

**WSE 499/599**  
**TRADITION AND INNOVATION IN THE WOOD CONSTRUCTION INDUSTRY:**  
**A JOURNEY IN THE ITALIAN ALPS**



**Instructor:** Mariapaola Riggio & Eric Hansen  
**Office:** 236 Richardson Hall  
**Phone:** 7-2138  
**email:** [mariapaola.riggio@oregonstate.edu](mailto:mariapaola.riggio@oregonstate.edu)  
[eric.hansen@oregonstate.edu](mailto:eric.hansen@oregonstate.edu)

**Texts:** Learning resources will be available through Canvas

**Credits:** 6 (3 for Graduate students)

**Class capacity:** 20

**Term:** Second half Spring quarter + first Summer session

**Dates abroad:** June 13-27, 2022

**Course description:** The program is held in Trentino, in the heart of the Italian Alps. You will be exposed to a long-standing tradition of forest management and wood architecture interwoven with cutting-edge research in timber engineering, advanced wood manufacturing, and sustainable design and practice. You will spend time with researchers, engineers, architects, and manufacturing professionals, and inquire about practices and processes throughout the

value chain. Coursework will be complemented with cultural tours, exploring the rich local history, from Stone Age remains to medieval castles, baroque palaces and modern structures. You will enjoy some breathtaking hikes in the Dolomites, UNESCO-listed mountain range.

**Course format:** The program’s main site is the city of Trento. The University of Trento is the principal local partner of the program.

The class format will include: a) a series of lectures offered by researchers, professionals and industry experts; b) site visits in laboratories, companies, manufacturing premises, buildings and construction sites; c) small group/individual job shadowing at selected companies.

The course covers the following main topics and thematic areas:

<b>Thematic area</b>	<b>topic</b>
Sustainability	<ol style="list-style-type: none"> <li>1. forest management and wood supply chain</li> <li>2. buildings and certifications</li> </ol>
Building performance	<ol style="list-style-type: none"> <li>1. seismic performance - research and implementation</li> <li>2. thermal and acoustic performance - research and implementation;</li> <li>3. fire engineering – research and implementation</li> <li>4. certification of wooden buildings</li> </ol>
Wood industry 4.0	<ol style="list-style-type: none"> <li>1. advanced wood manufacturing</li> <li>2. engineered wood products</li> <li>3. IT solutions for EWPs manufacturing and design of wooden buildings</li> <li>4. Integrated design</li> </ol>
Historical buildings	<ol style="list-style-type: none"> <li>1. historical wood architecture and cultural heritage</li> <li>2. conservation practices and innovative techniques</li> </ol>

You will be exposed to the various thematic areas, and choose one main study topic for a job shadow experience and essay (see “Evaluation” section).

**Course Objectives:**

- Critically examines the interactions and synergy of different disciplines, such as forestry, wood science, architecture, engineering, and computer science in shaping the contemporary wood construction sector;
- Explores the role of culture, science and technology in shaping the wood architectural, engineering and construction (AEC) industry over time in the studied contexts (Europe vs USA).
- Explores the role of culture, science and technology in shaping the forest product industry over time in the studied contexts (Europe vs PNW).
- Explores the historical evolution of the wood (AEC) industry and the related manufacturing industry in the studied contexts (Europe vs PNW).
- Critically examines examples of innovations in the design, manufacturing and construction of advanced wood structural systems and sustainable buildings;
- Focuses on multi-disciplinary aspects of the forest product and wood construction industries.

### **Measurable Student Learning Outcomes (LOs):**

- Describe and evaluate the forest-to-building value chain;
- Recognize and describe various types of sustainable practices in the forest-to-building value chain;
- Describe the role of research and technology in the development of innovative forest products;
- Describe the role of research and technology in the delivery of innovative timber construction projects;
- Evaluate the use of specific wood products/systems in a building;
- Recognize and describe various types of wood products;
- Recognize and describe various types of approaches for the design, manufacturing and construction of wood structural systems and wooden buildings;
- Articulate in writing a critical perspective on the role of research and technology, professional practice, industry, and emerging societal issues, such as sustainability, in the wood construction supply chain;
- Practice teamwork skills.

