

METR 4150, Applied Climatology, Spring 2014

Place and Times: Wednesday and Friday, 11.00am – 12.15pm, McEniry 118

Final Exam: Friday May 2, 11:00am – 1:30pm

Prerequisite: METR 3250 (Dynamics) or permission of instructor

Instructor: Dr. Brian Magi, McEniry 232, 704-687-5917, brian.magi@uncc.edu

Office Hours: Tuesday and Thursday, 11:00am – 12:30pm, and by appointment

Website: moodle2.uncc.edu

Supplemental Website: <http://clas-pages.uncc.edu/mesas/teaching/applied-climatology/>

Teaching Philosophy

I teach because I want to explore the role of science in our lives. Scientific thinking is an essential part of being human. It can crystalize your observations of the natural world, but also shape your community involvement by honing your skills as a critical thinker and problem solver. Science, whether or not you become a scientist, is a powerful pathway to becoming an engaged citizen of the world. To the future generations of critical thinkers, one scientist said: **“The world needs you. Badly.”**

Description

Applied Climatology deals with four main topics: 1. The physical climate system, 2. The perturbed climate system, 3. Current and potential consequences of a perturbed climate system, and 4. What can we do to mitigate the potential consequences? In the past, climate changes have been entirely due to natural variability in the fundamental factors that control climate. The present-day ongoing global climate change is very different from past climate changes. The observed increase in global temperatures is a prominent part of today’s changing climate, and for this reason, the climate change we are experiencing is often simply called *global warming*.

Global warming has emerged as the scientific issue of our time, and has important implications for human civilization, the stability of our built environment, and really on each of us. In this course, we will study the main topics outlined above through formal and informal writing, which themselves are built on reading scientific texts such as textbooks, technical journal articles, and expertly-written reports. The emphasis in this course will be on the process of scientific writing, which, like all fact-based writing, means that we will emphasize arguments supported by evidence. George Orwell once said, *“If people cannot write well, they cannot think well, and if they cannot think well, others will do their thinking for them.”* In this class, we will take time to think and write.

Objectives

1. Develop written communication skills, particularly the process of scientific writing
2. Develop skills to critically respond to your own writing and to that of others
3. Develop an understanding of physical processes in the climate system
4. Learn about solution strategies for the issue of human-caused climate change

Writing Intensive Course Policies

Applied Climatology is a Writing Intensive course. As such, everyone will produce a 15-20 page final paper of polished writing by the end of the semester. The final paper is a synthesis of ideas you work on

independently and with feedback from your peers and me throughout the semester. You must complete and pass the writing assignments in order to pass the course. These policies are based on a document circulated to UNC Charlotte faculty (see Appendix at the end).

Course Components

Participation Attend class prepared to discuss the readings and any material discussed previously. Bring questions, raise questions, and talk about what is confusing or interesting. Participation can completely change your experience in the classroom. A second component of Participation is reading. There will be a number of course readings which will require a short, typed 1-page (**12 point Times New Roman, double-spaced, 1" margins**) response paper to be emailed to me by the beginning of class on the day it is due, which is about weekly. These response papers are informal writing, but I expect you to convince me that you read the material. A final component of Participation is learning to critically read and re-read your own writing, and that of others. At times, we will discuss writing in small groups.

Papers Your goal in this course is to produce a scientifically-supported Climate Action Plan as your Final Paper. Implicit in this product are two scientific claims. The first is that the climate is changing and the second is that the *main reason* the climate is currently changing is in response to exponentially increasing greenhouse gas emissions from human activities. As we will discuss during the semester, there is essentially zero doubt about the first scientific claim and only slightly more than zero doubt that the second claim is correct.

The question you will tackle in your writing is “What can we do?” and the “we” in this question is the *audience* for your Climate Action Plan. The audience is entirely up to you, but Climate Action Plans are relevant at scales ranging from neighborhood to city, county, state, country, and, of course, the planet.

Your Climate Action Plan will have to be prepared with a specific audience in mind. Determining this audience is up to you and does not have to be well-defined in the first formal writing that you turn in to me. In order to justify your Climate Action Plan to your audience, however, you need to make your case and support it with written, evidence-based arguments.

Paper Formatting All papers must be typed with **12 point Times New Roman, double-spaced, 1" margins, page number, use continuous line numbering, and have a title**. Further technical details about the papers will be discussed in class.

Paper 1 In Paper 1, you will discuss the climate system, and provide scientific support for the claim that the climate is changing and that humans are the primary reason. The evidence supporting your claims is from the reading you do. **I expect the Paper 1 to be 4-5 pages in length**. Email me Paper 1 by the beginning of class on the day it is due.

Paper 2 In Paper 2, you will synthesize the concepts from Paper 1 with evidence of climate impacts and examples of climate projections. Continue to use the readings in class as the primary sources of evidence supporting your claims of the impacts. **I expect Paper 2 to be 10-12 pages in length**. Email me Paper 2 by the beginning of class on the day it is due.

