TATM 110: Weather and Climate Issues

Fall 2016

Instructor: **Prof. Andrea Lang**
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Office Hours: Tuesday & Wednesday 10:30-11:30 am
or by appointment

Teaching Assistant: Brendan Wallace
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or by appointment

Location: ES 232
Time: Tuesday & Thursday
8:45-10:05 am

Class Number: 10204
Credits: 3
Prerequisites: None

Accessibility:
If you have a documented disability and may require some accommodation or modification in procedures, class activity, instruction, etc., please see me early in the semester. If you need forms or information, please visit the Disability Resource Center; http://www.albany.edu/disability/index.shtml

Academic Integrity:
Every student has the responsibility to become familiar with the standards of academic integrity at the University (as stated in the Undergraduate Bulletin which be found here: http://www.albany.edu/undergraduate_bulletin/regulations.html) Student claims of ignorance, unintentional error, or personal or academic pressures cannot be excuses for violation of academic integrity. Students are responsible for familiarizing themselves with the standards and behaving accordingly.

Inclusive Classroom:
I will come to class prepared to teach but I encourage you to start a conversation and ask questions in class if you do not understand something. If you have a question, chances are someone else has the same question, speak up. The classroom should be an open and inviting environment so that everyone feels free to participate and discuss the material. Everyone is responsible for creating this type of environment; I ask you to leave your distractions at the door. There have been a number of occasions where students have commented to me that someone "checks their phone a million times" during class and it is "extremely annoying." So I ask that unless otherwise noted, all electronic devices, including phones, must be put away before class begins. No phones are permitted during exams, your exam will be turned in as-is when a phone is present.

Course Description:

You can't avoid it! Everyone experiences the weather and climate in their daily lives. This course will examine the physics that explains weather and climate variability as well as climate change. Topics of discussion will include the nature of weather systems, observations and theory of climate variability and change as well as key environmental issues. The science will inform classroom discussions and projects focused on issues related to weather and climate. Open to Honors College students only.

By being an active participant in this course, your learning outcomes will include:

1. A better understanding of the nature of weather systems (e.g., fronts and cyclones, hurricanes, tornadoes and thunderstorms, lightning, rain processes, etc.)
2. A better knowledge of the observations and basic theory of climate variability and change (e.g., water and energy cycles, the greenhouse effect and anthropogenic climate impacts)
3. An understanding of current and future environmental issues (e.g., pollution, ozone hole, water resources, etc.) in the context of weather and climate.

Textbook: *Essentials of Meteorology: An Invitation to the Atmosphere* by C. Donald Ahrens, 7th Edition (2014)

Web: http://www.atmos.albany.edu/facstaff/andrea/courses/tatm110.html

Grading: A-E

Homework assignments (6): 42% (7% each)
Exams (2): 26% (13% each)
Real-world project summaries (2): 10% (5% each)
Final Paper and Presentation: 14%
In-class activities: 8%

- Homework assignments will due on a bi-weekly schedule, you will have at least two full weeks to work on the assignment once it is handed out.
- There will be two exams and a final paper (no final during finals week).
- We will be discussing topics that are the focus of international research efforts. This semester you will write two 2-page summaries of currently ongoing research projects that focus on research of interest to you. (For international examples see - The World Meteorological Organization: http://public.wmo.int/en or The Intergovernmental Panel on Climate Change: http://www.ipcc.ch) More details to come.
- The final paper will be an extension of a real-world project summary. Details on the final paper and the associated presentation will be given in mid-October.
- In-class activities will include assignments based on classroom discussion, experiments and demonstrations.

Tentative Fall 2016 TATM 110 Schedule

Week	*Tuesday*	*Thursday*
1	**30-Aug**	**1-Sept**
§ 1	*First Day of Class*	
2	**6-Sep**	**8-Sep**
§ 1	HW 1 out	
3	**13-Sep**	**15-Sep**
§ 1		
4	**20-Sep**	**22-Sep**
§ 1	HW 1 in / HW 2 out	
5	**27-Sep**	**29-Sep**
§ 2		Summary 1 due
6	**4-Oct**	**6-Oct**
§ 2	*No Class – Rosh Hashanah*	HW 2 in / HW 3 out
7	**11-Oct**	**13-Oct**
§ 2	**Exam 1**	*No Class – Yom Kippur*
8	**18-Oct**	**20-Oct**
§ 2		
9	**25-Oct**	**27-Oct**
§ 3	HW 3 in / HW 4 out	
10	**1-Nov**	**3-Nov**
§ 3		Summary 2 due
11	**8-Nov**	**10-Nov**
§ 3	HW 4 in / HW 5 out	
12	**15-Nov**	**17-Nov**
§ 3		**Exam 2**
13	**22-Nov**	**24-Nov**
§ 4	HW 5 in / HW 6 out	*No Class – Thanksgiving*
14	**29-Nov**	**1-Dec**
§4		Final Presentations
15	**6-Dec**	**8-Dec**
§ 4	Guest Presentations	Final Presentations / HW 6 in
16	**13-Dec**	**Monday: 19-Dec**
	Papers Due / No Class Reading Day	No Final Exam for the class

Section 1: Atmospheric composition and energy balance
→ Focus: The Ozone Hole and the world avoided.
Section 2: The role of water in our atmosphere
→ Focus: Atmospheric Rivers and the California water supply.
Section 3: The forces behind weather and climate
→ Focus: Hurricane Sandy, how, what, where, when, why?
Section 4: Bringing it all together
→ Focus: Recent and future weather and climate issues