

GEOG491/598 - Climate and Global Change - Spring 2018

- **Class:** Mon. 8:50-11:20 , 194 Breland Hall
- **Dr. Dan Dugas:** Breland148, 646-1045, ddugas@nmsu.edu or via Canvas messaging
- **Office Hrs:** Mondays & Wednesdays 3:00-5:00, or by appointment

This seminar will focus on climate change on Earth and its linkages to past, present, and future environments and inhabitants. The topics will range from responses by natural systems, to specifically human aspects. Since global changes are not limited to climate induced processes, there will be opportunities to examine other aspect, such as the role of plastics, chemicals, politics, economics, development, etc.

Reading Assignments and Assessment:

- On selected weeks you will be assigned 2-3 readings. These will be a combination of papers read by the entire group and papers read individually. **You are responsible for preparation of notes for in-class discussion.**
- Periodically, you will find your own readings from individual explorations. **Summaries of your individual explorations will be presented to the group for discussion.**

Grading:

- Weekly discussions - preparation and participation (13 x 5 pts)..... 65%
 - Individual Article Retrieval (3 x 5 pts).....15%
 - Term Paper (due 4/23)..... 20%
- *Your paper will consist of a topic chosen by you (and approved by me) that examines some area appropriate to our overall topic. The paper will be a typed, ten-page paper for undergrads and fifteen-pages for grads; (not including tables, figures, or bibliography). It must be double-spaced with 12-point Helvetica font.*

Schedule:

Date	Topic	Readings
1/22	Introduction	None
1/29	Climate change mechanisms	Assigned: "Climate" - pgs. 1-60
2/5	Modern climate and global change science	Assigned: IPCC reports, et al.
2/12	Recent natural systems responses	Assigned: "Climate" - pgs. 109-140, & find an article for discussion
2/19	Recent natural systems responses	"
2/26	American SW and New Mexico	Assigned articles
3/5	Human system - affects and effects	Assigned: "Climate Change" - pgs. 1-45, & find an article for discussion
3/12	Human system - affects and effects	"
3/19	<i>Spring Break</i>	None
3/26	Human system - affects and effects	"
4/2	The Anthropocene	Assigned: "Climate Change" - pgs. 46-113, & an assigned article
4/9	Geoengineering	Assigned articles
4/16	Our response	Assigned: "Climate Change" - pgs. 114-135, & find an article for discussion
4/23	Our response; Term Paper Due	"
4/30	The global future?	Assigned: "Climate Change" - pgs. 136-178
5/7	<i>Finals Week</i>	None

Reading Guidelines:

This seminar has two primary objectives:

- To examine the relationship between changing climate and global change (environmental change) by means of readings and group discussion.
- To build close-reading and critical analysis skills through systematic appraisals of the selected articles and books.

Use the following concepts to better guide you through the process of rigorous **reading**, **analysis**, and **critique** of the research papers. You will get more out of a paper's contents if you are looking for specific features and asking specific questions as you read. You may need to read a paper *multiple times* to really understand it, get the most out of it, and be fully prepared for the group discussions.

Take notes as you read and/or make notes in the margins; this is called "glossing" and is an old and venerated tradition. **Gloss** (noun/verb) - *a gloss/to gloss in the margin*: explanation, interpretation, exegesis, explication, elucidation; annotation, note, footnote, commentary, comment, rubric; translation, definition; scholium.

As you go through each section of a paper, consider the following questions:

- I. **Title**: This is an often overlooked component in analysis of papers, but ultimately this is the most condensed form of the author's intent and conceptualization of the research topic.
 - A. Is the title interesting? Is it intriguing? Is it too long?
 - B. Does the title give you a sense of what the article will conclude?
- II. **Abstract**: This is where the author hopes to give the most concise description of the research question, research processes, and major conclusions. The quality, clarity, and value of abstracts vary widely. Go back to the abstract after reading the paper and see if it actually did summarize the paper well.
- III. **Introduction**:
 - A. What is the general topic addressed by the paper?
 - B. Is the central research question explicitly stated?
 - C. What does the author claim to have demonstrated by their research? Can you list the claims (conclusions)?
 - D. Are the claims supported later in the paper by the data and analysis? (You will often find the claims revisited throughout the paper.)

IV. **Methods:**

- A. How was the research conducted?
- B. Where was the study area? Is the study area described sufficiently to give the reader a good sense of the place? (This question may or may not apply to a particular study. Also, this information may be presented in the “Introduction” rather than “Methods” section.)
- C. If there are maps, are they of good quality? Are there cartographic problems?
- D. What were the data collection methods? Do they seem appropriate to the central research question? (Is the rationale for the “experimental procedure” appropriate to the question?)
- E. What were the analytical methods? Were they appropriate?
- F. If statistical techniques or methods were applied, were they appropriate to the data?

V. **Results:**

- A. Are the results summarized primarily by text, figures, graphs, or a combination of these?
- B. Are the results comprehensively or selectively summarized?
- C. Is there a clear link between the data and the results? Is it clearly presented?
- D. What are the central data results? Based on the data, what can be reasonably or scientifically concluded?
- E. *Figures and Graphs* : Figures often provide the most essential summary of the “experiment” and conclusions. You will find the key elements, including the dependent and independent variables, experimental controls, main data points, and the data trends and results.
- F. When examining figures, graphs, and illustrations, look at:
 - 1. Legends, captions, and titles. These will tell you the essentials concerning the figure’s content and/or intent. Do they describe the figure appropriately?
 - 2. Is the figure or graph well designed. Is it easy to read. Is it too cryptic or overly complicated?
 - 3. What are the relationships/correlations between the variables?
 - 4. Are there trends or patterns in the data?
 - 5. Do the figures, graphs, or illustrations clarify the answer to the research question?

VI. **Discussion and Conclusions:**

- A. Did the author reiterate the “experiment’s” context and the original research question?
- B. What did the author conclude (claim)?
- C. What are the implications of the conclusion?
- D. Are future research questions or further research objectives discussed?

VII. **Bibliography:**

- A. Is it comprehensive? (For example, did it include older articles that supply a foundation for the current research, or did it only include recent references immediately relevant to the “experiment”?)
- B. Was it missing key sources relevant to the research?
- C. Are there references that you would like to consult as an avenue to further understanding?

VIII. **General Critique:**

- A. Did you find the paper generally well written?
 - 1. What was the author’s style? Formal or informal?
 - 2. Was the grammar and style conducive to a clear understanding of the topic?
 - 3. Was the paper’s length appropriate for the paper’s content and topic?
 - 4. Was the paper’s style and detail appropriate to the intended audience?
- B. Impacts?
 - 1. Is the study important in the context of the specific field of inquiry? Why?
 - 2. Is the study important in the broader context of society? Why?
- C. Did the paper serve your research needs?
 - 1. Did the paper provide a good general overview of the research topic’s milieu?
 - 2. Did the paper provide specific conclusions useful to your own research?
 - 3. Did the paper provide useful research methods and techniques that you might use for your own research?
- D. ***What was lacking/wrong/problematic with the paper? How might it have been improved?***