



Tishk
International University

Faculty of Applied Science
Medical Analysis Department

Course Descriptions



1. This survey course is an introduction to the different medical imaging modalities, including x-rays, nuclear medicine, ultrasound, computed tomography and magnetic resonance imaging. The physical and mathematical principles involved in the formation of medical images will be presented, along with discussions of the limitations to resolution and image noise. Examples of primary applications for each modality will be given.
2. This course will introduce the role of diagnostic imaging in detecting molecules, genes, and cells in vivo. Emphasis will be in how these techniques can help study molecular mechanisms of disease in vivo. Topics include DNA/protein synthesis, transgenic mice, novel contrast agents and small animal imaging.
3. Nature and effects of ionizing radiation on biomolecular structures and living cells, applied radiobiology and radionuclides. Genetic effects of ionizing radiation and methods of protection.
4. Fundamental physics and instrumentation of biomedical ultrasound imaging presented at a level suited to graduate students performing thesis research in ultrasound imaging.

MA 108 / BIOPHYSICS