

EMBRY-RIDDLE

Aeronautical University

Advanced Synoptic Analysis and Forecasting DB-WX 466

Section(s): 01DB

Daytona/Prescott 2021 Fall

Course Information

Academic Term: Daytona/Prescott 2021 Fall

Term Dates: Aug 30, 2021 - Dec 15, 2021

Credit Hours: 3

Mode of Delivery: In Person

Class Meetings: 03:35 PM - 04:25 PM Monday, Wednesday, Friday

Location: College of Aviation 353

Instructor Information



Name

Dr. Shawn Milrad

Email

milrads@erau.edu

Phone

386-226-7392

Student Hours/Office Hours

Student Hours/Office Hours

- **MWF: Noon-2 pm**
- **TuTh: Noon-5 pm**
- **By appointment**

For COVID-19 reasons, if you do wish to meet in my office, I politely request that you wear a face covering. I'm also more than happy to meet with you in the Weather Lab or

outside at a picnic table if it's easier to spread out. Just let me know!

I will also have virtual office hours available via Zoom during my scheduled office hours or by appointment. Use the sign-on information below. If I do not let you in from the Zoom waiting room right away, it means I am likely with another student.

Sign-on information:

- <https://erau.zoom.us/j/91702536172?pwd=MEFpbHR0d2YvVG4rVVlxRUQvaXZlZz09>
- Meeting ID: 917 0253 6172
- Password: tornado

Office Location

COA331

Instructor Page

Forecast links: <http://www.shawnmilrad.com/forecast>

Additional Info

GFS synoptic charts:

<https://wx.erau.edu/milradsyn.php>

Catalog Course Description

Weather forecasting tools and techniques. Daily forecasting for locations across the nation and globe. Temperature, wind, and precipitation forecasting; numerical forecast model products; model-output statistics (MOS); National Weather Service (NWS) products and services; applications of Quasi-Geostrophic (QG) theory; Potential Vorticity (PV) thinking and applications; isentropic analysis and applications; dynamically and physically-based case studies

Additional Course Description

Course Objectives

- Produce and verify regular forecasts for Daytona Beach/the ERAU campus.
- Complete weekly oral and written forecast discussions based on "theme" forecast topics (e.g., tropical cyclones, QPF/flash flooding, severe weather, fire weather, medium-range, etc.).
- Regularly use the NWP model and human forecast tools, techniques, and products learned in WX378.
- Be able to analyze synoptic weather charts, and identify key large-scale features (e.g., jet streaks, troughs, fronts) from these charts.
- Learn all aspects of Quasi-Geostrophic (QG) Theory, PV Thinking, and Isentropic Analysis, and apply them to the analysis and forecasting of large-scale weather systems.

Course Format

- This is a **hands-on weather forecasting and discussion course**. You will be forecasting and giving/writing forecast discussions most of the semester.
- **Participation** in all forecast discussions is strongly encouraged. **In general, the less I talk the better.**
- **Many (but not all) class periods will start with a student-led oral forecast discussion** for a forecast "theme" and location/region TBD. The rest of the period will be spent learning about synoptic meteorology theory.
- Students will also produce regular **written (e-mailed) forecast theme discussions** for locations/regions TBD across the globe.

- Lecture materials that **involve quantitative analysis and/or equations** will **NOT be in PowerPoint**. They will be written on the dry erase board. Prepare to take notes!

COVID-19 Notes

- Since the university is mandating face-to-face classes, my goal is to try to make this course feel as “normal” as possible.
- If you cannot make class due to quarantine or illness, I will be recording and posting lectures on EagleVision Zoom through Canvas. But remember, **in-person attendance is part of your grade, unless you have a university-approved reason to be excused.**
 - I understand this can be an uncertain and scary time for all of us. I promise that no matter your situation, I will work with you. Please feel free to talk with me at any time.

