

## **SYLLABUS**

### **ATS 710 Geophysical Vortices**

Fall Semester 2021

Professor: Michael M. Bell

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Time and Location: MWF 11:00-11:50 am in ACRC 212B

Office Hours by appointment

First day of instruction 8/23/21, last day of instruction 12/10/21

**Student Outcomes:** This is a graduate level course on geophysical vortices, with a focus on tropical cyclones. Students will obtain a fundamental understanding of synoptic scale and mesoscale aspects of tropical cyclone structure, dynamics, intensity, and landfall processes. Students will review seminal and recent theoretical, observational, and modeling studies of tropical cyclones to obtain working knowledge of the current state of the science.

#### **Topic Outline**

1. Basics of tropical cyclone structure and dynamics
2. Tropical cyclogenesis
3. Fundamentals of vortex dynamics
4. Structure and intensity change
5. Impacts of vertical wind shear
6. Heavy rainfall from vortices

Instructor may modify this schedule as needed to adjust the order in which material is presented, and some classes will be rescheduled.

**Course procedures:** The course will be based on research papers from the refereed literature. No textbook is required. There will be no exams. Lectures will be given by the instructor, guest lecturers, and enrolled students. Each student will prepare and deliver oral presentations on one or more journal articles, along with brief written summaries. Each student will submit a research proposal for a more in-depth study of one related topic, and one or more of the proposals will be selected for research projects. Course evaluation will be based on class participation, presentations, journal summaries, research project proposal, and research project participation.

#### **Statement on Academic Integrity**

This course will adhere to the CSU Academic Integrity Policy as found in the General Catalog (<http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf>) and the Student Conduct Code (<http://www.conflictresolution.colostate.edu/conduct-code>). At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

**Important information for students:** All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests from a non-CSU testing location. If you suspect you have symptoms, please fill out the COVID Reporter (<https://covid.colostate.edu/reporter/>). If you know or believe you have been exposed, including living with someone known to be COVID positive, or have symptoms of COVID, it is important for the health of yourself and others that you complete the online COVID Reporter. Do not ask your instructor to report for you. If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600. You will not be penalized in any way for reporting. If you report symptoms or a positive test, you will receive immediate instructions on what to do, and CSU's Public Health Office will be notified. Once notified, that office will contact you and most likely conduct contact tracing, initiate any necessary public health requirements and/or recommendations and notify you if you need to take any steps. For the latest information about the University's COVID resources and information, please visit the CSU COVID-19 site: <https://covid.colostate.edu>

***Basic Needs Statement***

*At CSU, Rams take care of Rams—period. If you are experiencing food, housing, and/or transportation insecurity, please contact [lsc\\_basicneedsinfo@colostate.edu](mailto:lsc_basicneedsinfo@colostate.edu).*

**Student Disability Center Accommodations**

Students who have federally supported disabilities will find information about processes and supports available at this site:

<https://disabilitycenter.colostate.edu/accommodations-process/>