

GEOG/ENST 2331 Climatology Winter 2022 Course Outline (2 pages)

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Course Objectives:

This course gives a general introduction to meteorology and climatology. Meteorology topics include energy balance, moisture and cloud development in the atmosphere, atmospheric dynamics, small- and large-scale circulations, storms and cyclones, and weather forecasting. Climatology topics include the interaction between the atmosphere and oceans over long time periods, climate classification, and the potential for climatic change.

Students are expected review assigned reading, slides and labs before attending on dates listed below.

Text: Ahrens, Jackson and Jackson, 2016. *Meteorology Today 2nd Canadian Edition* (Nelson Education).

Lecture Times and Place: Tuesday and Thursday: 7:30 – 8:30 pm (Online)

Manual: With our virtual offering in W2022, there is no formal course manual. Lab content, necessary data or links, exercise instructions and lab deliverables will be posted to the course D2L under weekly content

Lab Times and Place: Tuesday: 8:30 – 10:30 am (WD2 Section) (Online) or
Tuesday: 10:30 am – 12:30 pm (WD1 Section) (Online)

Evaluation Scheme and Schedule:

Session	Date	Mark Allocation
Lab Introduction and Setup	Jan 18	2
Lab 1 – Global Energy Budget	Jan 25	5
Lab 2 – Isotherms, Isobars, and Wx Analysis (D, J)	Feb 1	8
Lab 3 – Atmospheric Mechanics	Feb 8	5
Lab 4 – Adiabatic Lapse Rates and Atmospheric Stability	Feb 15	5
Midterm	March 3	25
Lab 5 – Weather Observation Period Project and Wx Analysis (F)	Mar 1-11	15

Lab 6 – Climate Classification	Mar 29	4
Lab Quiz	Apr. 5	6
Final Examination	Details to be announced	30

Lecture Schedule (*subject to revisions*):

Dates	Tuesday	Thursday
Jan 11 & 13	Introduction	Introduction Chapters 0 & 1
Jan 18 & 20	Radiation and Energy Chapter 2	Global Energy Balance Chapter 2
Jan 25 & 27	Temperature Chapters 2 & 3	Pressure Gradients Chapter 8 and Lab 2
Feb 1 & 3	Forces and Winds Chapter 8	Moisture in the Atmosphere Chapter 4 & 5
Feb 8 & 10	Atmospheric Stability Chapter 6	Cloud Formation Chapters 5 & 6
Feb 15 & 17	Precipitation Chapter 7	Atmospheric Circulation Chapter 8
Feb 21 to 25	STUDY WEEK	
Mar 1 & 3	Review for midterm	Midterm
Mar 8 & 10	Global Circulations Chapter 10	Air Masses and Fronts Chapter 11
Mar 15 & 17	Midlatitude Cyclones Chapter 12	Thunderstorms and Tornadoes Chapter 13
Mar 22 & 24	Hurricanes Chapter 14	Hurricane Forecasts and Polar Lows Chapters 15 & 12
Mar 29 & 31	Climate Classification Chapter 16	Global Climatic Change Chapter 17
Apr 5	Characteristics of Global Warming Chapter 17	