

# Exam Reviews For Physical Geography

The physical geography of place is the stage upon which the drama of nature and people unfold.

Tibet: Landscape

Goddess Mother of the Universe – Chomolangma (Mt Everest near upper base camp 1)

Land carved & shaped by glaciers

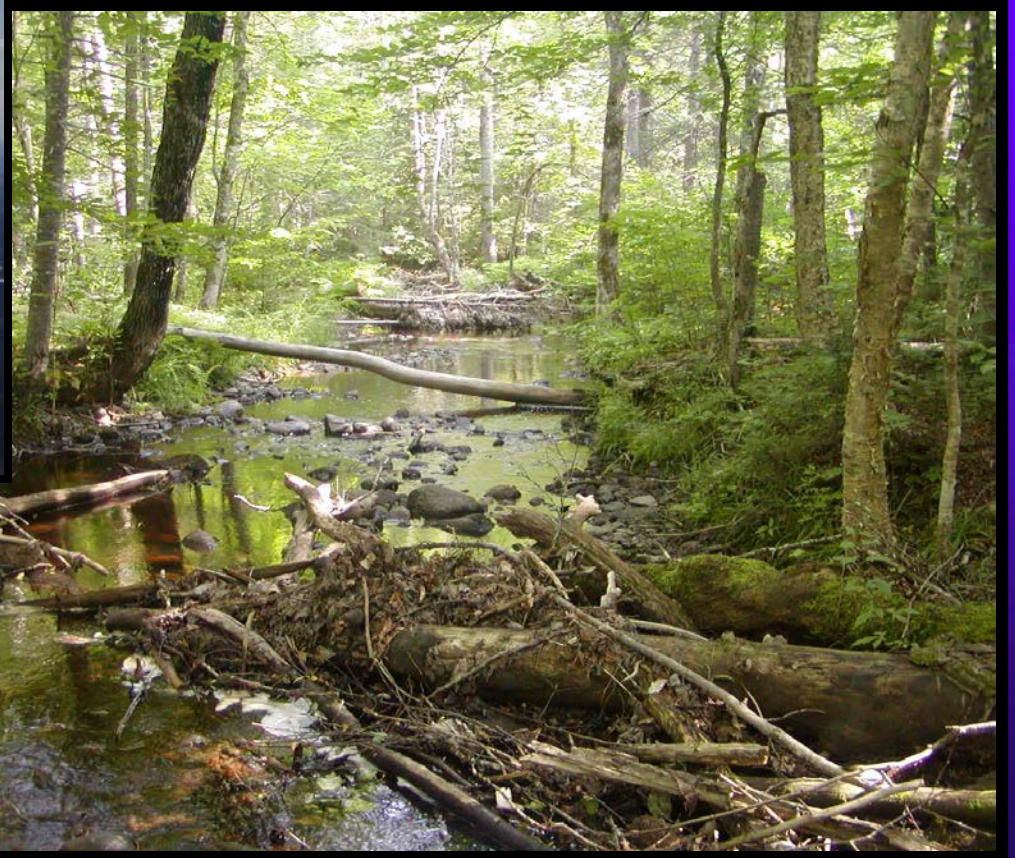


# Exam Reviews For Physical Geography

## Systems of the Physical Environment



Precipitation over arctic  
tundra, NWT Canada



Riparian ecotone with  
healthy forest and  
aquatic ecosystems

# Physical Geography Exam I

## General Overview

1. Study examples; lecture and text terms; case studies; questions posed during class, major readings concepts.
2. Any information printed on the PowerPoint overhead is fair game.
3. Any information written on the board may be on the exam.
4. Class discussion questions may be on the exam.
5. Expect questions from Homework One (I will make the questions viewable on Blackboard)
6. Expect questions from the field experiences.
7. Information not printed in the very brief PowerPoint outline, such as the definition of a term or an expanded discussion on a specific topic, may be on the exam. The PowerPoint's are just an organizational guide – you fill in the details.
8. I do ask questions which go beyond definitions - questions that make you link several concepts.
9. The exam is worth forty points.
10. If you have not been coming to class, I do not expect you to do well, as I intentionally design questions that are couched in class lectures and discussions – study hard and good luck.

## Exam Format (total points possible on the exam: 40)

Part I: 20 multiple choice questions

Each question is worth 1 point.

Any information printed on an overhead is fair game.

