy in regards to laser alignment tolerance.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
State tolerance values for non-IMRT, IMRT, and SBRT/SRS techniques per TG142 recommendations.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
CORRECTIVE MEASURES: The student will demonstrate the following criteria:						**Comments**
Describes site policy and takes appropriate action for any out of tolerance results (adjust laser, notify physics staff, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Determines which (if any) corrective actions to take based on laser alignment results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION: The student will demonstrate the following criteria:						**Comments**
Follows site policy for documenting results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately states minimum length of time documentation on quality control tests are maintained.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge on how often qualified physics personnel should review documentation of results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SOURCES OF MALFUNCTION: The student will demonstrate the following criteria:						**Comments**
Provides examples or reasoning as to how or why test could be out of tolerance (influencing factors, setup error, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS: **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION: **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT: Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**						

QUALITY CONTROL PROCEDURES
Linear Accelerator – Imaging System
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

PURPOSE **The student will demonstrate the following criteria:**						**Comments**
Accurately explains the purpose for imaging system checks, including patient safety concerns if imaging system performance tests are not precise.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
MATERIALS AND METHODOLOGY **The student will demonstrate the following criteria:**						**Comments**
Selects appropriate quality control device and demonstrates understanding about how it works to verify imaging and treatment coordinate coincidence and positioning/repositioning.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately sets up imaging device (ensure device is level, correctly aligned to lasers for isocenter verification or accurately displaced for positioning/repositioning verification, sets correct SSD, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Prepares computer for testing and selects accurate testing parameters (opens imaging software program, accurately modes up appropriate imaging format, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Follows recommended order of operations regarding extending imaging arms and gantry rotation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Acquires image(s) accurately and timely for all modalities being tested, per site protocol.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Applies appropriate techniques or modifies window levels to enhance image details	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs image alignment and applies necessary shifts to obtain match.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies accuracy of isocenter for imaging and treatment coordinate coincidence check.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately compares applied shifts to displaced distance for positioning/repositioning verification check.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Easily navigates the software program and workstation and demonstrates knowledge of exiting software.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Independently enters room to check accuracy of the shifts and verify alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
EVALUATION AND INTERPRETATION OF RESULTS **The student will demonstrate the following criteria:**						**Comments**
Demonstrates knowledge of and follows site policy in regards to imaging verification tolerance.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
State tolerance values for daily and monthly imaging quality control checks, per TG142 recommendations.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
CORRECTIVE MEASURES **The student will demonstrate the following criteria:**						**Comments**
Describes site policy and follows (if applicable) site policy for any out of tolerance results (verify setup, repeat test, notify physics staff, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Knows policy and corrective actions (if any) for reporting out of tolerance test results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION **The student will demonstrate the following criteria:**						**Comments**
Follows site policy for documenting results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge on how often qualified physics personnel should review documentation of results and how long those results are maintained	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

SOURCES OF MALFUNCTION **The student will demonstrate the following criteria:**						**Comments**
Provides examples or reasoning as to how or why test could be out of tolerance (influencing factors, setup errors, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates ability to troubleshoot if a malfunction were to occur.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**						

QUALITY CONTROL PROCEDURES
Simulator – Laser Alignment
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

PURPOSE: The student will demonstrate the following criteria						**Comments**
Accurately explains the purpose for performing laser alignment check.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately addresses patient safety concerns if lasers are not aligned.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
MATERIALS AND METHODOLOGY: The student will demonstrate the following criteria						**Comments**
Accurately states frequency of completing laser alignment check per TG66 recommendations.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Selects appropriate quality control device to perform the test.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Independently sets up the device to perform the test.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately uses device to verify laser alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies alignment of all necessary lasers.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of correct operation of simulator equipment during procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge and expertise in laser alignment process.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs procedure in a timely manner.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

EVALUATION AND INTERPRETATION OF RESULTS: The student will demonstrate the following criteria						**Comments**
Accurately evaluates and interprets laser alignment localization.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge in visually determining correct vs. incorrect laser alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Shows knowledge of and follows site policy in regards to laser alignment tolerance.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
State tolerance values for laser alignment for simulator per TG66 recommendations.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
CORRECTIVE MEASURE: The student will demonstrate the following criteria						**Comments**
Describes site policy and takes appropriate action for any out of tolerance results (adjust laser, notify physics staff, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Determines which (if any) corrective actions to take based on laser alignment results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION: The student will demonstrate the following criteria						**Comments**
Follows site policy for documenting results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately states minimum length of time documentation on quality control tests are maintained.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge on how often qualified physics personnel should review documentation of results.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SOURCES OF MALFUNCTION: The student will demonstrate the following criteria						**Comments**
Provides examples or reasoning as to how or why test could be out of tolerance (influencing factors, setup error, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT – Student Use Only						

