

GEOGRAPHY 131-03: (CID 1482) WEATHER AND CLIMATE SYLLABUS FOR SPRING SEMESTER - 2008

Course Number and Title: Geography 131: Weather and Climate; (3 credit hours); (CID 1482)

Class Time: MWF 12:00-12:50

Class Meeting Room: LDB 207

Instructor Information: Name: Dr. Marcus Gillespie

Office Number: Lee Drain Building - 336

Office Hours: MWF 9:00-10:00 and 2:00-3:30; TTh 2:00-3:00

Phone: 294-1233 (work); 730-8781 (home)

* I always try to have an "open-door" policy as regards office hours, so please feel free to call or come by any time that you have a question.

Catalog Description: A systematic introduction to weather and climate as it pertains to man. Topics discussed will include components of weather, weather processes and their measurements, climatic elements and control factors, and climate as a factor of physical environments.

Rationale: The purpose of this course is to provide students with a basic understanding of the atmospheric variables and processes responsible for weather and climate. It also will enable students to better understand and appreciate the potential significance of global climate change. This course is relevant for anyone who has an interest in weather and climate or who wishes to teach earth science courses.

Objectives: Upon completion of this course, the student should achieve an understanding of:

- a) the composition and structure of the atmosphere;
- b) electromagnetic radiation and temperature laws as they relate to the global energy balance;
- c) the relationships between temperature, pressure, density, and air circulation;
- d) phase changes and the hydrologic cycle;
- e) relative humidity, lapse rates, cloud formation and precipitation;
- f) fronts and severe weather phenomena;
- g) geographical trends in temperature, pressure, wind, and moisture regimes;
- h) Koeppen climate classification system;
- i) climate-ecosystem relationships;
- j) the causes and consequences of global climate change/global warming.

Methods of Instruction: This course is based on a traditional lecture format. **All lectures are on Power Point and are available on the Black Board site for the course under "Course Documents". Students must print these presentations and bring them to class. Please note that key words and phrases are deleted from the student version of the presentations; so, students must come to class in order to add the missing information.** Students also will be required to complete a variety of homework exercises.

Textbook Information: *eWeather and Climate* by Gillespie, Netoff and Tiller. This is a CD textbook that is included with the lab manual for the course. Students must have access to a computer in order to access it. The book may be printed, but it is approximately 450 pages in length. The e-version of the text has search functions for key words, highlight functions, and note taking functions. All of these are aids to learning the material and the word search function is especially useful when doing homework assignments.

Supplies: Scantron test forms (100-question version; 50 on front and 50 on back)

Supplementary Readings: If there are supplementary readings, they will be distributed in class or sent by e-mail.

Grading Criteria: Grading will be based on four (4) lecture exams and six (6) homework assignments. In a course such as this, each topic serves as the foundation for subsequent material; consequently, students must remember and understand all of the basic principles covered previously in the course in order to do well on each successive test. So, in that sense, each test--including the final--is "comprehensive;" however, on a given test I will not ask detailed questions regarding material covered on previous tests.

Tests: These will consist of multiple choice and matching -type questions and will each be worth 100 points. Tests total 400 points and constitute 65.6% of the course grade.

To determine test grades, I determine the percent correct and then add 5%. The percent value is used as the grade for an exam.

Homework assignments: Each homework assignment will be worth 30 points and each will consist of a possible combination of true/false questions, matching exercises, and math problems. These will be completed using scantron forms. Homework assignments are worth a total of 180 points and constitute 29.5% of the course grade.

Importance of completing ALL assignments: If a student had 567 points at the end of the semester, then the student would receive 93% = A. However, if the student did not turn just one assignment worth 30 points, he or she would have received only 537 points (88%), i.e., a **B** instead of an **A**. Because the student did not submit this one assignment, he or she would not be eligible to have his or her grade raised to an A.

The following is an e-mail I once received from a student just before finals week that illustrates why the completion of all assignments is so important:

My question to you is, is it too late for me to make-up two homeworks? I'm sure it is and if that's the case, I do understand. I didn't think they were going to help me that much and I was very wrong. Lesson learned. Anyway, if there is the slight possibility that I could make them up please let me know. Again, I know that this is a bit ridiculous because I shouldn't have waited this long and I should have just done them to begin with.

