

## GEO 2242: Extreme Weather Class #13801

Dr. David Keellings

MWF 10:40-11:30

L005 Turlington

Spring 2022

### Office Hours

Wednesday 10:00 am - 12:00 pm, other times **BY APPOINTMENT ONLY**

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Email: [djkeellings@ufl.edu](mailto:djkeellings@ufl.edu)

Note: For best results – utilize office hours. If you are having trouble with the course, come and see me sooner rather than later so that I can help you.

### Course Information

This course covers introductory information about Earth's atmosphere, weather development, and extreme weather events. To understand the destructive power of weather events, you must first have a basic understanding of why and how they form. In other words, this is a "science" course, although a background in calculus, chemistry, or physics is not required. This course will help you understand the weather outside your window every day and can serve as a springboard towards more advanced coursework in weather and climate. Students will be introduced to basic concepts of the science of weather and climate and current scientific developments in areas such as extreme weather forecasting and global climate change.

### Student Learning Objectives

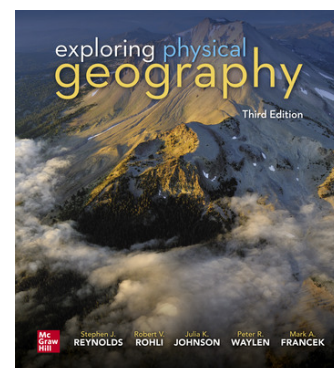
After completing the course, students should have developed a foundation of basic scientific literacy, and understanding of the fundamentals of atmospheric science. Specific learning objectives include:

- Demonstrate an ability to identify, define and apply the essential principles and underlying concepts that describe the atmosphere and the physical processes that govern weather and climate, and the atmosphere's interaction with other Earth systems
- Use Concepts of temperature distribution, global pressure, winds, precipitation mechanisms, and Earth/Sun relationships to explain the processes that determine global climate patterns
- Comprehend and associate geographic patterns at various spatial scales
- Demonstrate familiarity with scholarly and research methods
- Develop skills such as observation, data gathering, analysis, interpretation, and communication
- Demonstrate critical thinking skills as they relate to atmospheric science including the capacity to make informed decisions about human activities that impact the atmosphere

### Required Books

Exploring Physical Geography (third edition)  
by Reynolds, Rohli, Johnson, Waylen, and Francek  
<https://www.bsd.ufl.edu/AllAccess>

Course pack from Target Copy, included within the course pack are lecture notes, vocabulary lists, and study questions.



## **Grades and Grading Scale**

Exams (3 @ 30%): 90%

Homework Assignments: 10%

- **Exams:** Exams will be used to evaluate your proficiency in the course material. Three exams will be given that cover only the material since the previous exam.
- **Homework Assignments:** Assignments are to reinforce topics covered in lecture and to serve as preparation for the exams. Assignments will consist of several questions related to the material covered in lecture.

>=91.0% = A	90.0-90.9%= A-	87.0-89.9%= B+	81.0-86.9%= B
80.0-80.9%= B-	77.0-79.9%= C+	71.0-76.9%= C	70.0-70.9%= C-
67.0-69.9% = D+	64.0-66.9%= D	60.0-63.9%= D-	<60.0% = E

A grade threshold must be crossed in order to receive the letter grade indicated (no rounding). It is your responsibility to know your current grade. Grades will be posted to the course website. Information on current UF grading policies for assigning grade points may be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

## **Make-Up Exams and Assignments**

Students must notify the instructor as soon as possible in case of absence and provide documentation as to the reason for the absence. If deemed an excused absence, the student will be permitted a reasonable amount of time to make up the missed work. Requirements for make-up exams, assignments, and other work in this course are consistent with university policies that can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## **Late Work**

Late assignments will not be accepted unless documentation is provided for an excused absence.

## **Extra Credit**

Extra credit may be made available. Further details will be available about the extra credit later in the semester.

## **Canvas Course Website Information**

This syllabus, announcements concerning exams, some lecture content, grades, and other course information will be posted on Canvas course management system. Access this page at <https://elearning.ufl.edu/>. If you miss a class, it is your responsibility to learn the material covered during your absence. Come see me if you have any questions. Students must activate their UF GatorLink account in order to use Canvas. If you need help learning how to perform various tasks related to this course or other courses that utilize Canvas, please consult the above webpage. You may also contact the UF Computing Help Desk at (352) 392- HELP(4357) or [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu)

## **Accommodations for Students with Disabilities**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. After initial arrangements are made with that office, notify me in writing as soon as possible, and a minimum of one week before an exam.