Course Goals

1. Produce regular oral and written forecast discussions and weather forecasts for locations across the country and the world, including Daytona Beach.
2. Make temperature and precipitation forecasts based upon physical understanding of the appropriate synoptic-scale (QG theory and PV thinking) and mesoscale mechanisms.
3. Gain understanding of PV thinking and isentropic analysis. Be able to use both for weather analysis and forecasting, and compare/contrast with QG theory.

Student Learning Outcomes

1. Describe the main components of the forecast process, including observation, analysis, diagnosis, prognosis, product preparation, product delivery and product verification.
2. Describe the forecasting process, describe the principles behind numerical weather prediction (NWP), and interpret basic operational NWP output.
3. Describe the principles behind ensemble forecasting and how such an approach can be used for short-, medium- and long-range forecasting.
4. Describe the function of the National Weather Service in monitoring and forecasting the weather and the role of other service providers.
5. Describe the key products and services, including warnings of hazardous weather conditions, based on current and forecast weather information, that are provided to the public and other users, and describe how the products and services are used (for example, for decision-making and managing risk).
6. Describe factors affecting local weather (for example, the effect of orography and large bodies of water on cloud and precipitation, or the effect of land surface types).
7. Apply information from various sources to explain the current weather conditions, and use basic forecasting techniques, including the interpretation of NWP output, to forecast atmospheric variables (for example, maximum and minimum temperature, wind, and precipitation type and intensity) at a specific location.
8. Communicate weather information, orally or in written form using deterministic and probabilistic approaches, that meets user requirements.
9. Analyze recent and/or historic weather events to assess the extent to which theories and conceptual models of mid-latitude and polar weather systems resemble reality.
10. Explain the dynamic and physical aspects of potential vorticity (PV) thinking, how it relates to QG theory, and apply to weather analyses and

forecasts.

11. Explain the dynamic and physical aspects of isentropic analysis, and apply to weather analyses and forecasts.

Prerequisite(s): WX 466 Prerequisite is WX 375 and WX 378.

Required Course Materials

Text/Tool: No required text. All materials will be posted on Canvas

Assessment Activities

Daytona Beach/Campus Forecasts (see Daytona Forecasts guide on Canvas)

- These will be very similar to what you produced for WX378.
- Starting Tuesday 9/7, each student will produce **7-day forecasts for Daytona each MWF**.
- Forecasts are due by **noon on your specified day (Monday-Saturday)**
- Forecasts must be **entered on the morning they are due (anytime from midnight to noon)**.
- Forecasts will be **posted to the ERAU Meteorology Website (<https://wx.erau.edu/weather.php>)** and used by the broadcast meteorology courses as well as other entities on campus.
- I will keep verification stats for the first few weeks, but later in the semester, **there will be a forecast verification assignment where **you** will have to calculate how well each group is performing.**

Theme Forecast Discussions (oral and written; see Forecast Discussion Grading Rubric on Canvas)

- Every 3 weeks, we will begin a new forecast "theme". These themes will be: tropical cyclones, severe/fire weather, QPF/flash flooding, extreme heat/cold/medium-range forecasting, and winter weather.
- Each week, rotating groups of 2 students will produce one oral and one written forecast discussion. Every student will get one oral and one written discussion per "theme". I will assign the locations to focus on the week of your group's discussions.

- The idea of these themed discussions is to replace the "point forecasts" of WxChallenge with broad large-area discussions focused on a specific meteorological hazard, similar to the discussions produced at the NCEP Centers (NHC, WPC, SPC, CPC, etc.). These will help prepare you for the blind case study that is the Final Project.
- Forecast discussions will be graded based on content, readability, AND accuracy. Please see the **Forecast Grading Rubric** for more information.

Homework Assignments:

- There will be approximately **6-8 assignments** during the semester on quantitative synoptic meteorology topics.
- Assignments are designed to help you prepare for the exams and final project.

Exams:

- There will be **two in-class exams** (one in late-October, one the week after Thanksgiving).
- Exams will be based on the **lecture materials and HW assignments**.
- Study guides will be provided approximately one week prior to each exam.

