Independent Study: Field Projects
Aircraft-based Physical Meteorology Observations
AtSc 997 - Course Syllabus: Spring 2024

Overview

This syllabus provides details on class material and procedures for Aircraft-based Physical Meteorology Observations (AtSc 997). You are responsible for knowing this material, so please read carefully. Any changes will be announced through email to your University of North Dakota (UND) email account. You will be responsible for any changes. Your continued enrollment in this course is your implicit agreement to abide by the requirements of this class.

Course Information

AtSc 997: Independent Study (3 credits)
Prerequisite: Graduate Student
Class Meeting Time: Tuesday/Thursday 9:30 – 11:00 a.m.
Class Meeting Location: Clifford Hall 430
Class Format: Hybrid

Contact Information

Professor: David Delene
Office: Clifford Hall 420
Office Hours: Tuesday/Thursday 3:00 – 4:00 p.m. or by Arrangement
Phone Number: 701-777-4847 (Office), 507-533-5363 (Cell/Text)
Email: **delene@aero.und.edu**
Zoom: 947 2496 5587 Meeting ID

Welcome

I would like to welcome you to AtSc 997 Independent Study: Field Projects – Aircraft-based Physical Meteorology Observations for the Spring 2024 semester. It is my first priority to offer a great in person classroom experience. I feel that this is a better learning environment than online and you are welcome to attend in person as often as possible. To accommodate those who are not always able to attend, the course will be delivered in a hybrid mode. This means that course material will be posted online, including video recordings of classroom lectures. If at any time you have questions or concerns, please do not hesitate to contact me.

Policies and Procedures

Attendance

Attendance is important for this class; however, student attendance will not be used in calculating grades. There class will be available via a Zoom session so if you can't make the class in-person, please login to the Zoom Session. Additionally, there will be Zoom recordings, unless there a technical issues, that you can review. Please try hard to make it to class on time; however, if this is not possible, please come in late if necessary, without disturbing the class. Students are responsible for finding out what material they missed if they do not attend class. This includes class handouts and assignments. Additionally, if you have to miss an in-person exam, please contract me ahead of the exam to make arrangements.

Student Resources

Information on the student resources (UND's Notice of Nondiscrimination; Disability Access Statement; Reporting Sexual Violence; and Faculty Reporting Obligations Regarding Sexual Violence) is located on the Atmospheric Sciences Wiki page at http://wiki.atmos.und.edu/lib/exe/fetch.php?media=atmos:student_resources.doc. Also included is information on the UND Cares Program, as well as how to seek help when in distress, and how to recognize when students are in distress.

Missed Exams or Assignments

Exams or Assignments can only be made up if students make arrangements before hand. Students are responsible to find out about assignments and upcoming exams if they cannot attend a class. **No late assignments will be accepted!**

Scholastic Dishonesty

Please refer to the code of student life for information on cheating and plagiarism. Each student is expected to complete assignments and exams individually. Students are encouraged to work together to learn the material but must complete work individually. Turning in identical assignments will result in zeros for both assignments and may result in failure of the course.

Grading

Class grades are determined from quizzes, assignments and a final exams. Course grading scale is as follows: 90% A, 80% B, 70% C, 60% D. Grades will be based on short (~10 questions), typically in class, quizzes (20 %), three assignments (20 % each), and final exam (20 %). Final exam will be comprehensive of the class material covered, and likely oral, not written.

Class Participation

Active student participation is expected during class and may be considered if a student's grade is borderline. Please ask questions during class and I will try to address the question. However, if the question requires a long explanation, we may have to wait until after class to talk about it. I will research questions that I don't know the answer to and address the question during the next class meeting. Please let me know of topics that interest you that are not being covered.

Class Format

A typical class meeting will be broken up between short quizzes, discussions, and lectures. The beginning and middle will be used to discuss current new topics related to field projects and scientific observations or showing of short videos. Quizzes will be given to ensure class reading is reviewed by students. Concepts and tools will be introduced in a problematic fashion, which means that things will be presented when and to such an extent that they are necessary to address the topic.

Course Objectives

Provides a comprehensive introduction to concepts of physical meteorology observations, with a specific focus on aircraft-based measurements of micro-physical properties in convective storms. Topics include the development of a science plan, development of an operations plan, documentation of aircraft instrumentation configuration, data quality control, operations planning, aircraft flight planning, and review of research flights. The class provides students exposure to the practical aspects of conducting field projects in the atmospheric sciences, including, care and use of instruments and equipment, identification of convective cloud sampling opportunities, and methods of obtaining airborne observations.

Goals

- To learn how advanced scientific instruments are used to obtain observations.
- To learn how field projects are established and conducted.
- To learn how to effectively participate in a field project.

Learning Outcomes

By the end of this course each student should be able to:

- State the important components of an science plan involving a field project.
- Give examples of necessary information contained in an field project operation plan.
- Recognize external factors that can affect field operations.
- State safety consideration for conducting field operations.
- Identify convective cloud sampling opportunities.
- Describe how field projects are conducted and typical limitations
- Distinguish between doable and not doable field projects.

Reference Material

This course makes use of open educational resources (OER). Open educational resources are freely accessible, openly licensed documents and media that are useful for teaching and learning. These required resources are available to students at no cost and will be used in place of physical textbooks.

Course Outline

1. Science Plan
2. Operations Plan
3. Aircraft Configuration and Instrumentation
4. Conducting Field Projects
5. Reviewing Observations