QUALITY CONTROL PROCEDURES
Simulator – QC Water Phantom (Ex: CT Number, Image Noise, etc.)
EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

PURPOSE **The student will demonstrate the following criteria:**						**Comments**
Accurately explains the purpose for simulator checks, including patient safety concerns if simulator tests are out of tolerance	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
MATERIALS AND METHODOLOGY **The student will demonstrate the following criteria:**						**Comments**
Selects appropriate quality control device and demonstrates understanding about how it functions to perform the simulator water phantom check	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately secures device to the treatment table (replaced treatment table or insert in site cradle/holder for alignment, ensure device is centered and leveled, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Correctly aligns device to the simulator lasers and zeroes table at the correct position before exiting the room	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Prepares computer for testing and selects accurate testing parameters at the CT console	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately acquires scan(s) of the water phantom, per site protocol	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Applies appropriate techniques or modifies window levels to enhance scan details	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately selects the measuring tool for the water phantom check being tested, per site protocol	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Places the Region of Interest (ROI) tool at the predetermined positions to obtain necessary scan information for the water phantom check being tested	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Correctly obtains necessary scan information for the water phantom check being tested, per site protocol (identifies standard deviation, average density of CT water, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Easily navigates the software program and workstation and demonstrates knowledge of ending study and exiting software	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Independently enters room to store phantom, remove cradle and/or replace tabletop, if applicable	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
EVALUATION AND INTERPRETATION OF RESULTS **The student will demonstrate the following criteria:**						**Comments**
Correctly uses the averages obtained from the scan to determine whether the test is within tolerance	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of and follows site policy in regards to the simulator quality control check tolerance	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
State tolerance values for simulator quality control checks utilizing the water phantom, per TG142 recommendations	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
CORRECTIVE MEASURES **The student will demonstrate the following criteria:**						**Comments**
Describes site policy and follows (if applicable) site policy for any out of tolerance results (verify setup, repeat test, notify physics staff, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION **The student will demonstrate the following criteria:**						**Comments**
Follows site policy for recording values and documenting results	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Demonstrates knowledge on how often qualified physics personnel should review documentation of results and how long those results are maintained	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
SOURCES OF MALFUNCTION **The student will demonstrate the following criteria:**						**Comments**
Provides examples or reasoning as to how or why test could be out of tolerance (influencing factors, setup errors, etc.)	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates ability to troubleshoot if a malfunction were to occur.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**						
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**						
STUDENT ACKNOWLEDGEMENT – Student Use Only **Student should complete a post-submission comment after they have reviewed the evaluation.**						

DATA INTERPRETATION COMPETENCY

Verification Simulation

EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

INITIAL CHART REVIEW: The student will verify the following criteria:						**Comments**
Consent is signed by patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Prescription is signed by radiation oncologist, and if applicable, changes to prescription are signed by radiation oncologist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Treatment is in alignment with prescription.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Treatment plan has been signed by radiation oncologist and medical physicist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Patient identification photo and set-up photos are available in chart.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accuracy of data transfer from treatment planning software to treatment machine. Examples include: 1. Monitor units of treatment fields 2. SSD measurements 3. Gantry angles 4. Collimator angles 5. Couch angles 6. Field sizes 7. Number of treatments 8. Fractionation schedule	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
TREATMENT ROOM PREPARATION: The student will demonstrate the following criteria:						**Comments**

Reviews applicable simulation images and documents in preparation of treatment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately prepares room for specified patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
COMMUNICATION: The student will demonstrate the following criteria:						**Comments**
Identifies correct patient using two forms of appropriate identification.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Properly introduces self to patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Properly explains verification simulation procedure.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accurately addresses patient questions.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
PATIENT POSITIONING: The student will demonstrate the following criteria:						**Comments**
Properly positions patient on table, using immobilization.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies appropriate set up using necessary photos, and if applicable, patient external markings.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Properly aligns patient to external marks and if applicable, make appropriate shifts to treatment isocenter.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies SSDs and/or other predetermined measurements in accordance with department policy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DATA VERIFICATION: The student will demonstrate the following criteria:						**Comments**
Verifies accuracy of isocenter and treatment field placement via image alignment.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Obtains physician approval of verification images in accordance with department policy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
DOCUMENTATION: The student will demonstrate the following criteria:						**Comments**
Ensures accurate submission of CPT codes.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Completes necessary verification simulation documentation.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**	
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**	
STUDENT ACKNOWLEDGEMENT – Student Use Only	

