MHP-Health Physics

MHP 601. Principles of Health Physics. 3 Hours.
Introduction to the practice of health physics. Topics include accelerator and cyclotron health physics, environmental radiation, emergency response, decommissioning and decontamination, and nuclear reactors.

MHP 611. Physics of Diagnostic Imaging. 3 Hours.
Overview of the various imaging modalities used in a clinical setting. Topics include the basics of X-rays, ultrasound, CT, MRI, SPECT & PET imaging.
Prerequisites: NMT 610 [Min Grade: C]

MHP 620. Principles of Dosimetry. 3 Hours.
Fundamental principles of radiation dosimetry. Topics include the mathematical treatment of internal and external doses from radiation sources, dosimetry models, routes of intake, industrial and medical sources.
Prerequisites: MHP 601 [Min Grade: C]

MHP 621. Nonionizing Radiation. 3 Hours.
Recognition, assessment, and control of nonionizing radiation hazards. Topics include sound, electricity, magnetism, microwaves, visible light, ultraviolet radiation, and lasers.
Prerequisites: MHP 611 [Min Grade: C] and NMT 610 [Min Grade: C]

MHP 651. Advanced Radiation Biology. 3 Hours.
Effects of radiation at the molecular, cellular and whole-tissue level. Topics include cell survival curves, repair of radiation damage, radiation carcinogenesis, risk assessment models, cancer biology, model tumor systems, and dose fractionation in radiotherapy.
Prerequisites: NMT 641 [Min Grade: C]

MHP 652. Radiochemistry. 3 Hours.
Overview of fundamentals of radiochemistry and experiments including counting statistics, radionuclide generator design, elution and operation, labeling and quality control, liquid scintillation counting, radiotracer techniques and applications, and dating techniques.
Prerequisites: MHP 611 [Min Grade: C] and NMT 610 [Min Grade: C]

MHP 653. Research Methodology and Publication Analysis. 3 Hours.
Perform scientific research, critically evaluate scientific literature, and write an abstract and scientific poster on a topic relevant to health physics.
Prerequisites: CDS 610 [Min Grade: C]

MHP 675. Special Topics in Health Physics. 1-4 Hour.
Exploration of current issues in Health Physics.

MHP 691. Supervised Practice. 6 Hours.
Supervised practical experiences in applied health physics.
Prerequisites: MHP 620 [Min Grade: C]

Directed research with a faculty mentor to complete an applied master's degree project.

MHP 699. Thesis Research for MHP. 1-6 Hour.
Original research in health physics and interpretation of results. Demonstrates student's acquaintance with literature of field and competency in proper selection and execution of research methodology.