Additional learning outcomes for graduate students:

- Demonstrate leadership skills in collaborative, interdisciplinary tasks;
- Demonstrate cross-disciplinary communication skills.

Throughout this course graduate students will be expected to perform at a higher level than undergraduates especially with respect to quality of work, ability to synthesize concepts, and time invested.

### **Evaluation of Student Performance:**

Your grade will be calculated based on the total number of points you have earned on your individual and group assignments plus any extra credit points divided by 100.

Your grade will be based on the following scale:

A = 93-100%   A- = 90-92%   B+ = 87-89%   B = 83-86%   B- = 80-82%   C+ = 77-79%  
C = 73-76%   C- = 70-72%   D+ = 67-69%   D = 63-66%   D- = 60-62%   F = below 60%

### **Evaluation:**

Portfolio: 30 points (4 blog submissions 6 points each + final portfolio submission)

Job shadow presentation: 20 points

Final Essay: 50 points (1 draft + 1 final submission, 25 points each)

Total 100 points

Portfolio: This assignment consists in documenting your observations and reflections regarding site visits and interviews with professionals and researchers met during the visits. Portfolio's excerpt will be posted in the course website. (Bi-weekly submission).

Job shadow presentation: This assignment consists in a detailed report on your job shadow experience.

Final essay: You will write a paper comparing and contrasting the situation in the US to what you have learned about in Italy, with respect to one major (mutually agreed with instructors) issue from the course.

**Program:** Final program to be confirmed

DAY	ACTIVITY	TOPICS	VENUE/s (Transport)
Mon June 13	Dinner		Trento
Tues June 14	Visit of the city of Trento	Cultural and historical context	Buonconsiglio Castle Renzo Piano's mass timber projects: MUSE and <i>Le Albere</i> (walking distance)
Wed June 15	Lectures Lab visits Lectures	Research in the forest supply chain Wood science, EWPs certification fire engineering acoustic tests building enclosure	CNR Istituto per la BioEconomia (ex IVALSA), Via Francesco, Via Biasi, 75, 38098 San Michele all'Adige TN, Italy  Bolzano – South Tyrol Museum of Archeology (train)
Thurs June 16	Visit of a CLT manufacturer - Ledro – Garda Lake – 9-story mass timber building	From the Bronze Age to modern wood construction	Cavedine (ESSEPI) <a href="#">Ledro</a> Garda lake Rovereto  (bus)
Fri June 17	Visit to the sawmill / Palace of Magnifica Visit to the Pieve in Cavalese	Tradition of forest management practices, sawmill, short supply chain, wood certification, renewable energy Use of EWPs in architectural reconstruction and restoration	Val di Fiemme <a href="#">Magnifica Comunita' di Fiemme</a> <a href="#">Bioenergy</a> Fiemme <a href="#">Cavalese</a> (bus)
Sat June 18	Hike: Paneveggio: visit to the forests damaged by wind storms in 2018. Pampeago: visit to one of the highest themed	historical high-end use of natural resources, forest management, climate change, forest resilience and restoration	Paneveggio Pampeago Latemar Lodging: Latermarhütte-Torre di Pisa