Expect questions from the text

I ask questions which go beyond definitions - questions that make you link several concepts.

Part II: Sketch and Label (3points)

Anything I drew on the board or illustrations I created in PowerPoint

Part III: Listing and Concept Short Answer – (9 points) Questions/concepts from lectures. Expect questions from the text (exactly as they are written at the end of each chapter under the subheading “Review Questions.”)

Part IV: Terminology Short Answer (8 points)

10 definitions/short essay each worth 1 point

Expect several terms from the text

Example: Wetland, Diffuse Radiation...

Subject to minor modification

## General Study Guide

# Physical Geography Exam I

### Completed readings

Text: Units 1, 2, 4, 5, 6, 7

Expect Homework One questions

Expect questions from your field experiences

Allen Article - Bangladesh

Read and reread your notes. Most of the exam will come from this source. Create a condensed outline from your notes.

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1. Systems approach to physical geography. What are the four interacting environmental spheres?
2. Know the correct answers to Lab One – Understanding the Physical Geography of SUNY Oneonta. We spent many days outside working on the lab, thus discussions and lab questions will be on the exam...wind, glaciers, rocks, river, creek, trees, soil...Example Questions: What is the purpose of the fenced area behind Golding Hall?; describe the geomorphology of Oneonta; for what purpose were the original trees cut in what is now SUNY Oneonta?...
3. Geographic perspective: location; scale; system, region... What is scale? Why is scale important? How does information change with a change in scale?
4. What are site and situation characteristics – give examples.
5. How are fire and floods beneficial and detrimental?
6. What factors influence the vigor of the redwoods at Mad River Valley?
7. Case study in physical geography - Coping With Disaster: Recent Unusual Flooding in Bangladesh → causes of natural flooding; increasing bonna floods; adaptability of the Bangladeshis; use of satellite imagery; forms of agriculture in wet climates; solutions.
8. Physical geography terms applied to the Bangladesh case study, i.e. drainage basin, floodplain, isostatic equilibrium, delta, orographic...
9. Differences between structural and land use planning approaches to flood control.
10. What is a monsoon and how are they formed?
11. Flood magnitude and frequency are increasing in Bangladesh. Why?
12. Electromagnetic spectrum (frequency; long and shortwave radiation)
13. Basics of the Earth's energy Budget (scattering; direct radiation, reflection, hot and cool body radiation differences).
14. Greenhouse effect (natural and forced) ; greenhouse gases; which contribute the greatest to global warming; global warming potential; anthropogenic gases.
15. What is albedo? What causes changes in albedo.? Examples of albedo. The difference between insolation intensity & duration (  $\Delta$  in angle of incidence).
16. Know the Milankovitch Cycles: Eccentricity, obliquity and precession
17. The difference between insolation intensity & duration ( $\Delta$  in angle of incidence).
18. Why does the earth have seasons? Solstice, equinox and subsolar point.
19. Be able to identify the season based on the location of the subsolar point.
20. Composition of atmosphere and the troposphere: Layers, mixing, gases, pressure

# Exam I Text and Readings Review For Physical Geography

## Key Terms and Discussion Topics to Know From Your Text and Readings

**Note:** You should know any term or concept that is covered both in class and in the readings.

**Unit 1 – Key Terms:** Phytogeography, spatial. **Review Questions: 1, 2, 3, and 4.** **Specifics from the unit:** what is physical geography; subfields of physical geography; Focus on the Science.

**Unit 2 – Key Terms:** abyssal plain, continental rise, continental shelf, continental slope, ellipsoid. **Review Questions: 1, 2, and 6.** **Specifics from the unit:** spheres of the earth systems, continents and oceans, Perspectives on the Human Environment.

**Unit 4 – Key Terms:** Daylight-savings time, solar altitude, zenith. **Review Questions: 1, 3, 4, 6, and 8.** **Specifics from the unit:** energy and heat transfer, insolation and its variation, Perspectives on the Human Environment.

**Unit 5 – Key Terms:** convection, conduction, counterradiation, latent heat, net radiation, sensible heat flow, thermal energy. **Review Questions: 1, 2, 3.** **Specifics from the unit:** the earth's heat balance, latent heat, Perspectives on the Human Environment.

