

New Graduate Course for Fall 2006:

Plant Water Relations

(BIO 7355, 3 credits)

Meeting times: Mondays 11:00 to 11:50, Wednesdays 4:00 to 5:40.

Place: Supple 372

Instructor: Susan Schwinning

“It is not enough to believe what you see. You must also understand what you see.” — Leonardo da Vinci

Outline

This course teaches the fundamentals of plant water relations from the scale of cells to whole ecosystems. Concepts are reinforced by reading about classic and contemporary research examples, and by applying the tools of physiological ecology in lab and field exercises.

Topics

Thermodynamics of water, soil and cell water relations, water absorption by roots, sap flow, stomata function & control, leaf gas exchange, stable isotope methods, principles of ecohydrology, evapo-transpiration and energy balance of ecosystems, vegetation dynamics, effects of land use change on regional climate, effects of precipitation change.

Format

Concepts are introduced in Monday lectures. Discussion of research examples alternate with laboratory or field exercises on Wednesdays. Research papers for discussion are assigned to students during the first meeting. A presenter will give a brief summary of the assigned paper, if necessary provide additional materials to support class discussions, prepare discussion points and lead the discussion. Students will also design and implement an experimental research project and submit a final report in the format of a peer-reviewed manuscript.