Syllabus for Radiation, Detection and Measurement

Instructor: D Pearson (dpearson@physics.utoledo.edu)

Spring Semester

Grade Breakdown; Homework 70%, Midterm 10%, Final 10%, Project 10%.

Chapters 1 and 2 will be a reading exercise

Lecture 1: Ch 3. Counting Statistics and Error Prediction

Lecture 2: Ch 4. General Properties of radiation Detectors

Lecture 3: Ch 5. Ion Chambers

Lecture 4: Ch 6. Proportional Counters

Lecture 5: Ch 7. G-M Counters

Lecture 6: Ch 8. Scintillation Detectors (and review for MIDTERM)

MIDTERM (which includes Ch8) then Spring Break (6th-10th March 2017)

Lecture 7: Ch 9. Photomultiplier Tubes and Photodiodes

Lecture 8: Ch 10. Radiation Spectroscopy with scintillators

Lecture 9: Ch 11. Semiconductor diode detectors

Lecture 10: Ch 12. Germanium gamma ray detectors

Lecture 11: Ch 13. Other solid-state detectors

Lecture 12: Ch 14+15: Neutron Detection

Week 13: Introduce Projects and discuss

Week 14: Hand in reports and each student presents 10-min presentation

Week 15 – Final Ch8-15

Introduce discussion problem: New department with:

- Two linear accelerators
- HDR
- On-board imaging
- Possibly SRS