Final Project

- A comprehensive "blind" forecast project that will require written forecast products and a 15-minute **oral presentation** during our scheduled "final exam" time.
- **These will be done individually.**
- I will give detailed instructions just after Thanksgiving.

Grading

Grading

- **Daytona Forecasts/Verification and Theme Forecast Discussions:** 17.5%
- **HW Assignments/Labs (Synoptic Meteorology Concepts):** 17.5%
- **First Exam:** 20%
- **Second Exam:** 20%
- **Final Project:** 25%
- **Attendance will affect your grade in the following ways:**
 1. 0 unexcused absences +2.0% to final grade
 2. 1 unexcused absence +1.5% to final grade
 3. 2-3 unexcused absences +1.0% to final grade
 4. 4-6 unexcused absences +0% to final grade
 5. > 6 unexcused absences **Loss of full letter grade**
- **Daytona Forecasts extra credit:**
 - #1 overall student: +2.0% to course grade
 - #2 overall student: +1.5% to course grade
 - #3 overall student: +1.0% to course grade
 - Top-ranked group for each forecast parameter: +0.5% to course grade
- **Final grades: *Strictly*** rounded to the nearest whole degree, i.e., 89.5 = "A," but an 89.4 = "B." Your attendance record is intended to be the discriminator for borderline grades.

Letter Grade	Percentage
A	90 - 100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	< 60%

University Policies

ACADEMIC INTEGRITY

Embry-Riddle is committed to maintaining and upholding academic integrity. Academic integrity violations include cheating, fraud, plagiarism, and double-submissions. More specific definitions of these violations and their consequences are described in the Dean of Students' **Honor Codes and Student Policies**. To ensure fair and full achievement of degree requirements, students must prepare and present their own work. To show that they have completed their work with academic integrity, students should keep any drafts, notes, calculations, and the like.

Course Policies

1. **Seven or more unexcused absences** will result in an automatic **loss of one full letter grade**.
2. Completing the attendance quizzes as proof of attendance is the responsibility of the student.
3. Students must submit each excused absence in writing (email is acceptable) prior to the start of class (with the obvious exception of personal or family medical emergencies). Illnesses extending more than one class period require documentation from the university health clinic or other medical professional. University-sponsored events require written documentation. Examples of valid excuses are: illness, medical emergency, university-sponsored academic, professional or ERAU athletic events. Oversleeping, personal vacations, club events are not valid excuses.
4. **Please be on time.** If you are more than 10 minutes late, it may be counted as an unexcused absence.
5. Late homework will be docked one full letter grade (10%), unless the absence is excused in advance. Unexcused homework and labs over 1 class period late will not be accepted.
6. Make-up exams will not be given except for excused absences. Obtain verified excused absences from Health Services (7917) or Student Services Office (6326).
7. Academic dishonesty will not be tolerated and could result in dismissal from the University.
8. If you have any difficulties or special needs that hinder your learning in the class, please see me about providing accommodations needed to overcome your difficulties.

9. **CELL PHONES:** During class, please turn all cell phones to vibrate or silent, and **please refrain from checking email, Facebook, Instachat, Snapface, Tick Tock,** and any other app I am far too old to be aware of.
10. **COMPUTER/TABLET USAGE:** Computers are only to be used for in-class activities, following along with lectures, or when directed by the professor. Please refrain from checking/using/playing with email/social media/text chats/video games etc. during class. Yes, even Twitter.
11. **PERSONAL CONVERSATIONS:** Except for in-class activities or when directed by the instructor, personal conversations are prohibited during class, including cell phone conversations and text messages.

Student Resources

ACADEMIC ADVANCEMENT (A²) TUTORING CENTER

The **Academic Advancement (A²) Center** is your direct connection to academic support. The A² Center provides free tutoring and Supplemental Instruction (SI) to all students located on the first floor of New Residence Hall 3 (NH3) on the Daytona Beach campus. The A² Center provides peer led tutoring for foundational math, physics, engineering, biology, chemistry, and writing courses.

Please refer to the **A² Center website** for details and schedules.

