Northwest Arkansas Community College
Division of Science & Mathematics

ENSC 2243 Instrumentation, Sampling and Analysis: Water Quality

Catalog Description: Water sampling, field analysis, preservation and transport to the laboratory for quality assurance is emphasized. Laboratory instrumentation analysis using spectrographic and titrimetric methods along with quality control will be stressed. Two hours lecture and two hours laboratory weekly.

Prerequisite: There are no prerequisites for the course. Previous coursework in chemistry or geology is recommended.

Credit hours/ Contact hours/ Load hours: 3/4/3.4

Target Audience/Transferability: Successful completion of this course should prepare students for successful further study in environmental and regulatory science. This is a required course for the Environmental & Regulatory Science AAS Degree. ENSC 2243will transfer to the University of Arkansas at Fayetteville in the Environmental, Soil, and Water Science as elective credit. ENSC 2243will also transfer to Missouri Southern State University and Northeastern Oklahoma State University at Tahlequah, Oklahoma.

Required Material: Lab packet provided by the NWACC science department

Student Learning Outcomes: Students completing this course will:

- Describe in detail techniques for collection and process of water samples and chemical analyses.
- Develop an environmental based project using GIS (Global Information Systems) for collection of water and wastewater samples.
- Collect, organize, analyze, interpret, and present sampling data in conjunction with preparation of formal laboratory reports using a computer.

Topics:

- Water quality labs for the following:

Acidity, alkalinity, bromine, carbon dioxide, chloride, chromium, conductivity,
Copper, fluoride, hardness, iodide, iron, manganese, nitrate, nitrite, ammonia,
Dissolved oxygen, pH—electrode, phosphorus, silica, sodium chromate,
Sulfate, sulfide, suspended solids, turbidity.

Resources:

- Flowmate Model 2000 Portable Flowmeter
- Hach Digital Titrator Model 16900
- Hach EC10 Portable pH/mv/temp meter Model 50050
- Hach C0150 Conductivity Meter Model 50150
- Hach Platinum series, pH electrode
- Hach DREL/2010 Spectrophotometer
- Hach Portable Laboratory Manual---Water Quality Lab

Forms of Assessment: None