Geography 1401 - 03: Weather and Climate

Fall 2017

Instructor: Dr. Ross Guida
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Office: LDB 336
Office Hours: M, T, Th 11-12; By Appt.

Lecture: T, Th 9:30-10:50 am
LDB 215

Labs: You are registered for labs that are run by another instructor. Your instructor and lab times will vary depending on what you registered for. You may contact Lab Coordinator Ava Fujimoto-Strait (axf011@shsu.edu) with lab-related questions. You may also let me know if you have questions, and I will do my best to help. Lab assignments and lab exams make up a separate component of your overall final grade as detailed below. Please note that your individual labs do not start until the third week of class (week of 9/11)!

Objectives:

By the end of class, you should be able to:

- Explain the composition and structure of the atmosphere;
- Discuss how earth-sun relationships impact temperature patterns and seasonality;
- Identify how electromagnetic radiation interacts with the planet and the atmosphere;
- Explain the relationships between temperature, pressure, density, wind, and air circulation;
- Discuss the hydrologic cycle and how it relates to precipitation, the geographic distribution of water, and flooding;
- Define relative humidity, dew point, and explain how they relate to cloud formation and heat index;
- Identify fronts and their characteristics;
- Discuss the meteorological and climatological influences and factors that lead to the development of severe weather events;
- Interpret climographs and identify global climate zones based on the Köppen climate classification system;
- Explain the difference between natural and anthropogenic forcing of our global climate system
- Discuss potential consequences of rapid changes to Earth's system

Required Textbook:

Netoff, et al., 2017. *Weather and Climate 8th Ed.* (Ebook). The START Group.

This e-textbook can be downloaded using the code provided in the required lab manual. Once you have purchased the lab manual, you can access the e-textbook. If you'd like (and if you are protesting Earth Day), you can print the textbook, but be aware that it is 700+ pages.

Required Lab Manual:

Netoff, D. and A. Fujimoto-Strait. 2014. *Weather and Climate*. The Start Group. Can be purchased from the campus bookstore.

Course Website: Lecture notes, assignments, and any potential supplemental readings will be made available via SHSU Online/Blackboard.

SHSU Email: Your SHSU email account is the official form of university communication. I will use it as a primary means of communication with you. Please make sure that you maintain a valid password and regularly check your SHSU email account for important announcements.

Attendance Policy: Attendance in this course is mandatory. Only documented absences will be excused in accordance with university policy. Students are allowed 4 unexcused absences with no penalty or documentation. Additional undocumented absences will adversely impact your grade up to a penalty of 1% off the final grade per additional absence. While this may not seem like a large impact, every semester there are students who see their final grades impacted two or more letters. For further details on extended absences, please see: http://www.shsu.edu/dept/dean-of-students/absence.html

If you miss class, you must take the initiative to get lecture notes from classmates and/or go over the materials posted online. I am happy to meet during office hours to discuss questions from lectures, but my office hours are not meant for holding individual/one-on-one lectures unless there was a legitimate reason to miss class.

Should unusual circumstances arise during the semester (medical problem, death in the family, house floods, etc.) please contact me ahead of time if possible and provide official documentation so I can work with you to accommodate the situation. Please do not wait until well after the event, the end of the semester, or until your grade has dropped as these are not sufficient reasons and may result in me not being able to make accommodations.

In addition to the above, please be on time to limit disruptions during lecture. Late arrivals will not be allowed to sign the attendance sheet and will be counted as absences in accordance with the above 4 absence policy. Additionally, refrain from packing up early as this also causes disruptions during lecture that are bothersome to your fellow students.

SHSU Student Conduct Code: Academic dishonesty, including cheating and plagiarism, will be taken seriously. These issues may result in failing the assignment or exam in question and/or the course. For more, please see the SHSU Student Conduct Code: http://www.shsu.edu/dept/dean-of-students/policies/documents/Student+Guidelines+2013-2016.pdf

Grading:
Scale: A=90-100%, **B**=80-90%, **C**=70-80%, **D**=60-70%, **F**<60%
Breakdown:

Lab	25%
Final Paper	11%
Exam 1	13%
Exam 2	13%
Exam 3	13%
Final exam (Comprehensive)	25%
	100%

Lab: A separate lab syllabus is available from your lab instructor. Please contact them for more details.

Exams: There will be four exams: three exams over ~2 chapters of material and a cumulative final. Content will include readings, lectures, and lab concepts. Questions will be multiple choice and true/false with ~50 questions for each of the first 3 exams and ~100 questions on the final. This course builds on previous material so it is important to understand how all of the concepts fit together. As such, the final will be comprehensive, meaning it will include questions from the entire semester. There will be an in-class review for each exam as well as the final. *Make-up exams will only be given in the event of an excused illness or emergency with proper documentation. Please see the link under the "attendance policy" section.*

* *For all exams, make sure you bring a basic scientific calculator to class as well as #2 pencils and Scantron sheets (882-e with 50 front and 50 back). Smartphones, tablets, etc. will not be allowed during exams. Sharing of devices will not be allowed under any circumstances. Please come prepared or be ready to do it the old-fashioned way.**

Paper: You will write a 2-page, 1.5 spaced, 12-point Times New Roman font paper with 1" margins on a weather or climate-related topic that has been in the news during the last 5 years. THE PAPER TOPIC MUST BE RELATED TO CONCEPTS DISCUSSED IN THE BOOK AND/OR LECTURE. If you are unsure if the topic is appropriate, please ask me. Some example topics include: flooding in SE Texas during the Spring of 2016; the California drought; the "Polar Vortex," Superstorm Sandy; heat wave in Europe; etc. Use a combination of information from lecture and your book and at least 2 newspaper and/or magazine articles (no blog sources!) along with 2 additional sources (e.g., NOAA, National Weather Service, etc.) to describe the problem and how it came about. You will spend approximately 1/2-2/3 of the paper explaining the impacts of the event you chose and the last 1/2-1/3 describing and explaining what weather or climate-related concepts/processes are related to the problem based on the knowledge gained in class and from your sources.

