Geography 101: Earth’s Physical Environment  
Spring 2014

Jane Thorngren, Ph.D.  
jthorn@mail.sdsu.edu  
Office: M 1-2 PM, F 11-12 PM, or by appointment. Online Wed 7-8 PM the day before each exam.

This course is about Earth systems and the global environment, including weather and climate, water, landforms, soils, and ecosystems. Distribution of physical features on Earth’s surface and interactions between humans and environment, especially those involving global change.  
This is a fully online course. Class material will be presented in modules on Blackboard, and on the Mastering Geography website, accessed through Blackboard. You will need access to Google Earth for some exercises.  
Please note: you are responsible for knowing everything in this syllabus and all other course documents.

**NOTE:** The textbook can be in hardcover, 3-hole punched for binders, softcover (if you can find it), or rental, ebook, California edition or non-California edition, 2008 or later edition; it can be new or used. **You do need to purchase Mastering Geography, either with the book or separately.** If you are sharing a book, you can purchase Mastering Geography online, separately from the book. It is also possible to purchase the ebook online, with Mastering Geography. You should purchase and sign up for Mastering Geography through the course Blackboard site to make sure you get the right Mastering course for this class. See the separate instructions for further information on getting into the right Mastering Geography site.

Grades for this course will be based on the following:

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<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Grading Criteria</th>
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<tbody>
<tr>
<td>Learning Modules, Part 1</td>
<td>100</td>
<td>Based on percentage correct in learning modules up to Exam 2 (including Mastering assignments)</td>
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<tr>
<td>Learning Modules, Part 2</td>
<td>100</td>
<td>Based on percentage correct in learning modules after Exam 2 (including Mastering assignments)</td>
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<tr>
<td>Discussion Board</td>
<td>20</td>
<td>Grade for introductory discussion board</td>
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<tr>
<td>Exams</td>
<td>384</td>
<td>4 exams, 96 points each, all exams count</td>
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<tr>
<td>Total for class</td>
<td>604</td>
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**A=90%, B=80%, C=68%, D=58%**  
(89.5-90:A;  89-89.4:B+;  79.5-80:B-;  79-79.4:C+)  
**No exceptions, no grades rounded up**  
**This class is not graded on a curve**

Up to 20 points extra credit may be offered during the course. Extra credit will only be offered to the class as a whole:  
**NO INDIVIDUAL EXTRA CREDIT WILL BE GIVEN.**

We will have an introduction to the class online at 7 PM, Thursday, January 23, using Collaborate through Blackboard (see Collaborate instructions).
If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that I cannot provide accommodations based upon disability until I have received an accommodation letter from Student Disability Services. Your cooperation is appreciated.

**Learning Modules.** The learning modules will be the principal means of presenting the class material, and you will be completing them independently on Blackboard. **Most modules include at least 1 exercise from the Mastering Geography website; see separate instructions on Mastering Geography.** You must do both the module exercises and the Mastering Geography work in each module.

Modules are the equivalent of going to class each week and studying, in a traditional class. Each module corresponds to 1-2 chapters in the textbook, and each contains one or more parts. Modules will be open at least 5 calendar days. Several modules may be open at a time, and sometimes more than one module may be due on the same day. Instructions for accessing modules will be given separately. You will listen to and read through each unit, sometimes watch a video, do the Mastering Geography assignments, and answer the questions in the exercises. **You must get 90% on the Syllabus Quiz before you can start the modules.**

**You should begin working on each module as soon as it appears. You must complete each module by the due date to get credit.** Modules vary in length: **YOU SHOULD START MODULES THE DAY THEY OPEN. DO NOT WAIT UNTIL THE LAST MINUTE. CLOSED MODULES WILL NOT BE REOPENED FOR INDIVIDUALS** (even if you get sick, or spill coffee on your laptop, or if there is a wedding or a birth in your family…) **If you travel, you must make arrangements to work on the modules while you are gone.** I will try to remind you of the due dates, but even if I don’t, you are responsible for completing the work on time. Modules may be extended for the entire class if there is a power failure on campus on the due date, or if the entire campus is closed because of an emergency. You may redo the exercises up to 3 times until the due date, and your highest score will be recorded in Blackboard. After the due date, you can still review the modules up until the day of the exam, but the exercises will no longer be available.