**Unit 6 – Key Terms:** aerosol, constant gases, heterosphere, homosphere, ionization, isotopes, lapse rate, all atmospheric spheres and pauses, (i.e. troposphere and tropopause), photochemical reactions, residence time, trace gases, variable gases. **Review Questions: 1, 3, 4, 6.** **Specifics from the unit:** contents, vertical regions, and temperature variation of the atmosphere, atmospheric cycles, Perspectives on the Human Environment.

**Unit 7 – Key Terms:** adiabatic, adiabatic lapse rate, advection, annual cycle, diurnal cycle, continentality, DALR, ELR, dust dome, isotherms, kinetic energy, maritime effect, SALR, stability. **Review Questions: 1, 3, 8.** **Specifics from the unit:** understand the difference between vertical and horizontal temperatures, Perspectives on the Human Environment.

**Allen Reading** – read the article and take notes on major concepts.

*Questions on the exam will come directly from your readings. 20% of the exam will be from the readings. The questions could be on a subject discussed or not discussed in class. This is to guarantee that you are reading. When studying class readings for the exam focus on major conclusions/points, bold terms, and questions from “Testing Your Comprehension”. I will not nitpick and ask date, statistical, overly specific...type questions.*

# Physical Geography Exam II

1. Study examples; lecture and text terms; case studies; questions posed during class, major readings concepts.
2. Any information printed on the PowerPoint overhead is fair game.
3. Any information written on the board may be on the exam.
4. Class discussion questions may be on the exam.
5. Study all examples, case studies, and conceptual questions.
6. Expect questions from Homework One (I will make the questions viewable on Blackboard)
7. There are 40 questions on the exam

## Exam Format (total points possible on the exam: 40)

### Part I: 18 multiple choice questions

Each question is worth 1 point.

- Any information printed on an overhead or the board is fair game.
- Expect multiple text questions
- I ask questions which go beyond definitions - questions that make you link several concepts.

### Part II: Sketch and Label (7 points)

Anything I drew on the board or illustrations I created in PowerPoint and asked you to draw.

Examples - sketch and label all parts of: how ozone is lost to the ozonosphere, sea breeze and land breeze model, global circulation model, lifting mechanism models, pressure gradient and wind flow model (how air flows out of a high and into a low considering pressure gradient force, Coriolis force, friction), hypothetical climate model that bisects the equator and has no relief ...

### Part III: Listing and Concept Short Answers (5 points)

Questions/concepts from lectures. Expect questions from the text (exactly as they are written at the end of each chapter under the subheading "Review Questions.")

Example: list three adiabatic lapse rates

### Part IV: Terminology Short Answer (10 points)

10 definitions/essay each worth 1 point

Example Question – Specific humidity, condensation nuclei

Expect multiple terms and highlighted discussion from the text

# Physical Geography

## Exam II

### General Study Guide

#### Completed readings

Text: Units 8, 11, 12, 14, 15, 18.

From the readings be certain to know the Key Terms and Review Questions found at the end of each chapter.

Read and reread your notes. Study the diagrams that we drew on the board – especially for this test. Most of the exam will come from this source. Create a condensed outline from your notes.

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1. Temperature inversions and air pollution. How does a temperature inversion intensify the toxicity of air pollution?
2. What are the different types of inversions and what causes each to occur? Know each type, radiation, cold surface, subsidence, advection, local convection. Know examples & case studies illustrating each inversion; i.e. Mexico City...
3. Ozone in both the troposphere and stratosphere; the causes of stratospheric ozone depletion. When and where the good ozone is depleted and why. Know the case study on ozone accumulation & depletion over Antarctica.
4. Atmospheric pressure, gravity, and molecular mass. Understand atmospheric pressure. How does gravity and temperature influence pressure? Know what high and low pressures are and how they form.
5. Altitudinal & horizontal pressure changes
6. Differential heating between land & water (know the differences)
7. Low & high pressures/cyclone & anticyclone (how do they form?)
8. Local pressure & wind - sketch a sea breeze vs. a land breeze
9. Wind: pressure gradient/Coriolis effect/friction
10. Know wind flow with regard to the isobar
11. All parts of the global circulation model (be able to sketch it)
12. Wind names & prevailing direction (NET, SET, SW, NW, Polar Easterlies...)
13. Thermal/dynamic pressure, Hadley cell, ITCZ...
14. Moisture in the troposphere: relative humidity, temperature, dew point, lifting condensation level, condensation heating...
15. Clouds: family/form/type & major characteristics
16. Be able to identify a cloud's family and form from a picture
17. Precipitation & four lifting processes (be able to sketch each process including the ones like convection that I didn't draw)
18. Life cycle of a cyclone (stages: i.e. occlusion, stationary, dissolving...)
19. Tornado: location/timing/destruction; tornado facts; facts from the "quiz".
20. Tornado formation → including wind shear, mesocyclone, funnel cloud, hail, convection, unstable warm air....
21. Köppen Classification – know the six major climatic zones of world (A, B, C, D, E, H). Know basic characteristics of each.
22. Know the Köppen Classification to the second letter (Af, Am, Aw, BS, BW, Cf, Cw, Cs, Df, Ds, and Dw) - know the third letter only if it was discussed in class
23. How to classify climate. Is climate predictable? – case study Africa; "Climatic pattern". The explainable exceptions to the climate pattern in Africa

