

# **GEOGRAPHY OF THE NATURAL ENVIRONMENT (GEOG 111G)**

New Mexico State University, Department of Geography

## **SPRING 2018**

Lecture: Tue & Thu, 10:20-11:35; Hardman and Jacobs Undergraduate Learning Center 125

Lab M01: Mon, 9:30-12:00; Breland Hall 185

Lab M02: Mon, 14:00-16:30; Breland Hall 185

Lab M03: Wed, 14:30-17:00; Breland Hall 185

Lab M04: Thu, 14:35-17:05; Breland Hall 185

Lab M05: Fri, 9:30-12:00; Breland Hall 185

### **Dr. Michaela Buenemann (Professor)**

Office: Breland Hall #139

☎ (575) 646-6493

✉ elabuen@nmsu.edu

Advising Hours: Tue, 8:00-9:15 & 14:30-16:00; Wed, 10:00-12:00 & 13:00-16:00; Thu, 8:00-9:15 & 14:30-15:30. To ensure my time is all yours when we meet, please sign up for advising hours on the sign-up sheet next to my office door or schedule an appointment with me.

### **Sierra Aney (TA for Lab M01, Lab Coordinator)**

Office: Breland Hall #144; ✉ sierra25@nmsu.edu; ☎ (575) 646-4156

Advising Hours: Mon, 12:30-15:30, by appointment

### **Joel Cisneros (TA for Lab M02)**

Office: Breland Hall #140; ✉ jc22@nmsu.edu ☎ (575) 646-3509

Advising Hours: Wed, 9:30-11:30, Thu, 9:30-10:30, by appointment

### **Aaron Adams (TA for Lab M03)**

Office: Breland Hall #144; ✉ aaron27@nmsu.edu; ☎ (575) 646-4156

Advising Hours: Mon, Wed, & Fri, 12:30-13:30, by appointment

### **John Castillo (TA for Lab M04)**

Office: Breland Hall #142; ✉ jcastill@nmsu.edu; ☎ (575) 646-3307

Advising Hours: Mon & Wed, 13:00-14:00, Tue, 9:00-10:30, by appointment

### **Khandaker Iftekharul Islam (TA for Lab M05)**

Office: Breland Hall #140; ✉ iftikhar@nmsu.edu; ☎ (575) 646-3509

Advising Hours: Mon & Wed, 11:30-13:00, by appointment

## **COURSE DESCRIPTION**

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This course is about our dynamic planet Earth. Earth's surface constantly changes over space and through time and represents a complex interface where the four principle spheres of the environment meet, overlap, and interact: the atmosphere (air), the lithosphere (rocks), the biosphere (plants and animals), and the hydrosphere (water). While meteorologists, geologists, biologists, and hydrologists tend to deal with each of the systems separately, physical geographers are concerned with the overall spatial and temporal picture that results from the interactions of climate, water, landforms, vegetation, soils, etc.. An understanding of these spatio-temporal interactions is indispensable for the informed management of the environmental

goods (e.g., water, food, and fuel) and services (e.g., waste decomposition, water and air purification, and nutrient cycling) upon which our survival depends. Similarly, an understanding of these interactions is instrumental to effectively address critical issues such as climate change, natural hazards, biodiversity, energy, and sustainable development. This course introduces you to these fundamental ideas as well as to representative data, methods, and applications of physical geography—the science concerned with the spatio-temporal dynamics of the environment. The course integrates a lecture and a lab component, both of which are student-centered and thus highly interactive. The course fulfills one of NMSU’s General Education requirements (Area III – Laboratory Sciences) and is a required course for all geography majors.

## **STUDENT LEARNING OUTCOMES**

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Upon completion of this course, you should be able to:

1. think like a geographer;
2. synthesize the processes responsible for observed and potential future patterns of climate, biota, soil, water, and landforms; and
3. evaluate environmental issues using concepts, data, and methods from geography and related disciplines.

