

# ERSC180

**STUDENT WARNING:** This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

## Course Summary

**Course :** ERSC180 **Title :** Introduction to Meteorology

**Length of Course :** 8

**Prerequisites :** N/A **Credit Hours :** 3

## Description

**Course Description:** Introduction to Meteorology covers the fundamental principles governing the behavior of our atmosphere and the duties and methods of the professional meteorologist. Students will gain insight into the exciting discipline of meteorology, discussing topics such as cloud formation, movement in the atmosphere, thunderstorms, tornadoes, meteorological satellites, and climate change. Students will discuss the process of the scientific method and also demonstrate science information literacy skills through source selection and creation of a narrated presentation.

### Course Scope:

The course is divided into 8 weeks with 2 new topics addressed each week. Topics range from the structure of the atmosphere to weather patterns to air pollution. A survey course such as this might be described as similar to the Platte River – a mile wide and an inch deep. The course introduces many topics, but time and students' backgrounds prevent focusing very deeply into any one topic.

## Objectives

The successful student will fulfill the following learning objectives:

- CO-1 Describe how the Earth's atmosphere absorbs and reflects incoming solar radiation and maintains Earth's energy balance, and describe the vertical and horizontal structures of the Earth's atmosphere.
- CO-2 Describe how temperature data are gathered and used; explains how moisture is observed and measured in the atmosphere.
- CO-3 Examine how clouds develop, describe what causes precipitation, what is meant by air pressure, pressure gradient force, and Coriolis force, and discuss wind characteristics at the surface and aloft.
- CO-4 Compare the technologies involved with meteorology and how they are applied to monitor conditions, create forecasts and disseminate warnings.
- CO-5 Explain what factors produce the climate of a location on Earth, compare and classify the various climates of the world.
- CO-6 Apply the laws of physics to hands-on weather observation and forecasting.
- CO-7 Identify atmospheric forces creating weather systems, to include fronts, high and low pressure

- and severe weather systems.
  - CO-8 Demonstrate knowledge atmospheric optics characteristics.
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## Outline

### Week 1: The Earth's Atmosphere and the Warming of the Earth's Atmosphere

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#### Course Objectives

- CO-1, CO-2

#### Textbook Readings

- Chapter 1.1, 1.2
- Chapter 2.1, 2.2

#### Required Tasks

- Week 1 Lesson
- Week 1 Scientific Process Lesson
- Week 1 Forum
- Week 1 Academic Honor Pledge Quiz
- Week 1 Quiz

#### COMET Modules (Optional)

- The Impact of Weather on Air Traffic Management
- Antarctica: Challenging Forecasts for a Challenging Environment

### Week 2: Global Energy and Atmospheric Moisture Budgets

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#### Course Objectives

- CO-1, CO-2

#### Textbook Readings

- Chapter 3.1, 3.2, 3.3, 3.4

#### Required Tasks

- Week 2 Lesson
- Week 2 Scientific Process Lesson
- Week 2 Forum
- Week 2 Quiz

#### COMET Modules (Optional)

- Definition of the Mesoscale
- Fog: Its Processes and Impacts to Aviation and Aviation Forecasting

### Week 3: Atmospheric Instability

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#### Course Objectives

- CO-1, CO-2, CO-3

#### Textbook Readings

- Chapter 2.3, 2.5

#### Required Tasks

- Week 3 Lesson
- Week 3 Scientific Process Lesson
- Week 3 Forum
- Week 3 Assignment 1
- Week 3 Quiz

#### COMET Modules (Optional)

- Urban Flooding: It Can Happen in a Flash!
- Rain Gauges: Are They Really Ground Truth?
- Skew-T Mastery

### **Week 4: Atmospheric and Oceanic Motion**

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#### Course Objectives

- CO-1, CO-3, CO-4

#### Textbook Readings

- Chapter 4.3

#### Required Tasks

- Week 4 Lesson
- Week 4 Scientific Process Lesson
- Week 4 Forum
- Week 4 Quiz

#### COMET Modules (Optional)

- Thermally-Forced Circulation I: Sea Breezes
- Jet Streams

### **Week 5: Weather Forecasting, and Synoptic and Mesoscale Weather**

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#### Course Objectives

- CO-2, CO-4, CO-5

#### Textbook Readings

- Chapter 10.1, 10.2

#### Required Tasks

- Week 5 Lesson
- Week 5 Scientific Process Lesson
- Week 5 Forum
- Week 5 Assignment 2

- Week 5 Quiz

#### COMET Modules (Optional)

- Weather Radar Fundamentals
- Principles of Convection I: Buoyancy and CAPE
- Principles of Convection III: Shear and Convective Storms

### **Week 6: Hurricanes and Air Pollution**

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#### Course Objectives

- CO-2, CO-3, CO-6

#### Textbook Readings

- Chapter 5.1, 5.2, 5.4
- Chapter 11.3

#### Required Tasks

- Week 6 Lesson
- Week 6 Scientific Process Lesson
- Week 6 Forum
- Week 6 Quiz

#### COMET Modules (Optional)

- Anticipating Hazardous Weather and Community Risk, 2nd Edition
- Supporting Military Emergency Response During Hazardous Releases

