WATER RESOURCES PROJECT GUIDELINES

General Project Summary

You will complete a major water resources research paper/project and presentation in this class. The project you select may contribute new or updated information to an on going Water Resource class venture pertaining to New Island along the Susquehanna River in Oneonta, or you may choose to research a topic regarding any local water resources. The research needs to be reasonably local because you must conduct fieldwork.

Project Option One – New Island: Contribute to the already evolving New Island Greenway Environmental Education Project. This research will provide you with hands-on environmental experience, enabling you to understand issues related to water resources, greenway development, and ecosystem conservation in an increasingly fragmented Susquehanna River riparian zone. Industrial perturbations of the past have fallen into disuse, allowing New Island to become an isolated, fully functional ecosystem island in a sea of longstanding riverside urbanization. Fifteen kiosks or observation points, referred to as Eco-stations, have been virtually established on the World Wide Web to explain various water related ecosystems and ecologically significant habitats. A hypothetical trail or greenway connects each Eco-station, creating a virtual circuit that reduces the environmental impact of an actual trail system. Your research will contribute toward the continued development of a hypothetical greenway that explores important water associated resources on New Island.

Riparian greenways exemplify both the physical and social uses and the complexities of water related resources. In developing greenways, water resource experts have to understand riparian physiography, stream dynamics, wetlands, hydrology, biogeography, landuses current and historic, legal constraints, human perturbations, planning… among others. Thus, by studying greenway development, students become intimately involved in water resources issues. You will develop a riparian greenway project that explores one or more aspects of water resources.

The New Island Environmental Education Project was funded by an EPA grant. For more information about the Project go to http://external.oneonta.edu/greenway/ and click “Take New Island Virtual Eco-Tour”.

Project Option Two – Local Water Resources: Because I am highly involved in issues concerning local water resources, I have many real-world projects that could be developed into your research. These projects if researched effectively will contribute new water related information to the City of Oneonta and are of value. This is an ideal opportunity for you to perform a community service while fulfilling the academic requirements of a college course. You may choose a local topic that I have initiated or you may select a topic that is original and that you develop from beginning to end. If you select your own topic, it must be approved by me.

Single and Joint Projects

You may work alone on the research or in a group of two. It is advantageous to work with a fellow classmate because: 1) you may be able to achieve better insight on the project as each student brings specific skills to the group; 2) a more elaborate, detailed project may be generated more easily by working members dividing multiple responsibilities; 3) some of the research will require fieldwork and you may find you do not like working alone. If you prefer to work on the project alone, you will not suffer any penalties. Some people like to work alone, answering only to self. It can be advantageous to determine a topic that specifically interests you and to have the flexibility of setting your own work schedule. Obviously, if you decide to work in a group, I will **expect double the results** than that of a single worker (paper will be twice as long and the presentation will be more fully developed).

Topic Selection

Project Option One – New Island: You will select a topic that specifically addresses the water resources and greenway development of New Island, Oneonta. Your topic may begin as a general discussion of a specific water resource, but become focused via examples and research from New Island. Choose one of the following topics for your project (if you would like to develop your own topic, see me):

1) Greenways and water resources using New Island Greenway as a case study
2) *Hydroseral succession on New Island
3) Fish and aquatic organisms of the Susquehanna River in the New Island region
4) *Wetlands of the New Island riparian zone
5) *Riparian flora of the New Island riparian zone
6) Animal populations in the riparian zone of New Island
7) Wetland Habitat change on New Island
8) *Historic land and water uses of New Island
9) Landuses of riparian zones: The New Island Greenway example
10) The railroad on New Island (consider historic uses, potential uses and implication on water resources)
11) *Exotic riparian species on New Island (map the species) – i.e. Japanese knotweed
12) The extent and distribution of the exotic species purple loosestrife (or water chestnut or Eurasian milfoil
13) New Island watershed
14) *Dam History and Dam Removal on New Island.
15) * Water pollution and water quality on New Island
16) *Riparian Geomorphology of New Island (identify and discuss floodplain features)
17) Impacts of flooding along the upper Susquehanna River and New Island
18) Roadways in a riparian corridor: The I88 example on New Islands (consider elevated chloride levels)
19) Water transfers and mills: The New Island millrace.
20) Analyzing benthic Macroinvertebrate as a mean to gage New Island water quality
21) *Wetland soils analysis of New Island

Project Option Two – Local Water Resource: You will select a topic that specifically addresses local water resources. Choose one of the following topics for your project (if you would like to develop your own topic, see me):

