



Severe Weather Field Forecasting DB-WX 340

Section(s): SWDB

Course Information

Academic Term: Summer A

Term Dates: May 17, 2022 - June 27, 2022

Credit Hours: 3

Mode of Delivery: Summer Abroad

is 11:30-1 pm while on campus

is COA 351 while on campus

Catalog Course Description

Severe storm forecasting and observation in a real-time in situ environment. Severe thunderstorm basics, analysis, forecast techniques and tools; severe weather risks and safety protocols; visual thunderstorm cues; collaborative data collection, analysis, and interpretation.

Additional Course Description

Primary course benefits:

- Hands-on experience in analyzing and forecasting the location, timing, and intensity of severe thunderstorms and tornadoes
- Understanding, recognizing, and using severe storm visual cues that can only be observed in the Great Plains
- Learning how to observe storms in the field safely and responsibly, with minimal risk to participants

Course Goals

Students will gain experience in forecasting severe weather as well as develop skills in safely observing, identifying, and documenting visual phenomena associated with thunderstorms. Students will also gain experience in collaboratively analyzing weather data and presenting results to peers.

Student Learning Outcomes

1. Relate the geography of the Great Plains to the thunderstorm climatology of the region.
2. Analyze atmospheric data from multiple data sources (e.g., soundings, radar, satellite, surface observations, models) for severe weather and tornado potential.
3. Predict severe thunderstorm formation and motion.
4. Relate observed severe thunderstorm visual cues to atmospheric processes.
5. Apply severe weather safety protocols.
6. Prepare and provide severe weather forecast briefings.
7. Construct a severe thunderstorm case study.

Additional Student Learning Outcomes

Course Objectives: Gain hands-on field experience in important aspects of severe weather.

- Storm chasing safety and preparedness
- Ingredients-based analysis and forecasting
- Observational techniques and visual cues
- Case study analysis/research

Prerequisite(s): WX 340 Prerequisite is WX 301.

Required Course Materials

Text/Tool: No required text

Text/Tool: Storm Chase Forecasting Links website

Link: <http://www.shawnmilrad.com/forecast/#chase>

Assessment Activities

- **Safety quiz + mock scenario discussion: 25%**
- **Participation in forecast, observation, and teamwork activities in the field: 25%**
- **Storm observation journal: 25%**
- **Case Study Final Presentation: 25%**

Lectures, Safety Quiz, and Mock Scenario Analysis (25% of grade)

- Monday 5/23: Severe weather ingredients; chasing safety and guidelines
- Tuesday 5/24: Chasing safety and guidelines; forecasting tools and techniques; safety quiz assigned
- Wednesday 5/25: Radio tutorial; forecasting tools and techniques; start mock chase scenarios using past cases (3 groups of 3, one group of 4)

- Thursday 5/26: Present mock scenario analysis; group forecast discussion for upcoming days; safety quiz due by end of day

Participation (25% of grade)

While on the field portion of the course, all students will be required to attend and participate in regular weather forecast discussions, provide input to decision making, take observations, and play a specific role when in chase mode.

- We will always have a morning weather briefing before we leave the hotel and usually an additional evening briefing before we go to sleep.
- Other briefings throughout the day will be weather and situation dependent.
- During chase mode, everyone in each car will have a specific role.

Storm Journal (25% of grade)

- **Keep a detailed log** of all severe weather/chase days.
- Include locations, times, and meteorological characteristics (visual, satellite, radar, or otherwise) of observed storms.
- Discuss whether watches and warnings were accurate and timely.
- Can be on paper or electronic; images are encouraged but not required.

Severe Weather Case Study Analysis and Presentation (25% of grade)

- Select one chase day that we experienced and prepare a recap and meteorological analysis for a **15-minute oral presentation** on the last day of class (June 16th or 17th)
- You will work in **groups of 2 chosen during the latter part of the field portion.**

Grading

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

Student and instructor safety is the most important aspect of this course:

- Students are expected to be prompt, follow instructor directions, and act responsibly **AT ALL TIMES**.
- Those who do not follow instructions and/or put themselves or others in precarious positions will be dismissed from the course.
- If you are driving, even in good weather, please **do not drive more than 5 mph over the speed limit. There will also be ZERO TOLERANCE for tailgating or aggressive driving.**
- If you are in the front passenger seat, please serve as an “extra pair of eyes” for the driver. Remember, **driving is by far the most dangerous aspect of storm chasing.**