Math Tutoring Lab provides students necessary resources to succeed in their 100- and 200-level math courses. Location: NRH3 Room 112

Physics Tutoring Lab offers free tutoring in their 100- and 200-level foundational engineering and aviation physics courses. Location: NRH3 Room 118

Engineering Tutoring Lab provides tutoring in foundational ES/EGR courses listed below. Location: NRH3 Room 113

- EGR 115 - Introduction to Computing for Engineers
- ES 201 - Statics
- ES 202 - Solid Mechanics
- ES 204 - Dynamics

- AE 201 - Aerospace Flight Vehicles

Chemistry & Biology Tutoring Lab provides tutoring within foundational chemistry and biology course listed below. Location: NRH3 Room 120

- General Chemistry I & II
- Organic Chemistry
- Biology I & II
- Anatomy & Physiology I & II
- Neurobiology

Weather Tutoring Lab is open Monday through Friday from 9 am to 5 pm and staffed with both virtual and face-to-face tutors who can help you with many meteorology, math and physics courses. The weather lab is located in COA 356.

The Writing Center provides student-led tutoring that adapts to the diverse needs of every writer. We are a teaching and learning service that fosters academic success through the development of independent thinking skills. Visit [Microsoft Bookings](#) to book a session now. Location: NRH3 Room 126

General Study Area encourages students to collaborate with their peers and form study groups at their convenience. Location: NRH3 Room 119

Computer Lab is open to all students and is equipped with standard academic university software and free printing. Location: NRH3 Room 117

CAMPUS SAFETY & SECURITY

Campus Safety & Security officers are on duty 24 hours per day, 365 days a year. We strongly encourage students to report crimes, emergencies, or suspicious conditions to Safety & Security by calling the department's Communications Center at 386-226-6480. In the event of an emergency, call 386-226-SAFE (7233).

CANVAS HELP

When logged in to Canvas, click Help – located at the bottom of the global navigation on the left side. This menu has choices for Canvas Support that you can choose from:

- Search the Canvas Guides
- Canvas Support Hotline at 1-833-334-2831, available 24 hours a day, 7 days a week
- Chat with Canvas Support

COUNSELING CENTER

We know that university life at ERAU can be demanding. Balancing academics, work, athletics, finances, family, health, and social life can be stressful. You may experience challenges including struggles with your personal well-being. If you are needing support, the ERAU Counseling Center can provide a calm, friendly and supportive environment for students to address any issue or concern. Counseling is available to all currently enrolled DB students. Counseling is confidential and offered free of charge. They are located in the Wellness Center Complex, building 502 and can be reached at 386-226-6035. For more information about services and hours:

<https://daytonabeach.erau.edu/about/counseling>

**If you find yourself in an immediate mental health crisis, please call Campus Safety at 386-226-6480 or call 911.*

DIGITAL STUDIO

The **Digital Studio** offers free digital design tutoring. At the Digital Studio, tutors can assist students with any aspect of the digital design process, including document design, poster design, information visualizations, podcast recording, and video editing. The Digital Studio offers students access to the Adobe Creative Cloud, Final Cut Pro, and a variety of other software. Appointments can be made here: <https://erau.mywconline.com>. You must create an account in order to schedule an appointment. The Digital Studio is located in SU 431.

DISABILITY SERVICES

ERAU is committed to the success of all students. It is a University policy to provide reasonable accommodations to students with disabilities who qualify for services. If you would like to request accommodations due to a physical, mental, or learning disability, please contact the **Disability Support Services Office** at 386-226-7916 or by email at dbdss@erau.edu.

Disability Support Services' administrative office is located in Building #500. Disability Support Services' Testing Center is located in the Annex Building, room 217 and can be reached at (386) 226-2903.

