

Fish 530 Advanced Limnology (University of Idaho Moscow)

Course syllabus

Instructor: Frank M Wilhelm
CNR 105A (Office hours M 09:30-11:30; T 12:00-13:30)
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Meeting times: January 26, 27 - 08:30-17:00 Coring
February 16/17 - 08:30- 17:00 Data management and visualization
March 22/23 - 08:30-17:00 Dissolved Oxygen
April 5/6 - 08:00-17:00 Metrics and indices

Goals: To provide in-depth theory and practical hands-on field or laboratory experiences in areas of limnology related to real-world needs; and to intersperse students taking the course for university credit with professionals seeking continuing education credits for re/certification through the North American Lake Management Society. See the course web site (<http://www.cnr.uidaho.edu/fish503al/>) for specific goals and objectives associated with each module/topic.

Modular approach: Each module will treat one topic in depth. Assignments will be distributed with each module and will be due at the start of the next module. Some laboratory work and writing will need to be completed outside of regular class time.

Electronic submission of assignments is encouraged. Please only send **one** file (PDF preferred) that includes all of the required material for each module. Name the file with your name, the course number and module number.

2012 Grading summary

General format of files material you submit - CLEARLY indicate what it is and organize it logically - use page breaks judiciously - I don't want to have to spend forever pecking around looking for things. Where possible, I expect inclusion of means and estimates of variation (either standard deviation or error - be sure to tell me which) and summary figures or tables. For references you include - choose a standard aquatic journal format and be consistent.

For module assessments (common to all modules) I'm looking for an individual and honest assessment of the unit from your point of view. Cover such things as its use to you, what you thought about the unit overall, its delivery/content etc. Be honest - I will use these to make changes. Be as critical as possible, but do it in a constructive manner - if you think something was useless, say so, but indicate exactly what and why it was useless and offer suggestions for improvement from your perspective. Assess all components, equipment, the sequencing of each module, time allotted to different activities (lecture, lab, field, what worked and didn't work. Address what you saw as the highlights. Keep in mind the units are geared towards lake management in general.

Module 1 Coring and Paleolimnology (25% of final grade)

Module assessment (1 page max) 10%

Summarize the core data with figures to describe the sediment of Spring Valley Reservoir (written 1 page max, compress figures as much as possible on extra pages if necessary) 15%.

Module 2 Data management and visualization (25% of final grade)

Module assessment (1 page max - 10%)

Tips and tricks for excel (2%) summary of your contribution.

Written standard operating procedure (SOP) for a specific scientific task - e.g. collection of oxygen data/calibration of a meter. Be thorough, give rationalizations and explanations for the information you give and provide references where appropriate. (5%)

Provide a small sample spreadsheet you could use to have an assistant enter data for you that automatically checks that the data entered are correct for certain fields, limits input options to other fields and makes sure numbers/dates etc. are entered correctly. Use your imagination - think about the sorts of data you will generate for your thesis, or that we have developed and entered in this course. Provide adequate documentation right in the spreadsheet, can be on separate tab, and lock up everything except the entry fields you want the assistant to access. (8%)

Module 3 Oxygen (25% of final grade)

Module assessment (1 page max) 10%

Summary of your meter calibration (no page limit - be efficient 10%)

Summary of individual and class data (written 1 page max, figures as compressed as possible on extra pages if necessary. This should include the Winkler titrations, and the measurements from the oxygen meters - Data will be in a spreadsheet on the class website. For the summary, I am interested to learn your precision and accuracy using Winkler titrations, and sources of potential error. I am also interested in your opinion of oxygen meters and their output. I am also looking for an updated Excel spreadsheet of the RTM that calculates the non-standard temperature and pressure oxygen solubility for any pressure and temperature units the user inputs. Use your excel knowledge and lookup tables/locking pages etc. to make this possible. (5%)

Module 4 Metrics and indices (25% of final grade)

Module assessment (1 page max) 10%

Summary plots/tables and brief descriptions of trends in each of annual Chl a TP and secchi TSI from data provided on course web page (TSI index as calculated using Carlson 1977). Summarize your collected data set using the training data sheet to calculate as many of the indices as possible to come up with a stream health assessment for Paradise Creek. This may be limited given the samples we collected and what we found - (1 page max - include tables and figures as needed). You may find the following reference useful for summaries of tolerance values - made in Idaho.

Davis, J. C., Minshall, G. W., Robinson, C. T., and Landres, P. 2001. Monitoring wilderness stream ecosystems. Rocky Mountain Research Station **RMRS-GTR-70137**. (RMRS = Rocky Mountain Research Station of the US Forest Service - that's how I tracked the PDF file). Class data will be on web page. (15%)