



Forests, wood, and carbon

INTRODUCTION 22.4.2024

Welcome!



Dr. Kristiina Lillqvist



Dr. Steven Collins



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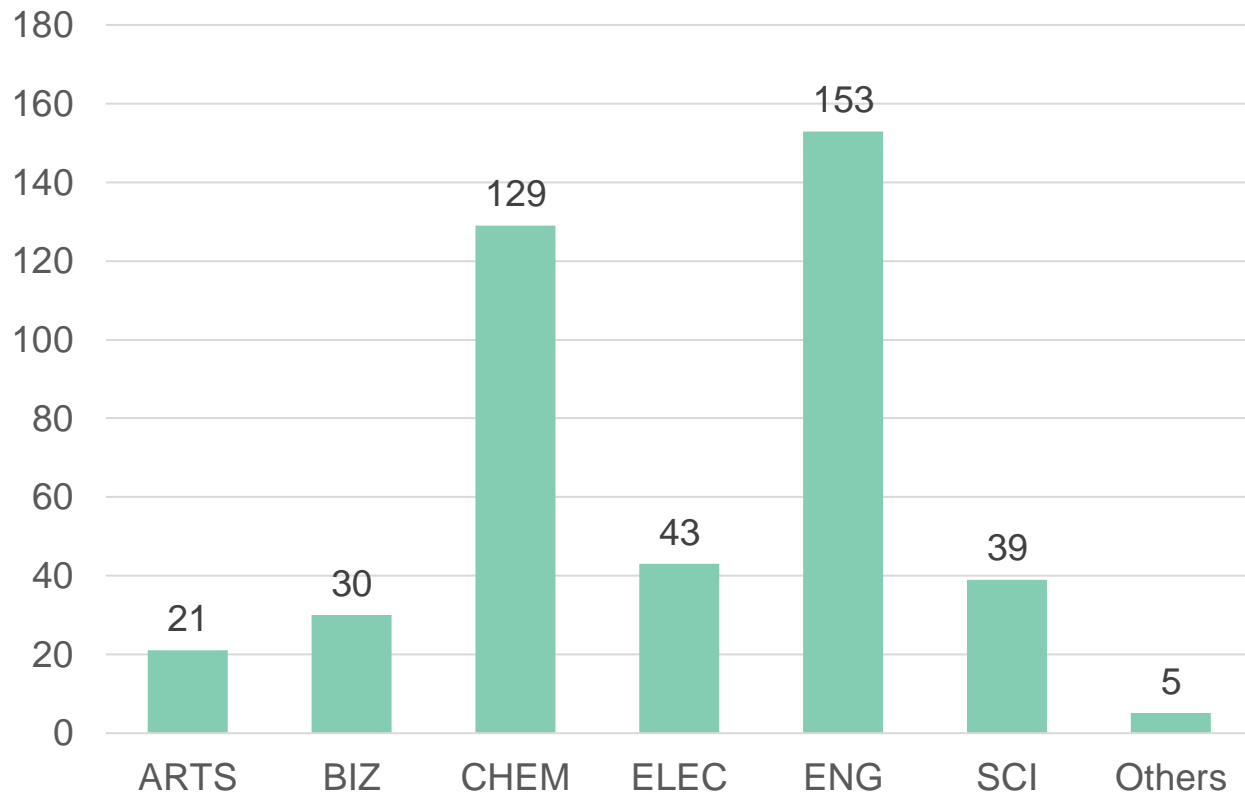
Research group: Wood material science (Prof. Rautkari)

Department of Bioproducts and Bioprocesses

Students by department

22.4.2023

Altogether **420** students!



For students in all fields

Proceed at own pace!

Online courses

Registration
DL 29.4.2024

Forests, Wood and Carbon / 5 cr

CHEM-C2470

V-period 22.4-7.6.2024
I-period



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 22.4.2024 at 14:15-15 Introduction @Zoom

Participation to Intro + Closing sessions recommended

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 5.6.2024**
4. **Give feedback in MyCourses**

Fri 7.6.2024 at 14:15-15 Closing @Zoom

Grading 0-5 (scale determined later)

Please note:

- Upgrade your grade → re-take the course next time
- Miss the DL → re-take the course next time

Course info in MyCourses

A?

