

GLY 371: Meteorology

Spring 2012 4 credit hours

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Course webpage in the SUNY Cortland eLearning system

Office hours: M 11:30 am - 1:30 pm, W 11:30 am - 2:30 pm,
or by appointment, or at other times if I am available.

Lecture: 339 Bowers; MWF, 10:20 - 11:10 am

Laboratory: 339 Bowers; M, 1:50 - 4:40 pm

Textbook: Aguado & Burt, 2012, Understanding Weather & Climate, 6th. ed.

Catalog course description:

“Atmospheric processes, weather and climate. Application to weather forecasting, severe weather phenomena, atmospheric pollution and global climate change. Three lectures, one three-hour laboratory. Prerequisite: Six hours of mathematics or science. (4 cr. hr.)”

Course attendance policy:

I expect you to attend all lecture and laboratory sessions. Please familiarize yourself with official college policy on attendance and absences (Section 410.11 of College Handbook).

Be responsible for your own education. If you miss a class, get the notes from a colleague before the next class. If you miss an exam, you must contact me as soon as possible with a valid reason for your absence or you will receive a zero for that exam. Ask questions and get involved in class discussions; your participation and attitude will be used to aid final grade determinations for borderline situations.

Emails:

Occasionally I may need to contact the class regarding changes to the schedule, assignments or for other reasons. Accordingly, I need email addresses for all students that will work and which students will check regularly. Please email me this week from an email account that meets these criteria so that I have your reliable email address on record, should I need it.

Academic accommodations:

If you are a student with a disability and wish to request accommodations, please contact the Office of Student Disability Services located in B-40 Van Hoesen Hall or call (607) 753-2066 for an appointment. Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests should be made as early as possible.

Academic integrity:

I expect you to abide by the SUNY Cortland standards of academic integrity (Chapter 340 of the College Handbook). Stated simply, this means that you will not commit plagiarism, nor cheat on exams, nor help others plagiarize or cheat.

Evaluation of student performance:

There will be three exams spaced equally through the semester (see course schedule). Questions on all exams will be drawn from material covered in lecture and lab since the previous exam. The average of these exams will comprise 60% of your final grade.

Exercises, quizzes, assignments and papers from lab and homework are an integral part of this class, and will complement and expand upon material covered in lecture. Scores from these will form 40% of your final grade.

A+ = 97-100	B+ = 87-89	C+ = 77-79	D+ = 67-69	E = 0-59
A = 93-96	B = 83-86	C = 73-76	D = 63-66	
A- = 90-92	B- = 80-82	C- = 70-72	D- = 60-62	

Reading assignments:

Recommended reading assignments, including some online sources, for every class will be posted on the course website (in the SUNY Cortland eLearning site). This reading list will be updated regularly so please keep checking back throughout the semester.

Laboratory equipment:

Please bring a scientific calculator, a 12" ruler, a sharp pencil, a red pen or pencil, a blue pen or pencil, an eraser, and your textbook to every lab.

Fieldwork equipment:

Some labs (see schedule) will involve you collecting data outside. Please dress appropriately (warm coat, hat, and gloves/mittens) on these dates.

Learning outcomes & NSTA standards:

Students enrolled in GLY 371 and majoring in Adolescence Education: Earth Science 7-12 will focus on acquiring knowledge and developing skills aligned with learning outcomes from the College's Conceptual Framework for Teacher Education and those established by the National Science Teachers Association. In particular, this course addresses Conceptual Framework Learning Outcome 2: Possess in-depth knowledge of the subject area to be taught; Conceptual Framework Learning Outcome 13: Demonstrate sufficient technology skills and the ability to integrate technology into classroom teaching/learning; NSTA Standard 1: Content; NSTA; Standard 2: Nature of Science; NSTA Standard 3: Inquiry; and NSTA Standard 7: Science in the Community.

Course objectives:

Meteorology is the study of the atmosphere and its phenomena. This course will encompass both weather (= actual conditions) and climate (= averages and extremes). We will begin by considering the basic physical properties and processes of the atmosphere, and then apply that knowledge to understand typical weather experienced through the year in the United States. In the last third of the course we will consider societal concerns such as severe weather, atmospheric pollution and climate change.

Course schedule and activities: (tentative)

	<u>Lecture (10:20 - 11:10 am)</u>	<u>Laboratory (1:50 - 4:40 pm)</u>	
01	Wed 18 Jan.	Atmospheric structure	
02	Fri 20 Jan.	Atmospheric evolution & composition	
03	Mon 23 Jan.	Energy & radiation	L1. Atmospheric structure & insolation
04	Wed 25 Jan.	Insolation & seasons	
05	Fri 27 Jan.	Beam depletion & energy balance	
06	Mon 30 Jan.	Temperature	L2. Isopleth maps & climate controls
07	Wed 1 Feb.	Climates	
08	Fri 3 Feb.	Moisture, chinooks & lake effects	
09	Mon 6 Feb.	Atmospheric moisture	L3. Measuring T & humidity [FIELD]
10	Wed 8 Feb.	Lapse rates	
11	Fri 10 Feb.	Fogs	
12	Mon 13 Feb.	Data collection	L4. Station models [FIELD]
13	Wed 15 Feb.	EXAM 1	
14	Fri 17 Feb.	Atmospheric stability	
15	Mon 20 Feb.	Clouds	L5. Atmospheric stability
16	Wed 22 Feb.	Satellites & radar	
17	Fri 24 Feb.	Precipitation	
18	Mon 27 Feb.	Pressure	L6. Air pressure & wind
19	Wed 29 Feb.	Wind	
20	Fri 2 Mar.	Global circulation	
-	Mon 5 Mar.	SPRING BREAK	SPRING BREAK
-	Wed 7 Mar.	SPRING BREAK	
-	Fri 9 Mar.	SPRING BREAK	
21	Mon 12 Mar.	Air masses & fronts	L7. Isobaric & frontal analysis
22	Wed 14 Mar.	Mid-latitude cyclones	
23	Fri 16 Mar.	MLCs; Forecasts	
24	Mon 19 Mar.	TBA	L8. TBA
25	Wed 21 Mar.	Weather forecasting	
26	Fri 23 Mar.	Wind systems	
27	Mon 26 Mar.	ENSO	L9. Mid latitude cyclones
28	Wed 28 Mar.	EXAM 2	
29	Fri 30 Mar.	Lightning	
30	Mon 2 Apr.	Thunderstorms	L10. Local floods [FIELD]
31	Wed 4 Apr.	Thunderstorm winds	
32	Fri 6 Apr.	Tornadoes	
33	Mon 9 Apr.	Tornado climatology & safety	L11. Severe thunderstorms
34	Wed 11 Apr.	Hurricanes	
35	Fri 13 Apr.*	Hurricane impacts	
36	Mon 16 Apr.	Hurricane forecasts	L12. Hurricanes
37	Wed 18 Apr.	Atmospheric pollution	
38	Fri 20 Apr.	Pollution cont.	
39	Mon 23 Apr.	Climate change	L13. PDO & smog
40	Wed 25 Apr.	Ice ages	
41	Fri 27 Apr.	Holocene climate	
42	Mon 30 Apr.	Global warming	L14. Climate proxies
43	Sat 5 May	EXAM 3 @ 10:30 am	

* Good Friday & Passover (but class ends before official observance periods)