

Physics 2070B – Understanding Earth's Atmosphere Course Information: Winter 2019

Welcome to Physics 2070B: Understanding Earth's Atmosphere!

Important Notice:

This course outline is a living document that may be updated throughout the course. Such updates will be announced in class, and the latest version will be posted on OWL. The version number can be found at the bottom of each page. It is your responsibility to ensure that you have the most recent version of this document. All students registered in Physics 2070B are expected to have read this course outline carefully.

1. Course Description

Course title: Physics 2070B: Understanding Earth's Atmosphere

Description: This course examines the atmosphere in which we live, how it affects our everyday life, and how we in turn, as the technologically dominant earth-borne species, affect it. Atmospheric phenomena such as wind, temperature, composition and precipitation are used to illustrate basic physical principles.

This course is designed for non-science students except for Environmental Science students and students in the minor modules in Conceptual Astronomy and Planetary Science & Space Exploration.

Pre- or co-requisites: None

Anti-requisites: Physics 1028A/B, 1301A/B, 1401A/B, 1501A/B, or the former Physics 1020, 1024, 1026, 2700A/B

Lecture Hours: 2 lecture hours per week

Lecture Times: Thursdays 5:30 – 7:30 pm. The First Lecture will be on January 10, 2019.

Lecture room: Physics & Astronomy Building, PAB 106

Course weight: 0.5 course **Breadth:** Category C

2. Instructor & Contact Information

Instructor: Professor Kanthi Kaluarachchi

Office: PAB 114 (Physics & Astronomy Building)

Phone: 519 661 2111, ext 86446

E-mail: kanthi@uwo.ca

Students must use their Western email address (@uwo.ca) when contacting course instructors. We will not respond to email other than from your Western email address.

Instructor's office hours: Thursdays 4:15 pm – 5:15pm, **Room:** PAB 114

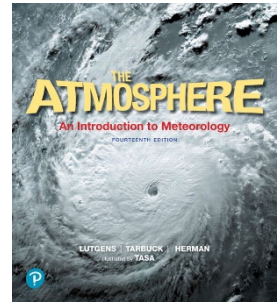
Or, contact after the lecture.

3. Course Materials

Text Book:

The Atmosphere: An Introduction to Meteorology, 14th Edition

Frederick K. Lutgens, Edward J. Tarbuck
Pearson Publishing



Print: ISBN-13: 9780134790466, Available at the Book Store

e-text: available

Course webpage: <https://owl.uwo.ca> , **PHYSICS 2070B 001 FW18**

PowerPoint lecture slides, assignments, marks, announcements, exam information, and the most recent copy of the course outline will be available on OWL.

Students must check the course webpage on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

For technical problems accessing course OWL page, please contact ITS: <http://www.uwo.ca/its/>
ITS help desk: 519 661 3800

Calculator: For exams, a non-programmable calculator is required. The Faculty of Science recommends relatively inexpensive Sharp EL-510RN Scientific Calculator. This calculator may have newer models now (EL-510xx).

4. Course Objectives

Physics 2070B provides a general introduction to the Earth's atmosphere. At the end of this course, students should be able to:

- Describe the basic structure of the Earth's atmosphere
- Understand the mechanisms behind the daily activities of the atmosphere such as cloud formation, weather fluctuations, thunderstorms and hurricanes
- Understand the global climates and basics in weather forecasting
- Understand the linkage between the Earth's atmosphere and the human impact on air pollution
- Describe the past, present and future behaviour of the Earth's atmosphere by applying scientific observation and reasoning

5. Course Topics and Schedules

Course Schedule: *This course schedule is a living document that may be updated with minor changes. Such updates will be announced in class, and the latest version will be posted on OWL. The version number can be found at the bottom of each page.*

Lecture Time: Thursdays 5:30pm – 7:30pm, **Room:** PAB 106

Lecture Dates Thursdays- 2019	Chapter	Assignments
January 10	Introduction Ch 1: Introduction to Atmosphere	
January 17	Ch 2: Heating Earth's Surface and Atmosphere	Assignment 1 Ch 1 & 2 (posted)
January 24	Ch 3: Temperature	Assignment 1 (Due)
January 31	Ch 4: Moisture and Atmospheric Stability	Assignment 2 Ch 3 & 4 (posted)
February 7	Ch 5: Forms of Condensation and Precipitation	Assignment 2 (Due)
February 14	Ch 6: Air Pressure and Winds	Assignment 3 Ch 5 & 6 (posted)
	February 18 – 22, Spring Reading Week	
February 27	Wednesday, Midterm exam Time: 3:30pm – 6:00pm (Chapters 1, 2, 3, 4, 5, 6)	
February 28	Ch 7: Circulation of the Atmosphere	Assignment 3 (Due)
March 7	Ch 8: Air Masses; Ch 9.1: Warm and Cold Fronts Ch 10: Thunderstorm and Tornadoes	Assignment 4 Ch 7, 8, 9 & 10 (posted)
March 14	Ch 11: Hurricanes	Assignment 4 (Due)
March 21	Ch 12: Weather Analysis and Forecasting	Assignment 5 Ch 11 & 12) (posted)
March 28	Ch 13: Air Pollution	Assignment 5 (Due)
April 4	Ch 14: Changing Climate Exam Review	
	Final Examination (Date to be announced)	

6. Course Components, Grades & Requirements

Your final grade in this course is obtained from the marks of various course components as shown below, and calculated according to the following scheme:

Course Component	Weight
Assignments (Best 4 out of 5)	15%
Midterm Exam	35%
Final Exam	50%

Requirements to pass the course:

To pass this course, you must obtain a final course mark of at least 50%. Grades will be posted on OWL course site regularly. It is your responsibility to check these grades regularly. Any errors or appeals to your scores must be reported to your course instructor within two weeks of their initial posting. The Department of Physics & Astronomy may, in rare cases, adjust the final course marks in order to conform to Department policy.