DATA INTERPRETATION COMPETENCY

Radiation Therapist Treatment Chart Check

EXAMPLE – Actual Form is in Trajecsys

COMPETENCY SCORING

Excellent – Performance demonstrates exceptional proficiency and self-initiative; student displays a high level of insight regarding the procedure, problem solving and safety. *This is a high rating for the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average – Performance is consistent with entry-level practice; student performs the procedure in a safe and accurate manner with a reasonable pace. *This rating may not be as frequently given for all evaluation criteria in the first clinical semester and is considered to be a strong rating for student performance.

Average – Performance is progressing but still needs improvement for entry-level practice. Student may require occasional verbal and physical directives in addition to supportive cues. *This is a realistic rating of performance in the first clinical semester.

Below Average – Performance is progressing at a marginal rate and demonstrates some significant problems considering the level the student is at in the program; student requires continuous verbal and occasional physical directives in addition to supportive cues to complete the procedure in a safe and accurate manner.

Poor/Fail – Performance is unskilled and is not progressing; student is unable to demonstrate fundamental elements of the procedure; student requires continuous verbal and continuous physical directive cues to complete the procedure in a safe and accurate manner. *A 4% deduction is manually applied for each Poor/Fail rating.

INITIAL CHART REVIEW: The student will verify the following criteria:						**Comments**
Consent is signed by patient.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Prescription is signed by radiation oncologist, and if applicable, changes to prescription are signed by radiation oncologist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Treatment is in alignment with prescription.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Treatment plan has been signed by radiation oncologist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Treatment plan has been signed by medical physicist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Presence of patient's identification photo and set-up photos.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Initial radiation therapist treatment plan check has been completed and documented.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
WEEKLY CHART REVIEW: The student will verify the following criteria:						**Comments**
Accuracy of treatment calendar.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Alignment of treatment calendar and treatment schedule, and if applicable, appropriate scheduling of cone-down or boost treatments.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

All fields **NOT** receiving treatment are hidden.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Initial images (V-Sim images) have been approved by the radiation oncologist.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Images have been acquired in accordance with the physician order.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Daily or weekly images have been approved by radiation oncologist within time frame designated by department policy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accuracy of recorded fractional and cumulative doses.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accuracy of fraction number.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Set-up notes are up-to-date.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Applicable radiation therapist documentation. Examples may include: 1. SSD readings 2. Diode measurements 3. Sign off/acknowledgment of alerts 4. Application of bolus 5. Missed treatments 6. Changes/shifts 7. Pacemaker	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Time out procedure has been performed and documented daily.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Accuracy of reimbursement charges.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Weekly radiation therapist chart checks completed and documented in accordance with the interval designated by department policy.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

ADDITIONAL COMMENTS **Please include any additional comments and/or feedback in regards to the student's performance.**	
EVALUATOR INFORMATION **Please provide your full name and credentials to help maintain an accurate and complete student record.**	
STUDENT ACKNOWLEDGEMENT – Student Use Only	

PROFESSIONAL DEVELOPMENT EVALUATIONS

As students participate in radiation therapy education, they will be expected to demonstrate that they have indeed learned what is required to become a professional radiation therapist. There are three main component areas, all important, all interrelated, into which learning may be categorized: cognitive, psychomotor, and affective.

When most people think of schooling, they usually refer to the first two of these areas. One learns the facts and theories and then puts them into practice, actually performing the tasks, skill, etc. All too often the development of what the profession considers to be the appropriate attitudes, beliefs, and feelings toward what students are learning, what students are doing, and how students are doing them are assumed to occur automatically.

A truly balanced education requires that all three areas be attended to. In view of this, to gain an awareness of student progression, evaluations are used to assess how students demonstrate this to staff, Clinical Preceptors, and faculty that they are mastering the necessary skills and the behaviors associated with the affective domain. Since no one is capable of directly knowing someone's thoughts or feelings, we can only assess the student's affective skills learning by:

1. Informing student about what we consider to be important in this area.
2. Informing student about observable behaviors we look for to evaluate mastery of affective skills.

