NATS 101 – Section 014 Introduction to Weather and Climate FALL 2010

Class Meetings:	Tuesday & Thursday 2:00 pm - 3:15 pm	ILC 120
Instructor:	Prof. Liz Ritchie Ph: 626-7843	Office: 570 PAS Building Email: ritchie@atmo.arizona.edu
Teaching Assistant:	Mr. Adrian Barnard Ph: 621-6843	Office: 588 PAS Building Email: barnard@atmo.arizona.edu
	Ms. Anita Annamalai Ph:	Office: 588 PAS Building Email: anitaa@email.arizona.edu

Office Hours:	Prof. Ritchie:	Tues/Wed 11a – 12p, or by appointment.
	Mr. Barnard:	Mon 10-11a, Thurs 11a – 12p or by appointment.
	Ms. Annamalai:	Mon 2-3p, Wed 4-5p or by appointment.

Course Website:
http://www.atmo.arizona.edu/courses/fall10/nats101s14/NATS101.htm or follow the link through the ATMO page courselinks to **NATS101 – Ritchie**. All students need to be able to access this website.

If you do not have a U of A email account, you must obtain one immediately.

Course Objectives:
Basic understanding of weather and atmospheric processes
Practice problem-solving skills and application of concepts
Discussion of current weather as it evolves

Textbook (required): Aguado and Burt, *Understanding Weather and Climate* (5th ed.).

Coursework:

• **Readings from the textbook** – Class and readings are complimentary. Chapter material must be read ahead of class time. This material IS examinable. It is a good idea to make notes as you read to help you absorb the information and for your review at exam time.

• **Weather Map Discussion** – we will occasionally examine current weather maps in class, emphasizing local weather features on the maps that are related to the course material under discussion that day.

Grading:

• **Homework** – is assigned every week or two between exams. Homeworks will be made available through the course website. Dates are listed when they will be available and when they are due. They are mandatory – if two or more homeworks are missed without a reasonable explanation, the highest possible grade you will be able to achieve in this class is a C.

• **Labs –** each student will be expected to turn in one Lab assignment. There will be a variety of experiments and these will be assigned to students via a random process. The labs will be made available by the sixth week of class and will be due by the 31st of October.

• **Exams** – 4 midterms (see the course outline for dates). ***Bring your Cat Card on exam days!!***

***** No late homework assignments will be accepted for credit *****

**** No Makeup exams ****

**** NO EXCEPTIONS ****

Grading Algorithm:	30%	Homework (lowest score dropped*)
	20%	Lab
	40%	Midterm Exams (best 3 of 4 scores*)
	10%	Class participation including in-class quizzes

- *I will drop your lowest homework score and midterm score before calculating the average that is used to derive your grade. This is why there are **NO** makeup exams. DO NOT waste this opportunity!*

Math and Physics expectations for NATS 101 – Section 014

One of the teaching goals for this class is to introduce you to the way that scientists apply fundamental concepts of physics to test hypotheses about the natural world. The science of meteorology provides fabulous examples of how scientific hypothesis testing works – we test our knowledge of the atmosphere every day in the most quantitative and rigorous way possible, by making public forecasts of temperature and precipitation. If weather forecasts are wrong, the public knows all about it (and cares about it), so there is a strong, endless incentive to throw out wrong hypotheses, or at least to improve upon promising hypotheses that could lead to better forecasts.

There are no prerequisites for this class, but we will utilize elementary algebra for homework and labs, and (to a lesser extent), the exams and we will be discussing the elements of weather using fundamental concepts employed by physicists, e.g., conservation of energy, mass, and momentum. It will be my job, in concert with the presentation in the text, to convey these concepts to you in a fundamental way. I realize that some students in the class have not put algebra to work in any significant way for a while, and I am fully prepared to work as much as is needed with any of you for whom this aspect of the course is challenging.

It is **not** my goal to blow you away with math and physics in a 100-level course, but the quantitative tools provided to us via application of math and physics will be invaluable for understanding how the atmosphere generates weather, so we will not shy away from their use.

About calculators: they will come in handy on the homework and you are welcome to use one in the exams.

Attendance Policy: Attendance is mandatory and I reserve the right to take attendance throughout the semester. Low attendance is taken into consideration in the final grade and may be the difference between one letter grade and the next one up if you are borderline. Check out the University of Arizona (UA) policy http://catalog.arizona.edu/2010-11/policies/classatten.htm. My suggestion is pretty simple … come to class … every meeting … and be prepared to participate.

