Course name: Radar Meteorology

Course number: AT741

Instructor: Prof. Michael Bell, mmbell@rams.colostate.edu, 205 ATS

TA information: Alex DesRosiers, adesros@rams.colostate.edu, 215 ATS

Office hours: 2:00 pm - 3:00 pm Wednesdays, or by appointment

Classroom and meeting time: ACRC 212B, 11:00 AM – 12:15 PM, Monday and Wednesday

Prerequisites: AT652, or permission of instructor

Class Website: https://colostate.instructure.com/courses/180039

Slack channel: CSU Tropical workspace #ats741_s24 (by invitation)

Course goals and Objectives: AT741 is designed to provide a foundational understanding of radar meteorology. Topics presented include microwave scattering theory, Doppler principles, polarimetric radar, hydrometeor identification, rainfall estimation and radar platforms. The objective of the course is to provide the student with a working knowledge of radar meteorology including applications to remote sensing of clouds and precipitation.

Textbook: None. Digital course materials will be provided

Course calendar: Follows CSU course calendar

Expectations: Regular attendance is strongly recommended. Read the class notes in advance of class.

Exam schedule: There are no examinations. Course grading is based on homework assignments and a final research project.

Course grading: The course grade will be based on homework exercises (including some computer-based exercises) and a final research presentation due at the end of the semester.

Suggested references:

- Atlas (1990), Radar in Meteorology, AMS (Battan Memorial volume)
- Battan (1973), Radar Observation of the Atmosphere
Course content:

SECTION 1 – Basics and Scattering


SECTION 2 – Radar Basics and Data


SECTION 3 – Doppler Radar


SECTION 4 – Multiparameter Radar


SECTION 5 – Current topics, including new advances in ship-based, airborne, and spaceborne radars

Special considerations with mobile platforms. Current and future research directions in radar meteorology.

Inclusion Statement
CSU Atmospheric Science is a leading global institution, and as such, all members of our community regardless of race, ethnicity, culture, religion, sexual orientation, gender identity and expression, physical ability, age, socioeconomic status or nationality are welcome as equal contributors. We value and appreciate diversity, and we believe that diversity on our campus
strengthens our entire scientific community. It is my intent that students from all backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength, and benefit. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups.

**Academic Integrity**

All students are subject to the policies regarding academic integrity found in the 2023 – 2024 General Catalog, found at [http://catalog.colostate.edu/general-catalog/policies/](http://catalog.colostate.edu/general-catalog/policies/), and the student conduct code ([http://resolutioncenter.colostate.edu/conduct-code](http://resolutioncenter.colostate.edu/conduct-code)).

Other information on academic integrity can be found at [https://resolutioncenter.colostate.edu/academic-integrity/](https://resolutioncenter.colostate.edu/academic-integrity/). Examples of academic dishonesty can be found in these sources. 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. **Academic Integrity includes the honest use of AI/LLM tools.**

**Special Statement on COVID-19**

All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests (even home tests).

- If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID (even with a home test), you are required to fill out the COVID Reporter.
- If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, 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 may also report concerns in your academic or living spaces regarding COVID exposures through the COVID Reporter. You will not be penalized in any way for reporting.
- When you complete the COVID Reporter for any reason, the CSU Public Health Office is notified. Students who report symptoms or a positive antigen test through the COVID Reporter may be directed to get a PCR test through the CSU Health Network’s medical services for students.

For the latest information about the university’s COVID resources and information, please visit the CSU COVID-19 site.