Miami Dade College

Course Description

RAT1804L | RAT Clinic 1| 5.00 credits

Students will learn radiation therapy procedures in a local radiation therapy department. Students are closely supervised by certified radiation therapy technologists as they are introduced to record-keeping and treatment units. Prerequisite: RAT 1801L.

Course Competencies

Competency 1: The student will demonstrate the proficiency in the skills and knowledge required of clinical practice by:

1. Formulate priorities in daily clinical practice
2. Design, evaluate and implement treatment plans
3. Demonstrate appropriate and effective communication
4. Observe treatment procedures and assist as appropriate
5. Discuss and analyze various imaging and radiation treatment systems utilized in the clinical setting
6. Appling critical thinking skills through the demonstration of integrated didactic learning and clinical competencies performed through rotations on the various treatment units utilizing accessory equipment

Competency 2: The student will demonstrate a basic understanding of laws related to radiation therapy at both the state and federal levels by:

1. Analyze safety programs to reduce patient injury
2. Analyze the role of code of ethics, radiation therapy scope of practice and radiation therapy practice standards as guides to assess the appropriateness of professional actions
3. Examine the role of the radiation therapist in the informed consent process, patient rights and practice standards
4. Examine the importance of documentation and maintenance of clinical practice records
5. Assess the role of effective communication skills in reducing legal action

Competency 3: The student will demonstrate knowledge of the foundational principles and practices of radiation therapy by:

1. Explain radiation safety procedures for radiation therapy
2. Explain health and safety procedures for personnel and patients
3. Identify the contents/sections of the patient's records

Competency 4: The student will demonstrate knowledge of the fundamental principles of radiation therapy by:

1. Determine the medical and patient information necessary to develop a radiation therapy treatment plan
2. Given diagnostic information about a particular cancer, determine the appropriateness of using radiation therapy as a primary treatment modality
3. Differentiate between beam modifiers and their uses with a variety of treatment energies
4. Develop a CT simulation plan for a particular tumor to include steps needed prior to, during and after the procedure

Competency 5: The student will demonstrate knowledge of the principles of radiation therapy as it relates to the management of neoplastic disease by:

1. Distinguishes tumor histology to determine pathways associated with cancer and neoplastic disease
2. Examine the role of surgical, radiation and medical oncology to include immunotherapy (biological therapy) and personalized medicine in the management of neoplastic disease
3. Discuss the role of radiation therapy in the management of all patient populations with benign and malignant diseases
4. Explain detection, diagnosis, grading and staging systems for each neoplastic site
5. Identify the treatment regimens and fractionalization schemes used in palliative disease

management

6. Describe the role of radiation therapy in the management of oncology emergencies
7. Examine the role of radiation therapy in palliative disease management

Competency 6: The student will demonstrate the skills, procedures and knowledge required for effective quality management by:

1. Examine outcomes of quality management in radiation oncology
2. Describe the procedure for assuring accuracy of manual and electronic records
3. Discuss the purpose, function and member's role on a quality management team
4. Perform quality measures for computerized operation, data collection and reporting

Competency 7: The student will demonstrate the principles of radiation protection and safety for the radiation therapist by:

1. Explain techniques used to reduce unnecessary dose to the patient
2. Compare the various methods used for personnel monitoring
3. Discuss the principles of radiation protection room design factors

Competency 8: The student will demonstrate knowledge of the foundational concepts and competencies in assessment and evaluation of the patient for service delivery by

1. Explain the dynamics of communicating with the cancer patient and family
2. Recognize radiation side effects and complications and select the appropriate medical intervention
3. Describe emergency response procedures

Competency 9: The student will demonstrate the skills, techniques and knowledge required for the clinical planning of patient treatment by:

1. Use appropriate factors for treatment calculations
2. Describe the interrelationships of the various factors used in treatment calculations
3. Describe how biologic effective dose is influenced by prescription and treatment variables
4. Discuss the computer system features necessary for conformal therapy treatment planning
5. State radiation safety requirements for brachytherapy procedures

Competency 10: The student will demonstrate proficiency in imaging and processing in radiation oncology by:

1. Discuss the fundamentals of digital imaging
2. Describe image processing employed for digital images
3. Examine the potential impact of digital imaging systems on patient exposure and methods of practicing the as low as reasonably achievable (ALARA) concept with digital systems

Learning Outcomes

- Solve problems using critical and creative thinking and scientific reasoning