



Forests, wood, and carbon

INTRODUCTION 4.9.2023

Welcome!



Dr. Kristiina Lillqvist



Dr. Steven Collins



Prof. Lauri Rautkari



Dr. Daniela Altgen



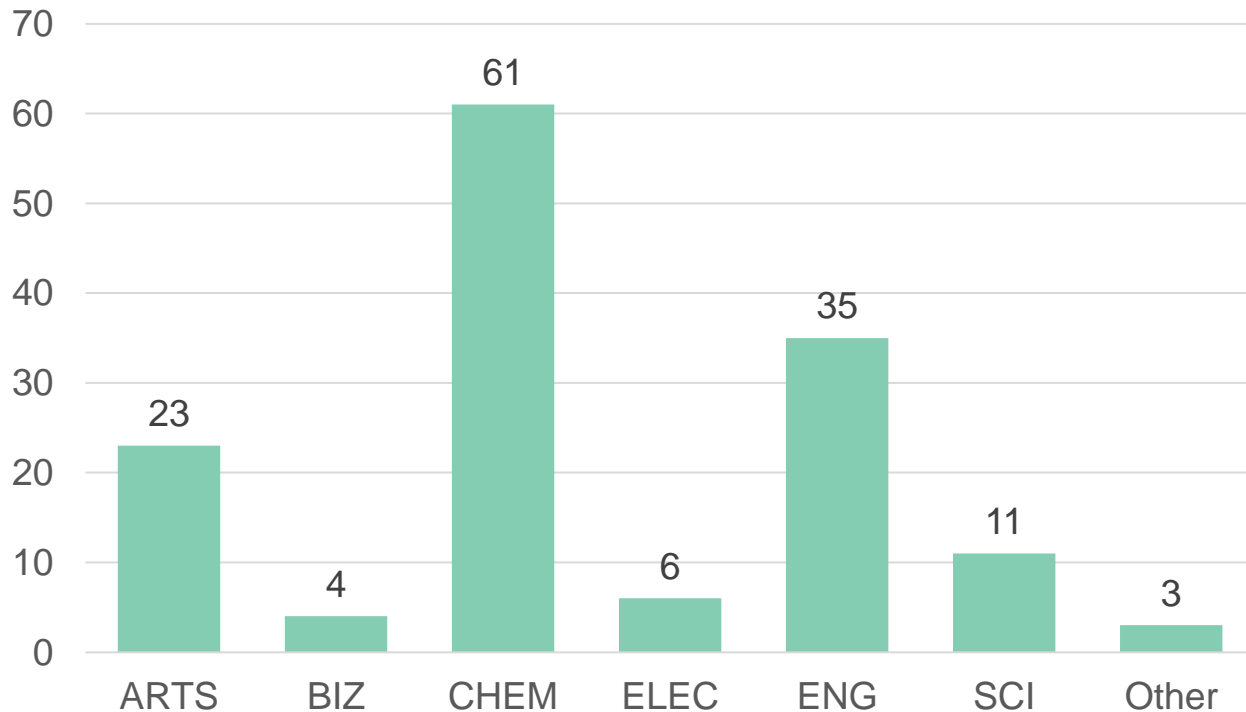
Dr. Callum Hill

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Students by department

4.9.2023

Altogether **143** students



For students in all fields

Proceed at own pace!

Online courses

Registration
DL 11.9.

Forests, Wood and Carbon / 5 cr

CHEM-C2470

I-period 4.9.-13.10.2023

V-period 22.4-7.6.2024



Wood Material Science / 5 cr

CHEM-E2225

III-period, 8.1.-16.2.2024

Learn about how the structure of wood affects its physical and mechanical properties.



Wood Products and Processes / 5 cr

CHEM-E2235

IV-period, 26.2.-14.4.2024

Learn about the production processes, properties and applications of wood products, such as sawn timber, plywood, cross-laminated timber and modified wood.



After the course, students are able...

- to describe the role of **forests in the carbon cycle**
- to calculate the **carbon storage potential of wood**
- are able to list the common work phases of **life-cycle analysis**
- to describe the basic macro-level **structure of wood** and the basics of wood grain orientation
- to describe how moisture influences **wood dimensional changes and strength** at the cell-level
- to link the influence of grain angle, knots and other natural features of wood on its **movement, appearance, and mechanical** properties
- to list the most common **wood products** and their typical applications



How to pass the course?

Mon 4.9.2023 at 9:15-10 Introduction @Zoom

1. **Study the material at MyCourses workspace**
 - Practice with all the 7 online quizzes (100% correct)
2. **Do the 3 online exams in the workspace**
 - The exams you may do only once
3. **DL Wed 11.10.2023**
4. **Give feedback in MyCourses**

Fri 13.10.2023 at 9:15-10 Closing @Zoom

Participation to intro + closing sessions recommended (not compulsory)

→ **Grading 0-5 (scale determined later)**

- Upgrade your grade → re-take the course

Course info in MyCourses

A?

