COVID Safety Expectations:
- Masks optional
- Communal eating in classrooms should be avoided.
- Continue to social distance in classrooms as much as possible.
- Continue to practice scrupulous hand hygiene.

Class days and Time: Tuesday and Thursday 9.00 AM – 10.30 AM
Classroom: Research Imaging Institute Library, McDermott Building - McD 2.610

Course Director: Sidath C. Kumarapperuma, PhD
Assistant Professor, Department of Radiology
UT Health San Antonio
Telephone: 210-567-8136
Email: kumarapperum@uthscsa.edu

Course Instructor: Jessica Nute, PhD, DABR
Assistant Professor/Clinical, Department of Radiology
Associate Dean of Student Affairs
Telephone: 210-567-1361
Email: nute@uthscsa.edu

Course Instructor: Andrew J. Sampson, PhD, DABR(D)
Assistant Professor, Clinical, Department of Radiology
Director, Clinical Imaging Physics
Director, Radiological Sciences Graduate Program
Director, Clinical Imaging Physics
Telephone: 210-567-0655
Email: SampsonA@uthscsa.edu

Course Description: This course is a study of physical principles of planar, SPECT, and PET radionuclide imaging; instrument theory; dosimetry; data analysis; and safety considerations. Detailed discussions of radionuclide production, radiopharmaceutical development, pharmacokinetic modeling, nuclear medicine systems instrumentation and applications will be an integral part of the course. This course will also provide an opportunity for students to observe laboratory radionuclide/radiopharmaceutical production and translational clinical/pre-clinical imaging at the Research Imaging Institute.

Required/Recommended Textbooks: Lecture slides, research articles, online textbooks etc.
Physics in Nuclear Medicine, Fourth Edition - Simon R. Cherry, PhD (Access through UTHSCSA Library)
https://www-clinicalkey-com.libproxy.uthscsa.edu/#!/browse/book/3-s2.0-C20090516352
COURSE DESCRIPTION AND OBJECTIVES

The objective of this course is to introduce students to physical, chemical, and instrumental analysis of nuclear medicine imaging. The course will focus on radiation safety, radionuclides, radiopharmaceuticals, and nuclear medicine imaging modalities. By the end of this course, each student should be able to: Understand the basic concepts of physics of nuclear medicine imaging.

COURSE ORGANIZATION

The main teaching modalities used in this course include:

1. Didactic lectures designed to convey information to the students in traditional lecture format.
2. In-class discussion on specific topics.
3. On-line discussions – A prompt will be provided for a discussion plus review of a peer response.
4. Group Presentation (The class will be divided in to two groups and each group will review a topic to make an in-class presentation with Q&A)
5. Laboratory visits/observations.

Computer Access – Students will need access to a computer and the internet to obtain course materials.

Reading Assignments – Reading assignments may be provided during the lecture.

Semester Credit Hours: 3 Credit Hours
Clock/Contact Hours: Lecture (37.5 hrs); Exams (4.5 hrs)
Total clock/contact: 42 hrs
Prerequisites: Undergraduate Physics and Chemistry or equivalent

ATTENDANCE

Attendance is mandatory. Students are expected to attend all classes and to be on time. In cases of illness or other serious event, the student is responsible for all materials presented on that day. There will be no make-ups for missed lectures.

GROUP PRESENTATION AND PEER REVIEW

Group activities and projects are a critical part of this course. These activities will help you share your knowledge and experience and be able to apply what you have learned in real-world scenarios. You will submit a peer review for yourself and for each of your team members, assessing your/their participation and performance on the group work, and they will submit a peer review for you (a rubric will be provided). Failure to actively contribute to a group presentation will negatively impact your grade in this class.

