

METR 4624—Radar Meteorology SPRING 2017

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National Weather Center, Room 5417, 623-1769
Office hours: whenever the door is open

Principles of weather radar and storm observations including: radar system design, em wave propagation, covariance matrix, radar equation for point and distributed targets, Rayleigh & Rayleigh-Gan scattering, Mie scattering, T-matrix, power spectrum, I&Q, moments of the power spectrum, ground clutter, attenuation, rainfall estimates using radar reflectivity and polarization variables, single- and dual-Doppler interpretation and analysis, polarimetric theory and applications, kinematics of convective storms (multi-cell, supercell, mesoscale convective systems, hurricanes, lightning) and their radar signatures.

Special note: The optional SMART radar labs are usually held during the last few weeks of the semester. This year, the radar will participate in VORTEX-SE from 1 March – 30 April. I propose that we do the hands-on labs early, during February. More information on labs will be presented later.

Class will typically meet MWF 11:00-11:50 pm in room NWC 5600. Additional lecture classes will be held in NWC 5720 on Fridays from 4:00-6:00 pm. I am arranging tours of the NWS radars and the ARRC Radar Innovations Lab for several of the Fridays. We will meet on site. Please let me know if you require transportation.

Note: no lab class this Friday, 20 Jan or 10 March (that's the Friday before spring break).

There is no TA for the course. Mr. Gordon Carrie, Addison Alford, Zack Zounes or Kate-Lynn Walsh may occasionally provide lectures during my absence.

STRONGLY recommended text: *Radar for Meteorologists* by R. E. Rinehart (1991) fourth or fifth edition. [Note: This book covers fundamentals at an introductory level. We will go well beyond the material in this text].

Other books that I will use for reference include: *Radar Observations of the Atmosphere* by L. J. Battan (1973); *Doppler Radar and Weather Observations* by R. J. Doviak and D. S. Zrnic (1984); *Radar and Atmospheric Science: A collection of essays in honor of Dave Atlas*. Edited by R. Wakimoto and R. Srivastava (2003); *Mesoscale Meteorology and Forecasting* edited by P.S. Ray (1986), and *Doppler Radar Meteorological Observations*; Federal Meteorological Handbook No. 11 (Part B) (1990).

Grades will be determined by the following formula:

1 mid-term	44%	=	44%
Final exam	46%	=	46%
Class participation		=	10%
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METR 4624—Radar Meteorology Syllabus SPRING 2016

Approximately 90 % or better = A

Approximately 80 to 89 % = B **MID-TERM EXAM – 3 March 4-6 pm.**

Approximately 70 to 79 % = C

Approximately 60 to 69 % = D **FINAL EXAM – 21 April 4-6 pm**

Below 60 % = F

Legal Requirements:

NOTE: All materials provided you in this class are protected by copyright. Any attempt to transmit to or receive copyrighted materials from parties outside this class is prohibited and will be treated as academic misconduct. You may use the materials for your own educational benefit.

1) The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone 405/325-3852 or TDD only 405/325-4173.

2) Academic integrity policy website information: There have been several changes to the Academic Misconduct Code. Details can be found at the following website: www.ou.edu/provost/integrity-rights.

In addition, persons found, or suspected of, having violated university academic conduct will be punished to the maximum extent allowable. The instructor will do his best to dissuade potential employers from hiring a person found guilty of academic misconduct.