Grade Determination: Your grade *at any point* in the semester is based on the percentage of points you have earned. To determine your grade, sum the total number of points you have earned to date, divide by the total number of points that the completed assignments and tests are worth, and multiply by 100. The form for doing this is on the next page.

Example of Grade Determination:

	<u>Earned</u>	<u>Possible</u>
Test 1:	88	100
Homework 1&2:	<u>48</u>	<u>60</u>
Total to date	136	160

$$\text{Grade} = 136/160 = 85\% = \text{B}$$

Point Range for Each Letter Grade:

A = 549-610

B = 488-548

C = 427-487

D = 366-426

F < 366

If, at the end of the semester, you are within 1% point of the next higher grade, I will consider raising your grade if it is clear that you made a genuine effort to do well, as indicated by the fact that:

- a) you did not have more than 1 absence and did not submit late work
- b) you came to class on time and paid attention in class
- c) you made at least one test grade equal to the desired final grade and/or you showed significant improvement

Note that you must pass at least one of the four tests in order to pass the course - no matter how many points that you may have accumulated.

Use the following SCORE FORM to calculate your grade. Please do not lose this because it is your check against the final grade that I give you. Please keep track of your own grades! (Grades also will be posted on the Blackboard course website; however, **Black Board will not keep a running course average – it will only indicate how many points that you have.** So, to keep track of your average, you must use the form below.)

To use this chart, first record the score you earned in the “Score” column. Then, add the points in this column together and place this value adjacent to your last grade in the “Total Points Earned to Date” column. Finally, divide the “total points earned to date” value by the number to the immediate right in the “Cumulative Possible” column and multiply by 100 to determine your percentage. For example, if you made a 27 and 25 on Homeworks 1 and 2, your cumulative points would be 52. Divide 52 (total points earned to date) by 60 (cumulative possible) and multiply by 100 to obtain 86.7%. This is your “running average”.

$$* \text{Percentage} = (\text{Total Points}/\text{Cumulative Possible}) \times 100$$

	<u>Score</u>	<u>Total Points Earned to Date</u>	<u>Cumulative Possible</u>	<u>Percentage</u>
HW 1:	_____	_____	30	_____
HW 2:	_____	_____	6	_____
Test 1:	_____	_____	160	_____
HW 3:	_____	_____	190	_____
Test 2:	_____	_____	290	_____
HW 4:	_____	_____	320	_____
Test 3:	_____	_____	420	_____
HW 5:	_____	_____	450	_____
HW 6:	_____	_____	480	_____
Final:	_____	_____	580	_____
Atten.	_____	_____	610	_____

The number of points that must be earned on the final exam to obtain the grade you desire can be derived using the following equation:

$$\text{Points needed on final} = (610 \times \text{desired grade percentage}) - \text{Total points earned to date.}$$

Example: If you have earned 400 points prior to taking the final exam, and desire a B (80% or 0.8) in the course, the number of points you need on the final to obtain a B in the course is 88.

$$\begin{aligned}
 80\% \text{ of points possible} - \text{cumulative points earned} &= x \\
 (610 \times 0.8) - 400 &= x \\
 488 - 400 &= 88
 \end{aligned}$$

No extra credit assignments will be given under any circumstances, so please do not ask. **Also, every grade counts, which means that I do not drop any grades.**

Attendance and Make-up Policies: This course abides by University Policy and Regulations concerning attendance (See the Undergraduate Catalog). Accordingly, “regular and punctual attendance is expected of each student at Sam Houston State University.” Like all professors, I value education very highly and believe that it is literally a privilege to have the opportunity to go to college. This means that I believe that students should take this opportunity very seriously (especially given the high cost of a college education!) and should come to each and every class. Skipping class can only be seen as a sign that one does not value the opportunity to learn. While it is true that a few students manage to do well on exams even if they do skip classes frequently, this is definitely *not the norm* and it is not same as saying that they got as much from the course as they could have gotten had they gone to class. Much of the learning that occurs in any classroom is not measurable on a test – but it is just as valuable. Also, I have routinely seen that students do poorly on exams simply because they did not come to class. **I want to do what I can to prevent failure; in short, I want students to succeed and get the most out of their education.** For these reasons, the following are the attendance and tardy policies for this class:

