

# **FISH 503 Advanced Limnology** (University of Idaho, Moscow Campus)

## **Oxygen Module**

### **Day 1 - Thursday Mar 22<sup>nd</sup>, 2012**

- 09:00-09:15** Introductions, course overview and objectives/goals (Room CNR 205F)
- 09:15-10:30** Oxygen - the element, valence states, reactivity. Gas laws, solubility, factors affecting oxygen calculations (barometric pressure and temperature, sample calculations). (Room CNR 205F)
- 10:30-10:45** Break
- 10:45-12:00** Equipment maintenance; calibrations; spreadsheet work; discussion of lab activities for afternoon / safety; comparisons to be made (CNR 205F); spreadsheet calculations
- 12:00-13:00** **Lunch**
- 13:00-16:30** Laboratory - Winkler titrations - theory, application - comparing basic wet chemistry and DO kits. Calibration between methods - theoretical calculations. (Room CNR 216-218)

### **Day 2 - Friday Mar 23<sup>rd</sup>, 2012**

- 09:00-10:00** Polarography, membranes, special case sensors and LDO. Spreadsheet calculations (Room CNR 2-5F)
- 10:00-10:15** **Break -**
- 10:15-12:30** Laboratory, use of polarographic and LDO oxygen meters, calibration, use and recording - importance of barometric pressure, use of barometric based altimeters. (Room CNR 216D)
- 12:30-13:30** **Lunch**
- 13:00-15:00** Chemical contamination of sensors that will affect various oxygen measurements. QA/ OC in sampling program. Requirement of oxygen by biota as an electron acceptor, oxygen in chemical reactions in lakes, oxygen in sediments and REDOX potentials. (Room CNR 205F)
- 15:00-15:30** **Break -**
- 15:30-16:00** Finish spreadsheet development and calculations. (Room CNR 205F)
- 16:30-17:00** Presentation of results and discussion, module wrap up. (Room CNR 205F).