Home Dashboard My own courses Schools ▾ Service Links ▾ Intelliboard ▾



Student

KL



×

▸ COURSE INFO

▾ Forests

▾ Wood

▾ Carbon

▾ EXAMS

CHEM-C2470 - Forests, Wood and Carbon, Online teaching, 4.9.2023-15.10.2023

? Forums

Syllabus

Course

Grades

COURSE INFO

The course is organized as **online course**. You may follow the course **independently** whenever it is suitable for you during the I period / fall 2023. The course includes many short videos, texts, exercises and several multiple choice exams. Teaching language is English

?


All materials in MyCourses

- ✕
- COURSE INFO
- ▼ Forests
- ▼ Wood
- ▼ Carbon
- ▼ EXAMS

Exams → Become available after the first week

“Interactive book”
Activities not evaluated

HSP 1) Forests - Global forests Mark as done



Global forests

Picture: Google Maps

QUIZ Quiz: Global forests

Quiz → 100% correct

Receive a grade Receive a pass grade

Plan ahead!

- DL 11th Oct
- <6 weeks
- Make your own schedule!
- Reserve enough time for exams!

LEARNING MATERIAL

Interactive Books: ✓
Learning material with some exercises. Mark as **completed** by yourself.

+

Quizzes: ✓
Exercise questions related to the topic. To **complete** the quiz you need to answer *everything correctly* before submitting.

Unlimited attempts
No time limitation
Not graded



EXAMS

Exam:
The exam are available once you have completed the interactive books and the quizzes of the section.

One attempt
Time limitation
Graded

SECTIONS

Forest



1) Global forests



2) Forests in Finland

• Forest Exam 20%

Wood



1) Structure & anatomy



2) Built environment



3) Products & applications

• Wood Exam 50%

Carbon



1) Carbon cycles

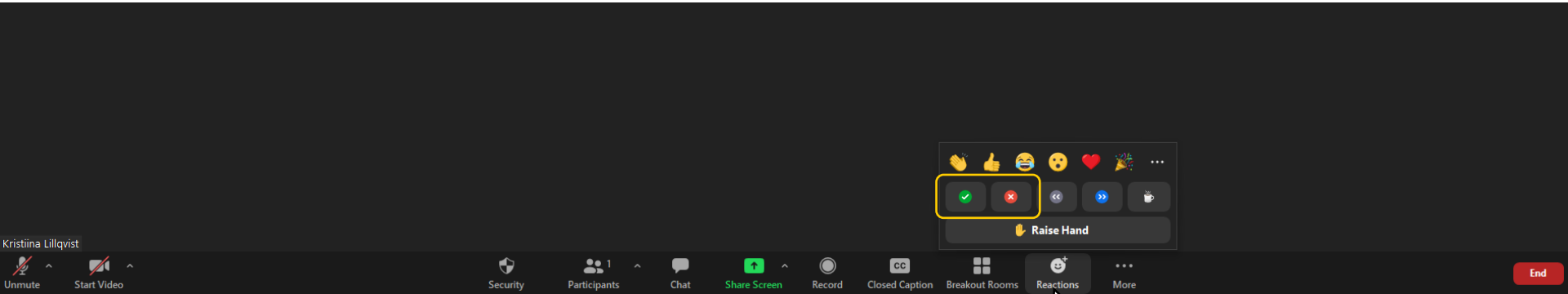


2) Wood products

• Carbon Exam 30%

Yes / no questions!

- To start learning process
- Does not influence your grade
- Use yes / no –buttons in Zoom



In Finland more forests are felled than they yearly grow?



YES

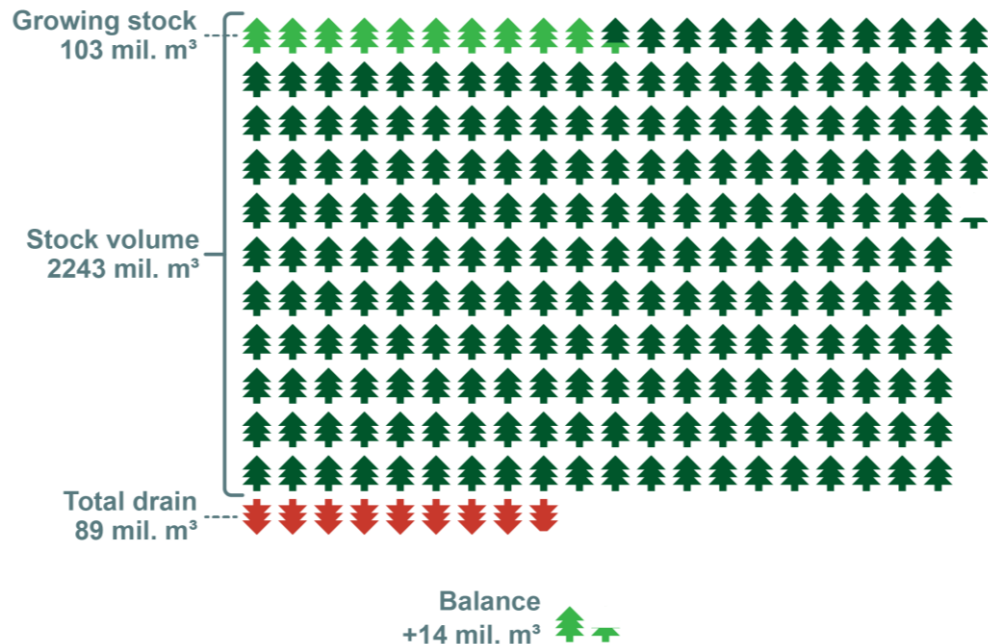
The area and biomass is reducing



NO

The area and biomass are increasing

Forest stock volume growth vs. drain in Finland (2022)



Carbon in a tree gets released to the atmosphere when the tree is felled?