There will be two sets of learning modules, one from the start of class to the second exam, and one from the second exam to the end of the class. Your total score for each set of learning modules will be the **percentage** of questions answered correctly. That is, there will be a maximum of 100 points in Part 1 of the learning modules, and 100 points in part 2. **Total for all learning module work: 200 points**

**Discussion Board** There will be one introductory discussion board on Blackboard. The discussion board allows you to meet other students in the class, and to think about the difficulties you might encounter in an online class. The discussion is graded, and will be worth 20 points. **To get full credit, you must answer each part of the prompt, and respond to two other students’ postings.** For more information, see the “Instructions for Discussion Board” on Blackboard.
Exams. 4 exams will be given. Each exam is worth 96 points (48 questions, 2 points each). Questions will be based on the learning modules and textbook. The exams will be conducted on Blackboard. You can choose to take the exam either in the morning (9:30 AM) or in the evening (7 PM) of the exam date. All exams will be on Thursdays. The Final Exam will be on Thursday, May 15, as required by the University, and cannot be changed. You may be able to take a makeup essay exam in place of the regular final exam, if you have good reasons. See calendar and exam instructions in the Course Documents tab for details. You have 1 hour to take the exam. Questions will be random; each student will have a slightly different exam. Since you are taking the test online, you will have access to your notes while taking it, but please remember that the test is timed, so you will not have time to look up many questions. To prepare for the test, you should learn the material as if it were a closed book exam. Please make sure you have a very reliable internet connection for taking the exam. Please use a wired connection, not wireless. If you have any doubts about your connection, take the exam in the computer lab at SDSU. Some browsers do not work well with Blackboard, especially Internet Explorer. You alone are responsible for making sure you have the appropriate internet connection, equipment, and browser. This is not the responsibility of the instructor. If the exam you are taking crashes or freezes, you must email the instructor immediately. If your exam crashes, you get one free reset. You have to start over from the start with different questions; you cannot resume where you left off. If you crash twice, you can get one more reset, but 10 points will be deducted from your final score. Alternatively, you can choose to make up the test with a closed-book, 10-question written essay exam, by appointment. Anyone who cannot take the exam at one of the scheduled times, because of work obligations, time zone issues, etc., should email me before the exam, but after the exam announcement comes out, to discuss taking the exam at an alternative time period. The alternative exam must be taken within 1 day of the scheduled time. If you cannot take it within 1 day of the scheduled exam, you may be allowed to take a ten-question written essay makeup exam, if you have a good reason.

Academic integrity is one of the fundamental principles of a university community. San Diego State University expects the highest standards of academic honesty from all students. Violations of academic integrity include the following: (1) unauthorized assistance on an examination, (2) falsification or invention of data, (3) unauthorized collaboration on an academic exercise, (4) plagiarism, (5) misappropriation of research materials, (6) unauthorized access of an instructor’s files or computer account, and (7) any other serious violation of academic integrity as established by the instructor. If your academic integrity is not maintained on a test or assignment, you will receive a grade of zero for that test or assignment and you will be reported to the SDSU Center for Student Rights and Responsibilities. According to the Center for Student Rights and Responsibilities: In order to hold students accountable for multiple academic dishonesty, including situations that may occur in several departments, and in order to gain a better understanding of trends and educational needs relating to academic dishonesty, Executive Order 969 mandates faculty to report all incidents to the Center for Student Rights and Responsibilities.
## Course Schedule

