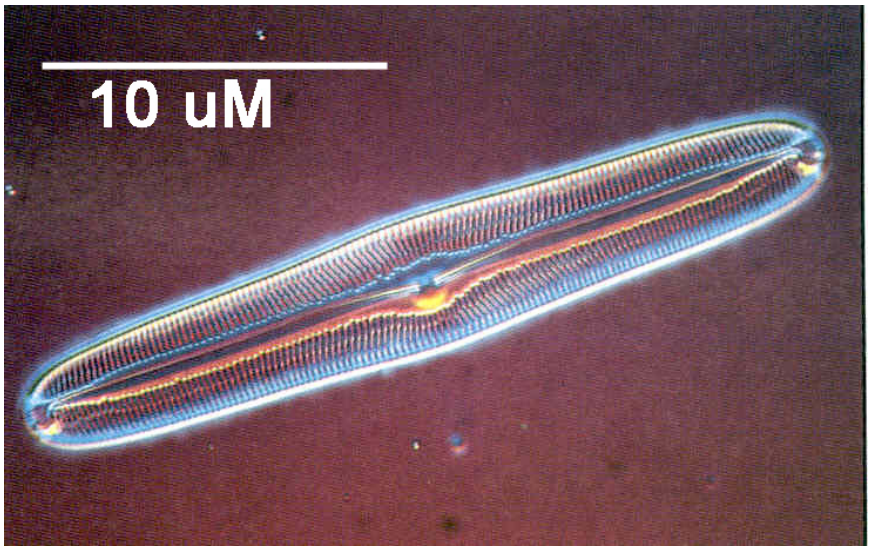

http://www.marietta.edu/~spilatrs/biol202/microid/images/diatom.jpg

Exercise 9. One Way ANOVA
Due: 11/05/2013

Note:
E-mail a single Word document with your results to both instructors. All analytical work needs to be done in R (unless otherwise noted). Scripts and output from R should be included in the Word document for full credit.

1. Medley and Clements (1998) studied diatom diversity grouped by different concentrations of zinc in various Rocky Mountain streams. Use their data to perform a **One Way ANOVA** of species diversity by the *different levels of zinc*. Present your results in a standard analysis of variance table, and discuss the statistical and biological meaning of your findings (4 points).

2. Create and analyze a **multiple regression model** using *three dummy variables* that is equivalent to the One Way ANOVA you performed in Question 1. Use the parameter estimates from the regression model to generate fitted values and construct the corresponding analysis of variance table **for the regression.** Do you find any important differences in your results? (4 points).

3. Repeat the last **regression model in a Bayesian framework** and obtain the credibility for the multiple comparisons (present your results in a table). Do you see any advantage from using this approach vs. the approach in Question 1? (2 points).