# Exam II Text and Readings Review For Physical Geography

## Key Terms and Discussion Topics to Know From Your Text and Readings

**Note:** You should know any term or concept that is covered both in class and in the readings.

**Unit 8 – Key Terms:** chinook wind, frictional force, geostrophic wind, katabatic wind, Santa Ana wind, valley breeze. **Review Questions:** 4, and 5. **Specifics from the unit:** Causes of atmospheric circulation, local wind patterns (i.e. mountain/valley breezes and sea and land breeze) Perspectives on the Human Environment.

**Unit 11 – Key Terms:** saturation vapor pressure, actual and potential evapotranspiration, dew, evapotranspiration, latent heat of fusion, latent heat of vaporization, sublimation. **Review Questions:** 2, 4, and 5. **Specifics from the unit:** physical properties of water, hydrologic cycle, ice crystal and coalescence processes, Perspectives on the Human Environment.

**Unit 12 – Key Terms:** air mass, source region. **Review Questions:** 3, 4, and 5. **Specifics from the unit:** thunderstorms, air masses in the atmosphere, major air masses that effect the US, classifying air masses (know how to classify air masses and know the characteristics of each including the individual abbreviations ), Perspectives on the Human Environment.

**Unit 14 – Key Terms:** first and second letter of the Koppen system, **Review Questions:** 4, 5, 7. **Specifics from the unit:** classifying climates.

**Unit 15 – Key Terms:** desertification, climograph, Sahel. **Review Questions:** 4, 6. **Specifics from the unit:** characteristic of major arid and tropical climates, Perspectives on the Human Environment.

**Unit 18– Key Terms:** last glacial maximum, little ice age, medieval climate anomaly, Paleocene-Eocene thermal, snowball earth, Urey reaction, Younger Dryas. **Review Questions:** 3, 4, 6. **Specifics from the unit:** what are climate indicators?, Focus on the Science

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# Physical Geography Exam III

## Exam Format (45 total points possible)

Part I: 20 multiple choice questions

Each question is worth 1 point.

- Any information printed on an overhead or the board is fair game.
- Expect multiple book questions
- I ask questions which go beyond definitions - questions that make you link several concepts.

Part II: Sketch and Label (5 points)

Examples - sketch and label all parts of: Barrier island biogeomorphology, soil erosion by wind, soil profile, soil environment...

Part III: Listing and Short Answers (10 points)

Examples: list characteristics of an arid climate or tropical climate, list the biomes, list characteristics of specific biomes, list soil the orders...For the Short Answers section expect three questions directly for the text "Review Questions" and know the answers to questions presented to the class.

Part IV: Terminology Short Answer (10 points)

10 definitions/essay each worth 1 point

Example Question – Species, Ecosystem, Autotroph...

Expect multiple terms and highlighted discussion from the text

Major areas of study – arid climate characteristics , biogeography (from the Eastern Shore case study), biogeography and geomorphology of barrier islands, biomes, soil formation, and soil orders.

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# Physical Geography

## Exam III

### Completed readings

Text: Units 24, 25, 48, 49, 47, 21, 22, and 23. We did not cover landscapes and glacial geomorphology, so you do not have to read Units 35 and 43. Be certain to read and know characteristics of the world's biomes and world's soil orders.

Article Reading:

[Allen, Tracy. 2008. Land Between Waters: Landscape Changes of the Eastern Shore](#)

I will ask multiple text questions not covered in class.

Read and reread your notes. Most of the exam will come from this source. Create a condensed outline from your notes.

