

## ATMS 497 Senior Thesis

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**Office Hours:** TBD

**Catalog Description:** Integration of atmospheric sciences sub-discipline, other physical and natural sciences, mathematics and humanities in a directed research problem. May be repeated once.

**Prerequisites:** Completion of CO 1 – 8, junior or senior standing

### Course Objectives:

*Core Objective 13: Integration and Synthesis*

- Students will be able to integrate and synthesize Core knowledge, enabling them to analyze open-ended problems or complex issues.

*Core Objective 14: Application*

- Students will be able to demonstrate their knowledge and skills developed in previous Core and major classes by completing a project or structured experience of practical significance.

### Student Learning Outcomes:

*Core Objective 13 (Integration & Synthesis)*

- Students will be able to integrate Quantitative Reasoning (CO2) and Critical Analysis & Use of Information (CO3) to formulate and carry out a research project.
- Students will be able to synthesize information and techniques from previous coursework across disciplines to identify and use the basic materials and resources needed to carry out a research project.

*Core Objective 14 (Application)*

- Students will be able to communicate the results of Senior Thesis research orally and in writing, following the standards of scholarly articles in Atmospheric Science.

*General*

- Students will be able to articulate and follow ethical principles in a scientific context, including following professional standards of laboratory practice, communicating literature research without plagiarism, and giving appropriate credit to collaborators. (CO12)

### Course Description:

Senior thesis is an exploration of your passion for a topic in Atmospheric Science. You choose a thesis topic in consultation with your thesis adviser. It is your opportunity to use the skills in Mathematics, Physics, Chemistry, Atmospheric Science, and Composition that you have been developing during your undergraduate career. Usually you will have had conversations with the Atmospheric Science program adviser at each stage of your career, discussing potential topics and thesis requirements. You can choose both a technical advisor and a procedural advisor, or they could be the same person. The technical advisor could be from another discipline, from the Desert Research Institute, or from the National Weather Service, for example, and could be a faculty member, researcher, or technically competent, professional practitioner. It is wise to have determined your senior thesis topic well in advance to the semester you sign up for it, and for you to work on it, as time permits, with your advisor(s) as much as possible during the time of your undergraduate career.

**The specific requirements are:**

1. A written report following the guidelines for MS and PhD theses and dissertations at UNR of 25 to 40 pages, double-spaced, including figures, equations, and text. Appendices can be added to document items such as computer programs, mechanical or electrical schematics, and/or lengthy derivations. You must have references that describe the history and current state of the science for your topic. See <http://www.unr.edu/grad/forms/dissertation-filing-guidelines>.
2. A broadly advertised oral presentation of 30 to 45 minutes length based on your report to the faculty and students in the Atmospheric Science program (and/or other programs).

You are expected to have at least weekly meetings with your adviser(s) to discuss progress, methods for literature research, common pitfalls in writing theses and in oral presentations, and research collaboration. Examples of common pitfalls include: issues with plagiarism; proper referencing of related work; figure preparation for readability; and use of equations as a parts of sentence structure. Your advisor will likely have examples of previous senior theses reports for you to study, and you can read journal articles deeply from both a content and context perspective to gain hints on writing style. The UNR writing center is a great resource for help with writing style.

**Grading:**

- 10% originality of your research topic
- 10% challenge of your topic
- 50% on your thesis
- 30% on your oral presentation
- 90-100% = A ; 80%-90% = B; 70% - 80% = C; 60% - 70% = D

**Helpful Reading Material:**

[How to write a thesis.](http://www.ldeo.columbia.edu/~martins/sen_sem/thesis_org.html) [http://www.ldeo.columbia.edu/~martins/sen\\_sem/thesis\\_org.html](http://www.ldeo.columbia.edu/~martins/sen_sem/thesis_org.html)

[Quick-start notes on how to write a thesis.](http://www.ece.rutgers.edu/~marsic/thesis-guide.html) <http://www.ece.rutgers.edu/~marsic/thesis-guide.html>

