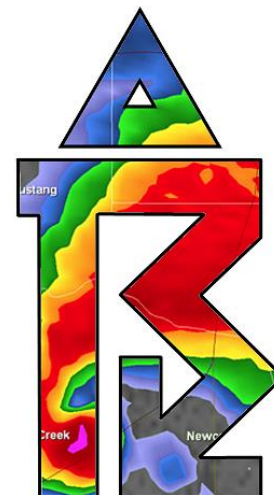




Villanova University
Department of Geography and the Environment



Earth's Weather Systems

GEV 3503

Instructor: Dr. Stephen M. Strader

Lecture Days: Tuesday/Thursday

Lecture Times: 11:30am to 12:45pm

Room: Mendel 256

Office: G65F Mendel Hall

Contact: stephen.strader@villanova.edu

Office Hours: Mon 10:00am-12:00pm; Thurs 2:00pm-4:00pm

Required Text:

- *Understanding Weather and Climate (7th edition)* by Aguado and Burt
- *Storm Watchers: The Turbulent History of Weather Prediction from Franklin's Kite to El Niño* by John D. Cox

Course description: This course provides a basic understanding of the sciences of the atmosphere: meteorology and climatology. Course content includes atmospheric composition and structure, clouds, precipitation, atmospheric motion and winds, organized weather systems, air masses, fronts, and severe weather. The science of climatology includes a discussion of global climates, circulation, wind systems, and climate change. The broad student learning outcomes focus on introducing and developing the following skills:

- (1) unique problem solving using qualitative and quantitative reasoning
- (2) effective communication of scientific principles, ideas, and findings
- (3) use of technology, quantitative tools, and instrumentation commonly employed by atmospheric scientists
- (4) interdisciplinary understanding of the complex social, economic, ethical, and cultural aspects related to atmospheric science issues.

My special emphases: The course is designed to make you feel “**at home and comfortable**” with weather and climate. By the end, you should be able to look up at the sky and explain the weather to your friends and family. I learn things easiest when I'm enjoying myself, so I'll try to do things in lecture to make it **fun** and **participatory**. You may get out of your seat; interact and discuss things with me or the class; you will also watch interactive applets, movies, and video clips too! This subject is atmospheric *science*, though, so expect to **work hard**.

Student Assessment

1. Achieving Success: This course will require you to pay attention, participate in discussions, and use material sequentially to be successful. I expect you to come to class prepared and ready to learn! Read your assignments beforehand, review your notes, and check Blackboard regularly. **Ask questions and be involved in class. Remember no one is forcing you to be here. You are in this class by choice!**
2. Assessment Plan: See the accompanying course schedule

<u>Event</u>	<u>Date</u>	<u>Weight</u>	<u>Remarks</u>
Exam 1	TBA	20%	
Exam 2	TBA	20%	Note: given during the Final Exam Period
Quizzes and Exercises	See Syllabus	20%	
Reading Journal	See Syllabus	20%	See handout posted on Blackboard.
Final Project	See Syllabus	15%	See handout posted on Blackboard.
Attendance / Participation		5%	See attendance policy given below

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3. Assignment Submissions: All assignments will be submitted at the **start** of class on the due date. I do not want you working on assignments during lecture time unless otherwise stated.
4. Late Assignment Policy: I expect you to inform me that an assignment is late. I should not have to find out on my own. I will deduct **one grade per day** until the assignment is turned in. **After 5 days late, the assignment will be recorded as a zero.** Please note undocumented excuses will not be tolerated (e.g., I accidentally slept through exam, I had to take my yellow bird to the vet, I have to leave for vacation, etc.)
5. Graded Assignments/Items

- a. Exams: Two major exams will assess your knowledge of course material. Exams are structured with multiple-choice questions, definitions, short answer questions, problems, and long answer (paragraph length) questions. Exams and assignments will test your ability to take information presented in class (from your notes and discussions), **synthesize the material**, and answer accordingly. Please note that once the first person has left the testing room, no persons shall be admitted and allowed to take the test.