### **Week 7: Global Climate Change**

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#### Course Objectives

- CO-1, CO-2, CO-7

#### Textbook Readings

- Chapter 6.5

#### Required Tasks

- Week 7 Lesson
- Week 7 Scientific Process Lesson
- Week 7 Forum
- Week 7 Assignment 3
- Week 7 Quiz

#### COMET Modules (Optional)

- Introduction to Climatology

### **Week 8: Global Climate Change and Atmospheric Optics**

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#### Course Objectives

- CO-1, CO-8

## Required Tasks

- Week 8 Lesson
- Week 8 Scientific Process Lesson
- Week 8 Forum
- Week 8 Quiz

## Evaluation

Grades for this course will be based upon graded forum assignments, forums, labs, and quizzes.

### Forums

Weekly forum questions are provided in the Forum section of the E-classroom. Participation is mandatory and will count towards the course grade. All forum original comments are due at 11:55 pm, ET on the Wednesday of the assignment week. You are expected to provide an original, substantial comment of several well-written paragraphs in each session and participate in the ensuing discussion about your post. This is your discussion. You must also post a similar comment or reflection in reply to at least two other students' contribution. Statements such as "I agree" or "good post" will not count as a reply. Forums will require research and proper citation of sources.

### Weekly Quizzes

Each week there will be a quiz that consists of 33 multiple-choice questions testing material from the reading, lesson, and scientific process lesson. Each question is worth 3 points, except for one 4 point question that will require you to perform a calculation or interpret a map. You have 1 hour to complete the quiz. Please make sure that when you open the quiz, you are prepared to complete it as there will be no opportunities to restart the quiz once it's opened. It is recommended that you complete all reading and lessons prior to attempting the quiz. There are a total of 8 weekly quizzes; however the lowest quiz grade will be dropped.

### Assignments

There are 3 graded assignments, all of which pertaining to the research presentation due at the end of Week 7. These assignments include 1) writing annotated bibliographies for 3 credible meteorological resources, 2) constructing an outline for the research presentation, and 3) an audio-narrated research presentation on a topic of interest that relates to meteorology. More information for the assignments can be found under the "Assignments" tab.

Please see the [Student Handbook](#) to reference the University's [grading scale](#).

### Grading:

| Name           | Grade % |
|----------------|---------|
| Weekly Forums  | 16.00 % |
| Week 1 Forum   | 2.00 %  |
| Week 2 Forum   | 2.00 %  |
| Week 3 Forum   | 2.00 %  |
| Week 4 Forum   | 2.00 %  |
| Week 5 Forum   | 2.00 %  |
| Week 6 Forum   | 2.00 %  |
| Week 7 Forum   | 2.00 %  |
| Week 8 Forum   | 2.00 %  |
| Weekly Quizzes | 56.00 % |

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|---|----------------|
| Week 1 Quiz                                   | 8.00 %         |
| Week 2 Quiz                                   | 8.00 %         |
| Week 3 Quiz                                   | 8.00 %         |
| Week 4 Quiz                                   | 8.00 %         |
| Week 5 Quiz                                   | 8.00 %         |
| Week 6 Quiz                                   | 8.00 %         |
| Week 7 Quiz                                   | 8.00 %         |
| Week 8 Quiz                                   | 8.00 %         |
| <b>Assignments</b>                            | <b>28.00 %</b> |
| Week 3 - Assignment 1: Annotated Bibliography | 7.00 %         |
| Week 5 - Assignment 2: Presentation Outline   | 7.00 %         |
| Week 7 - Assignment 3: Research Presentation  | 14.00 %        |

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## Materials

**Book Title:** Atmosphere, Weather and Climate, 9th ed - e-book available in the APUS Online Library; link also provided in the classroom Lessons section

**Author:** Barry, Roger

**Publication Info:**

**ISBN:** 9780415465700

**Book Title:** Various resources from the APUS Library & the Open Web are used. Please visit <http://apus.libguides.com/er.php> to locate the course eReserve.\*

**Author:**

**Publication Info:**

**ISBN:** ERESERVE NOTE

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## Course Guidelines

### Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

### Tutoring

- [Tutor.com](http://www.tutor.com) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours\* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

## **Late Assignments**

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

## **Turn It In**

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

## **Academic Dishonesty**

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

## **Submission Guidelines**

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

## **Disclaimer Statement**

- Course content may vary from the outline to meet the needs of this particular group.

## **Communicating on the Forum**

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- Substantive means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says I agree is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

## **Identity Verification & Live Proctoring**

- Faculty may require students to provide proof of identity when submitting assignments or completing assessments in this course. Verification may be in the form of a photograph and/or video of the students face together with a valid photo ID, depending on the assignment format.
- Faculty may require live proctoring when completing assessments in this course. Proctoring may

include identity verification and continuous monitoring of the student by webcam and microphone during testing.

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## University Policies

### [Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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