## **Academic Honesty**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.” On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

## **Attendance and Proper Conduct**

I have no policy of mandatory attendance. You are all adults and can decide to come to class or not. But you are also the only person responsible for attaining the grade you want. When you enter the lecture room you are doing so of your own will, not because you are being forced to. When you make the choice you are also agreeing to show respect to your fellow students by allowing them to hear the lecture materials without having to compete with background chit-chat. Turn off cell phones, put away newspapers, and refrain from casual conversation once class begins. If you have a question – please raise your hand or ask at the end of class.

**Recordings and Notes:** It is not permitted to sell or distribute notes or recordings from this class without written consent of the instructor. Nor are students permitted to disseminate recordings of the instructor lecturing or post copies of assignments or exams on the internet.

The University of Florida is committed to an ethical, inclusive community defined by respect and civility. The University of Florida prohibits discrimination against any person. The U Matter website (<https://umatter.ufl.edu/refer-or-report/>) provides a list of reporting channels that can be used to report incidences of illegal discrimination, harassment, sexual assault, sexual violence, retaliation, threat assessment or fraud.

## **Course Evaluation**

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

Your evaluations are used by faculty to improve their courses and teaching methods, and by department chairs and college deans to assess teaching effectiveness. Without your responsible input, we cannot effectively assess and improve teaching performance and student learning. Please be honest, fair, and constructive as you complete your evaluations.

## **Campus Resources**

### **Health and Wellness**

- U Matter, We Care: Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

- Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.
- Sexual Discrimination, Harassment, Assault, or Violence: If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the Office of Title IX Compliance, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)
- Sexual Assault Recovery Services (SARS)
- Student Health Care Center, 392-1161.
- University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>

### **Academic Resources**

- Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://career.ufl.edu/>
- Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.
- Student Complaints Campus: <https://registrar.ufl.edu/complaint.html>.
- On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.

**Course Schedule** (Subject to Change)

Date	Lecture Topics	Homework
5-Jan	Introduction	
7-Jan	Atmospheric Composition	
10-Jan	Earth-Sun Relationships & Seasons	Problem Set (Zenith Angles) DUE Jan. 21 <sup>st</sup> 11:59pm
12-Jan	Energy Transport Processes	
14-Jan	Zenith Angle & Changing Seasons	
17-Jan	NO CLASS – MLK DAY	Practice Questions (First Exam) DUE Jan. 25 <sup>th</sup> 11:59pm
19-Jan	Radiation Laws & The Greenhouse Effect	
21-Jan	Temperature Controls & Latent Heat	
24-Jan	Temperature Controls & Latent Heat	
26-Jan	Review (in class)	
28-Jan	<b>Exam 1 (in class)</b>	
31-Jan	Moisture & Humidity	Problem Set (Atmospheric Stability) DUE Feb. 11 <sup>th</sup> 11:59pm
2-Feb	Stability & Lifting Mechanisms	
4-Feb	Stability & Lifting Mechanisms	
7-Feb	Forms of Condensation & Precipitation	
9-Feb	Forms of Condensation & Precipitation	
11-Feb	Air Pressure, PGF, & Coriolis	Online Interactive (Global Circulation) DUE Feb. 18 <sup>th</sup> 11:59pm
14-Feb	Air Pressure, PGF, & Coriolis	
16-Feb	Global Circulation	
18-Feb	Global Circulation	
21-Feb	Wettest & Driest Places on Earth	Practice Questions (Second Exam) DUE Feb. 22 <sup>nd</sup> 11:59pm
23-Feb	Review (in class)	
25-Feb	<b>Exam 2 (in class)</b>	
28-Feb	Fronts & Air Masses & Mid Latitude Cyclones	
2-Mar	Fronts & Air Masses & Mid Latitude Cyclones	
4-Mar	Thunderstorms	
7-Mar	NO CLASS – Spring Break	
9-Mar	NO CLASS – Spring Break	
11-Mar	NO CLASS – Spring Break	
14-Mar	Thunderstorms	
16-Mar	Tornadoes	
18-Mar	Tornadoes	
21-Mar	Tropical Cyclones	
23-Mar	Tropical Cyclones	
25-Mar	World's Most Notable Tropical Cyclones	
28-Mar	Regional Tropical Circulations (Monsoon, ENSO)	
30-Mar	Regional Tropical Circulations (Monsoon, ENSO)	
1-Apr	Heat Waves	
4-Apr	Heat Waves	
6-Apr	Climate Change	
8-Apr	Climate Change	
11-Apr	Climate Change	Practice Questions (Third Exam) DUE April 12 <sup>th</sup> 11:59pm
13-Apr	Review (in class)	
15-Apr	<b>Exam 3 (in class)</b>	
18-Apr	TBD	
20-Apr	TBD	