

GEOG 323 RESEARCH PAPER SEQUENCE GUIDELINES

A Sequenced Writing Assignment for a Climatology Course

Climate observations comprise a wealth of information about atmospheric circulation, weather patterns, and climate trends. A course in climatology can be used to train students to compile and interpret many different aspects of a particular region, and to express their understanding of the region's climate through writing. This course differs from conventional climatology courses, in that it focuses on writing as a method to learn course content. Many colleges and universities now require students to learn concepts on their own discipline through "writing intensive" (or "writing across the curriculum") courses. The assignment discussed below is thus designed for a 300-level writing-intensive course in a climatology curriculum. The assignment differs from a normal "term paper" in that it is not done all at once, near the end of the term (that traditional approach often results in disastrous quality and consequences!). Rather, the paper is developed in two steps, with critique from the instructor and revision after the first draft leading to an improved and polished paper at the end of the term.

During the course of the term each student is asked to research and write about the climate of a region, by understanding and describing the key climate processes associated with the climate classification of their chosen region. Students then write about climatological observations at the same pace that each climate process is discussed in lectures. **The writing sequence follows the content of the course.** Climatological processes thus are given a context; they define the climate of the region studied. Students will incorporate information learned in class via textbook readings and lecture materials, as well as independent research performed via reading peer-reviewed scientific journal articles.

A major problem with the traditional approach to term paper writing is that students are overwhelmed by large volumes of information. A student may write about the climate of Southern California, for example, by incorporating observations by numerous climatologists on disparate aspects of the region's climate. The student may review so much literature all at once that the paper is a composite of facts and assorted opinions, with poor organization, insight, and comprehension. The instructor might offer comments and suggestions after the paper is turned in; that feedback is in vain, however, if the student is not required to revise. The incorporation of information in steps, accompanied by critique and revision, allows students to remain organized and focused on studying aspects of the climate of their selected region.

Overview of the Paper

The assignment emphasizes **concise writing**. Students **summarize** the content of published articles, but in their **own style** and with their **own thoughts** included. Each step of the writing process has all the components outlined below; it is important that students visualize their final product, and that they revise each part as the paper evolves during the term.

Topic Choice:

The topic choice should be a location at a "synoptic scale" (for example: the Willamette Valley, USA; the northern Mali (Sahel) region in Africa; the Prince William Sound, Alaska; the Deccan Plateau, India; etc). I strongly recommend doing some preliminary searches to ensure your chosen location has an adequate amount of information available. The [LibGuide](#) for this course can be a good starting place. See the Topic Choice assignment page for details.

Students must submit their paper topic choice by the end of Week 1, prior to beginning composition of the paper. Failure to do so and choosing an inappropriate topic risks a 50% penalty and full rewrite of the annotated outline.

Annotated Outline

Students will complete an annotated outline of the first draft of their research paper. Annotations should be **organized** according to the requirements for the First Draft listed below, excluding the Abstract, Discussion, and Conclusion. Annotations can include brief summaries of important information and data values for each topic, listed facts, figures, and sources listed as formatted references.

First Draft

First drafts should be composed according to the guidelines below and built on the annotated outlines. First drafts should include **full written paragraphs, subtitles, and properly formatted figures and tables** for the following topics:

- **Title**
- **Abstract**
 - The abstract will be short at this stage, maybe 100 words max
 - Watch the **"How to write an abstract"** lecture in the Week 4 Learning Materials
- **Main Body:** this section includes the bulk of the text, should be ~4 pages long at this stage, and address the following topics:
 - Introduction, including **thesis statement**
 - Physiographic setting of the region
 - Climate elements related to energy
 - Solar radiation, energy balance,
 - latitude, seasonality, day length, insolation
 - energy balance and temperature
 - Climate elements related to moisture
 - humidity and precipitation
 - moisture sources
 - Climate elements related to pressure
 - pressure patterns
 - winds and storms
 - Discussion & Conclusion (at this stage these sections will be brief)
- **Figures & Tables:** these are numbered and include **captions & source info**
 - FIGURE: Map of your region
 - FIGURE: Climograph for your region
 - TABLE: Monthly average day length and insolation values
- **In-text citations & full reference list**

Use the *American Meteorological Society* formatting style.

