GEOG 8901, Tropical Climatology
Autumn 2017, 3 units, call number: 33798
Thursday 2:15–5:00 PM, Derby Hall 1116

Instructor: Prof. Jialin Lin
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Office Hours: Tuesday 3-5pm, or by appointment

Course Objectives:

The Earth's tropics, which receives the majority of incoming solar energy, acts as the "ENGINE" to drive the global climate system. The rapid global warming trend is mainly controlled by tropical ocean temperatures. Climate events in the tropics, such as the El Nino/Southern Oscillation, often induce simultaneous natural disasters all around the world. Weather events in the tropics, such as the hurricanes, also take an enormous toll in lives and personal property. Therefore, most of the current hot topics in climate research are related to tropical climatology.

Currently there is no Tropical Climatology course in our curriculum. To fill this gap, I will offer Geography 8901: Tropical Climatology in Autumn 2017. I will discuss about all the key tropical climate and weather phenomena, as well as the underlying physical mechanisms and status of ongoing research in tropical climatology.

Materials to be covered:

1. The Earth's climate system
2. Importance of the Tropics
3. The Hadley Circulation
4. Monitoring the Earth's Tropics: Remote Sensing, In Situ Measurements, and Reanalyses
5. Walker Circulation and Inter-Tropical Convergence Zone
6. The El Nino/Southern Oscillation
7. The Global Warming Hiatus
8. Global Warming and Cloud-Radiation Feedback
9. The Global Monsoon System
10. The Madden-Julian Oscillation
11. Rapid Intensification of Tropical Cyclones
12. Atmospheric Rivers
13. Tropical Convection
14. The Tropical Biases in IPCC Global Climate Models

Graduate students in my seminars generally come from several departments such as Geography, Earth Science and ESGP, and learn greatly from each other. There is no

prerequisite. In the beginning of the course, we will give an overview of the basic principles and observations of the Earth's climate system, which will provide the foundation for understanding the later lectures and papers.

The objectives of the course will be accomplished through lectures, in-class discussions, and presentations. Determination of your grade will be as follows:

Attendance and active participation	50%
In-class presentation	50%

The grading scale is as follows: 100-93% A, 92-90% A-, 89-87% B+, 86-83% B, 82-80% B-, 79-77% C+, 76-73% C, 72-70% C-, 69-67% D+, 66-63% D, 62-60% D-, 59% and below E.

Academic Misconduct It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/info_for_students/csc.asp).

Disability Services Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; http://www.ods.ohio-state.edu/.

Cell Phones Like on airplanes, interfere with navigation of the course, therefore, cell phones and pagers must be turned *OFF* during class as they interfere with the navigation of the course.

Final Exam: <u>There will be no final exam.</u>

<u>The schedule may change</u>, probably only slightly, as the class evolves. Instructor will alert students if/when schedule changes.