[Home](#) [Dashboard](#) [My own courses](#) [Schools](#) [Course feedback](#) [Service Links](#) [Intelliboard](#)



[Student](#)

×

> **COURSE INFO**

▼ **Forests**

▼ **Wood**

▼ **Carbon**

▼ **EXAMS**

CHEM-C2470 - Forests, Wood and Carbon, Online teaching, 22.4.2024-7.6.2024

? [Forums](#)

[Course feedback](#)

[Course](#)

[Grades](#)

[Course feedback](#)

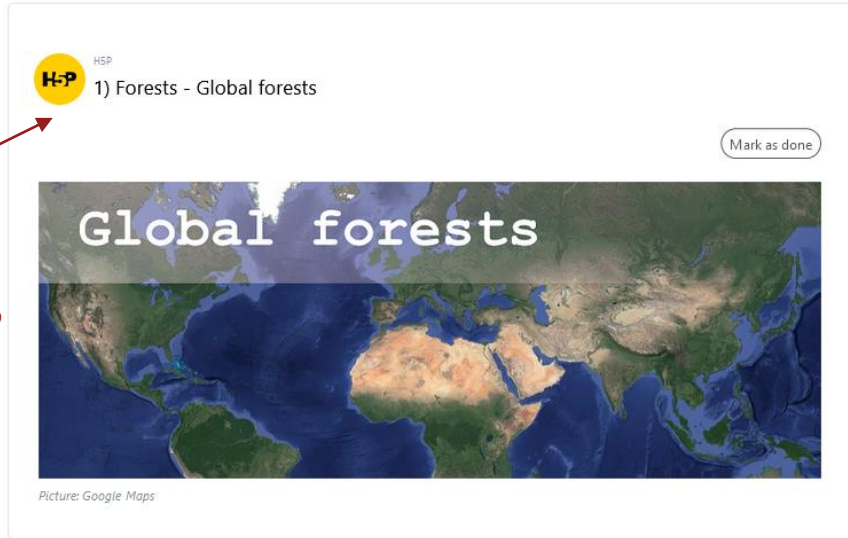
COURSE INFO

The course is organized as **online course**. You may follow the course **independently** whenever it is suitable for you during the V period / spring 2024. The course includes many short videos, texts, exercises and several

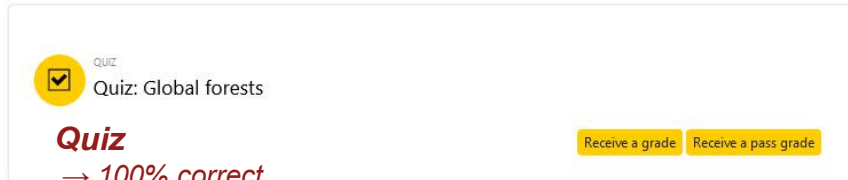
All materials in MyCourses

“Interactive book”

→ Activities not evaluated
(not saved, you may re-do them)



The screenshot shows a course item titled "1) Forests - Global forests" with an "H-P" icon and a "Mark as done" button. Below the title is a large image of a world map with the text "Global forests" overlaid. A red arrow points from the text "Interactive book" to the "H-P" icon.

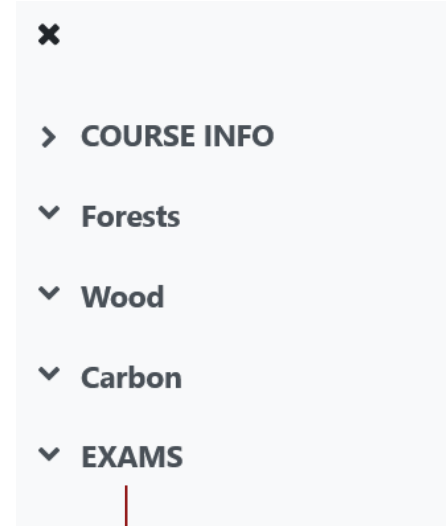


The screenshot shows a course item titled "Quiz: Global forests" with a "QUIZ" icon and a checkmark. Below the title are two buttons: "Receive a grade" and "Receive a pass grade". A red arrow points from the text "100% correct" to the checkmark icon.

Quiz

→ 100% correct

Not evaluated. Unlimited attempts.



The screenshot shows a navigation menu with a close button (X) at the top. The menu items are: "COURSE INFO", "Forests", "Wood", "Carbon", and "EXAMS". A red arrow points from the "EXAMS" item to the text "Exams" below.

Exams

→ Become available after the first week
Evaluated! One attempt only!

Plan ahead!

- DL 5th June
- ~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



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%

Independent learning

Tips from our study psychologist Henna Niiva

1. Pomodoro co-study sessions

- [Start your studies with Pomodoro | Aalto University](#)

2. Self study material about time-management

- [Course: Time to Get Cracking – 3 week Self-study material on time management for students \(aalto.fi\)](#)

3. Self study material about getting things done

- [Course: ABCs of getting things done \(aalto.fi\)](#)