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 undergraduate 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

The Aviation Learning Center (ALC) in the College of Aviation (COA 141) provides free tutoring on Aeronautical Science and Flight course related topics. Spring/Fall Hours of Operations: Monday - Friday, 8 a.m. - 8 p.m.; Saturday 10 a.m. - 5 p.m. Summer hours: 10 a.m. - 5 p.m

The **ALC** offers access to ten Advanced Aviation Training Devices (AATDs) that are able to simulate both the Cessna 172S and the DA-42 VI, including the Garmin G-1000 avionics, and is equipped with training aids including aircraft components, cut-away instruments, cockpit procedure trainers, Flight Management Systems trainers, reference literature, and much more.

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

The mission of the Counseling Center is to foster student development, growth, and learning. The clinicians provides a calm, safe, supportive environment for students to discuss and explore issues affecting their mental health, wellness, interpersonal relationships, and their academic performance, persistence, and success. Counseling services are short-term in nature, typically averaging 4-6 sessions per semester.

Information shared in counseling, including the fact that a student received services, is confidential. Counseling records are separate from academic and administrative records. For students needing more extensive and specialized treatments, referrals to community counselors, psychologists, and psychiatrists are available.

The Counseling Center also promotes mental health awareness and wellness through campus-wide activities, programs and presentations. Wellness posts are available on the department's Facebook, Twitter, and Instagram social media accounts (@eraucounseling). A variety of mental health assessments and resources are available on the department's website, via ERNIE. 24/7 Mental health crisis support via app, telephone or web is also available through MySPP. Available from the App store/Google Play, 1.855.649.8641 and www.mystudentsupport.com 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_

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

Embry Riddle Aeronautical University facilitates the implementation of reasonable accommodations, for students with disabilities, resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Disability Support Services (DSS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. If you would like to request accommodations due to a 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.

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 support through the [Food Pantry Request form](#). A time will be scheduled with the student once the request is received.

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 or huntk10@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 as needed and offered through the Eagle Study Connection.

[Faculty Athletic Representative \(FAR\)](#)

James J. Pembridge, PhD

Email: pembridj@erau.edu

Phone: 386-226-7097

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, domestic/dating violence, sexual misconduct, sexual battery, 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), which are Campus Safety & Security, Dean of Students Office, 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](#)

Phone: 386/226-6677; 386/481-9131; 386/241-1881

Email: dbtitle9@erau.edu

Website: dbtix.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

Guided by its Safety Culture, Embry-Riddle students, faculty, and staff must adhere to all University Covid-19 safety policies.

For more information about University Covid-19 policies and practices, please refer to the following.

- Covid-19 page: <https://erau.edu/coronavirus>
- FAQs: <https://www.erau.edu/coronavirus/FAQ>
- Return to Campus videos: <https://erau.edu/coronavirus/return-to-campus-videos>

Course Schedule

Course Overview/Schedule:

- **Lecture (5/23–5/26, 11:30 a.m.–1 p.m., COA 351):** Severe weather ingredients; properly and safely observing severe weather; understanding proper safety protocols and rules, including on the road; forecasting tools and techniques; radio tutorial; mock forecast/chase scenarios and discussions
- **Field forecasting and observing (5/29–6/11, Great Plains):** Travel throughout the Great Plains observing severe thunderstorms (observations during daytime only). Location and observation days are weather dependent.
- **Course wrap-up and final projects (6/13–6/17, COA 351):** Working in pairs, students will select one of our severe weather field days during the chase and analyze the meteorological conditions responsible for producing severe weather that day.

Summary of Important Dates

Date Due	Name (Link)	Event Type	Points
5/24	Safety Quiz Opens	Quiz	
5/26	Safety Quiz Due	Quiz	
5/29	Fly to Denver	Assignment	
6/13	Storm Journals Due	Assignment	
6/16	Case Study Presentations	Assignment	
6/17	Case Study Presentations	Assignment	
5/24	Required Safety Reading	Assignment	0
5/26	Chasing Safety Quiz	Assignment	60
6/23	Storm Journal	Assignment	100
	Case Study Presentations	Assignment	100
	Mock Scenarios	Assignment	50
	Trip Participation Grade	Assignment	100