## **COURSE STRUCTURE**

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This is a fast-paced course with a steep learning curve: the course introduces a variety of interrelated concepts, terms, and principles relevant to the study of our dynamic planet Earth. The major topics are treated somewhat separately in each of the chapters in your textbook as well as during the lectures and labs. However, the subject of physical geography can only be fully appreciated or grasped by synthesis and integration of the many topics discussed throughout the semester. In other words, the topics discussed throughout the semester are interrelated in intricate ways—an understanding of topics treated during the third week of class demands an understanding of the topics treated during the first and second weeks of class, and so forth. It is thus crucial that you always keep up with the readings, conversations, and assignments and that you always attend class and lab sessions. We will do our very best to facilitate learning (i.e., to help you achieve the learning outcomes stated above)—we will always prepare and present class materials to the best of our abilities; give you tasks that will help you better understand key concepts and techniques; and encourage cooperative learning and class discussions. You are responsible for learning itself.

## **COURSE MATERIALS**

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**Website.** Materials for this course (e.g., lectures, labs, grades) are available in Canvas at <https://learn.nmsu.edu/>. To access these materials, log in to your Canvas account and click the link for this course. Canvas is a key element of this course and you are required to review its contents regularly. If you encounter problems related to Canvas, please contact us immediately.

**E-mail.** Official NMSU communication to you will come through your NMSU e-mail account. Access your NMSU e-mail frequently, or forward it to your current use address, as your success in college may ride on your ability to respond quickly. To guarantee a response to your emails, always a) begin your emails with a proper greeting that includes the name of the person/s you are

emailing; b) conclude with a closing that includes your name; and c) use proper spelling, grammar, and punctuation. Unless we are away from the office with limited access to email, we will respond to your emails within one business day. Similarly, we expect you to respond to our emails in a timely manner.

**Textbook.** You will need to acquire MasteringGeography, along with the text Christopherson, R. W. and G. H. Birkeland 2017. *Geosystems – An Introduction to Physical Geography*. 10<sup>th</sup> edition. New York, NY: Pearson. The two products are available as a package deal (ISBN # 9780134011257 or 9780134784335 for the electronic and print versions, respectively). MasteringGeography is integrated in Canvas and you will need to register for it to access homework assignments and use learning materials such as videos, animations, and chapter quizzes. Registration instructions for MasteringGeography will be provided to you in a separate document in Canvas as well as during the first lab meeting.

**Lab Manual.** There is no formal lab manual for this class. Lab exercises and associated background materials will be available to you on the course website. TAs will bring printed copies of the exercises to the lab meetings; if you need hard copies of the background materials, you will need to print them yourself.

## GRADING

Your final course grade is determined by the amount of points you accrue out of a total possible 1000 points. The points are allocated as follows:

<b>Exams (× 3)</b>	355 points	35.5 %	} <b>1,000 Points</b> (100 %)
<b>Homework (× 20)</b>	120 points	12.0 %	
<b>Labs (× 13)</b>	325 points	32.5 %	
<b>In-Class Activities (× 25)</b>	200 points	20.0 %	

Your final course letter grade will be based on the following scale:

<b>A (4.0)</b>	95-100%	<b>B (3.0)</b>	84-86%	<b>C (2.0)</b>	74-76%	<b>D (1.0)</b>	64-66%
<b>A- (3.7)</b>	90-94%	<b>B- (2.7)</b>	80-83%	<b>C- (2.0)</b>	70-73%	<b>D- (1.0)</b>	60-63%
<b>B+ (3.3)</b>	87-89%	<b>C+ (2.3)</b>	77-79%	<b>D+ (1.0)</b>	67-69%	<b>F (0)</b>	< 60%

Individual assignments and tests will not be curved (↑ or ↓). We *may* make adjustments of the final letter grade after an assessment of the class curve at the end of the term. We consider class participation, attendance, and improvement over the term as justification for discounting a grade that is uncharacteristically lower than others.

