Advanced Computing
Techniques in Meteorology
ATMS 373.001 (TERM I)
SUMMER 2020

Computer skills are often a pivotal factor in hiring decisions in the public and private sectors, as well as in the success or failure of graduate students in the atmospheric sciences. This course covers some advanced computing skills that are especially relevant to work in the field of meteorology. In the next few weeks, you will become familiar with several programming techniques and software packages that will help to transform you into an efficient researcher and a profitable employee.

PROFESSOR

Dr. Christopher Godfrey
Office: Google Hangouts
Phone: 828-232-5160
E-mail: cgodfrey at unca dot edu
Office hours: I will hold a recurring weekly meeting at a mutually-agreeable time to be determined. E-mail is the most efficient way to reach me. We can schedule a Google Hangouts session as often as necessary.

CLASS INFORMATION

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Meeting times:	None.
Location:	Online.
Required text:	None.
Prerequisites:	ATMS 103 or 113; CSCI 181/183 or ATMS 230
Website:	http://www.atms.unca.edu/cgodfrey/courses/advcomp/

GETTING QUESTIONS ANSWERED

Since this is an asynchronous online course, there is no official class meeting time, but I will be available to assist you via e-mail and through virtual meetings via Google Hangouts. E-mail is by far the best way to reach me and I check it often. In addition to office hours, you may schedule a virtual appointment with me. You _will_ run into programming problems and need to ask questions, so please don't hesitate to ask!

COURSE TOPICS

Topics include an assortment of tools used for meteorological applications. You can expect to learn basic HTML and CGI scripting, create raster graphics, and build maps with MetPy, all with the help of the Python programming language, use LaTeX for document preparation, use Google maps to display meteorological data on your Web page, and manipulate data using a variety of options. I will upgrade the course and add tutorials in May prior to the official start of the summer term.

COURSE FORMAT AND EVALUATION

There are no lectures, quizzes, or tests. There are only tasks and a final project. You will submit these assignments for assessment by sharing them with me via a password-protected directory on your website. The requirements for an A include the satisfactory completion of the final project and 7 tasks. Satisfactorily completing 6 tasks with no final project will earn you a B and the satisfactory completion of 4 tasks with no final project will earn you a C. To earn any of these grades, you must build a website with a password-protected directory. Completing fewer than four assignments during the course of the semester will result in either an F or an incomplete. You may collaborate on the assigned tasks so that you may learn and copy from others and extend their work, but please acknowledge the work of others. For example, "This course originated from Dr. Brian Fiedler at the University of Oklahoma and has been modified for use at UNC Asheville with his permission."
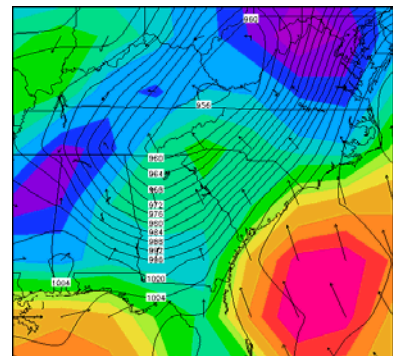
TIMELINE

Summer Session I starts on June 8 and ends on July 2, with final grades due by noon on July 8. Since this class does not meet in a traditional classroom setting, completing the course requires a great deal of diligence and self-discipline. Please allow yourself plenty of time to complete each tutorial. **Do not attempt to finish all of the tutorials in the last few days of the summer term!** I have witnessed such noble attempts and they have <u>all</u> fallen short. Therefore, in a change from previous offerings of this course, I have instituted the following schedule and associated deadlines. The *Recommended Date* column is a suggested schedule that puts you on track to earn an A in the course. The *Deadline* column gives required deadlines (see below for penalties). You can certainly begin and complete projects as you please, but I expect to receive each completed task for grading by the dates indicated below. Create your password-protected webpage as your first task, beyond which you may choose tutorials and complete the associated tasks in any order. Note that this schedule starts at the beginning of Summer Session I, but you may begin your work as soon as you finish your spring semester final exams. In fact, I *strongly* encourage you to do so.

<u>Event or Action</u>	<u>Recommended Date</u> *(Required for an A)*	<u>Deadline</u>[*] *(sufficient for a C)*
Summer Session I classes officially begin	June 8, 2020	
Complete task 1: Password-protected webpage	June 10, 2020	June 10, 2020
Complete task 2	June 14, 2020	June 18, 2020
Complete task 3	June 17, 2020	June 26, 2020
Complete task 4	June 20, 2020	July 7, 2020
Complete task 5	June 23, 2020	
Complete task 6	June 26, 2020	
Complete task 7	June 29, 2020	
Begin final project	June 30, 2020	
All course materials due by 5:00 p.m.	July 7, 2020	

[*]You will lose a third of a letter grade for *each* missed deadline for tasks 1 through 4 (the minimum to earn a passing grade). For example, if you complete six tasks (earning a starting grade of B), but submit your first and third tasks after June 10 and 26, respectively, then the highest grade you can receive for the course is a C+. This is not a punishment for late work, but an incentive to make progress.

FINAL PROJECT

Satisfactory completion of seven tasks and a final project will earn an A in this course. Please do not traumatize yourself with anxiety about the final project. You may find that it flows naturally as a creative extension of one of your assigned tasks. Please allow me to approve your plan for the final project before proceeding.