

**Principles of Physical Geography I
GY 101-990**

Spring 2004

INSTRUCTOR: David Weaver
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OFFICE HOURS: 3:00 - 4:00 PM T, TH
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CLASS: T 6:00 - 8:30 PM, Room 120
COURSE CREDITS: 4 hours

COURSE DESCRIPTION: Introduction to global weather and climate. Topics include earth-space relations, latitude and longitude, seasons and time, and a variety of specific weather and climate phenomena illustrating the operation of the global atmospheric environment.

GY101 Outcomes

- Students will understand daily and annual changes in Earth-Sun relationships and changing periods of daylight and darkness for each latitude throughout the year. Students will also be able to construct an analemma so they can determine the approximate declination of the sun for any time of year.
- Students will understand the structure of the atmosphere, the effects of the atmosphere on solar radiation, and temperature distribution at the Earth's surface.
- Students will understand vertical and horizontal variations in atmospheric pressure and the relationship of pressure gradient to winds. Students will also understand spatial patterns of global pressure, surface winds and ocean circulation.
- Students will understand global humidity patterns and precipitation mechanisms.
- Students will be able to integrate temperature distribution, global pressure and winds, precipitation mechanisms, and changing declination of the sun so they can explain processes that determine global climate patterns.

GY101 Learning Goals

1. Representations of Earth that include

- the geographic grid
- maps and map projections

2. The Earth-sun relationships

- Earth motions
- the analemma and changing declination of the Sun

3. The atmosphere, temperature, and the heat budget

- composition and structure of the atmosphere
- effects of the atmosphere on solar radiation
- heat transfer
- greenhouse effect
- temperature distribution at the earth's surface
- daily and annual temperature changes

4. Atmospheric pressure, winds, and global circulation

- vertical and horizontal variations in pressure
- mapping pressure

- pressure gradients and winds
- coriolis effect and winds
- global pressure belts and surface winds

6. Ocean circulation

- ocean currents
- ocean surface temperature variation
- ENSO (El Nino) and global weather

7. Atmospheric moisture and precipitation processes

- humidity, saturation, and dew point
- precipitation mechanisms

8. Air masses, fronts, and cyclonic storms

- air mass boundaries and movement of fronts
- upper air circulation and mid-latitude jet streams
- cyclones and anticyclones

9. Global climates

- climate classification and distribution of climate types
- tropical regions
- arid regions
- mid-latitudes
- polar and highland regions

Required texts: Physical Geography of the Global environment, H. de Blij and Peter Muller, Oxford University Press, 3rd Ed. 2003. Principles of Physical Geography Lab Manual, Shankman, Kendall Hunt, 1994.

Laboratory. The lab and class are separate and free-standing with different instructors, different topics, and different requirements. Please be on time for lab as some of the lab work will be outside, either on campus or in the field. This is a natural science (NS) designated course for the core curriculum and has a required laboratory component.

Grade: Is determined by the combined performance in class and lab. Final grade is calculated from three lab test grades (25 % each) and a lab grade (25%) for a combined total of 100%. The lowest of the first three class test scores is omitted from final grade calculation. The last class test score is included in final grade. To achieve final grade students must complete and pass both class and lab sections of the course.

Attendance Policy: Regular attendance is expected. If a student misses a test it will automatically be the test dropped from the grade evaluation.

Make-up Examinations: The Geography department policy is that - MAKE-UP EXAMINATIONS CAN ONLY BE GIVEN FOR VERIFIABLE EMERGENCIES, SERIOUS ILLNESS, OR YOUR REQUIRED PARTICIPATION IN AN OFFICIAL UNIVERSITY ACTIVITY WHICH REQUIRES YOUR ABSENCE FROM REGULARLY SCHEDULED CLASSES. You must provide supporting documentation as evidence as to why you believe your absence should be excused. Acceptance of any excuse and approval for a make-up exam are at the discretion of the instructor. If you cannot take a regularly scheduled exam, you MUST contact your instructor before the exam or within 24 hours after the examination. Failure to do this will seriously jeopardize any opportunity to take a make-up exam regardless of your explanation. Make-up exams will generally consist of short answer and essay questions. All departmental make-up exams will be given on Fridays 2:00 in Farrah 220.

Academic Misconduct

Any act of misconduct or dishonesty will not be tolerated and you will receive a zero for the assignment and be reported to the proper hierarchies.

Disability

To request disability accommodations please contact Disabilities Services (348-4285). After initial arrangements are made with that office, contact your professor concerning your needs.

Anticipated Schedule and Reading Assignments

Week 1	Jan 13	Introducing Physical Geography Unit 1 The Planet Earth, Unit 2
Week 2	Jan 20	Mapping the Earth's Surface, Unit 3
Week 3	Jan 27	Earth-Sun Relationships, Unit 5
Week 4	Feb 03	TEST 1 (Units 1-5)
Week 5	Feb 10	Composition & Structure of the Atmosphere, Unit 6 Radiation & the Heat Balance, Unit 7
Week 6	Feb 17	Atmospheric & Surface temperature, Unit 8
Week 7	Feb 24	Air Pressure & Winds, Unit 9
Week 8	Mar 02	TEST 2 (Units 6-9)
Week 9	Mar 09	Circulation Patterns, Unit 10
Week 10	Mar 16	Hydrosphere Cycle, Unit 11 Atmospheric Moisture & Water Balance, Unit 12
Week 11	Mar 23	Precipitation Air Masses & Fronts, Unit 13
Week 12	Mar 29	SPRING BREAK
Week 13	April 06	TEST 3 (Units 10-13)
Week 14	April 13	Weather Systems. Unit 14 Weather Tracking & Forecasting, Unit 15
Week 15	April 20	Climate Classification, Units 16, 17, 18 & 19
Week 16	April 27	Climate Classification, Units 18 & 19
Week 17	May 4	TEST 4 (Units 14-19)