1. Africa's nearly perfect climate pattern. What are the anomalies? Why?
2. Case Study: Settlement and adaptations to aridity (people will find water at these unique geomorphic features in arid climates – wadis, alluvial fan, delta, bajada...); fossil water; desertification of North Africa.
3. Know specific characteristics of desert climates: such as, location, formation, plant and animal adaptations...
4. Why are deserts dry? Case Study: The Atacama desert
5. Desert classification characteristics (BWh ,BWk, BSh, BSk...); Why are deserts located where they are?
6. Know specific characteristics of tropical climates: such as, location, formation, plant and animal adaptations...(Af, Am, Aw)
7. Case Study - Land Between Two Waters: The Natural and Cultural Ecology of the Eastern Shore; landuses/cover; barrier island creation.
8. Case Study on the Eastern Shore cont, barrier island ecosystem, how the region changed over time – farmland, swamp, forest, marsh...
9. Swamp: origin of the burnt; indicator species, bald Cypress trees
10. Be able to sketch and fully label all parts of a barrier island: geomorphologic features, limiting factors, and indicator species-barrier island biogeography
11. Dominate species of each biogeographical region: forest, marsh, swamp?
12. Yellowstone fire ecology; how did fire benefit Yellowstone?
13. How are ecosystems organized? What is an organism, biome, ecotone...
14. How are trophic categories organized: autotrophs, consumers...?
15. What are the earth's major biomes? Be able to list biomes & their major defining characteristics.
16. Case Study: The American Dust Bowl → causes of? Lessons learned?
17. Soil texture → sand, gravel, loam, clay, silt...Soil Texture Triangle
18. Be able to read a soil texture triangle.
19. Soil moisture → wilting point, saturation...leaching, capillary action...
20. Soil composition & formation (CLORPT)/Soil profile (O, A, E...)
21. Topsoil erosion by wind →method of transport
22. Know & be able to draw the soil environment & soil horizons diagram
23. Soil orders of the world (gelisols, entisols, inceptisols, aridisols, alfisols...)→ degree of weathering → major characteristics; i.e. thickness, location, texture, formation process.

Subject to minor modification

# Exam III Text and Readings Review For Physical Geography

## Key Terms and Discussion Topics to Know From Your Text and Readings

**Note:** You should know any term or concept that is covered both in class and in the readings. In each text unit always read and know the section “Perspectives on the Human Environment” and “Focus on the Science”).

**Unit 24 - Key Terms:** amensalism, biomass, climax community, dispersal, mutualism, vicariance and, xerophyte. **Review Questions:** 4 and 6. **Specifics from the unit:** biotic factors of species dispersal.

**Unit 25 - Key Terms:** Know each biome and major characteristics of each (I briefly covered them all in class). **Review Questions:** 2.

**Unit 48 - Key Terms:** (you are reading this Unit as it relates to the biogeomorphology of barrier islands and coastal processes) Corrasion, littoral zone, rip current, shoaling, swash, wave refraction. **Review Questions:** 5, 6. **Specifics from the unit:** longshore drift and storm surges.

**Unit 49 - Key Terms:** (you are reading this Unit as it relates to the biogeomorphology of barrier islands and coastal processes) atoll, backshore, baymouth bar, longshore bar, offshore bar, stack, tombolo. **Review Questions:** 3, 5. **Specifics from the unit:** Offshore bars and barrier islands.

**Unit 47 – Key Terms:** (you are reading this Unit as it relates to soils and wind as an erosional agent and as it relates climate and biomes of deserts landscapes) barchan, deflation, desert pavement, eolian, erg, loess, longitudinal dune, parabolic dune transverse dune, yardang. **Review Questions:** 1, 2, and 6. **Specifics from the unit:** wind erosion and wind transport.

**Unit 21 - Key Terms:** addition, illuviation, soil profile, soil regime, transformation, and translocation. **Review Questions:** 2, 3. **Specifics from the unit:** four process of soil formation; be able to draw and label a soil profile.

**Unit 22 - Key Terms:** Catena, cation, colloids, blocky, platy, prismatic, and spheroidal structures, pedon, solum. **Review Questions:** 1, 3, 6.

**Unit 23 – Key terms:** each of the soil orders, i.e. mollisol, alfisol (know what is most important about each order) **Review Questions:** 4 and 5

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