An I (Incomplete) grade will be assigned only if you are unable to complete the course due to circumstances beyond your control (e.g., documented illness or documented death or crisis in your immediate family) that develop after the last day to withdraw from the course. Job-related circumstances are generally not appropriate grounds for assigning an I. An I grade will not be used to avoid assigning of D, F, U, or RR grades for marginal or failing work.

You may use Canvas to keep track of grades that you earned for specific activities (e.g., an exam, a lab, a homework assignment, or an in-class activity) as an individual or as part of a team. However, do not use summary grades in Canvas to assess your overall class performance, as these grades are inaccurate. As described below and discussed during lectures and labs, your team grades will be adjusted upward or downward based on peer evaluations, which Canvas does not take into account. To help you keep track of your actual overall grade, use the Excel spreadsheet provided in Canvas and/or grade reports given to you after each peer evaluation by your TA.

**Exams.** There will be three exams. Exams 1, 2, and 3 will account for 10% (100 points), 11.5% (115 points), and 14% (140 points) of your final course grade, respectively, and thus for a total of **35.5%** (355 points) of your final course grade. Each exam will be cumulative, assessing your

learning since the beginning of the semester. All exams will be individual efforts. **Make-up exams:** If you have a legitimate excuse for a University-sanctioned activity or work-related event that will cause you to miss an exam, contact us prior to the official exam time so that we can schedule a make-up exam, and provide us with written documentation prior to or on the day of your make-up exam. If you have to miss an exam due to illness, contact us as soon as possible so that we can schedule a make-up exam, and provide us with written documentation on the day of the exam. If you fail to follow these guidelines or if you miss an exam for other reasons, you will receive 0 points for the exam.

**Homework.** Of twenty-five possible homework assignments, you will need to complete twenty, each accounting for 0.6% (6 points) of our final course grade or for a combined total of **12%** (120 points). Homework assignments will be based on the readings and designed as an incentive for you to prepare the readings for class; that way, once we meet in class, we can engage more actively with exciting advanced topics rather than to passively listen to others lecturing. Homework assignments will be individual efforts and due by the beginning of class on the dates indicated in the Tentative Course Outline below.

**Labs.** There will be thirteen lab exercises, each accounting for 2.5% (25 points) of your final course grade or for a combined total of **32.5%** (325 points). The labs will thus be crucial to your overall success in this course. All labs will be team-based (see “Teams & Peer Evaluations” below) and completed during the lab meetings.

**In-Class Activities.** There will be twenty-five in-class activities, each accounting for 0.8% (8 points) of your final course grade or for a combined total of **20%** (200 points). Like the labs, in-class activities will thus be important to your overall success in the course. In-class activities will be team-based (see “Teams & Peer Evaluations” below) and completed during class meetings.

**Teams & Peer Evaluations.** Collaboration is an important component of most jobs and tends to be very rewarding. We thus encourage collaboration throughout the semester. To facilitate the process, you will be divided into teams, each comprised of about four students. Each team will be made up of a diversity of individuals, but different teams will be comparable to each other (e.g., each team will be composed of roughly the same number of geography and non-geography majors). Members of every individual team will complete labs and in-class activities as just that—a team. However, while each team member will initially receive the same grades as all other team members, adjustments of each team member’s grades (upward or downward) will be made based on peer evaluations that assess an individual’s contribution to the success of the team (e.g., preparedness, reliability, participation in discussions, ability to compromise). It is thus in your own best interest to attend class meetings and to always be prepared and contribute as much as possible to all team activities.

**Learning Outcomes (LOs).** Many LOs (i.e., descriptions of things you should be able to do) could be formulated for each topic, but some are particularly crucial to help you acquire the three big LOs of this course (p. 2). To help you stay focused on the important issues, we will provide you with a set of crucial LOs for each topic. Consider these LOs as your **study guide**.

**Extra Credit.** You may earn up to 3% (30 points) of extra credit on top of your final grade by successfully completing all twenty-five homework assignments.