Assessment will be based on the degree to which student behaviors demonstrate the actions of what the majority of members of the profession, and the majority of the public, consider to be indicative of professionalism. The student's personal beliefs and characteristics are not to be assessed. The professional development evaluations contain traits faculty has identified as essential elements of the affective domain. The evaluation also includes items addressing the cognitive and psychomotor areas.

Evaluations of clinical progress are completed for the following reasons:

1. To provide feedback to the students concerning their affective, cognitive, and psychomotor progress.
2. To maintain quality health care to the patient.
3. To certify continuing competency.
4. To compose a portion of the clinical grade.

Professional Development are due by the 15th of each month (except of Dec., May, and July).

- Professional Development Evaluations will be completed by the Clinical Preceptor or other supervising registered radiation therapist.
- The evaluation will be hidden from the Clinical Preceptor and student for 7 days during which the Clinical Coordinator reviews the evaluation. If questions arise the Clinical Coordinator will contact the Clinical Preceptor. A notification email will be forwarded to the student by the Clinical Coordinator to inform the student that the evaluation has been submitted. The forwarded email indicates the date on which the 7-day hidden period begins; from this date students will be able to calculate the release date for viewing.
- After the 7-day hidden period has ended, the evaluations will automatically be released for viewing by the Clinical Preceptor and student.
- Once released, students then have up to 7 days to submit an acknowledgment in Trajecsys indicating they reviewed the evaluation with the Clinical Preceptor.
- After the student has acknowledged the professional development evaluation, the Clinical Coordinator validates the evaluation. Note that for each poor/fail rating, a 4% deduction is applied to the final evaluation score in Trajecsys. Then the Clinical Coordinator inputs associated score into D2L. Unacknowledged professional development evaluation scores are reported as 0 in D2L.

Professional Development Evaluation Performance Expectations

A professional development evaluation with a score below 88% is considered failed. In the event that 1 evaluation is failed during the program, the Student Counseling Policy will be applied as follows:

1. **Documented initial warning** – Occurs when one evaluation is failed.
2. **Disciplinary written warning** – Occurs when one additional evaluation is failed beyond the initial failed evaluation addressed in step 1.
3. **Disciplinary probation with a performance contract** – Occurs when one additional evaluation is failed beyond the one failed evaluation addressed in step 2.
4. **Program dismissal** – Occurs when significant improvement, as defined in the performance contract (step 3), is not shown.

PROFESSIONAL DEVELOPMENT EVALUATION
EXAMPLE – Actual Form in Trajecsys

Excellent- Performance of a specific evaluation criteria exceeds entry-level standards. *This rating is not as frequently given in the first semester and would represent the top 5% of all the students the evaluator has supervised.

Above Average- Performance of a specific evaluation criteria is consistent with entry-level standards. *This rating may not be as frequently given for all evaluation criteria in the first semester and is considered to be a strong rating for student performance.

Average- Performance of a specific evaluation criteria is progressing nicely; student needs additional clinical experience to meet entry-level standards. *This is a realistic rating of performance in the first clinical semester.

Below Average- Performance of a specific evaluation criteria is progressing slowly; student needs significantly more experience to meet standards/skills equivalent for the length of time the student has been in the program.

Poor/Fail- Performance of a specific evaluation criteria is unskilled, inefficient, or unacceptable. A 4% deduction will be manually applied for each Poor/Fail rating.

Instructions
Please complete the sections below and provide as much detailed feedback as possible including specific examples. This evaluation serves as a tool to help students assess their skill level and identify areas of needed improvement. Keep in mind the length of time the student has been in the clinical setting and which rotations he/she has experienced at the time of evaluation.

