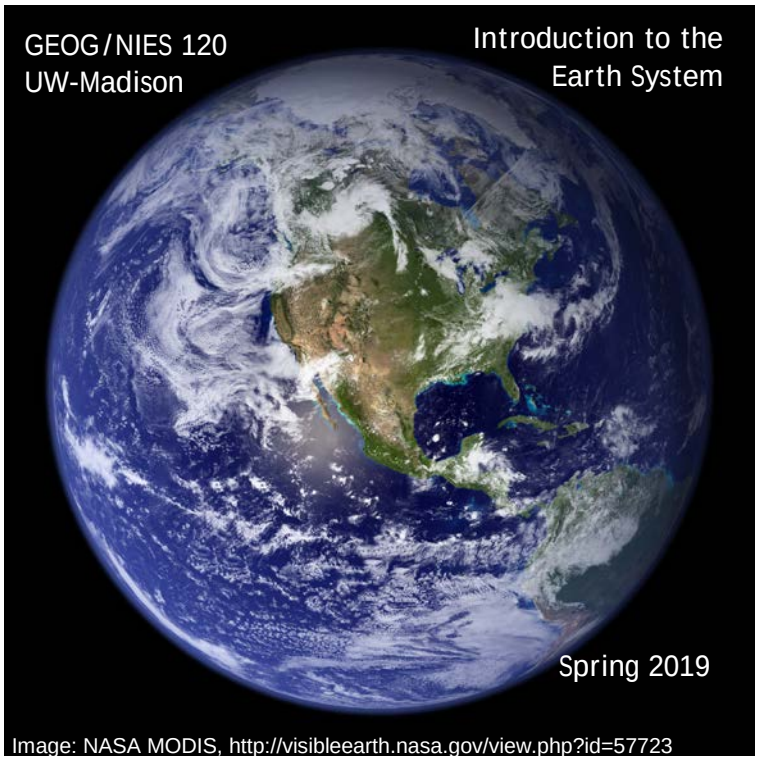

Image: NASA MODIS, http://visibleearth.nasa.gov/view.php?id=57723

Welcome to the Earth System. The Earth is the place where we live, the water that we drink, the air that we breathe, and the home to all known life in the universe. The earth is a ***system***, composed of many interacting subsystems: the atmosphere, hydrosphere, biosphere, geosphere, and anthrosphere. The earth is ***dynamic.*** We live in a swiftly changing world, characterized by rapidly changing climates, shifting landscapes, and growing human populations. Now, more than ever, it's essential to understand how the Earth system works, how it affects our livelihoods, and how we are altering the physical environment of our planet.

Geography/NIES 120 provides a critical foundation for students by introducing them to how the Earth system works and what makes Earth livable. Through this course you will gain a deeper appreciation for the diverse processes that shape our local, regional and global landscapes. Many students take this course to fulfill their physical science requirement. Others use it as a gateway to majors and careers in Geography, Environmental Studies, and Environmental Science.

INSTRUCTORS

Professor Jack Williams, jww@geography.wisc.edu Twitter: *@IceAgeEcologist* Office Hours: Weds 2-3pm and Thurs 1-2pm in 207 Science Hall, or by appointment. Pronouns: he/him/his
Professor Erika Marin-Spiotta, marinspiotta@wisc.edu Office Hours: Tuesdays 3-4 pm and Thursdays Noon-1 pm in 223 Science Hall, or by appointment. Pronouns: she/her/hers

TEACHING ASSISTANTS: **Yi Wang (head TA)** and **Taylor McDowell**. See the Discussion Syllabus for their office hours and contact information.

FORMAT: Lecture 2 hours per week and discussion section 1 hour per week. Discussion sections elaborate the principal points of class lectures and discuss topics of student interest related to lecture material.

LECTURES: Lecture Section **Mondays and Wednesdays 11-11:50 am, Science Hall 180**

CREDITS: 3 credits in physical science. Each of the 3 hours of in-class time per week is expected to be matched by roughly 2 hours/week of student work.

TEXT: *Physical Geography, 5th edition*, Mason et al., 2015, Oxford University Press
Several copies of the textbook are on reserve in Helen C. White Library. All 'Units' in the schedule below refer to Mason et al. Some additional readings are also listed below and are required; these readings will be posted to the course webpage or linked below.

EXAMINATIONS: Four 50-minute in-class examinations will be given at roughly 4-week intervals. The last exam will be on the last day of instruction. Each exam will stress the material covered since the previous exam. There is no final comprehensive exam during the end-of-semester examination week.

GRADING: The final grade will be determined from a curve of cumulative points achieved on the class examinations and the discussion section. Each class exam will be worth approximately 30 points and the discussion section grade will count for 50 points. Discussion section points will be earned from worksheets and activities described on the syllabus provided by the TAs at the first section meeting. The potential total number of points for the course is 170. The setting of the curve varies from year to year, and is based upon the grades for all students in the current semester. The median grade is a B.

DISCUSSION: Discussion section points are based on attendance (*which is mandatory*), in-class exercises and discussion participation and comprise 30% of your total grade. The schedule of discussion

activities will be handed out in section. **NOTE**: Discussion sections will not meet until the week of January 28, the first full week of instruction.

PREREQUISITES: There are no prerequisite courses for this class, but students are expected to be geographically literate. You should know the location of the world's continents and oceans, the location of the 50 states, and be able to read latitude and longitude on a map. Much of this information is included in the first few chapters of your textbook, atlases, or online resources.