**Further details regarding all of the above will be provided to you in class, lab, and/or in Canvas.**

## **POLICIES, CODES, ETC.**

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**Students with Disabilities.** Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA) covers issues relating to disability and accommodations. If you have questions or need an accommodation in the classroom (all medical information is treated confidentially), contact: Trudy Luken, Director; Student Accessibility Services (SAS) - Corbett Center, Rm. 208; Phone: (575) 646-6840 E-mail: sas@nmsu.edu; Website: <http://sas.nmsu.edu/>

**Non-Discrimination.** NMSU policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation, and protected veterans status. Furthermore, Title IX prohibits sex discrimination to include sexual misconduct: sexual violence (sexual assault, rape), sexual harassment and retaliation. For more information on discrimination issues, Title IX, Campus SaVE Act, NMSU Policy Chapter 3.25, NMSU's complaint process, or to file a complaint contact: Lauri Millot, Title IX Coordinator; Agustin Diaz, Title IX Deputy Coordinator; Office of Institutional Equity (OIE) - O'Loughlin House, 1130 University Avenue; Phone: (575) 646-3635 E-mail: equity@nmsu.edu; Website: <http://www.nmsu.edu/~eoo/>

**Other NMSU Resources.** NMSU Police Department: (575) 646-3311, [www.nmsupolice.com](http://www.nmsupolice.com); NMSU Police Victim Services: (575) 646-3424; NMSU Counseling Center: (575) 646-2731; NMSU Dean of Students: (575) 646-1722; For Any On-Campus Emergencies: 911

**Code of Academic Integrity.** Enrollment in this course and acceptance of this syllabus is your **contract** constituting acceptance of all University policies regarding academic integrity, including but not limited to cheating and plagiarism. You are expected to comply fully with the NMSU Honor Code as presented in the Student Handbook (<http://studenthandbook.nmsu.edu/>). Students who are judged to be guilty of academic dishonesty (<http://studenthandbook.nmsu.edu/student-code-of-conduct/academic-misconduct/>) on any graded class component will receive no points for that component, and we reserve the right to consider more severe penalties such as failure of the course and referral to the Dean and Student Judicial Affairs.

**Absence Policy.** Absences due to University-sanctioned activities, work-related events, holidays or special events observed by organized religions, or illness will be excused, if you provide us with official written documentation explaining your absence. We don't really have any additional absence policies. Just keep the following in mind: learning is your responsibility and, if you miss a lecture or lab, you will have to figure out how to "make it up;" your peers will evaluate you in terms of your contributions to the success of your team and the class and these evaluations will be used to convert team grades to individual grades.

**Withdrawal.** Withdrawal from this course is solely your responsibility; we will not drop you from this class under any circumstances. If you no longer wish to be enrolled in this course, you must withdraw from it. If you are still on the class roll at the end of the semester, you will receive a grade based on the work submitted.

**What you can expect from us.** We will be available in class, during office hours and scheduled appointments, and via email to respond to any questions or concerns you may have. Don't be shy and contact us as soon as ambiguities, problems, or concerns arise! We will take all of your concerns seriously and respond to you as soon and as specifically as possible. We will address

any issues that are of importance to all students in class and on Canvas. We will do our very best to always be prepared for class, grade assignments fairly, and return your work promptly (within one week). We reserve the right to change scheduled lectures, exams, and assignments. Any changes made will not adversely affect your workload or grade.

**What we expect from you:** Enrollment in this course and acceptance of this syllabus is your **contract** constituting acceptance of all New Mexico State University policies and codes as well as all specific policies outlined in this syllabus. We expect you to be on time for all class-related activities, submit all tasks as instructed, and always show “good” behavior toward both your instructor and peers. Have fun!

