

Syllabus

Plant Nutrition - Plant Soils and Climate 5430/6430

Fall 2020

Overview: Plant nutrition is the study of how plants acquire and utilize mineral elements from the environment. Plants have developed mechanisms to concentrate elements from dilute solutions without accumulating toxic amounts of detrimental elements. How do plants synergistically interact with microorganisms on the root surface to transform nutrients to more available forms? How are nutrients assimilated and transported throughout the plant so that every cell has all 17 essential elements in the right proportions at every stage of growth? How does uptake of N as ammonium vs. nitrate affect nutrient distribution, rhizosphere pH, and growth? How do plants trade the carbon fixed in photosynthesis for the nutrients they need?

Laboratory: There is no formal laboratory associated with this course, but you will do an individual project in which you examine some aspect of plant nutrition. This can supplement your thesis or dissertation research. Results of your project will be presented during the last week of class. A written report, in journal format, will be due on the last day of class.

Library Problems: There will be two library problems, which are designed to:

1. Provide experience in locating relevant literature using on line search techniques such as Web of science, Agricola, Google scholar.
2. Provide experience summarizing evidence on controversial topics.
3. Improve your understanding of current topics in plant nutrition.

Grading: Grading will be on a curve according to Z score. Scores above the mean of the class will be A's, scores below the mean will be B's.

	<u>Points</u>
Midterm exam	70
Final Exam	100
Individual Lab Project	80
Library problem (2 @ 25 each)	<u>50</u>
Total	300