

GEOG 1401: Physical Geography

Spring 2020

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Introduction: Physical Geography is the science that studies the natural systems at or near Earth's surface. The discipline of geography encompasses both social and natural science, so physical geography is also concerned with the relationships between people and the natural environment. The two main topics in GEOG 1401 are climate and landforms, though other geographic subjects will be discussed as well. In addition to topics in physical geography, general scientific principles will be introduced. This is an introductory course and no prior background in the subject is required. The goal of this class is to give students an appreciation for the natural environments found on Earth and an understanding of the physical components of many environmental issues.

Laboratory: There is a laboratory as part of this class and it is taught by another instructor. Thirty percent of your grade comes from work done in lab. There is a separate syllabus for the lab portion of the course. The lab manual is available at the campus bookstore and elsewhere.

Special Needs: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405. A student who is absent from classes for the observation of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence if, not later than the fifteenth day after the first day of the semester, the student had notified the instructor of each scheduled class that the student would be absent for a religious holy day.

Course Web Page: Course materials are available on the class web page, found at www.blackboard.ttu.edu. These materials include grades, homework, and the lecture notes. Use your eraider ID and password. If you have problems, see the Blackboard home page or call the Texas Tech IT Help Desk at 742-4357.

Grading: The grade you earn in this course is determined from the total score on four exams (400 points), Lab Assignments (135 points), Lecture Reviews (64 points), *Scientific Endeavor* Quizzes (66 points), Current Event Assignments (60 points). The total possible is 725 points. For final course grades, 650 points and above is an A, a B is 580 to 649, a C is 510-579, a D is 400-509, and below 400 is an F. At the end of the semester, the instructor *may* lower the cut off scores, but they will not be raised. Grades are changed after a semester is completed only for clerical errors made by the instructor in computing scores.

Exams (4 X 100 = 400): Each exam will cover the material from approximately one-fourth of the course, including the lecture material, readings and map. The map questions involve the locations of geographical features on Earth. Each exam will be available for three days and you can take it any time during those 72 hours. However, you must be finished by 11:59 on the last day.

The tests are taken on computer and it is the student's responsibility to have access to a computer that works with Proctorio. Here are details on the use of Proctorio, from TTU eLearning:

All students must review the syllabus and the requirements including the online terms and video testing requirements to determine if they wish to remain in the course. Enrollment in the course is an agreement to abide by and accept all terms. Any student may elect to drop or withdraw from this course before the end of the drop/add period.

Online exams and quizzes within this course may require online proctoring. Therefore, students will be required to have a webcam (USB or internal) with a microphone when taking an exam or quiz. Students understand that this remote recording device is purchased and controlled by the student and that recordings from any private residence must be done with the permission of any person residing in the residence. To avoid any concerns in this regard, students should select private spaces for the testing. The University library and other academic sites at the University offer secure private settings for recordings and students with concerns may discuss location of an appropriate space for the recordings with their instructor or advisor. Students must ensure that any recordings do not invade any third-party privacy rights and accept all responsibility and liability for violations of any third party privacy concerns. Setup information will be provided prior to taking the proctored exam. For additional information about online proctoring, you can visit the [online proctoring student FAQ](#).

Makeup examinations will be given to students with properly excused absences. They will cover the same material as the regular tests, but will be essay in nature. If a student has prior knowledge that an exam will be missed, the instructor must be informed before the time of the test, either in person or by e-mail. If an exam is missed due to an unexpected emergency, the instructor must be informed as soon as possible.

Homework/Lecture Reviews (32 X 2 = 64): After viewing each lecture and reading the lecture text, prepare your study guide for the exam, using the 'Homework/Review' for each exam. In addition, prepare your study guide for the *Scientific Endeavor* and Map, also in the Homework/Review. These study guides are your material to prepare for the exam, so what you turn in need not be typed or polished. You will get full credit if it appears to have been sufficiently prepared. Turn in ONE file, not a separate file for each page.

Scientific Endeavor Quizzes (11 X 6 = 66): Most weeks, you will read a chapter in The Scientific Endeavor and take a quiz. The quizzes are two short-answer questions and they are open book. However, you have only ten minutes to complete the exam, so you must be familiar with the material before you start. The quizzes are graded primarily on clarity of the answers. You may NOT have the help of others in taking these quizzes.,
Quizzes

Labs (7 X 13 = 91 for Labs, plus 4 X 11 = 44 for Reports): Most weeks, you will complete a lab assignment from the Lab Manual. In addition, you will do four reports, based on certain labs. Labs and reports are graded using the following criteria: following directions, clarity and accuracy of writing and graphics. See the Lab Manual for details.