HONORS: If you are registered for honors, please contact your TA early in the semester to discuss the project. The Honors projects are administered by the TAs.

EXTRA CREDIT: Extra credit is not offered.

ATTENDANCE: Attendance at class lectures is your responsibility; however, students who regularly come to class, take good notes and ask questions have greater success. We welcome questions and discussion during and after lecture.

ACADEMIC MISCONDUCT: Instances of plagiarism, cheating, and other forms of academic misconduct have serious consequences for the students involved. To avoid any possibility of misunderstanding, you are strongly encouraged to consult the campus academic integrity web page: https://conduct.students.wisc.edu/academic-integrity/.

ONLINE RESOURCES: https://coursedashboard.learnuw.wisc.edu/ *Password-protected course materials, including 1)* **Announcements***, used by the instructors for class announcements, 2)* **Modules***, where the instructors post materials for download, 3)* **Grades***.*

ADDITIONAL RESOURCES FOR STUDENTS:

College is a time of intellectual and personal growth, and can be stressful. Big things happen. Please let us know if we can help you access resources on campus to make your learning experience at UW more productive, establish additional academic accommodations, or help you through any rough spots.

- Joel Gruley, Geography Undergraduate Advisor. If you like 120 and would like to take more courses in this area, Joel is available to help recommend courses that build on 120, provide information about Geography or related majors, and give advice about Geography-related career directions. jgruley@wisc.edu
- McBurney Disability Resource Center. Provides services for an inclusive and accessible education. If you need accommodations, please talk to one of the instructors early in the semester or as soon as possible so we can plan to help you. http://www.mcburney.wisc.edu/
- Multicultural Student Center. Provides resources, advocacy and community particularly for students of color and historically underrepresented and underserved students on campus. https://msc.wisc.edu
- GUTS (Greater University Tutoring Service). Contact to request tutors to help you with course material. http://www.guts.wisc.edu/ The instructors or TAs also may know students offering tutoring.
- UW Writing Center. Provides drop-in or scheduled appointments for help. They will help with just about any type of writing assignments/needs. http://www.writing.wisc.edu/
- L&S Student and Academic Affairs. Contact for student advising and help with accommodations for health issues or other emergencies that may affect your ability to complete coursework. http://saa.ls.wisc.edu
- Students facing food and/or housing insecurity are urged to contact the Dean of Students Office for support: https://doso.students.wisc.edu/student-assistance/ UW also has a Student Food Pantry: https://www.asm.wisc.edu/theopenseat/ The Dean of Students Office is also there to help for any academic or personal concerns that affect your life as a student.

LECTURE SCHEDULE Spring 2019:

Week 1	W	Jan	23	1) Introduction to Geography and Earth System Science, *Units 1-3*[1,2]
Week 2	M		28	2) EMR, Earth-Sun Fundamentals, *Unit 4, What If: Sunless Earth?* https://what-if.xkcd.com/49/
	W		30	3) Atmosphere Fundamentals, Composition, Structure, *Unit 6 + pp94-95, What If: Rising Steadily?* https://what-if.xkcd.com/64/
Week 3	M	Feb	04	4) Earth's Energy Cycle, Unit 5
	W		06	5) Earth's Energy Cycle and Temperature, *Units 5, 7*
Week 4	M		11	6) Atmospheric Forces and Motion, *Unit 8, What If: Global Windstorm?* http://on.mash.to/1tzdktj
	W		13	7) Atmospheric Moisture and Stability, *Unit 11 + pp84-86, What If: Raindrop:* https://what-if.xkcd.com/12/
Week 5	M		18	8) **FIRST EXAM**
	W		20	9) Atmospheric Circulation, *Unit 9*
Week 6	M		25	10) Weather, Fronts, and Mid-latitude Cyclones, *Units 12, 13*
	W		27	11) Ocean Structure and Circulation, *Unit 10, What If: Drain the Oceans.* https://what-if.xkcd.com/53/
Week 7	M	Mar	04	12) Water Cycle and Water Resources, *Units 11, 38*
	W		06	13) Global Climate Change, *Units 18,19*
Week 8	M		11	14) **SECOND EXAM Covers material taught after first exam**
	W		13	15) Human Effects on Global Biogeochemical Cycles, *Units 20, 24 (p. 306-308)*
Spring Recess: March 16 - 24				
Week 9	M		25	16) Soil Systems & Soil Forming Environments, *Units 21-23*
	W		27	17) Characteristics of Earth's Surface and Interior, *Units 27-29*
Week 10	M	Apr	01	18) Earth's Tectonic Systems I, *Units 30, 33*
	W		03	19) Earth's Tectonic Systems II and Volcanic Landforms, Units *34, 32*
Week 11	M		08	20) **THIRD EXAM Covers materials taught after second exam**
	W		10	21) Weathering Processes, *Units 35, 36, 42*
Week 12	M		15	22) Mass-Movement Processes and Hazards, *Units 37*
	W		17	23) Fluvial Erosion and River Processes, *Units 38 (p. 460-464), 39, 41*
Week 13	M		22	24) Arid Landscapes, *Units 35, 36, 47*
	W		24	25) Glacier Landforms and the Last Ice Age, *Units 43-45*
Week 14	M		29	26) Responses of Glacier Systems to Climate Change, *Unit 18, 46*
	W	May	01	27) **FOURTH EXAM Covers material taught after third exam**

[1]Unit 1 will be covered in lecture – you are expected to read Units 2-3 on your own and be responsible for this material.
[2] 'Units' always refers to readings from the Mason et al. textbook