Midterm Exam: The date is given in Section 5. Exam room will be announced later.

Final Exam: The date and location of the final exam is to be scheduled by the Registrar's Office. This information will be posted on the course website when available.

Make up Midterm Exam and Final Exam: Approved accommodation is required for a makeup Midterm exam and make up final exam. Please see Section 7 of this document.

Assignments: There will be 5 assignments throughout the term. Best 4 out of 5 assignments will be counted for the final grade. Students can discuss the material among themselves, however, each student is required to hand in his/her own solutions showing original work. Assignments are to be handed in (hard copies) on the due date at the beginning of class at 5:30pm. The due dates are shown in Section 5: Course Topics and Schedules. Late assignments are subject to a late penalty as follows:

Late Assignments: Up to 24hrs after the due date/time: 20% of the maximum score per assignment will be deducted. Submit late assignments to the Dropbox on OWL in pdf format. Please do not upload .jpg images. No written feedback will be given on electronic copies submitted. Written feedback will be provided on the hard copies submitted, if necessary.

We will not accept late assignments 24hrs after the due date/time. The solutions will be posted on OWL 24 hrs after the regular due date/time.

Your Grade: You earn your grade by gaining a good knowledge and understanding of the course material, and completing the course requirements. To maximize this grade, you should:

- read the lecture notes and the chapters to be covered in the textbook before each class
- review past lectures regularly to prepare for the exams.
- attend class regularly; seek help for material that you do not understand.

If you are having difficulties with the course material, please contact your instructor. Helpful tips on learning skills can be found at the Student Development Centre: www.sdc.uwo.ca/learning

7. Make-up Policy

Please be aware of the following university regulations:

- If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your Dean's office as soon as possible, and immediately contact your instructor. It is the student's responsibility to make alternative arrangements with the course instructor once the accommodation has been approved by an academic counselor and sent to the instructor. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For more information:
- A student requiring academic accommodation due to illness must use the following forms: **Student Medical Certificate** when visiting an off-campus medical facility http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf **Record's Release Form** from the Dean's Office for visits to Student Health Services.

Please note that, unless accommodation has been granted by an academic counsellor, you will not be exempted from any course assignments or exams.

8. Scholastic Offenses (Cheating and Plagiarism)

Scholastic Offenses are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offense, at the following web site:

<http://www.westerncalendar.uwo.ca/PolicyPages.cfm?PolicyCategoryID=1&command=showCategory&SelectedCalendar=Live&ArchiveID=>

It is a scholastic offense to cheat on a test or exam, to plagiarize a course project or assignment, to modify marked material to falsely justify additional credit. Cheating also includes having available any other electronic devices than a watch or a calculator (non-programmable) during a test or exam. Committing a scholastic offense is attended by academic penalty, which may include expulsion from the program. Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating. If you are caught cheating, there will be no second warning. Any student caught engaging in this behavior will (1) receive a mark of zero on the course component in question; and (2) may be subject to a further, and often quite severe, penalty. The academic penalties can be severe, and **far outweigh any perceived benefits to be gained by such activities.**

9. Accessibility

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

10. Classroom Conduct

The lectures in this course are intended to provide students with an opportunity to learn, and we expect you to respect the rights of your classmates to benefit from the lectures by limiting your conversations to those essential to the class. Please arrive on time, switch off your cell phones and do not leave in and out during the lectures except for bathroom breaks. Laptops will only be allowed when used for the purpose of taking notes, and not for any other application. Disruptive behavior in class or on Sakai will not be tolerated by the university. Students who persist in loud, rude or otherwise disruptive or inappropriate behavior will be asked to leave the classroom.

11. Getting help

Students who are in emotional/mental distress should contact Mental Health at Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help. Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills.

Additional student-run support services are offered by the University Students' Council(USC): <http://westernusc.ca/>

The link to the website for Registrarial services is <http://www.registrar.uwo.ca/>

12. Accommodation for Religious Holidays

Please see the link below for the University's policy on accommodation due to religious holidays: http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_16

You must get the approval from an academic counsellor in your Dean's office for religious accommodation.

13. Feedback

If you have a concern about this course, please let us know. Please contact initially the person most directly involved – this will usually be your course instructor: kanthi@uwo.ca

If your concern cannot be resolved with the course instructor, or if there is something more general bothering you, talk it over with the Physics & Astronomy Department Chair or the Associate Chair of Undergraduate Studies. Contact information: <http://www.physics.uwo.ca>

This document is last Updated January 8, 2019