**NMT 1713C  Nuclear Medicine Methodology 1**

**Course Description:** This course will include the imaging parameters necessary to obtain images for the basic procedures performed in a Nuclear Medicine department. Students will learn about imaging procedures related to the following systems: skeletal, central nervous, cardiovascular, genitourinary, respiratory, and gastrointestinal. Instrumentation necessary to produce the required images as well as patient management during the procedures will be addressed. Prerequisites: BSC 2085, 2085L, 2086, 2086L, CHM1033, 1033L; Co-requisites: NMT 2102, NMT 2534C, NMT 2804C. (1 hr. lecture, 2 hr. lab)

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<th>Course Competency</th>
<th>Learning Outcomes</th>
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| **Competency 1:** Students will demonstrate an understanding of all aspects of skeletal system procedures performed in nuclear medicine by: | • Communication  
• Critical thinking |
| 1. Utilizing Limited Bone Scan, Whole Body Bone Scan, Three-Phase Bone Scan, Bone SPECT Scan: |  |
| A. Instrumentation - detector system, data acquisition, data analysis, ancillary equipment, and computer processing. |  |
| B. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry and if applicable, pharmaceutical intervention |  |
| C. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age specific considerations. |  |
| D. Imaging Techniques - views performed and patient-detector orientation |  |
| E. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests. |  |
| F. Anatomy and Pathophysiology |  |
| **Competency 2:** Students will be able to describe all aspects of renal system procedures performed in nuclear medicine by: | • Communication  
• Critical thinking |
1. Utilizing Renal Function Imaging, Renal Perfusion Imaging, and Renal Morphology Imaging:
   A. Instrumentation - detector system, data acquisition, data analysis, ancillary equipment, and computer processing.
   B. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry and if applicable, pharmaceutical intervention.
   C. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age specific considerations.
   D. Imaging Techniques - views performed and patient-detector orientation.
   E. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests.
   F. Anatomy and Pathophysiology

**Competency 3:** Students will be able to describe all aspects of pulmonary system procedures performed in nuclear medicine by:

- Communication
- Critical thinking

1. Utilizing Perfusion Pulmonary Scan, Ventilation Pulmonary Scan, and Quantitative Pulmonary Scan:
   A. Instrumentation - detector system, data acquisition, data analysis, ancillary equipment, and computer processing.
   B. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry and if applicable, pharmaceutical intervention.
   C. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age specific considerations.
   D. Imaging Techniques - views performed and patient-detector orientation.
   E. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests.
   F. Anatomy and Pathophysiology

**Competency 4:** Students will be able to accurately describe all aspects of gastrointestinal system procedures performed in nuclear medicine by:
1. Utilizing Meckel's diverticulum, RBC hemangioma, and Liver/Spleen:
   A. Instrumentation - detector system, data acquisition, data analysis, ancillary equipment, and computer processing.
   B. Radiopharmaceuticals - type, dosage, administration, biodistribution, dosimetry and if applicable, pharmaceutical intervention.
   C. Patient Preparation, Monitoring, and Education - indications and contraindications, pregnancy, nursing, dietary restrictions, adverse reactions, medications, age specific considerations.
   D. Imaging Techniques - views performed and patient-detector orientation.
   E. Interpretation of images - normal and abnormal variants, artifacts, and correlative tests.
   F. Anatomy and Pathophysiology