As described in the class syllabus, your final assessment in this course will be based on a final project that you will present the last week of class. You will be preparing the final project in groups of two.

OVERALL GOALS
In this project you will assess the point and nonpoint sources in a watershed that will be assigned to your group. In the project, you will:

- Determine the water quality of your watershed and surrounding watersheds.
- Determine the nonpoint source contribution of your watershed to the total loading of phosphorous, BOD, and total suspended solids.

The tool developed by EPA, Better Assessment Science Integrating Point and Nonpoint Sources (BASINS), (http://www.epa.gov/OST/BASINS/) will be used for this assessment.

DEADLINES:
1. **October 23rd**: Presentation of existing TMDL study for your watershed (10% of total course grade)
2. **November 13th**: Assessment, Target, and Data Mining Analysis (25% of project grade)
3. **December 4th**: Final Presentation and Report

FORMAT
The final report should include all of the relevant information you would include in a technical report such as, appropriate citations, discussion of scientific literature, discussion of relevant methodologies, calculations, and figures/drawings.

TASKS
1. **Existing TMDL Study Presentation**
   The first step in this project is to obtain the TMDL study for your watershed. The assigned groups and watersheds are:
   
   - **Vivek and Tesfaye**: San Diego Creek and Newport Bay, CA (SD_NB)
     *Total Inorganic nitrogen and Total Phosphorous*
   - **Zach and Jim**: Garcia, Navarro, and Noyo River, CA (GARRiver)
     *Temperature and Sediment*
   - **Dan and Tom**: Lower Nooksack River Basin, WA (LNSRiver)
     *Fecal Coliform*
   - **Christine and Glenn**: Susquehanna River, PA (SQHRiver)
     *PCBs*
   - **Silvia and Harrison**: Truckee River, NV (TRKRiver)
     *Total Nitrogen, Total Phosphorous, TDS*
   - **Uma and Philip**: Stekoa Creek, GA (STKCreek)
     *Sediment*

   The TMDL studies can be downloaded from the EPA website at: http://www.epa.gov/OWOW/tmdl/index.html. Select the Example TMDLs link and find your watershed in the list. The Truckee River study can be obtained from the State of Nevada, Division of Environmental Protection: http://ndep.state.nv.us/bwqp/tmdl.htm.

   Your group will make a 10-15 minute presentation (using PowerPoint) that describes the existing TMDL.
2. **Target, Assessment, and Data Mining Analysis**

For your region, you will need to perform an assessment of the water quality for the surrounding watersheds. All assessments made for the 1990 – 1994 time period. More specifically, you will:

a. **Target** the watersheds (Cataloging Units, CUs) that are above a given threshold value for each constituent?

b. **Assess** the water quality of your watershed in relation to the other adjacent watersheds.

c. **Target** the watersheds (Cataloging Units, CUs) where there are permitted discharges of each constituent.

d. **Assess** the permitted discharges of your watershed for each constituent?

e. Use **Data Mining** on at least one station in your watershed for the constituents that a TMDL has been developed.

**CONSTITUENTS:**

- Total Phosphorous
- Dissolved Orthophosphate
- Nitrogen, Ammonia
- BOD

- Total Suspended Solids (TSS)
- Specific Conductance
- Temperature
- pH

3. **Nonpoint Source Modeling for your watershed**

- Total Phosphorous, BOD, and Total Suspended Solids
- PLOAD
- HSPF

Do the two models give different answers?

4. **Comparison of Point and Nonpoint Sources**

- How do nonpoint sources compare to point sources?
- Can you recommend any Best Management Practices?
- What type and where?
- How does your work support or discredit the existing TMDL study?
- Other conclusions/recommendations

5. **Final Presentation and Report**

- **PRESENTATION:**
  - 20 minutes oral presentation
  - PowerPoint
  - Can provide some material from earlier presentation in (1).
  - Both people must give presentation

- **FINAL REPORT**
  - Include all citations
  - Format of a typical technical report (e.g., Exec. Summary, Table of Contents, Background, Description of analysis, Results, Summary/Conclusions, References).
  - No more than 10 pages (single space) in the Main Report (not including Executive Summary).
  - Include appropriate Figures, calculations, Appendices

**GRADING**

- Thoroughness of background information.
- Ability to synthesis data from BASINS.
- Completeness of nonpoint source models.
- Ability to summarize work and make recommendations.
- Each group member will be peer evaluated and different grades will be assigned if necessary.
- Other information you can obtain (BE RESOURCEFUL!!)