Syllabus for ATMS 261 – Computer Applications in Meteorology – Spring 2019

Date	Topic	Project*
F 18 Jan 2019	Intro/ Intro to Linux	Getting started
F 25 Jan	Linux command window	Group Project #1
F 1 Feb	VIS5D	Group Project #2
F 8 Feb	GARP/IDV/AWIPS2	Group Project #3
F 15 Feb	FORTRAN and scripting	Group Project #4
F 22 Feb	Python	Group Project #5
F 1 Mar	Moving data	Group Project #6
F 8 Mar	Excel	Group Project #7
F 22 Mar	Minitab/Matlab	Group Project #8
F 29 Mar	ATMS Dept. Conference	N/A
F 5 Apr	Media Design Lab	Ramsey Library
F 12 Apr	GIS and Google Earth	Group Project #9
F 19 Apr	Summary	Work on final project
F 26 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 2
                  IDV
                  NCAR-Graphics
      Data Manipulation Tools
            crunching data (making calculations)
                  FORTRAN
                  Python
            moving data (push/pull)
                  FTP
                  telnet
                  bitwise/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%
Total	**100%**

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 <u>at the end of class</u> 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   http://www.atms.unca.edu/dmiller/
232-5158   dmiller@unca.edu

Textbook

None required

References

Given as necessary

Office of Academic Accessibility

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/or make an appointment to meet with the Office of Academic Accessibility as soon as possible. To make an appointment, call 828.232.5050; email academicaccess@unca.edu; visit https://oaa.unca.edu/ and click on "Schedule an Appointment"; or drop by the Academic Accessibility Office, room 008 in the One Stop suite (lower level of Ramsey Library). Learn more about the process of registering, and the services available through the Office of Academic Accessibility here: https://oaa.unca.edu/

While students may disclose disability at any point in the semester, 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.

Sexual Harassment and Misconduct

All members of the University community are expected to engage in conduct that contributes to the culture of integrity and honor upon which the University of North Carolina at Asheville is grounded. Acts of sexual misconduct, sexual harassment, dating violence, domestic violence and stalking jeopardize the health and welfare of our campus community and the larger community as a whole and will not be tolerated. The University has established procedures for preventing and investigating allegations of sexual misconduct, sexual harassment, dating violence, domestic violence and stalking that are compliant with Title IX federal regulations. To learn more about these procedures or to report an incident of sexual

misconduct, go to titleix.unca.edu. Students may also report incidents to an instructor, faculty or staff member, who are required by law to notify the Title IX Office.

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 seventh 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) in OneStop Advising and Learning Support.

University Writing Center

The University Writing Center (UWC) supports writers in one-on-one sessions lasting 10 to 45 minutes. Consultants can help writers organize ideas, document sources, and revise prose. If you visit the UWC, bring a copy of your assignment, any writing or notes you may have, and the sources you are working with. Make an appointment by visiting writingcenter.unca.edu and clicking on "Schedule an Appointment," or drop in during open hours Monday-Friday.