

## Syllabus for ATMS 261 – Computer Applications in Meteorology – Spring 2018

Date	Topic	Project*
F 19 Jan 2018	Intro/ Intro to Linux	Getting started
F 26 Jan	Linux command window	Group Project #1
F 2 Feb	VIS5D	Group Project #2
F 9 Feb	GARP	Group Project #3
F 16 Feb	FORTRAN and scripting	Group Project #4
F 23 Feb	Python	Group Project #5
F 2 Mar	Moving data	Group Project #6
F 9 Mar	Excel	Group Project #7
F 23 Mar	Minitab/Matlab	Group Project #8
F 30 Mar	GIS and Google Earth	Group Project #9
F 6 Apr	MS Movie Maker	Group Project #10
F 13 Apr	Summary	Work on final project
F 20 Apr	“	“
F 27 Apr	“	“

\*assignment completed before class ends on this date

### Description

A course designed to equip the student with tools for effective communication, and data analysis and manipulation with a focus on applications in the atmospheric sciences. These tools will be introduced for computers having Linux (UNIX) and Windows operating systems.

### Student Learning Outcomes

The computer skills introduced in this course represent the starting point of computer competency development that will eventually aid the student in

- generating scientifically meaningful results from applying mathematical devices to the atmospheric governing equations
- developing their ability to communicate scientific information to experts and laypersons through computer media
- nurturing an ability to make a significant contribution to a team-based research effort

## Outline

- Introduction
- Applications within the Linux Operating System
  - The Linux command window
  - Office Tools
  - Communication Tools
  - Visualization
    - VIS5D
    - GARP/GEMPAK
    - AWIPS II
    - McIDAS
    - NCAR-Graphics
  - Data Manipulation Tools
    - crunching data (making calculations)
      - FORTRAN
      - Python
    - moving data (push/pull)
      - FTP
      - telnet
      - ssh/kerberos
      - LDM
- Applications within the Windows Operating System
  - Data Manipulation Tools
    - moving data (push/pull)
      - Online weather data resources
      - FTP
      - telnet
      - ssh/kerberos
    - crunching data (making calculations)
      - Excel
      - Minitab
      - Matlab
      - IDL
    - displaying data
      - GIS
  - Office Tools
    - MS Word
  - Communication Tools
    - Visualization
      - Powerpoint
      - Movie Maker
  - The DOS command window
  - Remote Logins

## Grading

Preparatory Projects	20%
Final Project	30%
Attendance	50%
<b>Total</b>	<b>100%</b>

92% < total score ≤ 100%	A
90% < total score ≤ 92%	A-
88% < total score ≤ 90%	B+
82% < total score ≤ 88%	B
80% < total score ≤ 82%	B-
78% < total score ≤ 80%	C+
72% < total score ≤ 78%	C
70% < total score ≤ 72%	C-
68% < total score ≤ 70%	D+
60% < total score ≤ 68%	D
total score ≤ 60%	F

## Preparatory Projects

Weekly projects will be assigned during each class and are intended to aid in improving your understanding of the computer tools needed to complete the case study analysis associated with the course final project. Due to the limited number of computers in the RRO 209 lab, projects will be worked on in groups that are assigned by the instructor. Each individual within the group will receive an identical grade.

## Final Project

Each of the Linux (Unix) and Windows applications introduced in the weekly preparatory projects provide background and preparation of a virtual “toolbox” that will allow each student team in ATMS 261 to meet the analysis requirements of a winter weather event that impacted western North Carolina. The final project will consist of a video documentary and an accompanying summary paper describing the impact of the weather event and focuses on the analysis of the meteorological ingredients that came together with the right timing and in the right amounts to make case study unusual. The final project is due at the beginning of the final exam period, at which time we will watch and evaluate each of the student team videos.

## Attendance

One unexcused absence drops the attendance score to **40%**. Two unexcused absences drop the attendance score to **25%** of the final grade. Three or more unexcused absences results in the complete loss of the attendance score (**0%**).

## Exams

None

## **Final Exam**

The written summary paper of your final project will be turned in at the beginning of the final exam period and the video documentary portion of your final project will be viewed and evaluated during the final exam period. There will be no final examination in this course.