Current Event Assignment (2 X 30 = 60): Find a topic relevant to physical geography (or environmental science in general) and find two or more articles or essays with opposing views. For example, global warming (“it’s a hoax”, “it’s going to cause global mayhem”), tax money used to re-build homes destroyed during a hurricane (“people must be helped after a tragedy”, “that’s what private insurance is for”). Your essay MUST follow this format (one paragraph for each is suggested): 1. Introduce the articles, including a short summary of each and a link to the article (or reference information if not on the web). 2. Evaluate each article for potential misuse of critical thinking strategies or use of logical fallacies (Scientific Endeavor, Chapter 6) by the authors. 3. Evaluate your own thought processes on the topic with respect to critical thinking strategies and logical fallacies. 4. What is your opinion on the topic? Was your opinion influenced by Parts 2 and 3? 5. Can you think of any scientific research that could be done to help clarify the issue? The write up should be well-written and no more than 600 words. Submit it before the deadline. Late assignments will not be accepted and your score will be zero. Your grade (30 points each) will be based on following directions and writing quality. Submit your assignment using .doc, .docx, or .pdf format. DO NOT submit as .txt or .pages.

Academic Misconduct: Cheating and plagiarism, as outlined in the Texas Tech Student Affairs Handbook section on Academic Misconduct, will not be tolerated in this course, both lecture and lab. Allowing another student to use your exam or written material to cheat or plagiarize is dishonest and will be treated in the same fashion as cheating and plagiarism. Academic misconduct will result in a score of zero on that assignment or exam and both the Dean of the student’s college and the Office of Student Judicial Programs will be notified. More information can be found at <http://www.depts.ttu.edu/studentconduct/academicinteg.php>. Electronic devices are not allowed during exams.

Office Hours: Office hours are an important component of this course. They are to be used to discuss course material, either to clarify topics not fully understood by the student or to cover material of interest at greater depth. Office hours should also be used to converse on the field of geography in general and other university-related subjects.

Climate Change Assignment (done in Lab): See the Lab Manual (6A and 6B) for the details of this assignment.

Contacting the Instructor: The preferred way to contact the instructor is with an email to jeff.lee@ttu.edu. Sloppily written e-mail messages will not be answered. It helps if the subject line starts with GEOG 1401:

Texts

Required: Lee, J. A., 2016, *The Scientific Endeavor, Edition 2.0*. This is available at Amazon.com as an ebook or as print-on-demand. You must get the second edition. Local bookstores may have copies.

Required: Jones, Linda, GEOG 1401 Lab Manual. This is available only in local textbook stores.

Required: Goode's World Atlas, 23rd edition.

Supplemental: Pidwirny, Michael, *Fundamental of Physical Geography* (2nd ed).

www.physicalgeography.net/fundamentals/contents.html (This is online only and free. Be sure to use the 'Fundamentals' version, not 'Understanding'.) You will not be tested on material from this book. Use it to help understand lecture material.

SCHEDULE

Week of	Topic	Readings (in <i>Fundamentals Phys. Geog.</i>)
Jan 15	1. Introduction	Chapter 1 a-d
Jan 20	2. Systems	Ch. 4 all
	3. Origins: astronomical background	Ch. 5 a
	Lab 1. The Atlas	
Jan 27	4. Planet Earth	Ch. 5 b; 9a; 10h
	5. Energy and matter	Ch. 6 a-f
	Lab 8. Intro Mapping	
Feb 3	6. Earth-Sun relations	Ch. Ch. 6 g-i
	7. Composition & structure of atmos.	Ch. 7 a-e
	Lab 2. Sun Angle	
Feb 10	Exam 1: Feb 10-12	
	8. Global energy balance & temp. distrib.	Ch. 6 c; Ch. 7 f-m
	Lab 3. Temperature Controls	
Feb 17	9. Winds-global & local; ocean circulation	Ch. 7 c, n-q; Ch. 8 o-q
	10. Atmospheric moisture	Ch. 8 a, c-g
	Lab 4. Atmospheric Moisture	
Feb 24	11. Mid-latitude & tropical weather	Ch. 7 r-u
	12. Global climates	Ch. 7 v
	Lab 5. Climate Classification	
	Current Event 1 due Friday, Feb 28	
Mar 2	13. Climate change, examples	
	14. Contemporary climate change	

	Lab 6A. Climate Change 1	
Mar 9	EXAM 2: Mar 9-11	
	15. Biogeography	Ch. 9 b-j, l-s
	Lab 6B. Climate Change 2	
Mar 16	Spring Break	
Mar 23	16. Plate tectonics	Ch. 10 i-k, o, p,
	17. Rocks, weathering	Ch. 10 a, b, d-g, r
	Lab 7. Biogeography	
Mar 30	18. Hydrology	Ch. 8 b, c, i-n
	19. Fluvial geomorphology	Ch. 10 w, y-(ab)
	Lab 9. Topographic Maps	
Apr 6	20. Aeolian geomorphology	Ch. 10 (ah)
	EXAM 3: Apr 9-11	
	Lab 10. Flooding	
Apr 13	21. Glacial & periglacial landscapes	Ch. 10 (ae)-(ag)
	22. Coastal geomorphology	Ch. 10 (ac)
	Lab 11. Topographic Profiles	
	Current Event 2 due Friday, April 19	
Apr 20	23. Mass wasting	
	24. Karst geomorphology	Ch. 10 s, x
	25. Structural geomorphology	Ch. 10 j, l, m
	Lab 12. Storm Surge	
Apr 27	26. Volcanic geomorphology	Ch. 10 n
	27. Soils	Ch. 10 t-v
May 4	28. Global environments	Ch. 9 k
	Exam 4: May 7-9	