## TENTATIVE COURSE OUTLINE

Week	Date	Topic	Due: <b>At Home</b>   <b>In Class</b>   <b>In Lab</b> * Pages in Textbook
1	01/18	Icebreaker	✓ <b>In-Class Activity #1</b>
2	01/23	<b>Essentials of Geography</b> The Science of Geography	✓ Reading*: 1-17 ✓ Homework Opportunity #1 ✓ <b>In-Class Activity (Not Graded)</b>
	01/25	The Geographer’s Toolkit	✓ Reading*: 22-31 ✓ Homework Opportunity #2 ✓ <b>In-Class Activity (Not Graded)</b>
	Lab	Introductions, Team Assignments, Registering for MasteringGeography	✓ Textbook ✓ Voting Cards ✓ Study Syllabus
3	01/30	<b>The Planet Earth in Space and Time</b> Earth-Sun Relationships	✓ Reading*: 15, 18-22, 36-39, 45-53 ✓ Homework Opportunity #3 ✓ <b>In-Class Activity #2</b>
	02/01	The Global Energy System	✓ Reading*: 40-45, 78-94 ✓ Homework Opportunity #4 ✓ <b>In-Class Activity #3</b>
	Lab	Lab #1: Maps	✓ <b>Lab #1</b>
4	02/06	<b>Earth’s Atmosphere &amp; Hydrosphere</b> Intro to Earth’s Atmosphere & Atmospheric Temperature	✓ Reading*: 56-75, 95-115 ✓ Homework Opportunity #5 ✓ <b>In-Class Activity #4</b>
	02/08	Intro to Earth’s Hydrosphere & Atmospheric Moisture	✓ Reading*: 154-178, 186-191, 218- 221 ✓ Homework Opportunity #6 ✓ <b>In-Class Activity #5</b>
	Lab	Lab #2: Earth-Sun Relationships	✓ <b>Lab #2</b>
5	02/13	Atmospheric and Oceanic Circulations	✓ Reading*: 118-149 ✓ Homework Opportunity #7 ✓ <b>In-Class Activity #6</b>
	02/15	Weather Systems	✓ Reading*: 182-213

			<ul style="list-style-type: none"> <li>✓ Homework Opportunity #8</li> <li>✓ In-Class Activity #7</li> </ul>
	Lab	Lab #3: Atmospheric Temperature and Moisture Peer Evaluation #1	✓ Lab #3
6	02/20	Review for Exam 1	<ul style="list-style-type: none"> <li>✓ Prepare for Exam Review</li> <li>✓ In-Class Activity #8</li> </ul>
	02/22	<b>Exam 1</b>	✓ Prepare for Exam #1
	Lab	Lab #4: Atmospheric Pressure and Wind	✓ Lab #4
7	02/27	Climate Systems	<ul style="list-style-type: none"> <li>✓ Reading*: 248-275</li> <li>✓ Homework Opportunity #9</li> <li>✓ In-Class Activity #9</li> </ul>
	03/01	Climate Change	<ul style="list-style-type: none"> <li>✓ Reading*: 278-311</li> <li>✓ Homework Opportunity #10</li> <li>✓ In-Class Activity #10</li> </ul>
	Lab	Lab #5: Excursion – GPS	✓ Lab #5
8	03/06	<b>Earth's Lithosphere</b> Intro to Earth's Lithosphere & Endogenic Processes I: Plate Tectonics	<ul style="list-style-type: none"> <li>✓ Reading*: 316-345</li> <li>✓ Homework Opportunity #11</li> <li>✓ In-Class Activity #11</li> </ul>
	03/08	Endogenic Processes II: Volcanism & Diastrophism	<ul style="list-style-type: none"> <li>✓ Reading*: 348-377</li> <li>✓ Homework Opportunity #12</li> <li>✓ In-Class Activity #12</li> </ul>
	Lab	Lab #6: Climate Systems Peer Evaluation #2	✓ Lab #6
9	03/13	Exogenic Processes I: Weathering	<ul style="list-style-type: none"> <li>✓ Reading*: 386-392</li> <li>✓ Homework Opportunity #13</li> <li>✓ In-Class Activity #13</li> </ul>
	03/15	Exogenic Processes II: Mass Wasting	<ul style="list-style-type: none"> <li>✓ Reading*: 380-386, 397-405</li> <li>✓ Homework Opportunity #14</li> <li>✓ In-Class Activity #14</li> </ul>
	Lab	Lab #7: Endogenic and Exogenic Processes	✓ Lab #7
10	---	<b>Spring Break (03/19-03/23): No Lectures, No Labs</b>	
11	03/27	Soils	<ul style="list-style-type: none"> <li>✓ Reading*: 522-547, 222-226</li> <li>✓ Homework Opportunity #15</li> <li>✓ In-Class Activity #15</li> </ul>
	03/29	Desertification, Land Degradation, and Drought	<ul style="list-style-type: none"> <li>✓ Reading*: 450-452, 226-244</li> <li>✓ Homework Opportunity #16</li> <li>✓ In-Class Activity #16</li> </ul>
	Lab	Lab #8: Rocks	✓ Lab #8
12	04/03	<b>Earth's Biosphere</b>	✓ Reading*: 550-577

