

University of Arkansas - Fort Smith
5210 Grand Avenue
P. O. Box 3649
Fort Smith, AR 72913-3649
479-788-7000

General Syllabus

ISL 4303 Technological Advancement in Medical Imaging

Credit Hours: 3 Lecture Hours: 3 Laboratory Hours: 0

Prerequisite: admission in the BSIS-Leadership program

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

An overview of the latest technology advancements transforming medical imaging and improving healthcare. An in-depth exploration into the performance of different imaging techniques.

B. Additional Information - None

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Assess the various advancements that will have an impact on professional practice and healthcare.
2. Evaluate the current trends in each modality in the Radiologic Sciences.
3. Explain the effects of current trends on professional practice.
4. Subdivide the specialized imaging modalities with an emphasis on the concepts and theories of equipment operation and their integration for medical diagnosis.
5. Analyze the future trends and technological advances in Medical Imaging.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Students will use critical thinking skills to generate solutions of problems occurring with technological advancements in medical imaging.

Communication Skills (written and oral)

Students will communicate proficiently by composing coherent documents on the various aspects of technological advancements as they pertain to imaging professionals.

Ethical Decision Making

Students will apply ethical frameworks to resolve a variety of ethical dilemmas faced when advancing healthcare in medical imaging.

III. Major Course Topics

- A. Advances and Trends in Healthcare Technology
- B. Computer-Aided Detection and Quantification
- C. 3D Rotational X-ray Imaging
- D. Computed Tomography
- E. Magnetic Resonance Imaging
- F. Diagnostic Ultrasound
- G. Molecular Imaging System
- H. Interventional Radiography
- I. Bone Densitometry
- J. Radiation Oncology