State law mandates that the following information is printed in the syllabus

Core Curriculum

This course fulfills three hours of the 6-hour requirement for life and physical sciences in the Core Curriculum. The lab satisfies 1 hour of the 2-hour graduation requirement for science laboratories. "Courses in this category focus on describing, explaining, and predicting natural phenomena using scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences." Here is how GEOG 1401 meets these objectives:

Coordinating Board Objective 1. Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

Critical thinking involves the careful and thoughtful evaluation of an issue before forming an opinion. It is a habit of mind that must be developed and maintained. Chapter 6 of *The Scientific Endeavor* gives a thorough overview of critical thinking. Assessment of this objective is by two current events assignments. Students will outline two differing opinions on a topic in the news, including an explanation of proper or

improper use of critical thinking by each. Student responses will be evaluated following a rubric patterned after the Association of American Colleges and Universities Value Rubric for critical thinking. Benchmark performance is 2.5 on a rubric scale from 1-4.

Coordinating Board Objective 2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication.

Students will improve their written and visual communication skills. Written assignments will be graded for content and effective writing (style, grammar, spelling). The student will be given feedback on how to improve his or her writing and poorly written assignments will not be accepted. Students will be instructed on proper design of graphs (Appendix 4 of *The Scientific Endeavor*) and maps.

Assessment of this objective is done through graded writing assignments (current events and lab reports) and the quality of maps and graphs produced in the lab. A random selection of the writing assignments will be evaluated according to rubrics designed to evaluate written communication. The benchmark will be an average of 2.5 or higher for the papers in the sample on a rubric scale of 1-4.

Coordinating Board Objective 3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Students will effectively find, collect, analyze and present quantitative information. Assessment of this objective is through the quantitative portions of lab assignments, especially the Climate Change Assignment involving the collection, graphing and determining a trend line of data. The benchmark is 80% of students correctly doing the math and statistics.

Coordinating Board Objective 4. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Students will gain experience in working effectively in a team. Assessment of this objective is primarily through the Climate Change Assignment, which involves a group collecting and presenting and interpreting various types of data. Each student will evaluate the effectiveness of the group and suggest ways to make the group more effective. The benchmark for teamwork effectiveness is an average of 3 or better on a scale of 1-5 (5 highest) for all teams assessed.

TTU Student Learning Objective 1. Demonstrate knowledge of the scientific method and to contrast it with other ways of understanding the world.

Scientific methods are discussed in *The Scientific Endeavor* (especially Chapter 3) and in lecture.

Assessment of this objective is done with specific exam questions and lab assignments, especially the Climate Change Assignment, where students conduct an experiment including hypothesis formation, experimental design, data collection and analysis and discussion of the results. The benchmark is 75% of students achieving an average of 80% on the designated questions.

TTU Student Learning Objective 2. Demonstrate knowledge of the tools and methods used by scientists to study the natural world.

Various approaches to scientific research, such as field work, laboratory studies, and

mathematical modeling, are discussed in *The Scientific Endeavor* and in lecture. Assessment of this objective is mostly through specific exam questions related to the strengths and weaknesses of each approach. The benchmark is 75% of students achieving an average of 80% on the designated questions.

TTU Student Learning Objective 3. Explain some of the major theories in the Natural Sciences.

Theories introduced in GEOG 1401, in both lecture and readings, include plate tectonics, evolution by natural selection, and natural/anthropogenic climate change. Assessment of this objective is through specific exam questions testing their understanding of these and other theories. The benchmark is 75% of students achieving an average of 80% on the designated questions.

TTU Student Learning Objective 4. Describe how Natural Sciences research informs societal issues, including ethics.

The role of scientific research in the public discussion over anthropogenic climate change and how that differs from the political and economic policy aspects of the debate are covered in lectures. Natural science research does not inform ethics, but ethics is fundamentally important in scientific research. Ethics in research is covered in *The Scientific Endeavor* (Chapter 5) and students will be tested on their understanding of ethical principles of scientific research.

Assessment of this objective is through specific exam questions on the topic and the Current Event Assignments, where students evaluate the science behind a topic in the news. The benchmark is 75% of students achieving an average of 80% on the designated questions and 80% of students show informed decision making on the current events.