SPA 340 Advanced Composition (3 crs) SE
Prerequisite: Core Completion or instructor’s permission.

SPA 350 Special Topics (3 crs) D
Period, genre, or author studies; may be repeated when topics change. Core completion or instructor’s permission.

SPA 484 Senior Seminar (3 crs) D
An individualized capstone course, to synthesize the historical and artistic achievements of the culture; one component will be a comprehensive exam (which may be repeated once if necessary) to evaluate the content of the student’s program of studies as well as skills development.

Nuclear Medicine Technology
Contact Persons: Robert George, PhD, RT(N), CNMT, Director of Nuclear Medicine Technology Program, Associate Professor
Deborah Wilkinson, MS, CNMT, Clinical Assistant Professor of Nuclear Medicine Technology Program

Requirements for Nuclear Medicine Technology Concentration Bachelor of Science Degree
Upon completion of the Nuclear Medicine program, students will be able to:
1. Work in nuclear medicine department in a hospital, outpatient facility or mobile (traveling) unit.
2. Easily train and work in a PET (Positron Emission Tomography), radiopharmacy or secure a sales position.
3. Supervise or teach nuclear medicine in a hospital, university program or clinical facility.
4. Take classes that would allow the student to be eligible to enter medical, dental or chiropractic school.
5. Pursue advanced degrees.

Students will be given a handbook that defines rules, regulations, and standards for the student’s continued progression in the major. In addition to completing the University core curriculum requirements, outlined on pp. Xx of this catalog, the Nuclear Medicine Technology major must complete the following didactic and clinical courses with a grade of “C” or higher.

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>BIO 109</td>
<td>General Biology</td>
<td>3 crs</td>
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<tr>
<td>BIO 121</td>
<td>Methods of Biology</td>
<td>3 crs</td>
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<tr>
<td>BIO 127</td>
<td>Anatomy and Physiology I</td>
<td>3 crs</td>
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<tr>
<td>BIO 129</td>
<td>Anatomy and Physiology II</td>
<td>3 crs</td>
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<tr>
<td>CHE 110</td>
<td>Chemistry</td>
<td>4 crs</td>
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<td>CHE 121</td>
<td>Chemistry Lab</td>
<td>1 cr</td>
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<tr>
<td>CLS 121</td>
<td>Introduction to Hospital Science</td>
<td>1 cr</td>
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<tr>
<td>CLS 215</td>
<td>Epidemiology</td>
<td>2 crs</td>
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<td>CLS 234</td>
<td>Pathophysiology</td>
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<tr>
<td>CLS 311A</td>
<td>Introduction to Pharmacology</td>
<td>1 cr</td>
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<tr>
<td>CLS 312</td>
<td>Emergency Life Support Technique</td>
<td>1 cr</td>
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<tr>
<td>CLS 320A</td>
<td>Management Techniques for the Health Sciences</td>
<td>1 cr</td>
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<tr>
<td>CLS 320B</td>
<td>Management Practicum</td>
<td>1 cr</td>
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<tr>
<td>CLS 321</td>
<td>Intro to Research in Health care</td>
<td>3 crs</td>
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<tr>
<td>CLS 330A</td>
<td>Principles of Instruction</td>
<td>1 cr</td>
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<tr>
<td>CLS 330B</td>
<td>Instruction Practicum</td>
<td>1 cr</td>
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Course Descriptions:

NME 225 Nuclear Radiation Physics (3 crs) F
This course will develop the student’s understanding of the physics of nuclear medicine as it is applied daily by the technologist. The student will also develop an understanding of the concepts as related to instrumentation, quality control, imaging techniques, and radiation doses.

NME 225L Nuclear Radiation Physics Lab (1 cr) F
Course provides time for students to explore the concepts of nuclear radiation physics, including nuclear medicine mathematics and statistics. Prerequisite: Concurrent with NME 225
This course combines radiation biology and radiation safety principles and concepts covering the interactions of ionizing radiation with human tissue, its potential effects, and dosimetry as well as the ALARA philosophy, and individual regulations and practices in content areas such as radiopharmacy, instrumentation, and radionuclide therapy.

NME 320 Radiopharmacy (2 crs) S
Detailed course that covers the theory and practice of radiopharmacy, including the methods of production, formulation of radiopharmaceuticals, and performance of quality control procedures. This includes biochemical and physiological properties of radiopharmaceuticals and mechanisms of localization and bio-routing.

NME 320A Radiopharmacy Lab (1 cr) S
Lab-directed class which will encompass practical applications of a radiopharmacy lab.

NME 332 Lab Skills for Nuclear Medicine (2 crs) S
Class focuses on the interaction of nuclear medicine technologist students in medical informatics, ethics and law, and patient care.

NME 340 Essentials of Nuclear Medicine Imaging (3 crs) S
Introduction to diagnostic procedures, including anatomy and physiology, pathophysiology, and protocols for routine and non-routine nuclear medicine procedures.

NME 342 Human Cross Sectional Anatomy (3 crs) S
The purpose of this course is to provide each student with knowledge of human cross sectional anatomy. Students will examine diagnostic studies done using magnetic resonance and computed tomography, learning to identify both the structures and relative positions of each structure to others in the body.

NME 345 PET CT Physics (3 crs) S
The purpose of this course is to provide each student with an understanding of the principles of Positron Emission Tomography and Transmission Computed Tomography and how the two modalities are integrated to create diagnostic images.

NME 362B Instrumentation & Quality Control II (1 cr) S
The course exposes the student to a clinical environment where the applied theory of instrumentation and quality control is utilized and assessed. Prerequisite: Completion of pre-practicum courses.