		Intro to Earth's Biosphere & Biogeographic Principles	<ul style="list-style-type: none"> <li>✓ Homework Opportunity #17</li> <li>✓ In-Class Activity #17</li> </ul>
	04/05	Terrestrial Biomes	<ul style="list-style-type: none"> <li>✓ Reading*: 580-603*</li> <li>✓ Homework Opportunity #18</li> <li>✓ In-Class Activity #18</li> </ul>
	Lab	Lab #9: Soils Peer Evaluation #3	<ul style="list-style-type: none"> <li>✓ Lab #9</li> </ul>
13	04/10	<b>Exam 2</b>	<ul style="list-style-type: none"> <li>✓ Prepare for Exam #2</li> </ul>
	04/12	<b>Earth's Landscapes</b> Karst and Hydrothermal Landscapes	<ul style="list-style-type: none"> <li>✓ Reading*: 393-396, 340-342</li> <li>✓ Homework Opportunity #19</li> <li>✓ In-Class Activity #19</li> </ul>
	Lab	Lab #10: Biogeography	<ul style="list-style-type: none"> <li>✓ Lab #10</li> </ul>
14	04/17	Fluvial Landscapes	<ul style="list-style-type: none"> <li>✓ Reading*: 408-435</li> <li>✓ Homework Opportunity #20</li> <li>✓ In-Class Activity #20</li> </ul>
	04/19	Aeolian Landscapes	<ul style="list-style-type: none"> <li>✓ Reading*: 438-449</li> <li>✓ Homework Opportunity #21</li> <li>✓ In-Class Activity #21</li> </ul>
	Lab	Lab #11: Karst Landscapes	<ul style="list-style-type: none"> <li>✓ Lab #11</li> </ul>
15	04/24	Arid Landscapes	<ul style="list-style-type: none"> <li>✓ Reading*: 450-459</li> <li>✓ Homework Opportunity #22</li> <li>✓ In-Class Activity #22</li> </ul>
	04/26	Glacial and Periglacial Landscapes	<ul style="list-style-type: none"> <li>✓ Reading*: 490-517</li> <li>✓ Homework Opportunity #23</li> <li>✓ In-Class Activity #23</li> </ul>
	Lab	Lab #12: Fluvial Landscapes	<ul style="list-style-type: none"> <li>✓ Lab #12</li> </ul>
16	05/01	Coastal Landscapes	<ul style="list-style-type: none"> <li>✓ Reading*: 450-459</li> <li>✓ Homework Opportunity #24</li> <li>✓ In-Class Activity #24</li> </ul>
	05/03	TBD	<ul style="list-style-type: none"> <li>✓ Homework Opportunity #25</li> <li>✓ In-Class Activity #25</li> </ul>
	Lab	Lab #13: Arid Landscapes Peer Evaluation #4	<ul style="list-style-type: none"> <li>✓ Lab #13</li> </ul>
17	05/10	<b>Final Exam: 10:30 - 12:30</b>	<ul style="list-style-type: none"> <li>✓ Prepare for Exam #3</li> </ul>

## NOTES

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