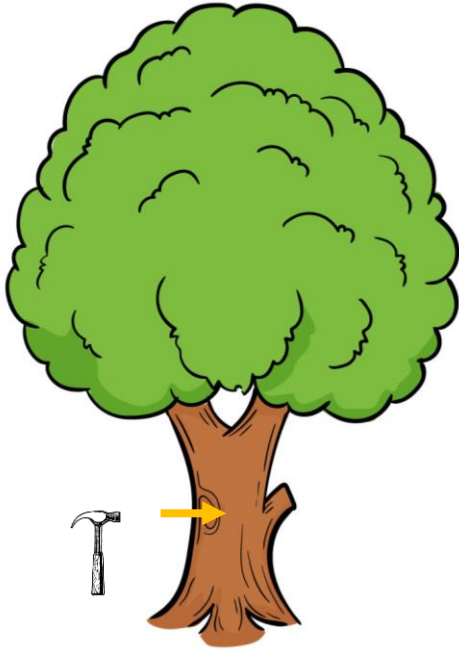
YES
It is released.



NO
It is not released.



Nail stays at the same height after 10 years?



YES

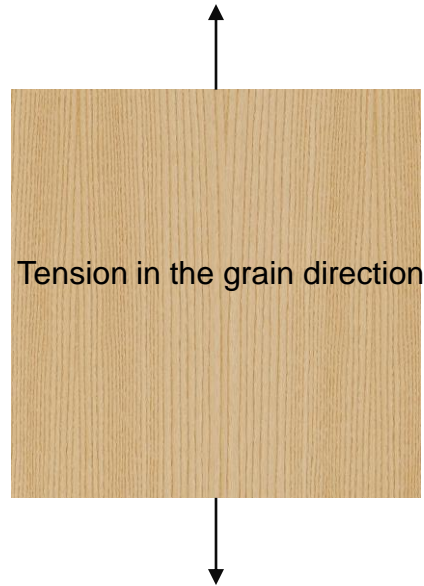
It stays approximately at the same height



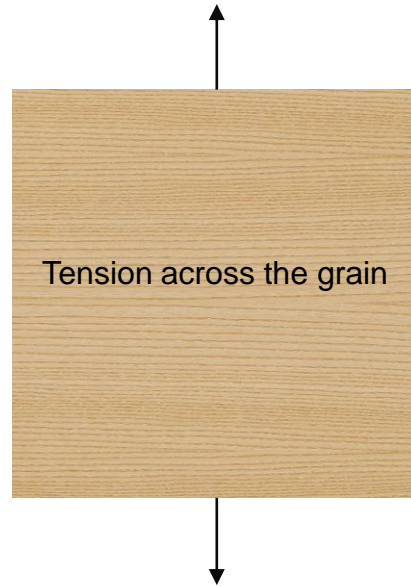
NO

It moves upwards

Grain orientation does not influence wood strength?



=

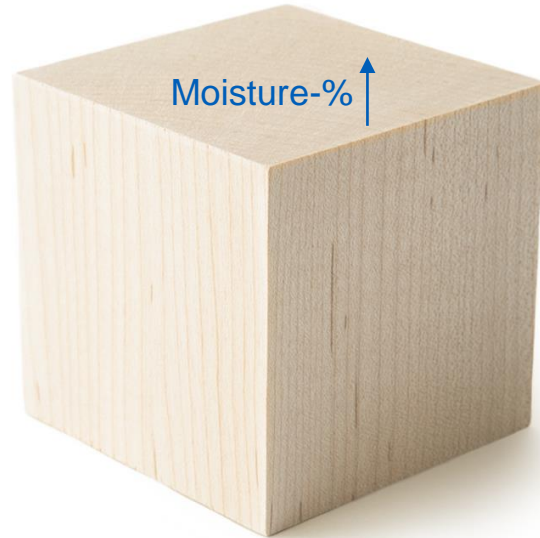


YES
Strength is the same



NO
Strength is different

If relative humidity in the air increases, moisture content in wood increases?



YES
Wood moisture increases



NO
No change in wood moisture

Wood is still used to make these products?



Aircraft 1940



Wind-mill ~1800



Boat ~1200



NO
It is not used



YES
It is used

Questions / comments?

wood-teaching@aalto.fi

- Are you able to find MyCourses –page?
- Can you find and access the interactive books?

Videos available on Youtube:

What is wood (13) Water transportation
A!
Aalto University

200-400 litres
100m
2-3 MPa
20-30 MPa
COHESION
WATER TENSION
0.1-0.5 MPa
10m
0.1m

3:31 / 3:45

Aalto University - Wood Science