THE CENTER FOR FAITH AND SPIRITUALITY/CHAPLAINS OFFICE

The **Center for Faith and Spirituality** has five prayer and meditation rooms which are open to everyone from 6 a.m. until 10 p.m. There is also the Center for Faith and Spirituality Chapel located in the Center for Faith and Spirituality. There are two chaplains serving the Daytona Beach campus of Embry-Riddle Aeronautical University: Reverend David Keck and Father Tim Daly (Roman Catholic Chaplain). They work with students of all faiths as well as those from no faith tradition.

FOOD PANTRY

We believe access to food is a human right, accessible to every student. We are committed to educating and distributing aid to our Embry-Riddle community. The mission of the Food Pantry program is to support the academic success of students by providing supplemental food for those who are experiencing food insecurity. Students can apply for aid on the **Food Pantry Request form**. The pantry is open from 11 a.m. to 1 p.m., on Tuesdays and Thursdays with no appointment necessary, and from 9 a.m. to 5 p.m. Mondays, Wednesdays and Fridays by appointment.

HEALTH SERVICES

The **Daytona Beach Health Services** clinic is located in Building 500 on the corner of Richard Petty and Clyde Morris Blvd. Health Services will assist students with their medical appointment scheduling, billing, and insurance questions. Health Services can be reached at 386-226-7917 or dbhealth@erau.edu. Health Services is staffed with registered nurses, a nurse practitioner, a physician, a physician assistant, a registered license

dietitian, a Flight Medical Support Specialist, and an insurance specialist. When receiving services – whether in-person or virtually – students are required to bring/submit a current copy of their health insurance card. All students are seen and treated at Health Services regardless of their insurance.

HUNT LIBRARY

The Hunt Library is here to help you succeed with finding just the right information resources. For detailed research assistance, please contact [Ask a Librarian](#).

- Website: <https://huntlibrary.erau.edu>
- Email: library@erau.edu
- Phone: 386-226-7656 | 800-678-9428

INTERNATIONAL STUDENT & SCHOLAR SERVICES

International students with questions about I-20s, visas or other related services that assist with the maintenance of their status and immigration compliance should contact [International Student & Scholar Services](#) at 386-226-6579 or dbiss@erau.edu. For other international student related issues and questions such as health insurance, taxes, drivers' licenses, campus work authorization, please contact the International Programs Administration Office at 386-323-8133. Both offices are located on the first floor of New Residence Hall 3.

OFFICE OF DIVERSITY, EQUITY AND INCLUSION

The mission of the Office of Diversity and Inclusion is to advance the campus community's understanding, commitment, and respect for diversity, equity, and inclusion. Through providing and/or supporting education, mentoring, programming, advocacy, and outreach the office fosters an environment that is both beneficial and supportive for all students, faculty, and staff. To learn more about the office, campus offerings and resources, visit the [Office of Diversity and Inclusion ERNIE page](#). Through reviewing the ERNIE page, you can learn ways our office and campus partners strive to create an institutional culture where diversity, equity, and inclusion are ingrained in our

community. For additional information please contact diversit@erau.edu. Both the Office of Diversity and Inclusion and the Diversity and Inclusion Lounge are located on the first floor of the New Residence Hall 3 within the International Programs Suite.

STUDENT ATHLETE SERVICES

For student-athletes participating in a full schedule of practice, school, matches/games/meets, know that I am aware of the difficult schedule. Please use your available tutors and academic assistance wisely. The Braddock Educational Support Team (BEST Program) includes tutoring and mentoring by student-athlete Study Mentors. It's Eagles Helping Helping Eagles!

Associate Athletic Director for Student Success/SWA

Sonja Taylor

Email: taylorso@erau.edu

Phone: 386-226-6735

STUDENT GOVERNMENT

Student Government Association (SGA) proudly offers a variety of services to improve student life on campus. Through its four branches, SGA can fund student organizations, advocate for students, and carry out multiple projects. Besides giving students a voice on campus, SGA also provides students with information and entertainment through *The Avion*, Touch-N-Go Productions, and WIKD radio station.

TITLE IX

Title IX of the Education Amendments of 1972 ("Title IX") is a Federal civil rights law that prohibits discrimination on the basis of sex in education programs and activities. All public and private elementary and secondary schools, school districts, colleges, and universities receiving any Federal funds must comply with Title IX.