1) Coal tar and water quality in Oneonta
2) *Exotic European Milfoil in Oneonta
3) Wetlands, water resources, and Industry in Oneonta
4) *Creeks Program in Oneonta: An overall assessment of stream health
5) Water resources and development along Silver Creek
6) *Hunt Union Pond water resources analysis
7) Flood history, development, and prevention in Oneonta
8) Understanding the role of dams in the Upper Susquehanna watershed (consider Southside dam, Goodyear dam, General Clinton dam).
9) Water resources and early settlement in Oneonta
10) Drinking water supply and waste water disposal in Oneonta
11) Expected impacts of severe flooding in Oneonta creeks
12) *Water Quality of Arnold Lake
13) *Water Quality of Good Year Lake
15) Water Quality of Otsego Lake
14) *Turbidity analysis of Good Year Lake drainage basin
15) *Sewage treatment and rain event discharge in Oneonta
16) *Tourism and sewage treatment in Cooperstown
17) * Implications of hydrofracking on local waterways and groundwater
18) *Silver Creek bank stability analysis
19) *Silver Creek: erosion, and urban encroachment
20) Oneonta Creek bank stability analysis

Note: the asterisk (*) symbol denotes projects of importance. I would like to be certain that each of these projects is covered by this class during this term.

If you select one of the above topics, you may find it necessary to alter the actual title to fit your needs. There are many topics from which to choose. If you are uncertain about a topic, please come see me. All topics must be approved! Topics are assigned on a first-come-first-serve basis. No single topic can be used twice. It will only take a few seconds to make sure that you are on the right track to a good paper. If you want to deviate from the topic as assigned due to personal interest in a specific area, you must speak with me and gain my approval.

Paper Portion General Rules (total points 50)

Your paper must have a purpose statement, introduction, methodology, results, conclusion, and bibliography. This paper should be **10** typewritten, double-spaced pages in length and very concise (20 pages for group work). Pictures, illustrations and, do not count toward the 10 pages. Your paper must be 10 pages of text. For every half page short, the standard deduction is 5 points. Do not use a bizarre font or a point size greater than 12. Your margins must be set to 1"

on all four sides. The paper must have, at a minimum, **8** bibliographic entries (16 entries for group work**)** in a correct format. Three entries must be from a journal or other primary source. Do not reference encyclopedias. Please staple papers in the upper left-hand corner. No Folders! Make sure that you make a **copy** of your paper. In the event that your paper is misplaced (which should never happen), you will have a back-up copy. It will be very difficult for you to prove to me that your paper was lost. Without a back-up paper, I will doubt that you did the paper. The paper portion of the project is due the last day of class.

Graphics Layout and Presentation (10 points)

Combine multiple pictures, graphics, charts, maps, and brief text into a virtual layout in a presentation program of your choice. The illustrations are the focus and the text is support. Create the virtual layout for your presentation in a word processor; PowerPoint; Microsoft Presents; FrontPage, Dreamweaver or any web page editor. If you choose to use a web page editor, I will provide you with an Internet homepage to post your data. Think of each page in the presentation as a piece of a larger poster. By combining the pages, you concisely, yet fully, cover the topic. Check for flow, completeness, and quality. Minimize clutter and maximize informative statements, enlightening pictures, and clear graphics. Enlarge all photos, graphs, charts, and maps enough for pertinent details to be clearly evident. Do not use unclear, smudgy, pixilated, or impossible to interpret illustrations. Be professional in your design and layout. Try to use original information in the layout, but if you have to use an illustration or picture that you did not create, be certain to provide proper source material.

You must turn in all digital files. Save the project to a disk and turn the disk in to me or send me the files via an email attachment. Do not give me a virus. The presentation layout portion of this project is due on the day that you present.

You must make a presentation from your paper. The topic will be communicated to the class via a computer presentation program. You may not read your paper. Be prepared. Your student peers are often quite critical. The presentation will be graded on: content, layout and organization, preparedness, response to questions, and class feedback. Be concise.

Be certain to include two multiple-choice questions regarding your paper and presentation. Writing a test question is not easy. Think about the presentation's main point and write a multiple-choice question that addresses that theme. The question must have an "A", "B", "C", "D", and "E" selection and a clear answer. Do not make the presentation test question too hard or easy. Type and email (a hardcopy is also fine) me the test questions. If you do not write two test questions, I will automatically take two points from your presentation grade. Be certain to give me your test questions the day of your presentation.