**Module 1 opens Wednesday, January 22**

Deadlines for all module exercises and the discussion board are 10 PM

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<tr>
<th>Topic</th>
<th>Activities and Dates</th>
<th>Specific Student Learning Outcomes</th>
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<tbody>
<tr>
<td>1. Class Organization Syllabus Introduction to Geography Earth in Space Seasons Geographic Grid Time on Earth</td>
<td>1. Complete Module 0 and Syllabus Quiz 1/20-2/5 2. Complete Module 1, 1/22-2/6 3. Intro to class: Collaborate live session, 7 PM, 1/23. 4. Read Chapter 1 5. Post on Discussion Board, 1/22-2/5</td>
<td>Understand class procedures and policies. Define geography, and physical geography in particular. Define and discuss the significance of the four environmental spheres: lithosphere, atmosphere, hydrosphere, biosphere. Understand the Earth's position and motions within the solar system, and how they affect seasons and time measurement. Understand why the Earth has seasons and be able to diagram and interpret in detail Earth's position relative to the sun at each season. Explain and utilize the geographic grid: latitude, longitude.</td>
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<td>2. Introduction to maps Projections Isoline Maps GIS, GPS, Remote Sensing</td>
<td>1. Complete Module 2, 1/27-2/7 2. Read Chapter 2</td>
<td>Understand mapping basics, especially map scale and projections. Interpret a variety of maps. Differentiate between equivalent and conformal map projections. Be able to interpret isolines. Describe global positioning systems and remote sensing. Interpret air photos and remote sensing imagery at a basic level. Explain GIS methodology as a tool for geographic analysis.</td>
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<td>3. Earth's Atmosphere Insolation, Temperature, Earth's Energy Budget</td>
<td>1. Complete Module 3, 2/3-2/12. 2. Read Chapters 3 and 4</td>
<td>Identify the basic composition of the atmosphere, including gases and particles. Understand the vertical structure of the atmosphere in terms of composition, temperature and pressure. Differentiate between weather and climate, and understand the elements and controls of weather and climate. Explain the processes that contribute to the formation and depletion of the stratospheric ozone layer. Identify the major types of wavelengths in the electromagnetic spectrum. Identify the interactions of solar energy in the atmosphere, and explain the earth's energy budget. Define: transmission, albedo, conduction, convection, and advection. Analyze how latitudinal differences and land and water contrasts contribute to spatial and seasonal variations in heating. Interpret the pattern of Earth's temperatures and temperature ranges on isotherm maps.</td>
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**EXAM 1, FEBRUARY 13, 9:30 AM OR 7 PM, CHAPTERS 1-4**
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Module/Chapter Range</th>
<th>Tasks/Requirements</th>
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| 4    | Air Pressure and Wind        | 1. Complete Module 4, 2/13-2/21  
2. Read Chapter 5 | Define the concepts of air pressure and density  
Define pressure gradient force, Coriolis force, and friction force and explain in detail how each influences the wind’s direction and speed  
Explain, differentiate, recognize, and sketch cells of high and low pressure: at the earth’s surface, in the upper troposphere, and in northern and southern hemispheres  
Diagram, and explain the general circulation of the atmosphere. Explain several types of local winds: land-sea breezes, mountain-valley breezes, katabatic winds, and the regional monsoons. |
| 5    | Atmospheric Moisture         | 1. Complete Module 5, 2/20-2/28  
2. Read Chapter 6 | Describe the properties of water, and identify the traits of its three phases: solid, liquid, and gas.  
Define humidity, explain the ways of expressing humidity.  
Explain dew-point temperature and saturation  
Define relative humidity and explain the factors determining it.  
Identify the various types of clouds  
Distinguish among the environmental lapse rate, dry adiabatic lapse rate, and saturated adiabatic lapse rate, and be able to calculate changes in temperature as air rises and subsides.  
Describe the processes by which precipitation forms.  
Describe the lifting mechanisms in the atmosphere and why they are necessary for precipitation. |
| 6    | Fronts and Storms            | 1. Complete Module 6, 2/27-3/7  
2. Read Chapter 7 | Identify major air masses and their source regions.  
Understand the concept of a front and describe and distinguish between warm, cold, stationary, and occluded fronts.  
Know how middle latitude cyclones form.  
Interpret weather maps showing cyclonic systems.  
Analyze the structure and formation of hurricanes.  
Analyze various types of severe weather and the characteristics of each. |
| 7    | World Climates               | 1. Complete Module 7, 3/5-3/12  
2. Read Chapter 8 | Understand the purpose of climate classification schemes, explain the basis of the Köppen system.  
Describe the characteristics of the A, B, C, D, E, and H climates and their subclasses in the modified Köppen system.  
Locate the A, B, C, D, E, and H climate zones and their subclasses on a world map.  
