



Introduction to Wood Science Short Course

June 11, 2018

USDA Forest Products Laboratory, 1 Gifford Pinchot Dr, Madison, WI 53726



Course Agenda

- 7:30 am **Bus Departs from Monona Terrace/Best Western Premier Park Hotel**
- 8:00-8:15 am **Welcome and Safety** - *Dr. Dave DeVallance, West Virginia University*
- 8:15-9:30 **Wood: How Structure Determines Properties** - *Dr. Chris Hunt and Dr. Alex Wiedenhoef, USDA Forest Products Laboratory*
- Hardwood vs softwood/cell types/annual rings/
 - How polymer properties and cell structure leads to bulk properties: swelling, reaction wood, heartwood, FSP, wood/water relations, lignin plasticization
- 9:30-10:15 **Adhesives and the Swelling of Wood** - *Dr. Joseph Jakes and Dr. Chris Hunt, USDA Forest Products Laboratory*
- Wood bond basics, swelling stress and durability
 - Multiscale structure and swelling
 - Characteristics that control swelling and how you can limit swelling stresses
 - Multiscale characterization of wood
- 10:15–10:30 **Break**
- 10:30-11:30 **Drying/Lumber Processing** - *Dr. Brian Bond, Virginia Tech University*
- How wood dries (driving forces)
 - Measuring moisture content
 - Drying Methods
 - Lumber
 - Wood Fiber/Flakes/Veneer
 - Drying Stress
 - Drying Defects and prevention
- 11:30-12:00 **Lunch and Questions and Answers**
- 12:00-1:00 pm **Wood Protection and Durability** - *Dr. Beth Stokes, Mississippi State University*
- Biological agents of degradation and their methods of attack
 - Termites
 - Fungi
 - Bacteria and other organisms
 - Non-biological agents of degradation and wood reactions

- UV light
- Temperature
- Methods of protection – Use and Treatment
 - Using products in ways that avoid degradation
 - Treating wood products
- Protective Treatments
 - Methods of treating – historical to modern
 - Oil based treatments
 - Water based treatments
 - Advances in treating wood products

1:00-2:00 **Forest Products Marketing** - *Dr. Rich Vlosky, Louisiana Forest Products Development Center, Louisiana State University*

- How marketing can help companies compete
- Promotion, pricing, distribution
- Understanding the competitive environment.

2:00-3:30 **USDA Forest Products Laboratory Tour** – *FPL Staff*

3:30 pm **Busses return to Monona Terrace for Keynote Session** (*begins at 4:00 pm*)