



NRES 408/808 - Microclimate: The Biological Environment

Taglines - We Do The Heavy Lifting

Grading Policy, Prerequisites and Related Information

Philosophy (Anonymous):

"Understanding is not the ability to recite facts; performance is never the sum of drills; problems are not exercises; mastery is not achieved by unthinking application of algorithms. In other words, we do not understand something unless we employ our knowledge wisely, fluently, flexibly and aptly in specific and diverse contexts."

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Text, Reading Material:

Lectures are generally based on material from the text book by Rosenberg et al., 1983 (Microclimate: The Biological Environment). A limited number of used Microclimate books are available at the UNL bookstore. Text books may be printed on demand (please see Dr. Walter-Shea for details). Summary of materials for each topic will be available on the UNL Blackboard via the internet.

Topics:

- Introduction and Overview
- Radiation Balance
- Soil Heat Flux and Soil Temperature
- Sensible Heat
- Atmospheric Humidity
- Wind and Turbulent Transfer
- Evapotranspiration
- CO₂ Exchange
- Windbreaks
- Mulches

Mathematics and Physics Requirements:

Information learned in Algebra, Trigonometry, Calculus and Physics (one semester) will be used extensively in this course. Please review the material in the Background Review (on Blackboard-->Course Documents-->Introduction) to ensure that you have the necessary math and physics background. We recommend that you review the material; you can consult with fellow students. If you have any difficulties with the material, please see one of us immediately so that we can assist you. If you cannot understand this material, you will have considerable difficulty in this class.

| Grading Criteria: | Graduate (%) | Undergraduate (%) |
|----------------------|--------------|-------------------|
| Problem Sets (10-12) | 15 | 35 |
| Hourly Exams (3) | 40 | 40 |
| Final Exam | 25 | 25 |
| Term Paper | 20 | |

Homework Policy:

The due date will be written on the assignment sheet. The homework is due in class on the due date. You are welcome to consult your fellow students, but each person should work the problem sets independently. You must not simply copy the work of another.

The following penalties will be applied to all problem sets handed in after the due date (unless an emergency arises. Please notify the instructor as soon as possible if this is the case):

| day(s) late | grade reduction |
|-------------|-----------------|
| 1 | 10% |
| 2 | 25% |
| 3 | 50% |
| >3 | 100% |

Homework will be graded even if handed in 4 or more days later than the due date. A grade of 0% will be earned for that

particular assignment.

Homework Format:

The major value of the problem sets is to: 1) provide the student opportunities to reinforce concepts, laws and materials presented in class and 2) help the instructor determine effectiveness of classroom instruction. Well organized problem sets can often be valuable in studying for examinations. To make your problem sets of greatest value to you, you should consider the following. You may or may not want to write these out for each homework problem, but you should address them.

- 1) What principle(s), concept(s) or law(s) are the instructors trying to illustrate with this problem?
- 2) What values and constants do we need to solve the problem and are they given in the problem?
- 3) What laws apply to this problem?
- 4) What assumptions are being made?
- 5) What is the end product we are looking for and what are the proper units, if any, of our answer?

In the problem solutions you provide you must: 1) show your work completely in a neat and orderly manner, 2) show units and how various units may cancel as you arrive at your solution. Points will be deducted accordingly and 3) provide appropriate sign with the magnitude of the quantity being considered.

Attendance, lateness:

Attendance is required and students must be on time. Some of the material included on the tests cannot be obtained except through class attendance.

Exam Policy:

Exams will be taken at the scheduled time period, unless an emergency situation arises (an illness or death in your immediate family). If you have an emergency at the time of the exam, a make-up exam is required. You must make arrangements with the appropriate instructor before the time of the scheduled exam. [Contact the instructor directly (phone or in person) or leave a message with the secretary at 472-3679]. A grade of 0% will be earned for exams missed for any other reason.

Assistance with Course Material:

We will make every effort possible to help you understand the course material. We encourage questions during the classroom period as well as individual sessions with students (preferably a scheduled appointment, although this is not necessary). Please do not hesitate to seek help from us if you are having difficulty with a particular concept or subject. Please note that participation in the class or in individual sessions with the instructors will be beneficial in weighting the final grades for the course.

Academic Dishonesty:

The Student Honor Code as stated in the Undergraduate Bulletin will be followed:

- Any student found cheating on a test will receive a zero on the test, and may be given an F for the course. A student found cheating a second time (whether on a test or a homework assignment) will be given an F for the course.
- If a part of one student's homework assignment is a copy of another's, both students will be given no credit for that assignment. If either student has been found cheating in the course previously, he/she will fail the course.
- Any plagiarism, to take ideas, writings, etc. from others and pass them off as one's own, will result in no credit for that assignment.

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