Explain how weather principles help determine the location of each climate type.  
Identify climographs for each type of climate zone. |
2. Complete Module 8, Part 2, 3/14-3/21  
3. Read Chapters 10-11 | Name, locate, and describe characteristics of the major biomes of the world.  
Explain the factors influencing vegetation and animal distribution around the globe.  
Discuss the influence of climate distributions on biogeographic distributions.  
Discuss human impacts on the biosphere, especially species introductions, fire, and bioaccumulation of pollutants. |
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2. Read Chapter 13 | Define the main classes of rocks and explain their formation.  
Know example of different types of rocks.  
Describe in detail and diagram the structure of the Earth’s interior. |
| 10 | Plate Tectonics Theory  
Tectonic Processes  
Volcanoes and Plutons  
3. Read Chapter 14 | Discuss the evidence for the Theory of Plate Tectonics.  
Explain the main points of the Theory of Plate Tectonics.  
Describe the three major types of plate boundaries, and the landforms and tectonic activity associated with each.  
Know the vocabulary of tectonic theory.  
Relate the pattern of crustal movements to volcanic activity, oceanic islands, terranes, and earthquakes.  
Identify the landforms created by vulcanism, tectonics, and diastrophism.  
Distinguish the different types of volcanoes, and explain the origins of each.  
Define, sketch, and explain the formation of the main types of folds and faults. |
| **EXAM 3, APRIL 10, 9:30 AM OR 7 PM, CHAP 10,11,13,14** | **EXAM 3, APRIL 10, 9:30 AM OR 7 PM, CHAP 10,11,13,14** |
| 11 | Weathering and Mass Wasting | 1. Complete Module 11, 4/10-4/18  
2. Read Chapter 15 | Describe the external processes, weathering and mass wasting, that help shape the landscape.  
Discuss the differences and similarities between chemical and physical weathering.  
Understand frost wedging, salt wedging, jointing, biological processes and their role in weathering.  
Define oxidation, hydrolysis, and carbonation in terms of chemical weathering.  
Describe the major categories of mass wasting and explain their differences in terms of speed of movement and moisture content. |
| 12 | The Hydrosphere | 1. Complete Module 12, 4/10-4/21  
2. Read Chapter 9 | Describe the chemical and physical properties of water, and explain what makes water so unique.  
Explain and illustrate the hydrologic cycle.  
Name the Earth’s oceans and locate them on a map of the world.  
Sketch and describe the ground water system in detail.  
Explain the implications of overuse of ground water. |
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| 13 | Solution Processes | 1. Complete Module 13, 4/14-4/22  
2. Read Chapter 17 | Explain the influence of subsurface water on underground features and surface topography.  
Describe the basic chemistry of solution and precipitation and explain under what conditions karst topology forms.  
Explain the action of subsurface water in forming karst topography.  
Identify landforms associated with karst topography, including sinkholes, collapse dolines, caverns.  
Define hydrothermal activity and identify associated landforms. |
| 14 | Fluvial Processes | 1. Complete Module 14, 4/16-4/25  
2. Read Chapter 16 | Comprehend the importance of fluvial processes in shaping the landscape.  
Understand the development of flood plains, and explain flood hazards.  
Explain the basic fluvial processes: erosion, transportation, and deposition.  
Distinguish among stream channel types.  
Identify basic drainage patterns and provide examples of each.  
Describe the concept of stream systems.  
Illustrate how streams shape and reshape valleys through deepening, widening, and lengthening. |
| 15 | Landforms of Deserts  
2. Read Chapter 18 | Discuss the development of landforms in arid regions.  
Describe the distinctive environmental characteristics of dry lands that help shape desert landforms.  
Explain the importance of fluvial processes and aeolian processes in shaping and landscapes.  
Describe aeolian erosion, transportation, and deposition.  
Define loess, explain its origin and the location of loess deposits.  
Identify major landforms found in arid regions: sand dunes, basin-and-range terrain, mesa-and-scarp terrain, and badlands. |
| 16 | Landforms of Glaciated Regions | 1. Complete Module 16, 4/23-5/2  
2. Read Chapter 19 | Discuss the influence of glaciers on the landscape.  
Analyze the impact of the Pleistocene Epoch on the Earth's topography.  
Describe glacier formation and movement, and explain the erosional and depositional actions of glaciers.  
Distinguish between continental and alpine glaciers and identify erosional and depositional landforms created by each.  
Explain the indirect effects glaciers had on Earth. |
| 17 | Landforms of Coasts | 1. Complete Module 17, 4/29-5/8  
2. Read Chapter 20 | Explain waves and wave motion and their impact on the coastal landscape.  
Describe the processes that shape coastal landforms: erosion, deposition, and transportation.  
Identify characteristic coastal landforms, including both erosional and depositional types.  
Explain the formation of coral reefs, and identify the various types.  
Discuss how humans have intervened in coastal processes and explain the effects of intervention on the landscape. |

