GEOG/ENST 2331 Climatology Winter 2023 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 to review assigned reading, slides and labs before attending on dates listed below.

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

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: Mondays: 10:30 am – 12:30 pm (WD1 Section) (Online) or
Thursday: 8:30 am – 10:30 am (WD2 Section) (Online)

Evaluation Scheme and Schedule:

Session	Date	Mark Allocation
Lab Introduction and Setup	Jan 16/12	2
Lab 1 – Global Energy Budget	Jan 23/26	5
Lab 2 – Isotherms, Isobars, and Wx Analysis (D, J)	Jan 30 / Feb 2	8
Lab 3 – Atmospheric Mechanics	Feb 6/9	5
Lab 4 – Adiabatic Lapse Rates and Atmospheric Stability	Feb 13/16	5
Midterm	March 2	20
Lab 5 – Weather Observation Period Project and Wx Analysis (F)	Feb 27 to Mar 9	15

Lab 6 – Climate Classification		Mar 27/30	4
Lab Quiz		Apr 3/6	6
Final Examination	Details to be announced		30

Lecture Schedule (*subject to revisions)*:

Dates	Tuesday	Thursday
Jan 10 & 12	Introduction to Climatology Chapter 0	Atmosphere Chapters 0 & 1
Jan 17 & 19	Energy and Radiation Chapter 2	Global Energy Balance Chapter 2 and Lab 1
Jan 24 & 26	Seasons (Temperature and Time) Chapters 2 & 3	Temperature and Geography Chapter 3
Jan 31 & Feb 2	Pressure Gradients Chapter 8 & Lab 2	Forces and Winds Chapter 8 & Lab 3
Feb 7 & 9	Moisture in the Atmosphere Chapters 4 & 5	Atmospheric Stability Chapter 6 & Lab 4
Feb 14 & 16	Cloud Formation Chapters 5 & 6	Precipitation Chapter 7
Feb 20 to 24	STUDY WEEK	
Feb 28 & Mar 2	Review for midterm Chapters 1 – 8, Labs 1 - 4	Midterm
Mar 7 & 9	Atmospheric Circulations Chapters 9 & 10	Global Circulations Chapters 10 & 12
Mar 14 & 16	Air Masses and Fronts Chapter 11	Midlatitude Cyclones (Cyls) Chapter 12
Mar 21 & 23	Thunderstorms and Tornadoes Chapter 13	Hurricanes Chapter 14
Mar 28 & 30	Hurricane Forecasts and Polar Cyls Chapters 14 and 12	Climate Classification Chapter 16 & Lab 6
Apr 4 & 6	Global Climatic Change Chapter 17	Characteristics of Global Warming Chapter 17 / Final Exam Review