Virginia Tech Fall Term 2007, offered by VTEL from the National Institute of Aerospace, Tues - Thurs 9:30 - 10:45am
ECE 4984-- Special Topics
The Perils of Space: Introduction to Space Weather

This course describes the space environment from the sun to the earth’s upper atmosphere. Fundamental concepts in space plasma physics will be presented, as needed, throughout the course. Numerous examples of observations and data will be utilized to illustrate the environment and its dynamic variability. An emphasis will be placed on the practical consequences of this environment (space weather) on modern technologies such as solid state devices, satellite technology, communication and global navigation systems.

The near-earth space environment has profound effects on radio waves, electrical devices, power systems, satellites, space vehicles, as well as humans. As society becomes more dependent on technologies embedded in this environment, more physical understanding and predictive capabilities in terms of 'space weather' will become crucial. This course provides an introduction to the basic physical science concepts of the Sun-Earth environmental system by describing the details of the electrodynamics and plasma physics in the region from the center of the sun to the ionized atmospheric regions of the earth. The impact of this environmental system on various technologies will be stressed.