To encourage attendance, **I give each student 30 free points at the beginning of the semester.** However, I will deduct 10 points for each and every *unexcused* absence. No points will be deducted if the absence is excused. In order for an absence to be excused, **some form of documentation MUST be provided.** Although 10 points per absence may seem negligible, the deductions can add up quickly and result in a significant loss of points. For example, if a student misses 4 times, the amount of points that would be deducted amounts to about 6.6% percent of the total grade for the course. If that student had 85% (B) based on coursework, but missed 4 times, his or her grade would drop to 78.4% (C). Note that although the *Student Handbook* states that students may not be penalized for missing 3 or fewer classes, in this class students are *given* points for attendance, and so points can be deducted for absences. Also note that a student would have to miss more than three classes (30 points deducted) before academic points (that are unrelated to attendance) would be deducted. **Attendance matters; so, please take advantage of the opportunity to learn by coming to all classes.**

1. In addition to the required attendance policy, it is important that you please come to class on time. Tardiness is rude because it disrupts the class and adversely affects the presentation of information, as well as other activities other activities. **For the same reasons, please do not leave the class room early unless you are sick or have cleared it with me before class begins.**
2. Make-up exercises and exams will only be allowed with my approval. If you know beforehand that you will be unable to take a test on the day it is scheduled, you should take the test ahead of schedule.

Assignments can be handed in a maximum of one day late; however, 10% of the value of the exercise will be deducted if it is late. If, for example, a 30-point assignment is due on Tuesday, but is handed in on Wednesday, a total of 3 points (one letter grade) will be deducted--in addition to any points that may be deducted for errors. It must be emphasized that, **after one day; you cannot turn in the assignment and will, therefore, receive a zero for it.** (Exceptions may be made for excused absences for which documentation is provided. So, please get those assignments in on time!!!

Academic Honesty:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action that is consistent with university policies. Please read the following:

- 1) Students are encouraged to study in groups to prepare for tests. However, “group effort” is definitely not permitted when taking exams! **This will result in an automatic zero on a test. Two such occurrences will result in an F in the course.**

Proper Course Behavior: All of these rules are standard and are based on common courtesy, respect, and honesty.

- 1) Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones, pagers and ALL other electronic equipment must be turned off before class begins. **Students are prohibited from eating or drinking in class, using tobacco products,** making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.
- 2) Please come to class on time—there is no reason to be late to class on a frequent basis
- 3) Please remain in class until it is finished. **Leaving early will count as an absence unless you have cleared it with me or unless it is an emergency.**
- 4) Again, do not bring food or drink into the class
- 5) Hats must be removed and put away during exams.
- 6) During tests, cell phones and any other equipment capable of receiving, recording and/or transmitting information, must be put away in a book bag or purse. (In short, it must not be readily accessible or accessed during an exam.)
- 7) **DO NOT LEAVE THE ROOM DURING AN EXAM. If this happens, the test will be taken up.**

Study Tips:

1. **Always come to class.** You will not do well in the course if you skip class--this is virtually guaranteed.
2. **Take good notes:** Although the Power point presentations encompass the notes that I once wrote on the board, it is still a good idea to highlight key points and to write additional notes if you need to in order to enhance your understanding. Writing key words or concepts in your own words can help you better learn the material and it helps to stay focused during lecture. Of course, everyone also should write in the missing words on each slide.
3. For those students who want to do well in college, **reading their textbooks is a necessity.** So, **read the chapters** in the book at the time they are being covered in lecture and highlight the key concepts. Highlighting as you read helps you to stay focused on the material and helps you to actively process the information. In addition, it requires you to read the key points twice, and it also enables you to easily review for tests because you can simply reread the highlighted material rather than an entire chapter.
4. **Review the notes** from the previous lecture each day. This should greatly enhance your understanding of the material because it enables you to see the continuity and structure of the material. You also learn the material in small amounts, which is much easier to do than trying to learn it all at once just before the exam.
5. When it comes time to **review for an exam**, first read the highlighted portions of the text, then concentrate on your notes. You might also want to follow the procedures below:
 - a. The first time you review your notes, concentrate on absorbing the key ideas and understanding the organization of the material - why certain ideas followed others in the class and how they are related.
 - b. Once this is done, review the material again to learn the details - the “whys.” Bear in mind that **tests in this course are absolutely not based on the mere memorization of definitions or on the recognition of verbatim statements from lecture;** rather, the test questions assume you already know the definitions and that you understand the concepts discussed in lecture. So, you will not be asked definitions; rather you will be asked to **apply** them, i.e., to **think** with them. Again, you cannot simply memorize your notes and expect to do well on the tests. You must truly understand the **meaning** of the notes in order to obtain a good grade.