The Title IX Office oversees compliance of Title IX Sexual Harassment in accordance with Federal Regulations as well as incidents falling under the University Sexual Misconduct policy. Policy violations can include sexual

harassment or sexual violence, such as rape, sexual assault, sexual misconduct, sexual battery, sexual coercion, and stalking.

Anyone **may** report suspected or known violations directly to the Title IX Office. However, there are certain persons / offices who **must** report incidents to the Title IX Office (mandatory). Those are Campus Safety & Security, Dean of Students (or designee), Vice President of Human Resources (or designee). Please refer to the policy and/or contact the Title IX Office for more specifics related to filing a report.

Title IX Office

Contact information: 386/226-7971; 386/226-6677; 386/481-9131

Online form: dbtix.erau.edu

Email: dbtitle9@erau.edu

UNDERGRADUATE RESEARCH

Embry-Riddle strives to create a culture of knowledge discovery through research. The **Office of Undergraduate Research** engages undergraduate students in faculty-mentored research that is both faculty and student-led. Our mission is to provide a diverse set of opportunities for all undergraduate students to enhance their education through engagement in research, inquiry, innovation, and/or other scholarly projects.

VETERANS STUDENT SERVICES

Being a student veteran can result in a variety of complexities that might require accommodations. Complications with VA benefits disbursements, and other unforeseen military-related developments can complicate your academic life. Therefore, please consider making professors aware of your Veteran status and contacting Veterans Student Services.

Veteran Student Services (VSS) facilitates the transition of military-affiliated students from military culture to University life, supports their academic success through informative programming, and assists veterans, active service members, guardsmen, reservists, and military dependents in receiving their military educational benefits. The unit is staffed with qualified

school certifying officials who deliver a broad range of services; while providing informal counseling to students using VA educational benefits. In addition, VSS works in collaboration with our **Student Veterans of America chapter** and **Faculty-4-Veterans**, who support the unit in addressing the needs of our military-affiliated students across campus. VSS, which is located in Building 509, can be reached at 386-226-6350 or dbva@erau.edu

WEATHER EMERGENCY STATEMENT

Hurricanes, tornadoes and other natural disasters (such as fires) are a part of life in Florida. In the event a natural disaster threatens our area, everyone at ERAU is expected to monitor voicemail, email, and the local media for any changes to the normal schedule, including evacuation plans. Decisions to close the Daytona Beach campus are typically made sometime in the afternoon on the day before the intended closure. In the event of an emergency during class hours, please listen carefully to directions from your instructor. If it becomes necessary to evacuate the classroom, we will gather at a designated meeting point away from the building and take attendance to ensure everyone is safe and accounted for. As part of the disaster preparedness process, it is strongly suggested that each member of the ERAU community enroll in the RAVE emergency notification system. If you have not done so, please sign up using the link provided on your ERNIE home page.

ERAU Coronavirus Updates

Information on testing, vaccinations, health services, procedures and frequently asked questions are available at <https://erau.edu/coronavirus/>

Face Masks Strongly Encouraged: Consistent with **current recommendations** of the Centers for Disease Control and Prevention, and Embry-Riddle's long-standing culture of safety, all students (vaccinated or unvaccinated) are strongly encouraged to wear face masks indoors especially during their in-person classes and in other group indoor settings, including faculty office hours.

Vaccinations Strongly Encouraged: All students are strongly encouraged to receive a vaccination against Covid-19. Vaccinations are available at convenient **campus locations**.

Course Schedule

The following is a list of course topics in the approximate order that they will be covered. **Exam and project dates are written in bold underline.** Forecast discussion schedules by group can be found in the Forecast Schedule on Canvas. Dates are subject to change slightly, as necessary.