## **Assignment/Quiz/Exam Policy**

Assignments are to be handed in at the end of class on the date they are due. Accommodations can be made under special circumstances. Under special circumstances, assignments handed in after the start of the final exam period will be considered tardy and no credit will be given for their completion.

## **Instructor**

Doug Miller  
232-5158

<http://www.atms.unca.edu/dmiller/>  
[dmiller@unca.edu](mailto:dmiller@unca.edu)

## **Textbook**

None required

## **References**

Given as necessary

## **Accommodating Students with Disabilities**

UNC-Asheville values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the professor know and make an appointment to meet with the Office of Academic Accessibility as soon as possible. You can make an appointment by calling [828.232.5050](tel:828.232.5050); by emailing [academicaccess@unca.edu](mailto:academicaccess@unca.edu); by clicking on <https://uncaoaaintake.youcanbook.me/>; or by dropping by the Academic Accessibility Office, room 005 in the One Stop suite (lower level of Ramsey Library). You can access further information here: <https://oaa.unca.edu/>

Students who receive Letters of Accommodation are strongly encouraged to request, obtain, and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester.

## **Preventing Sexual Harassment**

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. UNC Asheville's policy against sexual harassment extends not only to employees of the University but to students as well. If you encounter unlawful sexual harassment or gender based discrimination, please talk to any University Responsible Employee – which includes most faculty and staff -- who will report the incident; contact Dr. Jill Moffitt, UNC Asheville's Title IX Administrator, at (828) 232-5658; or report anonymously at <https://police.unca.edu/anonymous-report>. For more information regarding Title IX and resources concerning sexual harassment and its prevention please visit <https://police.unca.edu/title-ix>

## **Understanding Academic Alerts**

Faculty at UNCA are encouraged to use the university's Academic Alert system to communicate with students about their progress in courses. Academic Alerts can reflect that a student's performance is satisfactory at the time the alert is submitted, or they can indicate concerns (e.g., academic difficulty, attendance problems, or other concerns). Professors use the alert system because they are invested in student success and want to encourage open conversations about how students can improve their learning, and students who respond to alerts quickly are consistently more likely to earn credit for the course. *Please note, professors of 100-level courses are required to submit at least one alert about each student on or before the fifth week of classes.*

When a faculty member submits an alert that expresses a concern, the student receives an email from Academic Advising notifying them of the alert and subsequent registration hold on their account. To clear the hold, the student must complete a short Google Response Form included in the alert e-mail; the results will be shared with their instructor and advising staff. Instructors may also request to meet with the student to discuss the alert.

Questions about the Academic Alert system can be directed to Anne Marie Roberts ([amrober1@unca.edu](mailto:amrober1@unca.edu)) in OneStop Advising and Learning Support.

## **Academic Integrity**

As a community of scholars dedicated to learning and the pursuit of knowledge, UNC Asheville relies on the honesty and academic integrity of all the members of its community. Any act of plagiarism, cheating, or use of unauthorized materials or assistance is academic dishonesty. A person who knowingly assists another in academic dishonesty is likewise guilty of dishonesty. A student committing a first offense of dishonesty will receive a failing grade or a grade of zero for the assignment or test. A student committing a second offense of dishonesty will receive a failing grade in the course and be reported to the Senior Director of Student Success.

In all situations where a student has been disciplined for academic dishonesty, the instructor must submit a brief statement of the case to the Senior Director of Student Success with a copy to the student. The Senior Director maintains records of academic dishonesty incidents and notifies the instructor when a student is found to have multiple offenses. Depending upon the severity and/or repetition of the offense, the Senior Director and/or instructor may recommend that the Provost impose an additional penalty, such as cancellation of graduation with honors, cancellation of scholarships, or dismissal from the university. If the Provost decides that additional penalties are warranted, the student will be notified in writing.

If a student feels that he or she has been unjustly accused of academic dishonesty, the student has ten (10) class days from the date of the instructor's written notification to the student to respond in writing. This response is to be sent to both the instructor and the Senior Director of Student Success. The instructor should then meet with the student to discuss the charges within five (5) class days. If needed, the student may then contact the Senior Director for assistance in identifying options for possible resolution. If needed, the Faculty Conciliator will be contacted to mediate and/or convene the Academic Appeals Board.