6. Pretend that you are teaching the material to someone else, or that the test will be an essay type. This requires that you genuinely learn the material.

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.

Americans with Disabilities Act: Any student seeking accommodations should go to the *Counseling Center and Services for Students with Disabilities* at the very beginning of the semester and complete a form that will grant permission to receive special accommodations. Please do not wait until test day to do this – it must be done at the beginning of the semester.

Religious Holy Days: If a student desires to be excused from class, assignment, or a test on a religious holiday, then the student must notify the instructor of each scheduled class that he/she will be absent from 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.

Special Circumstances: If unusual circumstances arise during the semester, such as a medical problem, death in the family, etc., that adversely affects your attendance PLEASE discuss this with me immediately and provide documentation. Under these conditions, I will gladly do my best to accommodate your situation by excusing absences, allowing late work to be turned in within a reasonable time period, and so on. However, if you wait until after-the-fact, at the end of the semester, to let me know that you were experiencing these adverse circumstances, there is nothing I can do about it at that time. I will not retroactively make accommodations and I never give extra credit assignments to make up for grade deficiencies of any type.

SCHEDULE: * This schedule is subject to change at any time based on class progress.

1/16 - Introduction to course and History of Meteorology. Read *Introduction*

1/18 - History of Meteorology

1/21 – Martin Luther King Holiday

1/23 Begin *Chapter 1: The Atmosphere: Composition, Structure and Origin of the Atmosphere*

1/25 – Composition and structure of the atmosphere

Begin HW 1: Composition of the Atmosphere, due 2/4

1/28 - Structure of the Atmosphere

1/30 – Structure of the atmosphere

2/1 – Begin *Chapter 2: Air Temperature*

2/4 - Energy and Temperature

HW 1 due at beginning of period

Begin HW 2: Energy and Temperature - due 2/15

2/6 - Energy and Temperature

2/8 - Energy and Temperature

2/11 - Energy and Temperature
2/13 - Read Chapter 3: Air Pressure and Winds
2/15 - Pressure and Winds
HW 2 due

2/18 - Pressure and Winds

2/20 - TEST 1 (Chapters 1 and 2)

2/22 - Pressure and Winds

Begin HW 3: Pressure and Winds - due 3/3

2/25 - Pressure and Winds

2/27 - Pressure and Winds

2/29 - Pressure and Winds

3/3 - Pressures and Winds

HW 3 due

3/5 - Begin Chapter 4: Atmospheric Moisture

3/7 - Test 2: Pressure and Winds (Chapter 3)

3/10 - Spring Break

3/12 - Spring Break

3/14 - Spring Break

3/17 - Atmospheric Moisture

3/19 - Atmospheric Moisture and Precipitation

Begin HW 4: Atmospheric Moisture and Precipitation - due 3/26

3/21 - Good Friday Holiday

3/24 - Atmospheric Moisture

3/26 - Begin Chapter 5: Air Masses, Fronts and Frontal Cyclones **and** Chapter 6: Severe Weather Fronts and Storms

HW 4 due

3/28 - Fronts and Storms

3/31 - Test 3 Atmospheric Moisture (Chapter 4)

4/2 - Fronts and storms

4/4 - Fronts and Storms

4/7 - Fronts and Storms

4/9 - Fronts and Storms

4/11 - Storms

Begin HW 5: Fronts and Storms - due 4/21

4/14 - Tornadoes and Hurricanes

4/16 – Hurricanes

4/18 – Hurricanes and Nor-easters

4/21 – Begin Chapter 7: Climate and Ecosystems

HW 5 due

4/23 - Climate

4/25 - Climate

Begin HW 6: Climates - due 5/7 (*This assignment will not be accepted late because it is due on the last day of class)

4/28 - Climate

4/30 - Begin Chapter 8: Climate Change

5/2 Greenhouse effect

5/5 Greenhouse Effect

5/7 Greenhouse effect

HW 6 due

5/9 – No Class – Study Day

The **final exam is scheduled** for Monday, May 13 from 2:00-4:00. It covers Chapters 5, 6, 7, 8 (i.e., all material since test 3, beginning with air masses).