You will be graded on formatting (10%), general writing ability and grammar (25%), how well you explained the event (25%), how well you identified the weather concepts related to the issue you chose (25%), and the sources you used (15%). I will upload a more detailed rubric in advance of the due date so you understand what I am looking for. Late papers will only be accepted in cases of extenuating circumstances and with written, official documentation as per the official SHSU attendance policy.

Final papers will be uploaded as Word or PDF documents via Blackboard and will be checked using Turnitin or other similar plagiarism-checking software. They are due Tues., Nov. 21st at 9:30 am.

There is no excuse to plagiarize! You have 13 weeks to write a 2-page paper. Copy and pasting from classmates, online sources, print sources, etc. will result in an automatic zero. If you are using a specific source for your information, you must cite it. You can use a format as simple as: John Brown of the New York Times said in his January 10th, 2016 story entitled *The Weather is Cold* that, "The Polar Vortex is making New England a mess." Or, pick a citation style (i.e., MLA, APA, Chicago Style) and use parenthetical citations with a list of references at the end. You can use any citation style but you must be consistent and

include both in-text citations as well as a list of references/bibliography at the end. Limit the amount of direct quotations used. Work on paraphrasing instead of copying sources verbatim. Points will be deducted for papers that overuse direct quotes. Please note that the final reference list does not count toward the page limit.

SHSU Student Conduct Code: Academic dishonesty, including cheating and plagiarism, will be taken seriously. These issues may result in failing the assignment or exam in question and/or the course. Cheating on exams will result in an automatic zero grade. For more, please see the SHSU Student Conduct Code: http://www.shsu.edu/dept/dean-of-students/policies/documents/Student+Guidelines+2013-2016.pdf

Students with Disabilities: It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see: http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf

Religious Holy Days: If a student desires to be excused from class, assignment, or a test to participate in activities associated with a religious holy day, then the student must notify the instructor ahead of time of each scheduled class that he/she will miss for religious reasons. In such cases, the student will be required to take the test or submit the assignment early—unless there are good reasons for not being able to do so and the instructor has agreed to those reasons.

Visitors in the Classroom: Unannounced visitors to the classroom must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage occasional visiting of classes by responsible persons.

Tentative Course Schedule (*subject to change based on illness, weather, etc.*):

Class Week	Date	Topic	Readings/Assignments
1	R 8/24	Course logistics and intro; History/Importance of weather and climate	Syllabus
2	T 8/29	Earth's atmosphere	Ch. 1
	R 8/31	Critical thinking exercise	Ch. 1, 2
3	T 9/5	The sun; Earth-sun relationships	Ch. 2
	R 9/7	Energy, Heat Transfer, Temp	Ch. 2
4	T 9/12	Non-latitude temp controls*; Exam 1 Review*	Ch. 2
	R 9/14	**Exam 1 (Bring Scantron, pencil, calculator!)**	Ch. 1 & 2
	Lab	Lab 1 - Maps	
5	T 9/19	Wind and Solar Power; Pressure and Winds	Ch. 3
	R 9/21	Pressure and Winds	Ch. 3
	Lab	Lab 2 – Earth-sun	
6	T 9/26	Pressure and Winds	Ch. 3
	R 9/28	Pressure and Winds; Properties of water	Chs. 3, 4
	Lab	Lab 3 – Temperature	
7	T 10/3	Hydrologic Cycle and Water Balance	Ch. 4
	R 10/5	Humidity, Haze, Fog	Ch. 4
	Lab	Lab 4 – Weather Observation	
8	T 10/10	Clouds, precipitation	Ch. 4
	R 10/12	Flooding and drought; *Exam 2 Review*	
	Lab	Lab 5 – Pressure and Winds	
9	T 10/17	**Exam 2 (Bring Scantron, pencil, calculator!)**	Ch. 3 & 4
	R 10/19	Air masses and Fronts	Ch. 5
	Lab	Lab 6 – Atmospheric Moisture	
10	T 10/24	Fronts and Mid-Latitude Wave Cyclones	Ch. 5
	R 10 /26	Thunderstorms and Lightning	Ch. 6
	Lab	Lab 7 – Adiabatic Processes	
11	T 10/31	Tornadoes	Ch. 6
	R 11/2	Hurricanes	Ch. 6
	Lab	Lab 8 – Air Masses	
12	T 11/7	Hurricanes and TX*; Exam 3 Review*	Ch. 6
	R 11/9	**Exam 3 (Bring Scantron, pencil, calculator!)**	Ch. 5 & 6

	Lab	Lab 9 – Weather Maps	
13	T 11/14	Climate: Classification, climographs, biomes	Ch. 7
	R 11/16	Critical thinking exercise	Ch. 7
	Lab	Lab 10 – Violent Storms	
14	T 11/21	Paleoclimate and climate modeling	FINAL PAPER DUE; Ch. 7
	R 11/23	Thanksgiving – no class	Ch. 7
	Lab	No Labs	
15	T 11/28	Climate change impacts	Ch. 8
	R 11/30	Climate change impacts; *Final review ?'s*	Ch. 8
		Lab 11 – Global Climates	
16	Week of 12/4-12/7	**Final Exam** **Thurs., Dec. 7th** **9:30 am – 11:30 am** **(Bring Scantron, pencil, calculator!)**	Ch. 1 - 8