Thurs June 23	Visit /job shadow	CLT manufacturing and Integrated design	<a href="#">XLAM Dolomiti</a> (bus)
Fri June 24	Job shadow presentation  Arrival in Vicenza - <a href="#">Basilica Palladiana</a>		(Train) Overnight in Vicenza
8:30 departure from Trento 9:15 arrival at Xlam Dolomiti 9:30-12:00 visit 12:30 –1:30 lunch 3:00 arrival in Vicenza Meeting with UO students – walking tour of Vicenza – visit of Basilica Palladiana			
Sat June 25	Vicenza - <a href="#">La Rotonda</a>  - <a href="#">Corte Bertesina</a>	From Palladio to modern wood architecture	Overnight in Vicenza
9:30 – 10:30 meeting with Giovanni Traverso <a href="https://www.traverso-vighy.com/en/about/">https://www.traverso-vighy.com/en/about/</a> 11:00 – 1:00 Corte Bertesina (Agriturismo Corte Bertesina, Str. di Bertesina, 276, 36100 Vicenza VI, Italy) 1:00 – 2:00 lunch 3:00 – 4:30 visit of La Rotonda			
Sunday June 26	Visit of Venice		Departure to Venice ( <a href="#">train</a> ) <a href="#">Generator Hostel</a>
Monday June 27			

### [Course Policies](#)

### [Safety training](#)

Specific training is required to access to lab spaces at the University of Trento

### [Class Attendance](#)

Students are expected to attend all face to face meeting times.

### [Discussion Participation](#)

Students are expected to participate in all graded discussions. While there is great flexibility in hybrid courses, this is not a self-paced course. You will need to participate in discussions on at least two different days each week, with your first post due no later than Wednesday evening, and your second and third posts due by the end of each week.

### [Teamwork](#)

Since this course is interdisciplinary and collaborative, everyone must give, and demonstrate, their own contribution to the group assignment. Graduate students are expected to take a leadership role in team efforts, coordinating tasks according to students' varied backgrounds and abilities. Ability to work in a team is one of the expected learning objectives of this course and the development of this ability throughout this course will be part of the grading.

### [Respect for Diversity](#)

The richness of this class is based on the presence of students from diverse backgrounds and perspectives. It is my intention that all students will be well served by this course, that they feel safe and respected, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. Your contribution to the creation of a safe and welcoming environment is important. Your suggestions are encouraged and appreciated. Please let me know ways to improve this course for you personally or for other students or student groups.

### [Late Work Policy](#)

Homework must be submitted on time for full credit. Late homework will be penalized at the discretion of the instructor.

### [Incompletes](#)

Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible (in other words, usually everything but the final paper). If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away.

### [Statement Regarding Religious Accommodation](#)

Oregon State University is required to provide reasonable accommodations for employee and student sincerely held religious beliefs. It is incumbent on the student making the request to make the faculty member aware of the request as soon as possible prior to the need for the accommodation. See the [Religious Accommodation Process for Students](#).

### [Expectations for Student Conduct](#)

Student conduct is governed by the university's policies, as explained in the Student Conduct Code (<https://beav.es/codeofconduct>). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

### [Academic Integrity](#)

Integrity is a character-driven commitment to honesty, doing what is right, and guiding others to do what is right. Oregon State University Ecampus students and faculty have a responsibility to act with integrity in all of our educational work, and that integrity enables this community of learners to interact in the spirit of trust, honesty, and fairness across the globe.

Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use.

It is important that you understand what student actions are defined as academic misconduct at Oregon State University. The OSU Libraries offer a [tutorial on academic misconduct](#), and you can also refer to the [OSU Student Code of Conduct](#) and [the Office of Student Conduct and Community Standard's website](#) for more information. More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

#### [Statement Regarding Students with Disabilities](#)

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

#### [Accessibility of Course Materials](#)

All materials used in this course are accessible. If you require accommodations please contact [Disability Access Services \(DAS\)](#).

Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](#) certifying how the platform is accessible to students with disabilities.

#### [Academic Calendar](#)

All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>.

#### [Student Bill of Rights](#)

OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course syllabus: <https://asosu.oregonstate.edu/advocacy/rights>.

#### [Student Evaluation of Courses](#)

During Fall, Winter, and Spring term, the online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students will receive notification, instructions and the link through their ONID email. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the learning experience of future students. Responses are anonymous (unless a student chooses to "sign" their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.