Initiative						
The student: Is motivated and willing to participate in procedures	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Uses clinical time constructively	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates awareness of the expectations/daily tasks of the given rotation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Dependability						
The student: Arrives to assigned area at the scheduled time	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Remains in assigned area	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Communicates whereabouts to staff	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Adaptability						
The student: Observes clinical facility's policies and procedures	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Is receptive to feedback	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Applies feedback	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Attitude						
The student: Demonstrates a cooperative, courteous and positive attitude	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Maintains professional standards and behaviors	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates a desire to learn	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Patient Care						
The student: Demonstrates empathy	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Maintains a good patient rapport	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates effective oral communication skills with patients	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Shows concern for patient privacy and comfort	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Equipment						
The student: Demonstrates the ability to operate equipment and/or software	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates proper care for equipment	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Knowledge and Application						
The student: Demonstrates the retention and application of knowledge of information/skills gained in rotation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates knowledge of tolerance doses	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Provides accurate patient education within scope of practice	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Is able to discuss the rationale for a given treatment approach	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Interprets pertinent data to plan or deliver radiation treatments	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Positioning Skills						
The student: Positions patients appropriately for treatment delivery or simulation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Applies appropriate shifts and adjustments when necessary	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Creates and/or uses appropriate immobilization devices to aide reproducibility	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Safety						
The student: Maintains an awareness of patient safety	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies patient identity using two methods prior to procedure	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Verifies selection of the correct patient chart/record	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Reviews prescription	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Performs procedural timeout prior to beam activation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Reviews cumulative doses	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Professionalism						
The student: Maintains a professional demeanor and appearance	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Avoids involvement in departmental issues and does not gossip or complain	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Understands the role of a student in the department	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Critical Thinking						
The student: Evaluates images using various imaging technologies (MV, kV, CBCT) to ensure proper patient alignment	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Recognizes discrepancies in patient alignment, patient record, or treatment plan	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Solves challenges related to non-routine clinical situations	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verifies treatment information for completeness and accuracy	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates ability to perform specialized procedures in the clinical setting	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Evaluator Information	
Please provide your full name and credentials to help maintain an accurate and complete student record.	

Student Acknowledgement	
Student Use Only Please provide a post-submission comment stating you have reviewed your professional development evaluation with the Clinical Preceptor.	

STUDENT EVALUATION OF CLINICAL EXPERIENCE

As students participate in the radiation therapy education, the program faculty is interested in learning about the student's experience with the Clinical Preceptor and the clinical education site as a whole. Since this is an online program, communication from the student to the University faculty regarding the clinical site environment and personnel is even more important.

Students will complete the "Student Evaluation of Clinical Experience Form" within Trajecsys at the scheduled times. It is important that the student provide comments in the comment section of each category. Because there is generally only 1 student placed at a given clinical site, the student's direct comments and ratings are not provided to the clinical site. Instead, a summary of responses from the ENTIRE CLASS will be provided to the clinical sites in order for the clinical site to receive feedback and gain knowledge regarding the clinical sites' strengths and areas of possible improvement with respect to educating student therapists. If specific issues or concerns arise, the Clinical Coordinator will communicate with the student to discuss the issue(s) and make a plan for resolution before reaching out to the Clinical Preceptor.

Evaluations will be due by the 15th of each month (with the exception of Dec., May, and July).

STUDENT EVALUATION OF CLINICAL EXPERIENCE
EXAMPLE – Actual Form in Trajecsys

Directions
Please complete the sections below and provide as much detailed feedback as possible including specific examples.

Instruction			
The degree to which the CLINICAL PRECEPTOR discusses clinical objectives offers adequate explanation for activities, is willing to answer questions, and is willing to take extra time to teach me when I demonstrate interest.	**Room for Improvement**	**As Expected**	**Exceeds Expectations**
The degree to which the clinical education site (ALL STAFF IN GENERAL) discusses clinical objectives offers adequate explanation for activities, is willing to answer questions, and is willing to take extra time to teach me when I demonstrate interest.	**Room for Improvement**	**As Expected**	**Exceeds Expectations**
Comments:			

Participation			
The degree to which the CLINICAL PRECEPTOR encourages me to participate in clinical activities, offers opportunities to participate and practice skills, demonstrates and explains activities/procedures, and allows progressive and routine hands-on experience in the rotations.	**Room for Improvement**	**As Expected**	**Exceeds Expectations**
The degree to which the clinical education site (ALL STAFF IN GENERAL) encourages me to participate in clinical activities, offers opportunities to participate and practice skills, demonstrates and explains activities/procedures, and allows progressive and routine hands-on experience in the rotations.	**Room for Improvement**	**As Expected**	**Exceeds Expectations**
Comments:			

Role Model			
The degree to which the CLINICAL PRECEPTOR provides for a positive learning environment, avoids gossiping and complaining in the presence of the student, and overall is an effective role model for the profession.	**Room for Improvement**	**As Expected**	**Exceeds Expectations**
The degree to which the clinical education site (ALL STAFF IN GENERAL) provide for a positive learning environment, avoid gossiping and complaining in the presence of the student, and overall are effective role models for the profession.			
Comments:			