GRADING INFORMATION

Your grade in the course will be determined as follows:

On-line discussions: 10%
Exams: 20% (x3)
Group Presentation: 10%
Participation: 10%
Self- and Peer Review (Group Work): 10%

Grading scale: Letter, A (90-100), B (80-89), C (70-79), D (60-69), F (<60)

**Final grade will be released on Canvas after 75% of the class complete the Course Evaluation.**
REQUESTS FOR ACCOMMODATIONS FOR DISABILITIES

In accordance with policy 4.2.3, Request for Accommodation Under the ADA and the ADA Amendments Act of 2008 (ADAAA), any student requesting accommodation must submit the appropriate request for accommodation under the American with Disabilities Act (ADA, form 100) to his/her appropriate Associate Dean of their School and a copy to the ADA Coordinator. Additional information may be obtained at http://uthscsa.edu/eeo/request.asp.

ACADEMIC INTEGRITY AND PROFESSIONALISM

Any student who commits an act of academic dishonesty is subject to discipline as prescribed by the UT System Rules and Regulations of the Board of Regents. Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, signing attendance sheets for another student, and any act designed to give unfair advantage to a student or the attempt to commit such an act. Additional information may be obtained at http://catalog.uthscsa.edu/generalinformation/generalacademicpolicies/academicdishonestypolicy/

TITLE IX AT UT Health SA

Title IX Defined:

Title of the Education Amendments of 1972 is a federal law that prohibits sex discrimination in education. It reads “no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.” UT Health San Antonio’s Commitment: UT Health San Antonio is committed to maintaining a learning environment that is free from discriminatory conduct based on gender. As required by Title IX, UT Health San Antonio does not discriminate on the basis of sex in its education programs and activities, and it encourages any student, faculty, or staff member who thinks that he or she has been subjected to sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to immediately report the incident to the Title IX Director. In an emergency, victims of sexual abuse should call 911. For non-emergencies, they may contact UPD at 210-567-2800. Additional information may be obtained at http://students.uthscsa.edu/titleix/

EMAIL POLICY

All course communication will be conducted by e-mail using the student’s LiveMail account. Students are expected to check their e-mail accounts regularly and are responsible for materials, assignments, notifications, and test materials distributed by e-mail.

USE OF RECORDING DEVICES

The use of recording devices is allowed.

ELECTRONIC DEVICES

Cell phones may not be used in class and must be shut off during class. Laptops or tablets can be used in class for class—related purposes and note taking. They may not be used for e-mail, web surfing, or any activity not related to class.
<table>
<thead>
<tr>
<th>Week</th>
<th>Session</th>
<th>Date</th>
<th>Topic</th>
<th>Lecturer</th>
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<tr>
<td>1</td>
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<td>Jan 10</td>
<td>Introduction</td>
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<td>3</td>
<td>Jan 17</td>
<td>Radionuclide Production: Generators</td>
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<td>Jan 24</td>
<td>Radionuclide Production: Reactors</td>
<td>Dr. Kumarapperuma</td>
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<td>Radiopharmaceuticals - Single Photon Emitting</td>
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<td>Feb 7</td>
<td>Radiopharmaceuticals: Positron Emitting</td>
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<td>Feb 14</td>
<td>Scintillator Detectors</td>
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<td>Feb 16</td>
<td>Scintillator Detectors</td>
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<td>Dosimetry</td>
<td>Dr. Nute</td>
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<td>16</td>
<td>Mar 2</td>
<td>Emission Computed Tomography</td>
<td>Dr. Sampson</td>
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<td>18</td>
<td>Mar 9</td>
<td>Exam #1</td>
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<td>19</td>
<td>Mar 21</td>
<td>PET - Instrumentation</td>
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<td>Group Presentation Group #1</td>
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<td>Pre-clinical Animal Imaging</td>
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<td>Hybrid Imaging Systems</td>
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<td>Apr 18</td>
<td>Laboratory - Dose Calibrator Quality Control</td>
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<td>Apr 20</td>
<td>Cyclotron Tour and PET suite tour</td>
<td>Dr. Kumarapperuma</td>
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<td>Apr 25</td>
<td>Exam review - course related discussions and course evaluations</td>
<td>Dr. Kumarapperuma</td>
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<td>End</td>
<td>Dr. Kumarapperuma</td>
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