

WSC 530 Wood Physics Syllabus

Instructor: R. W. Rice, 119 Nutting Hall

WSC 530 is a graduate level course in the physics of wood. Since most students have little grounding in wood water relations, and because most of the problems with wood center on the interaction of wood and water, much of the course is geared to various aspects of wood/water interaction. Topics include:

- Polymer structure and morphology
- Relative humidity and its measurement
- Psychrometric charts/surface tension/work
- Sorption Isotherm, BET model
- Kelvins pressure drop/desorb vs adsorb
- The Barkas effect
- Heats of wetting, problems with models
- Drying of capillary porous bodies
- Porosity, permeability
- Diffusion
- Egners method
- Electrical properties of wood
- Thermal transport and thermal properties of wood
- Vibration and Acoustical properties of wood and structures
- Misc. topics.

There has never been a comprehensive textbook on wood physics. Therefore, much of what you will be exposed to will be derived from notes, texts from various authors and from reading materials related to wood science studies. Common textbooks include:

Skaar, C. 1988. Wood-Water Relations. Springer-Verlag Press.

Siau, J. 1984. Transport Processes in Wood. Springer-Verlag Press.

Stamm, A. 1964. Wood and Cellulose Science. Ronald Press.

The course grading will be derived from two tests (midterm and final), homework and laboratory reports in the following proportions:

Tests:	60 percent
Paper:	15 percent
Homework:	15 percent
Quiz/Lab rpt:	10 percent

Disabilities. I encourage students with disabilities to speak with me confidentially about accommodations needs they might have to help assure success in this class. If you require course adaptations or accommodations because of a disability, please also contact the Coordinator for Services for Students with Disabilities, Onward Program, at 581-2319.