**Suggested Timeline:**

|   |   |
|---|---|
| Research topic defined with advisor (outline)       | 1 <sup>st</sup> week                    |
| Conduct research/training                           | 1 <sup>st</sup> -15 <sup>th</sup> week  |
| Background reading on topic                         | 1 <sup>st</sup> week and before         |
| Rough draft of introduction                         | 4 <sup>th</sup> week                    |
| Outline of entire thesis                            | 4 <sup>th</sup> - 6 <sup>th</sup> weeks |
| Group meetings, presentations                       | Throughout semester                     |
| 3-5 min thesis overview presentation with others    | 8 <sup>th</sup> week                    |
| Initial draft of thesis                             | 12 <sup>th</sup> week                   |
| Revised draft of thesis                             | 13-14 <sup>th</sup> week                |
| Oral presentation of thesis                         | 15 <sup>th</sup> week                   |
| Clean up lab space, check out of lab as needed      | Finals week                             |
| Final senior thesis submitted to advisor and reader | Finals week                             |

**UNR Policies:**

**Student Absences:** NSHE and University policy state that there are no official absences from any

university class:

It is the personal responsibility of the student to consult with the instructor regarding absence from class. It is the expectation of the instructor to accommodate absences of students participating in official University functions and to be sensitive to the needs of students who face serious personal issues. In the event that a student misses a class because of a serious personal issue, the Office of the Vice President for Student Services may, at its discretion, send an explanation to affected faculty. The instructor shall make the final determination on whether the missed work can be done at a time other than during the regularly scheduled class period. It is the policy of the NSHE to be sensitive to the religious obligations of its students. Any student missing class, quizzes, examinations or any other class or lab work because of observance of religious holidays shall, whenever possible, be given an opportunity during that semester to make up the missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor in advance in writing, according to the policy of the institution offering the class, if the student intends to participate in a religious holiday that does not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the assignment at an alternate time would impose an undue hardship on the instructor or the institution that could not reasonably have been avoided.

Absence due to university approved extracurricular activity: The University of Nevada, Reno deeply values and supports the participation of undergraduate students in university-approved extracurricular activities. It is the spirit and intent of this policy to offer fair and equitable opportunities to all students, including those who must miss class due to participation in university approved extracurricular activities. University-approved extracurricular activities are defined as those sanctioned by the college dean and/or the provost, and may include, but are not limited to, intercollegiate athletics, band, drama, forensics and recruitment. Students who represent the University at such events shall be provided with alternate, timely accommodations for exams, quizzes, or other course assignments missed as a result of their participation. The alternate accommodations should in no way penalize or disadvantage the student. It is the responsibility of the student to provide written notice to their instructor of their participation in official University activities as soon as the student is aware of the potential need to miss class.

**Medical Excuse Policy** Effective Fall 2014, the Student Health Center will no longer provide medical excuses for missed classes, exams, or assignments. This policy is based on their limited resources, which are better dedicated to providing health care; the inability for us to make valid determinations about illnesses or injuries students may have effectively managed through self care; and our commitment to student privacy. Exceptions to this policy may occur if, in the judgment of a health care provider at the Student Health Center, the student will be out of class for an extended period of time due to a serious illness or medical condition. Examples of serious illnesses or medical conditions may include but are not limited to:

- Mononucleosis, which may require bed rest and/or removal from campus
- Hospitalization and/or surgery
- Severe injury or illness requiring prolonged bed rest
- Highly contagious diseases (chicken pox, measles)

This policy is consistent with the recommendations of the American College Health Association and is similar to other colleges and universities. Reference: Policy adapted from Nazareth College and

Drexel University

### **Academic Dishonesty**

Cheating, plagiarism or otherwise obtaining grades under false pretenses constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include canceling a student's enrollment without a grade, giving an F for the course or for the assignment. For more details, see the University of Nevada, Reno General Catalog.

### **Disability Services**

Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the Disability Resource Center (Thompson Building, Suite 100) as soon as possible to arrange for appropriate accommodations.

### **Academic Success Services**

Your student fees cover use of:

- Math Center (784-443 or [www.unr.edu/mathcenter/](http://www.unr.edu/mathcenter/))
- Tutoring Center (784-6801 or [www.unr.edu/tutoring/](http://www.unr.edu/tutoring/))
- University Writing Center (784-6030 or [www.unr.edu/writing\\_center](http://www.unr.edu/writing_center))

These centers support your classroom learning; it is your responsibility to take advantage of their services. Seeking help outside of class helps you develop as a responsible and successful student.

### **Recording**

Surreptitious or covert videotaping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. In those cases, students should understand that their comments during class might be recorded.