Communication			
The degree to which the CLINICAL PRECEPTOR offers positive and constructive feedback regarding my performance and provides guidance in my clinical education.	**Room for Improvement**	**As Expected**	**Exceeds Expectations**
The degree to which the clinical education site (ALL STAFF IN GENERAL) offers positive and constructive feedback regarding my performance and provides guidance in my clinical education.			
Comments:			

Additional Feedback	
What specifically does the CLINICAL PRECEPTOR do to help you (the student) develop and progress in the clinical setting?	
What suggestions could you (the student) offer the CLINICAL PRECEPTOR to help the staff be more effective in instructing and mentoring radiation therapy students?	
What specifically does the clinical education site (ALL STAFF IN GENERAL) do to help you (the student) develop and progress in the clinical setting?	
What suggestions could you (the student) offer the clinical education site (ALL STAFF IN GENERAL) to help the staff be more effective in instructing and mentoring radiation therapy students?	
Further Comments:	

STUDENT SELF-EVALUATION

The self-evaluation survey will challenge the student to reflect upon the knowledge and the skills that have been developed as well as assess his or her role in the overall care and responsibility for the patients. The self-evaluation surveys are located in Trajecsys under the “Evaluations” tab and will be scheduled in the system to complete periodically throughout the program.

The goal of this self-evaluation is to help the student critically examine his or her role as a student therapist and the developing responsibility for active participation within the oncology department. By examining the student’s own progress to date, he or she will be able to recognize current levels of achievement, strengths, and areas in which additional instruction or participation is necessary to elevate the skills to a satisfactory level. This self-evaluation should enable the student to plan to meet these needs and expand his or her development throughout the rest of the clinical education experience.

Evaluations will be due at the end of each semester – specific dates will be provided in the clinical course syllabus.

STUDENT SELF EVALUATION
EXAMPLE – Actual Form in Trajecsys

Instructions

Please complete the self-evaluation below. This evaluation serves as a tool to help the student assess his or her level of proficiency in the clinical setting.

Initiative						
The degree to which I: Am motivated and willing to participate in procedures	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Use clinical time constructively	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrate awareness of the expectations/daily tasks of the given rotation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Dependability						
The degree to which I: Arrive to my assigned area at the scheduled time	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Remain in my assigned area	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Communicate my whereabouts to the staff	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Adaptability						
The degree to which I: Observe clinical facility's policies and procedures	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Am receptive to feedback	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Apply feedback	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Attitude						
The degree to which I: Demonstrate a cooperative, courteous and positive attitude	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Maintain a professional behavior	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrate a desire to learn	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Patient Care						
The degree to which I: Demonstrate empathy	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Maintain a good patient rapport	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrate effective oral communication skills with patients.	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Show concern for patient privacy and comfort	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Equipment						
The degree to which I: Demonstrate the ability to operate equipment and/or software	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrate proper care for equipment	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Knowledge and Application						
The degree to which I: Demonstrate the retention and application of knowledge of information/skills gained in the rotation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrate knowledge of tolerance doses	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Provide accurate patient education within scope of practice	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Am able to discuss the rationale for a given treatment approach	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Interpret pertinent data to plan or deliver radiation treatments	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Positioning Skills						
The degree to which I: Position patients appropriately for treatment delivery or simulation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Apply appropriate shifts and adjustments when necessary	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Create and/or use appropriate immobilization devices to aide reproducibility	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Safety						
The degree to which I: Maintain an awareness of patient safety	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verify patient identity using two methods prior to procedure	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verify selection of the correct patient chart/record	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Review the prescription	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Perform the procedural timeout prior to beam activation	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Review cumulative doses	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Professionalism						
The degree to which I: Maintain a professional demeanor and appearance	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Avoid involvement in departmental issues and do not gossip or complain	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Understand the role of a student in the department	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Critical Thinking						
The degree to which I: Evaluate images using various technologies (MV, kV, CBCT) to ensure proper patient alignment	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Recognize discrepancies in patient alignment, patient record, or treatment plan	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Solve challenges related to non-routine clinical situations	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Verify treatment information for completeness and accuracy	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	
Demonstrates ability to perform specialized procedures in the clinical setting	**Poor/Fail**	**Below Average**	**Average**	**Above Average**	**Excellent**	

Professional Development Goals	
Identify three actions/goals that would serve to enhance your development into an effective, safe, confident therapist.	