- Week 1 (8/30)
 - Forecast discussion theme: Tropical cyclones
 - Synoptic meteorology topic: Review of QG Theory basics
- Week 2 (9/6)
 - Forecast discussion theme: Tropical cyclones
 - Synoptic meteorology topic: QG Vorticity and Thermodynamic Equations
 - **Daytona Beach Forecasts Begin**
- Week 3 (9/13)
 - Forecast discussion theme: Tropical cyclones
 - Synoptic meteorology topic: Deriving and analyzing the QG Height Tendency Equation
- Week 4 (9/20)

- Forecast discussion theme: Severe/fire weather
- Synoptic meteorology topic: Deriving and analyzing the QG Height Tendency Equation
- Week 5 (9/27)
 - Forecast discussion theme: Severe/fire weather
 - Synoptic meteorology topic: Deriving and analyzing the QG Height Tendency Equation
- Week 6 (10/4)
 - Forecast discussion theme: Severe/fire weather
 - Synoptic meteorology topic: Deriving and analyzing the QG Omega Equation
- Week 7 (10/11)
 - Forecast discussion theme: QPF/flash flooding
 - Synoptic meteorology topic: Deriving and analyzing the QG Omega Equation
- Week 8 (10/18)
 - Forecast discussion theme: QPF/flash flooding
 - Synoptic meteorology topic: Sutcliffe-Trenberth form of the QG Omega Equation
 - **Fall Break**
- Week 9 (10/25)
 - Forecast discussion theme: QPF/flash flooding
 - Synoptic meteorology topic: Q-vector form of the QG Omega Equation
 - **Exam 1 (probably Friday 10/29)**
- Week 10 (11/1)
 - Forecast discussion theme: Extreme Heat/Cold and Medium-Range Forecasting
 - Synoptic meteorology topic: Q-vector form of QG Omega Equation
- Week 11 (11/8)
 - Forecast discussion theme: Extreme Heat/Cold and Medium-Range Forecasting
 - Synoptic meteorology topic: Isentropic Analysis
- Week 12 (11/15)
 - Forecast discussion theme: Extreme Heat/Cold and Medium-Range Forecasting

- Synoptic meteorology topic: Isentropic Analysis
- Week 13 (11/22)
 - Forecast discussion theme: Winter Weather
 - **Thanksgiving Break**
- Week 14 (11/29)
 - Forecast discussion theme: Winter Weather
 - Synoptic meteorology topic: Practice Blind Case Studies
 - **Exam 2 (Take home: Assigned Friday 12/3, due Friday 12/10)**
- Week 15 (12/6)
 - Forecast discussion theme: Winter Weather
 - Synoptic meteorology topic: Practice Blind Case Studies
 - **Final Projects Assigned**
- **Final Projects Due and Presentation Period: Tuesday December 14th, 7:15 pm**

Summary of Important Dates

Date Due	Name (Link)	Event Type	Points
9/6	Labor Day	Holiday	
10/22	Fall Break	Holiday	
10/25	Zoom Class	Assignment	
11/24	Thanksgiving Break	Holiday	
10/29	Exam 1 (Tentative Date)	Exam	
11/26	Thanksgiving Break	Holiday	
12/3	Exam 2 (Take home exam) handed out	Exam	
12/14	Final Project Presentations (7:15 pm)	Assignment	
10/5	Assignment #1	Assignment	105

Date Due	Name (Link)	Event Type	Points
10/20	Assignment #3	Assignment	40
10/21	Assignment #2	Assignment	80
11/19	Assignment #4	Assignment	70
	Severe/Fire Theme Discussions	Assignment	100
	TC Theme Discussions	Assignment	100
	Exam 1	Assignment	100
	Heavy Rainfall/Flash Flood Theme Discussions	Assignment	100
	Medium-Range Forecasting Theme Discussions	Assignment	100
12/10	Exam 2 (Take home exam) due	Exam	
12/6	Final Project Data Handed Out	Assignment	
12/3	Assignment #5	Assignment	70
12/10	Exam 2	Assignment	100
12/14	Final Project Assignment Materials	Assignment	100
	Winter Weather Theme Discussions	Assignment	100