



Sensor Systems Technology

Instructor: David Fries and David Hollander

CRN 23528, OCE 6934 Section 621

Course Times: Spring 2012 (Jan 13-Apr 27), Fridays, 12:30pm-2:30pm

Location: KRC 3120

This 2-credit course is intended to introduce students of environmental and engineering sciences to topics in field sensor and control system designs, construction and principles.

- This course explores topics in environmental sensors systems, particularly aquatic sensors systems, and sensor networks. Examples include *in-situ* chemical, physical and biological sensor systems and networks and their materials and operations. An overview of environmental measurements methods and systems will be reviewed.
- Sensor system networking, sensor communications and sensor systems packaging will be addressed as well as methods of deployment.
- Emerging sensors and new technology for environmental applications; sensor system design, fabrication, and test & analysis will be topics considered; along with the design of autonomous systems, innovations and design solutions to environmental problems. Hands on exercises will also be part of the class.

Topics covered:

Principles of Systems: Theory- information, matter, energy systems
Principles of Systems: Natural and Manmade
Principles of Systems: Sensor Systems
Principles of Systems: Environmental Measurements – chemical, biological, physical
Design of Environmental Systems: principles, materials, operations, methodologies
Construction and Methods of Environmental Systems: sensor system fabrication and assembly
Innovations and Design Solutions - Sensors
Innovations and Design Solutions – Platform 1 – AUVs and ROVs, Buoys, Profilers. . .
Innovations and Design Solutions – Networks
Fabrication/Hands on Systems Developments – Mobile Sensors and Samplers

Prerequisites: (Physics, Chemistry and Biology) I

Grading: Grades will be based on participation and completion of design and fabrication assignments.

Permits: request permit to: dfries@marine.usf.edu (open to Marine Science Grad Students. Other Engineering and Science majors are encouraged to enroll)