Makeup tests? **There will be NO makeup tests** except in 1) in the event of *extremely* exceptional circumstance, 2) a written excuse (from doctor, lawyer, etc.) is provided, and 3) that I am notified about the circumstance within 24 hours of the missed test. All three of these conditions must be met in order for you to be eligible for a make-up allowance. If the conditions are met for a make-up test, the test must be completed within 48 hours of the missed activity. Please note undocumented excuses will not be tolerated (e.g., I accidentally slept through exam, I had to take my yellow bird to the vet, etc.). Bottom line: I expect you to be responsible adults and do not miss a test.

- b. Course Exercises: There are **8** graded exercises during the semester. These exercises will take on a variety of forms. Each type (video questionnaire, instrumentation exercise, field trip participation, group work, etc.) will evaluate your understanding of course material and retention.
- c. Weekly Reading: Readings and reading journal from *Storm Watchers*. See blackboard for journal entry expectations and grading rubric.
- d. Final Project: You will use the skills that you learned in the course to complete a term project. The project will include a short paper (2–3 pages) and data log. See blackboard for final project expectations and grading rubric.
- e. In-Class Quizzes: There are **3** formal quizzes (i.e., about 10–15 questions) throughout the course. These are designed to help you to better understand key concepts, and to prepare you for the exams. You should also expect short, daily quizzes (i.e., about 3–4 questions) to gauge your basic knowledge of course material. These will be administered at the start of class.

- f. Attendance and Participation: Attendance will be taken at the start of all classes. If you miss more than **3** lessons without an authorized excuse, **you will fail the course.** In the event of illness/crisis, do what you need to do; then see the syllabus, classmates and Blackboard to find out what you missed in class. **I will not provide full versions of my notes if you missed a class; instead, you should obtain these notes from a classmate.** Warning: in any science class, if you miss one class period you miss a *lot* of material. Lecture attendance is essential for a thorough understanding of course material! *You will not be successful in this class if you skip.*

Grade	Percentage	Points per hour
A	100 – 93	4.00
A-	92.9 – 89.5	3.67
B+	89.4 – 87	3.33
B	86.9 – 83	3.00
B-	82.9 – 79.5	2.67
C+	79.4 – 77	2.33
C	76.9 – 73	2.00
C-	72.9 – 69.5	1.67
D+	69.4 – 67	1.33
D	66.9 – 63	1.00
D-	62.9 – 59.5	0.67
F	<59.5	0.00

- g. Grades and Grading: please refer to <http://www1.villanova.edu/villanova/vpaa/catalog.html>
- f. Numerical and Letter Scale: Please see scale on right.

Extra credit? In fairness to all students, *I do not offer extra credit assignments to individuals*. If extra credit is provided, it will be provided to the entire class and will be announced during class and not on Blackboard. Please speak with me if you are having problems. I will be happy to help you.

Professional Behavior and Expectations

- Be on time! Missing the first 5 minutes of every class adds up to nearly 3 hours of class/material missed in a semester!
- **Silence and put away your cell phones—do not let me see them in class.** I know that we all love our technology and being connected to each other every minute of the day, but class is the time to learn and get your money's worth. Facebook, Twitter, Instagram, Snapchat, text, etc. can wait. Any person using a phone or any other electronic device during a test will be considered cheating and will be subject to the academic misconduct policy below.
- You may use your computers in class. However, if I catch you using it for anything other than class work, I will ask you to leave the classroom.

Blackboard I will post your grade scores and all handouts on Blackboard. Typically, I will place the next class period's documents and forms on Blackboard no later than 24 hours prior to that class period.

Academic Misconduct/Ethics Statement All students are expected to uphold Villanova's Academic Integrity Policy and Code. Any incident of academic dishonesty will be reported to the Dean of the College of Liberal Arts and Sciences for disciplinary action. For the College's statement on Academic Integrity, you should consult the Enchiridion. You may view the university's Academic Integrity Policy and Code, as well as other useful information related to writing papers, at the Academic Integrity Gateway web site:
<http://library.villanova.edu/Help/AcademicIntegrity>

Receiving Assistance Your success as a student is of utmost importance to me. It is the policy of Villanova to make reasonable academic accommodations for qualified individuals with disabilities.