**FINAL EXAM, MAY 15, 9:30 AM OR 7 PM, CHAPTERS 15, 9,16-20**
Student Learning Outcomes for Physical Geography:
This class is aligned with the following learning objectives established by the SDSU Department of Geography; by the end of the course, students should be able to:

- Interpret maps and other geographic representations
  - Apply basic technical skills necessary for understanding physical geography and the environment, including reading and interpreting a variety of maps, understanding basic principles, uses, and interpretation of remote sensing imagery, and reading and interpreting appropriate graphs and charts.
- Distinguish among the physical processes that shape the patterns of the earth’s surface
  - Explain and diagram Earth-sun relationships and their effects on climate
  - Understand the connections between the atmosphere, biosphere, hydrosphere, and lithosphere.
  - Understand the causes and mechanisms of climate and weather, and the resulting spatial distributions of climates
  - Analyze the dynamics of ecosystems in terms of energy and material flows
  - Diagram the earth's interior structure, explain the theory of plate tectonics, and relate tectonic theory to the process of landform development
  - Explain the connection between tectonic activity and diastrophism, volcanoes and earthquakes, and explain the resulting landforms
  - Analyze, explain, and compare the role of running water, wind, ice and waves in shaping the landscape
  - Understand the dynamics of the earth's landscapes, including desert, glacial, karst, fluvial and coastal landscapes
- Analyze the spatial organization of people, places, and environments on the earth’s surface
  - Describe and explain the geographic patterns of the earth’s physical environment, including global patterns of climate, biomes, soils, and landforms.
  - Understand how climate zones relate to the major biomes of earth
- Interpret the human use of physical resources and the impact of resource utilization on nature and human society
  - Analyze the interactions of humans with the environment, terms of the impacts humans may have on the environment and how changes in the natural environment impact humans.
- Comprehend the evolution of geography as a discipline and its relations to larger geo-social processes

This course is one of nine courses that you will take in General Education Foundations. Foundations courses cultivate skills in reading, writing, research, communication, computation, information literacy, and use of technology. They furthermore introduce you to basic concepts, theories and approaches in a variety of disciplines in order to provide the intellectual breadth necessary to help you integrate the more specialized knowledge gathered in your major area of study into a broader world picture.

This course is one of three Foundations courses that you will take in the area of Natural Sciences and Quantitative Reasoning. Upon completing Natural Science Foundations courses in physical sciences, life sciences, and a lab, you will be able to: 1) explain basic concepts and theories of the natural sciences; 2) use logic and scientific methods to analyze the natural world and solve problems; 3) argue from multiple perspectives about issues in natural science that have personal and global relevance; 4) use technology in laboratory and field situations to connect concepts and theories with real-world phenomena.