NME 363 Clinical Radiopharmacy (2 crs) S
Practical application of the theory and practice of radiopharmacy, including preparation and calculation of the dose to be administered, quality control, radiation safety, and applicable regulations. The routes of administration, biodistribution mechanisms, interfering agents, contraindications, and adverse effects of administered materials are addressed along with non-interventional drugs and contrast media used as part of nuclear medicine procedures. Prerequisite: Completion of pre-practicum courses.

NME 365 In Vivo Studies I (3 crs) S
Demonstrating the basic functions and applications of imaging equipment in nuclear medicine, performing IV injections and associating radiopharmaceutical localization to introductory level general nuclear medicine procedures. Prerequisite: Completion of pre-practicum courses.
NME 367 Nuclear Cardiology I (2 crs) Su
Diagnostic cardiac evaluation utilizing both camera and computer, e.g., Thallium-201, first pass, gated wall motion, shunt and other procedures as software is available. Prerequisite: Completion of pre-practicum courses.

NME 368 Nuclear Cardiology II (2 crs) F
Course is a continuation of NME 367 but also includes current information regarding the field of nuclear cardiology as a specialty area in nuclear medicine. Prerequisite: NME 367

NME 420 Registry Review (1 cr) S
A comprehensive review of nuclear medicine theory, practice, policies, and procedures in preparation to complete the national certification exams.

NME 430 Research Capstone (1 cr) S
This is a capstone course in which the student will develop a research proposal, conduct the proposed research, and write a publishable article. Student must apply previously-learned research skills and knowledge. Prerequisite: CLS 221 or instructor approval

NME 440 Special Topics for Nuclear Medicine (3 crs) S
Course requirements include development of a nuclear medicine-related case study, which will be presented both in writing and orally at the end of the senior year.

NME 464 In Vivo Studies II (3 crs)
An extension of In Vivo I further integrating anatomy and physiology and pathophysiology understanding in protocols for routine and non-routine nuclear medicine procedures. Rotations of study should include general, cardiac, pediatric, PET, PET/CT, SPECT, SPECT/CT. Prerequisite: Completion of pre-practicum courses.

NME 465 In Vivo Studies III (3 crs)
An extension of In Vivo I and II, further integrating anatomy and physiology and pathophysiology understanding in protocols for routine and non-routine nuclear medicine procedures. Concentrations of study should include general, cardiac, pediatric, PET, PET/CT, SPECT, SPECT/CT and the advanced practices performed. Prerequisite: Completion of pre-practicum courses.

NME 466 In Vivo Studies IV (3 crs)
An extension of In vivo I, II, and III. Understanding and development of procedures involving role in the administration of radiopharmaceuticals in therapeutic doses, as well as associated imaging protocols. Prerequisite: Completion of pre-practicum courses.

NME 467 Clinical Computer Application (2 crs) F
Demonstrate understanding of configuration, function, and application of computers and networks in nuclear medicine. Students will show extensive experience performing data acquisition, manipulation, and processing. Prerequisite: Completion of pre-practicum courses.

NME 477 Clinical Computer Applications II (2 cr) S
The second of two clinical computer courses in which students review and apply the learned principles of nuclear medicine technology software applications, processing and display in their advanced clinical rotation experience.
NME 330 Clinical Essentials I (1 cr.) FS
The first of three clinical (didactic) courses in which students review and challenge the learned principles of nuclear medicine technology from their clinical setting. Includes review and integration of patient care and recordkeeping, radiation safety techniques, radiopharmacy, quality control procedures, and clinical protocols and procedures.

NME 401 Clinical Practicum I (3 cr.) F,S, SU
The first of three clinical practicums in which students apply the principles of nuclear medicine technology in a clinical setting. Includes patient care and recordkeeping, radiation safety techniques, radiopharmacy, quality control procedures, and demonstration of clinical competency in performing nuclear medicine procedures.

NME 410 Clinical Essentials II (3 cr.) F,S, SU
The second of three clinical (didactic) courses in which students review and challenge the learned principles of nuclear medicine technology in their intermediate clinical rotation experience. Includes review and integration of patient care and recordkeeping, radiation safety techniques, radiopharmacy, quality control procedures, and clinical protocols and procedures.

NME 402 Clinical Practicum II (3 cr.) F,S, Su
The second of three clinical practicums in which students apply the principles of nuclear medicine technology in a clinical setting. Includes patient care and recordkeeping, radiation safety techniques, radiopharmacy, quality control procedures, and demonstration of clinical competency in performing nuclear medicine procedures.

NME 411 Clinical Essentials III (3 cr.) F,S, SU
The third of three clinical (didactic) courses in which students review and challenge the learned principles of nuclear medicine technology in their advanced clinical rotation experience. Includes review and integration of patient care and recordkeeping, radiation safety techniques, radiopharmacy, quality control procedures, and clinical protocols and procedures.

NME 403 Clinical Practicum III (3 cr.) F,S, SU
The third of three clinical practicums in which students apply the principles of nuclear medicine technology in a clinical setting. Includes patient care and recordkeeping, radiation safety techniques, radiopharmacy, quality control procedures, and demonstration of clinical competency in performing nuclear medicine procedures.

NME 468 Departmental Administration (1 cr)
Experience in understanding the role that the technologist has in the overall operation of the clinical department.
Prerequisite: Completion of pre-practicum courses.

NME 469 In Vitro Studies (3 crs)
Experience and understanding of In Vitro studies including theory, practice, instrumentation and evaluation.
Prerequisite: Completion of pre-practicum courses.

NME 470 Advanced Clinical Experience (1-3 crs) D
Elective course in a specialized clinical area, directed by a technologist, therapist, or physician, and resulting in a summary paper. Prerequisite: Completion of pre-practicum courses.