

## **Applied Physics : Learning Objectives and Course Outline.**

**Duration:** 24 - 26 weeks  
**Period:** Fall/Winter  
**Course Coordinator:** Radiation Oncologist (1), Physicist (2)

**Prerequisites:** Basics of Physics

### **Course Description:**

A case-based course designed to teach and evaluate the use of medical physics principles to common clinical scenarios. These cases are selected to cover the range of clinical sites, techniques, available equipment, and interaction with other professional support staff in a radiation oncology department. There will be one case a week.

### **Learning Objectives:**

- understand the principles guiding the choice of beam energy, technique, and machinery for patient treatment sites
- understand how to interpret and evaluate treatment plans for different clinical scenarios
- understand the meaning and use of common dosimetry parameters - i.e. %DD, TPR, TAR, DVH, CI, etc.
- understand common beam shaping devices
- understand the effects of and corrections for simple contour changes and inhomogeneities
- understand the operation and usage of imaging systems in different clinical situations
- perform MU calculations
- draw dose distributions, and dose profiles for different clinical situations
- understand the role of radioisotopes
- understand the role of radioactive seeds in clinical situations
- understand the role of radiation safety in clinical use (ALARA)

### **Evaluation:**

One-hour oral exam based on clinical case scenarios following course completion. Two (2) clinical cases will be presented to the student. The student will be given 1 hour to prepare prior to the exam.