You must present verification and register with the Learning Support Office by contacting 610-519-5176 or at learning.support.services@villanova.edu or for physical access or temporary disabling conditions, please contact the Office of Disability Services at 610-519-4095 or email stephen.mcwilliams@villanova.edu. Registration is needed in order to receive accommodations. You need to provide documentation of your disability to this office. It is your responsibility to 1) setup any sort of special needs/requests through the Office of Disability Services and 2) remind me of these needs/requests at the appropriate times. I am not an expert in disability accommodation. However, the fantastic people at the Office of Disability Services and the Learning Support Services are experts!

If the University is closed during our class time for any reason, you are responsible for checking Blackboard for immediate updates. I reserve the right to modify this syllabus and/or course policies as the semester progresses. Any changes will be presented in class and on Blackboard announcements.

I am always available and always approachable!
I encourage you to email (stephen.strader@villanova.edu) or come see me if you have a problem or question.

GEV 3502 COURSE SCHEDULE: Spring 2018

DATE	TOPIC	ASSIGNMENT	REMARKS
Jan 16 (T)	Introduction		
Jan 18 (R)	Earth-Sun Relationship	Storm Watchers Chapters 1-3	Reading summary due (Jan 25)
Jan 23 (T)	Atmospheric Composition & Structure		
Jan 25 (R)	Energy and Heat /Global Energy Balance	Assessment 1 ; Storm Watchers Chapters 4-6	Assessment 1 due (Feb 1) ; Reading summary due (Feb 1)
Jan 30 (T)	Temperature	Quiz 1	
Feb 1 (R)	Atmospheric Radiation In-class exercise	Assessment 2 ; Storm Watchers Chapters 7-9	Assessment 2 due (Feb 8) ; Reading summary due (Feb 8)
Feb 6 (T)	Atmospheric Moisture		
Feb 8 (R)	Atmospheric Moisture In-class exercise	Assessment 3 ; Storm Watchers Chapters 10-12	Assessment 3 due (Feb 15) ; Reading summary due (Feb 15)
Feb 13 (T)	Adiabatic Processes and Atmospheric Stability I		
Feb 15 (R)	Adiabatic Processes and Atmospheric Stability I	Assessment 4 ; Storm Watchers Chapters 13-15	Assessment 4 due (Feb 22) ; Reading summary due (Feb 22)
Feb 20 (T)	Clouds, Fog, Dew, and Frost I	Quiz 2	
Feb 22 (R)	Clouds, Fog, Dew, and Frost II	Storm Watchers Chapters 16-18	Reading summary due (Mar 1)
Feb 27 (T)	Test 1		
Mar 1 (R)	Precipitation		
Mar 6	Spring break		
Mar 8	Spring break		
Mar 13 (T)	Air Pressure and Winds	Discuss final project	Final Project due (Apr 26)
Mar 15 (R)	Global Circulation and Upper-level Winds I	Assessment 5 ; Storm Watchers Chapters 19-21	Assessment 5 due (Mar 22) ; Reading summary due (Mar 22)
Mar 20 (T)	Global Circulation and Upper-level Winds II		

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Mar 22 (R)	Guest lecturer or trip	Assessment 6; Storm Watchers Chapters 22-24	Assessment 6 due (Apr 3); Reading summary due (Apr 3)
Mar 27 (T)	Air Masses and Fronts		
Mar 29	Easter break		
Apr 3 (T)	Mid-Latitude Cyclones	Storm Watchers Chapters 25-27	Reading summary due (Apr 10)
Apr 5 (R)	Thunderstorms, Severe Weather, Tropical Storms I		
Apr 10 (T)	Thunderstorms, Severe Weather, Tropical Storms II	Storm Watchers Chapter 28	Reading summary due (Apr 17)
Apr 12 (R)	Lightning Sensor; Instrumentation	Assessment 7	Assessment 7 due (Apr 19)
Apr 17 (T)	GIS Demonstration	Quiz 3	
Apr 19 (R)	No Class; Field Trip to NWS (weekend-April 21)	Assessment 8	Assessment 8 due (Apr 26)
Apr 24 (T)	Weather and Society I		
Apr 26 (R)	Weather and Society II		Final Project Due
May 3 (R)	Course review and Summary		

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