Graduate Level Spectrum Engineering Course

Overview

This course is intended to provide an understanding of spectrum management to individuals with a bachelor's degree in physics or astronomy. The course creator shall create a 1-credit graduate-level course that meets the learning objectives listed below. The course will be presented online and completed asynchronously with the possibility of some assignments being peer evaluated.

Learning Objectives

The course should be designed so it meets the following learning objectives.

- Students will understand how radio frequency (RF) waves are produced by both natural and manmade transmitters and propagate through space. They will be able to explain how those waves are received at the antenna.
- Students will be able to use and interpret the units used when engineers discuss antenna characteristics.
- Students will be able to detect, identify, and locate causes of RF interference and will be able to provide recommended solutions in mitigating the source (s) of interference.
- Students will be able to describe how spectrum policies and regulations affect their work.

Concepts to be included

- Engineering units
- Antennas
- Propagation
- Introduction to Fourier Transform
    - negative frequency
- Receivers/Transmitters
- Filtering
- Link Budgets
- Interference
- The effect of Spectrum Policy and Regulations on engineering

If Interested in Applying

Send an email to Valarie Bogan (vbogan@nrao.edu).