Second Draft:

Rewrite the *entire* paper, considering the instructor's feedback from the first draft. Students will submit their second drafts to Eli Review, where they are subsequently assigned two peer reviews. Students will receive only general instructor feedback at this stage, but the second draft will receive a grade for completeness and feedback from peers. Your paper will now include the following, in addition to the content from the first draft:

- **Title**
- **Abstract** (updated to reflect new second-draft content in the main body)

- **Main Body:** this section should be 6-8 pages long at this stage, include the edited content from the first draft, and write *new* sections on the following topics:
 - Effects of major circulation modes
 - ENSO, NAM, PDO, MJO, PNA, etc. (discuss those relevant to your region)
 - Land-sea effects on climate
 - ocean current effects (where applicable)
 - land-sea interactions (where applicable)
 - Weather patterns and extremes
 - major weather characteristics (cyclones, frontal formation)
 - weather hazards

- **Discussion & Conclusion** (updated to reflect new content)
 - At this stage these sections should be **well-developed**
 - Discussion & Conclusion are discrete sections

- **Figures & Tables**
 - **FIGURE OR TABLE:** At least one additional **relevant figure or table**

- **In-text citations & full reference list**
 - Use the *American Meteorological Society* formatting style.

StoryMap Presentation:

You will create an online StoryMap using the ESRI story map tools. The StoryMap should include a title page, introduction, images of your climate research location, **at least five key facts**, a **conclusion**, and references. A tutorial, template, and example will be provided for you to follow. Students will post their StoryMaps for the class, then view and provide feedback/comments on at least two of their peers' StoryMaps.

Final, Polished Paper:

Rewrite the *entire* paper, considering the instructor's and peer review feedback from all previous drafts. Your paper will now include the following, in addition to the content from the previous drafts:

- **Title**
- **Abstract** (updated to reflect new content)

- **Main Body:** this section should be 10-12 pages long at this stage, include the edited sections from the first & second drafts, and write new content on the following topics:
 - Climate type

- Climate classification and formal description
- Brief comparisons with locations having a similar climate type
- Climate change
 - evidence for past & recent climate change in the region
 - future projections & potential impacts of climate change in the region
- **Discussion & Conclusion** (updated to reflect new content)
- **Figures & Tables** (additional figures/tables are not required at this point, but are allowed)
- **In-text citations & full reference list**
 - Use the *American Meteorological Society* formatting style.

Components of the Paper

Each component of the paper accomplishes certain tasks. The paper should **flow** and **be easy to follow**, i.e., use headings and subheadings to organize sections!

TITLE

The title should be **interesting** and **informative** it should tell the reader something about the topic of the paper.

ABSTRACT

A **concise** summary of your paper.

Entices the reader to want to read on; makes the reader curious about the details contained in the rest of your paper.

The abstract will follow the format used in the Journal of Climate.

MAIN BODY (sections I through IV below are considered the Main Body of the paper):

I. INTRODUCTION

- Introduces physiographic setting of the region to the reader (include a map and a climate graph);
- Describes the significance of the region;
- **Defines the *objective (thesis statement)* of your paper** ("the climate of _____, while mainly influenced by _____ and _____, is also strongly controlled by the effects of _____").

II. CLIMATE PROCESSES AND INTERPRETATIONS

- Describes the **important and relevant climate processes** that influence the climate of the region
- **Summarizes** all the climate observations and **explains** the relevant climate processes through the observations
- **Presents interpretations offered in the literature**
- Use subheadings to separate information
- Include figures and tables as they become relevant in your writing:
 - You may use scanned copies of figures from books or journal articles
 - You should include the original figure or table caption
 - Table captions go **above** the table; figure captions go **below** the figure.
 - In addition to the original caption for the figure/table, **type out your own brief caption making the figure relevant to your paper**: (e.g. "Fig 1. GOES-East satellite image showing Hurricane Dean as it makes landfall on the Yucatan Peninsula, Mexico")

- Write the **reference for the figure/table** (for example, “Jones et al., 2007”) in the figure caption; include the properly formatted full reference in the reference list at the end of the paper.

III. DISCUSSION

- Presents your own perspectives on how climate processes contribute to understanding the overall climate (including future climate) of the region
- An interpretation of the facts and data, fully supports the paper’s thesis statement

IV. CONCLUSIONS

- States what you conclude from your synthesis/analysis
- Ties into other subject areas, and revisits the motivation for writing the paper

REFERENCES CITED

The writing in your papers must be your own. When you express ideas from literature, you must cite the source of the information or ideas. Contact me if you have questions about how to properly cite and reference sources.

- Paraphrase ideas from a journal article or webpage in your own words and cite the source in the text and in your Reference List at the end of your paper.
- If you find it better to quote a phrase, sentence, or paragraph verbatim, include the material in quotation marks and cite the source immediately after. **There is a limit of one quotation per paper.** Additional quotes will result in a 2 point penalty per quote.
- Include *all* papers cited in your paper
- Include *only* papers cited in your paper
- You MUST use the [American Meteorological Society](#) format for references.

You may include a maximum of 3 webpages as sources for your text (this limit excludes sources for figures and tables). The rest of your references ***must be peer-reviewed scientific journals*** (see list below) or scholarly books. Journal articles that have been downloaded in electronic format don’t count as webpages (as long as they are from peer-reviewed scientific journals).