Final Paper The Final Paper combines the material in Paper 1 and Paper 2 with the concept of a Climate Action Plan. In other words, once you have presented your case, you can now try to convince your audience that some kind of action should be taken. Base your recommendations on the readings and supplement this with your own research if needed. **I expect Paper 2 to be 15-20 pages in length**. Email me your final paper by 5:00 pm on the day of the scheduled final exam period. I will be available to help you with last-minute revisions to your paper during the scheduled final exam period.

Further details about the Paper 1, Paper 2, and the Final Paper will be discussed during the semester.

Grades

Letter grades will be assigned according to the percentage of points earned for the course components listed below. Percentage categories are 90-100, 80-89, 70-79, 60-69, 0-59 and earn A, B, C, D, F, respectively. I will accept assignments turned in early, but not late except under unusual circumstances.

| Description | Percent of grade |
|---------------|------------------|
| Participation | 10% |
| Paper 1 | 10% |
| Paper 2 | 20% |
| Final paper | 60% |

Class Policies

No mobile devices of any sort may be used during class. If you use a mobile device without my prior consent, you will not receive any of your participation points. If you continue to use a mobile device, you will lose points from other components of the course. I will not offer any verbal warning regarding this.

University Policies

Academic Integrity Students are responsible for knowing and following The Code of Student Academic Integrity and The Code of Student Responsibility. These can be found at <http://www.legal.uncc.edu/policies/ps-105.html> and <http://www.legal.uncc.edu/policies/ps-104.html> respectively. Standards of academic integrity will be enforced in this course. *Questions regarding the policies and enforcement of the policies should be addressed to me during class or during office hours.*

Accommodations UNCC abides by interpretations of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973 that stipulates no student shall be denied the benefits of an education “solely by reason of a handicap.” Disabilities covered by law include, but are not limited to, learning disabilities, hearing, sight or mobility impairments, and other health related impairments. This course will gladly provide accommodations for students with documented needs. If you feel you need an accommodation, please contact the Office of Disability Services, Fretwell 230, Phone 704-687-4355 for the necessary evaluation and documentation.

Diversity The University of North Carolina at Charlotte is committed to equality of educational opportunity and does not discriminate against applicants, students, or employees based on race, color, national origin, religion, sex, sexual orientation, age or disability. In keeping with this commitment, UNC Charlotte actively seeks to promote diversity in its educational environment through its recruitment, enrollment and hiring practices.

Appendix: Writing Intensive Course Best Practice Statements

Note that this is based on "Writing Intensive and Oral Communication Requirements: Minimum and Best Practice Statements" as written and approved by the UCFC in May 2011.

Writing in the Discipline: The focus of the course should be on developing the writing skills appropriate to the discipline. Instructors should be able to articulate these disciplinary expectations to students, and they should ensure that the syllabus and the writing assignments make these expectations manifest.

Writing as an integral part of the course: Writing must be integrated as an on-going feature of the course rather than being isolated in one long paper at the end of the semester. Students should clearly perceive, from the syllabus and the work of the course, that the course is designed to specifically address the development of written communication skills in addition to any other curricular objectives.

Number of words: Students will produce 3,500 to 5,000 words (approximately 15-20 pages) of polished writing. (2000-2500 words for a 1-credit course).

Percent of final grade based on writing: Perhaps 50%* or more of the final course grade will be derived from formal written work. (By definition a student must have satisfactory performance on the written work in order to pass). Emphasizing writing to this degree does not mean that course content is ignored. Rather both formal and informal writing is used as an integral part of the process by which students master course content.

Writing assignments featured and goals for each: Assignments should be sequenced, with scaffolds provided to practice writing and research skills required for more complex assignments. How assignments are sequenced and scaffolded will depend on the writing conventions in the discipline. In some cases the problem addressed in a given piece of writing will get progressively more complex and sophisticated. In other cases the assignments will develop skills that are then used for a final project/term paper. In still other cases faculty will design a critical inquiry process that requires students to move toward more sophisticated academic writing.

Assignment-related instruction: A process-approach to writing should be stressed, with opportunities for prewriting and peer group activities. Two or more assignments should be worked through a structured revision process including group or individual conferences with the instructor.

Low-stakes writing integration: A variety of informal, ungraded writing activities—journals, reading or project logs, blogs, forum questions, mid-lecture feedback, short response papers—that encourage students to reflect on and synthesize course content, as well as generate ideas for formal writing assignments should be integrated into the course.

Revision and reflection: Students should compile portfolios of their polished writing, accompanied by drafts, and students should be required to reflect on their own development as a writer in reference to this portfolio. An integral part of students' ability to reflect on their writing should come by means of their development as peer reviewers of other students' work; this skill should be assessed as part of the students' final grade.

Support services: Instructors should consult with staff from the Writing Resource Center, the Center for Teaching and Learning, and the Communication Across the Curriculum program about the design of the writing component of the course.