

## **GGY 435: Environmental Geography**

### **Paper Guidelines – Thesis Statement and Outline**

Your next research paper assignment is to hand in a detailed outline that includes a clear thesis statement, presents the basic organizational structure of your paper, and begins to organize information from your sources into logical arguments. The outline should be 1-2 pages long, and is due in class on Wed., Oct. 22. There are two main purposes to the outline. First, it will help you think about the best way to organize your information in a way that supports your thesis statement. And second, it gives you a template from which to work when you begin writing the first full draft of the paper. Constructing an outline is a necessary first step towards effective writing! Good writers always think in terms of logical structure and organization of information, even when they are not explicitly preparing a written outline before writing.

In addition to organizing the information into an outline, this assignment should be used to think about how you will introduce your topic and present your argument. A good introduction follows the “funnel” model. It starts with the most general statement you can make that is relevant to the topic. It then goes on to become more and more specific about the scope of the paper: the issues your paper will address, the geographic setting, the objective or argument that you will develop. Within the introduction (usually near the end) is a clear and concise thesis statement. This should be one or two sentences that sum up the main point of your paper and your approach to the subject. A thesis statement is not simply a statement of fact, but includes some perspective or interpretation that requires you to explain your point of view. The entire paper will be written to support your thesis, so it is important that you know what your thesis is before you begin writing.

You do not have to write the entire introduction for this assignment, but you should think about what items will and won't be mentioned in the introduction. You do have to include a thesis statement with your outline. Your outline should be structured as follows:

- **Title.** Include a short title that sums up the scope of your paper.
- **Thesis Statement.** A sentence or two that summarizes the main point you will make in your paper, and indicates how you plan to organize your ideas.
- **Major sections.** The major parts/chapters of the paper (labeled with Roman numerals I, II, III, etc.). The first and last sections will generally be “Introduction” and “Conclusion.” Other sections might include “Background” (review of the existing literature) or “Case Studies” (specific information about local examples). Ideally, your topic should break neatly into 4-6 major sections of 1-2 pages each.
- **Subsections.** These will be headings or short sentences that describe the main topics to be covered within each section of the paper (label them A, B, C, etc.). The topics should be arranged according to some logic that builds the overall thesis of your paper. For example, if the section is titled “Case Studies,” then each case study you present would be a subsection.
- **Supporting details.** List a few points/issues to be discussed within each subsection (label them 1, 2, 3, etc.). You don't need to write them out in complete sentences, but the supporting details should include facts and interpretations derived from your source material or from your own independent ideas. If you do a good job in your outline of listing the relevant details that need to be discussed, then writing the paper will be much easier. Your paper will be much better because you will have time to focus on writing clear sentences and paragraphs, instead of figuring out what you are trying to say.

The following pages show an example thesis statement and outline.

# Soil Erosion Impacts on North Carolina Streams

## Thesis statement:

*Beginning in the 19<sup>th</sup> Century, intensive agriculture caused severe soil erosion and sediment delivery to streams throughout North Carolina. Although soil conservation measures have reduced upland erosion rates since the 1930s, sediment in streams continues to pose risks to navigation, water quality, and aquatic habitats.*

## Outline:

### I) Introduction

- A. Human activities that disturb natural soil forming processes
  - 1. Deforestation for settlement & agriculture
  - 2. Mechanical disruption and compaction of soil
  - 3. Ditching/draining wetlands
  - 4. Net result: increased erosion and enhanced delivery of sediment to river valleys
- B. Negative impacts of sediment delivery to streams
  - 1. Substrate for pollutants
  - 2. Siltation of navigation channels and aquatic habitats
  - 3. Accelerates flooding and deposition rates on floodplains
- C. North Carolina susceptibility
  - 1. Long history of agricultural land use, textile industry, dams
  - 2. Native forest vegetation
  - 3. Impermeable or non-cohesive soils
  - 4. Low-gradient streams, wide floodplains, estuaries
- D. Thesis statement

### II) Background: Soil Erosion and Sedimentation Processes

- A. Natural soil forming factors
  - 1. CLORPT model
  - 2. Natural protection of soil by vegetation cover
  - 3. Rates of soil formation in humid climates
- B. Erosion processes and rates
  - 1. Sheet and rill erosion
  - 2. Gully erosion
  - 3. Erosion studies by Trimble, Meade, Phillips for rates in NC
- C. Sedimentation processes and rates
  - 1. Aggradation of channel bed
  - 2. Vertical accretion of floodplains
  - 3. In-channel filling of reservoirs, estuaries, riparian wetlands

### III) History of Erosive Land Use in North Carolina

- A. European colonization of America
  - 1. Population growth and expansion (NC Atlas)
  - 2. Deforestation and agriculture
  - 3. Intensification of agriculture after Civil War (Jones)
- B. Recognition of soil erosion beginning in 1930s
  - 1. CCC, SCS, TVA projects in North Carolina
  - 2. Erosion control studies at NCSU

#### IV) Major Impacts of Sediment in North Carolina Streams

##### A. Mountains

1. Miller, studies of sediment tracing from roads and construction sites
2. USGS, reservoir sedimentation studies
3. Simmons, data on sed load and sed concentration
4. Flooding, bank erosion, aggradation during 2004 hurricanes

##### B. Piedmont

1. Trimble, data from VA, NC, SC, GA
2. USACE, New Hope Creek data for Jordan Lake project
3. Simmons, data on sed load and sed concentration
4. NCSU, studies of runoff from ag plots and impacts on wetlands

##### C. Coastal Plain

1. Phillips et al., evidence of accelerated sedimentation in Tar/Neuse
2. Lecce, agricultural drainage ditches
3. Simmons, data on sed load and sed concentration

##### D. Estuaries and Coastal Waters

1. Leonard, USACE, and CORMP data for Cape Fear River estuary
2. Mallin et al., sediment and water quality in tidal creeks
3. ECU thesis papers, Pamlico and Albemarle studies
4. Cape Fear River Assembly assessments, fish and shellfish

#### V) Conservation Efforts and Rehabilitation of Streams

##### A. State regulatory structure

1. DENR, Division of Water Quality monitoring programs
2. NC State research and Water Resources Research Institute
2. Public-private partnerships (CFRA, LRBA)

##### B. Environmental conservation groups

1. Cape Fear Riverkeeper, Coastkeeper
2. Trout Unlimited and Bass Fishermans' Association

##### C. Approaches to rehabilitation

1. Riparian buffers – Tar/Neuse pilot project
2. Stream restoration and channel engineering
3. Artificial wetlands and improved urban runoff management
4. Dam removal experiments in French Broad River basin

#### VI) Conclusion

##### A. Summary of causes

1. Deforestation
2. Agriculture
3. Channelization

##### B. Summary of problems

1. Siltation and loss of habitat
2. Reservoir sedimentation and navigation hazards
3. Pollutants attached to fine sediments

##### C. Summary of solutions

1. Monitoring and enforcement
2. Technological and engineering solutions
3. Community involvement