All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion if the instructor is given reasonable notice.
Absences for travel to road games by NCAA athletes will be honored if the instructor is given reasonable advance notice. Students are responsible for all material missed in class, including homeworks, labs, and midterm exams, which are expected to be handed in or taken early.

Academic Integrity: The UA Code of Academic Integrity, Code of Conduct and Student Code of Conduct are strictly followed. All students are responsible for knowing the codes and abiding by them. See http://deanofstudents.arizona.edu/academicintegrityforstudents. My tolerance for breaches of academic integrity is zero and an academic code violation will be issued if such occurs. You can submit complaints about fellow students online. Your submission is completely anonymous, and I will investigate the allegations further.

Classroom Behavior: Every student is expected to behave as a courteous adult and in manner consistent with enhancing the educational experience of your peer students. Please do not talk with your neighbors during class. You are required to turn off your electronic toys (e.g. cell phones, pagers, blackberries, iPods, mp3's, etc.), and remain seated until class is dismissed. If there are digressions, you will be asked to leave the classroom, and not return, if you insist on behaving in a contrary manner. Destructive behavior in the classroom or any perceived threatening behavior toward fellow students or the teaching staff will be dealt with swiftly and accordingly (See UA Policy http://policy.web.arizona.edu/~policy/threatening.pdf).

Disability Resource Center: I remind students who are registered with the Disability Resource Center that I must receive appropriate documentation if they are requesting reasonable accommodations: http://drc.arizona.edu/teach/syllabus-statement.html.

Literacy Requirements: Although the writing requirement for this course is negligible, there is a science literacy requirement. This means that we use scientific notation for writing numbers (especially rather large or small ones). We specify units for all physical quantities (e.g. meters for length, seconds for time, kilograms for mass, etc.). We attempt to quantify physical relationships based on data, simple reasoning and the governing laws of physics.

Course Withdrawal: Last day to drop the course without it appearing on your record is Friday September 17, 2010. Last day to drop the course with a "W" grade is Friday October 15, 2010. To receive a passing W, your average grade at the time you drop must equal or exceed 55%.

Reasonable Change Disclaimer: The information contained in this syllabus, other than the grade and absence policy, may be subject to change with reasonable notice as deemed appropriate by the instructor.

Weather info on the World Wide Web

The internet has revolutionized the dissemination of weather information to the public. Way back in medieval times (when your instructor was a graduate student) only professional meteorologists had access to weather maps. Now anyone with access to the Web has a wide choice of current weather maps, forecasts, and satellite and radar images, beautifully prepared in bright (sometimes garish) colors at no cost. **All UA students have access to the Internet via the student computing pods – take advantage of this!!**

For this class: we will use images of weather maps from the Unisys page frequently in class because their maps project nicely and they offer a complete range of surface and upper air maps on one site. We'll use the Wyoming website for daily upper air soundings. On occasions we will access the University of Arizona ATMO site for animations of imagery. The Intellicast site is particularly good for radar and satellite imagery focused on regional areas; this is also a specialty of the Wisconsin (SSEC) site. The Utah page is really nice for finding other sites – this page is nothing more than a large list of "hot links" to other Government and University-run websites. Seasonal climate forecasts and El Niño updates are found on the Climate Prediction Center, Climate Diagnostics Center, and COLA (iges.org sites). The Western Regional Climate Center contains lots of downloadable data, and also is good for links to other websites. The Tucson Weather Service Office has put together a very informative page with lots of state-related information and data. Happy surfing!

http://www.weather.unisys.com	Principle source for class weather maps
http://www.weather.uwyo.edu/upperair/	Univ. of Wyoming (used for sounding data)
http://www.wrh.noaa.gov/twc/	Tucson National Weather Service Office
http://www.atmo.arizona.edu/products/	UA ATMO Weather Conditions
http://www.nhc.noaa.gov/	National Hurricane Center
http://www.ssec.wisc.edu/data/	Wisconsin Space Science & Engineering Center
http://www.intellicast.com/	MS/NBC Intellicast
http://cirrus.sprl.umich.edu/wxnet/	University of Michigan Weather
http://www.cpc.ncep.noaa.gov/	NOAA Climate Prediction Center, Washington DC
http://www.cdc.noaa.gov/map/	NOAA Climate Diagnostics Center, Boulder CO
http://wrcc.dri.edu	Western Regional Climate Center, Reno NV