4. Podcast episode about time-management

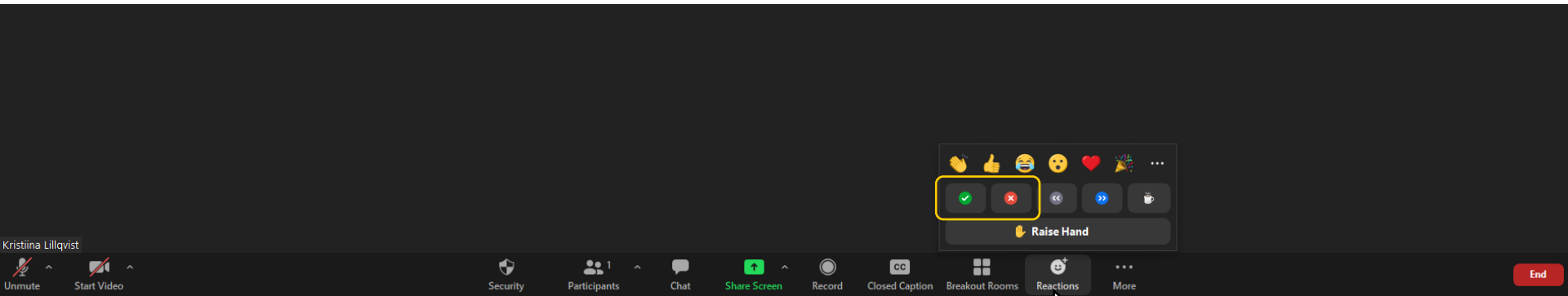
- [Time-management - a skill everyone can learn with time](#)
- [The Best Thing Today podcast series | Aalto University](#)

5. Students may also visit guidance counsellor in Starting point of wellbeing and get support for time-management.

- Guidance counsellor's drop in on Thursdays at 13-15. [Starting Point of Wellbeing | Aalto University](#)

Yes / no questions!

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



In Finland more forests are lost than they yearly grow?

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



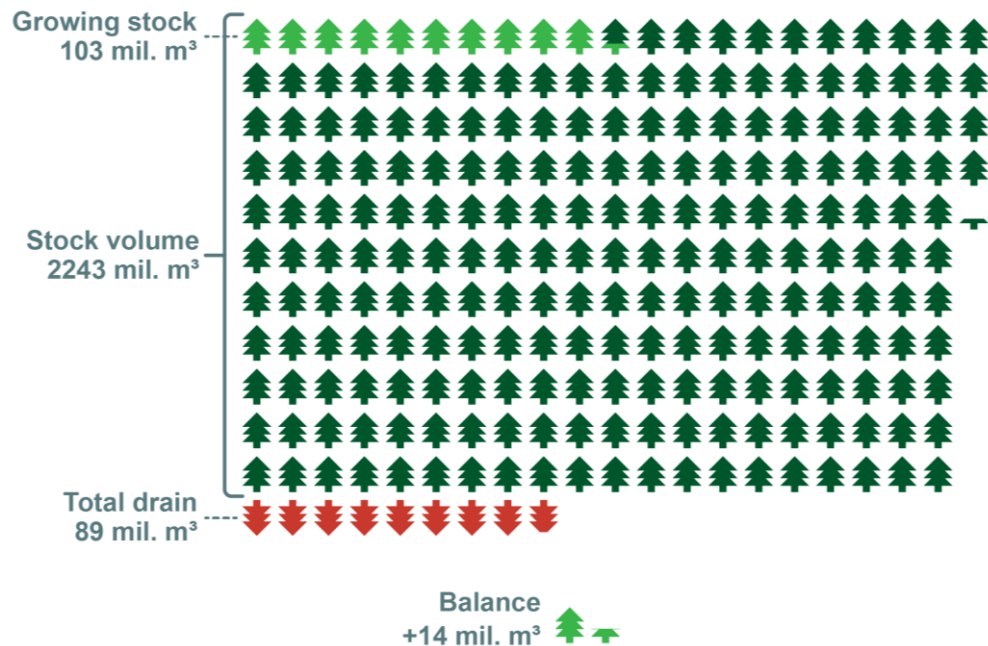
YES

The area and biomass are reducing



NO

The area and biomass are increasing



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



YES

It is released.

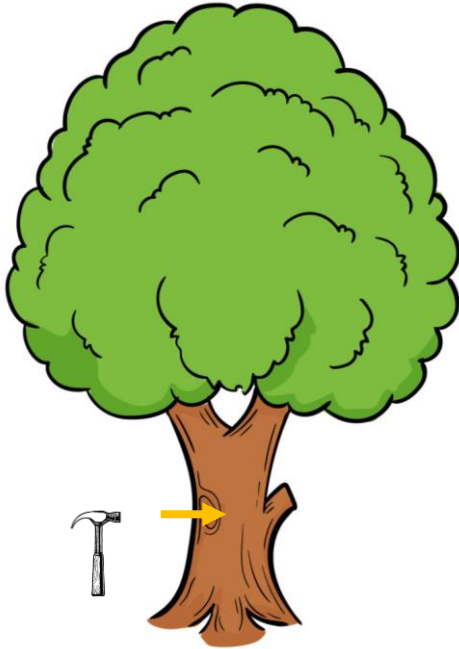


NO

It is not released.



Nail stays at the same height after 10 years?



YES

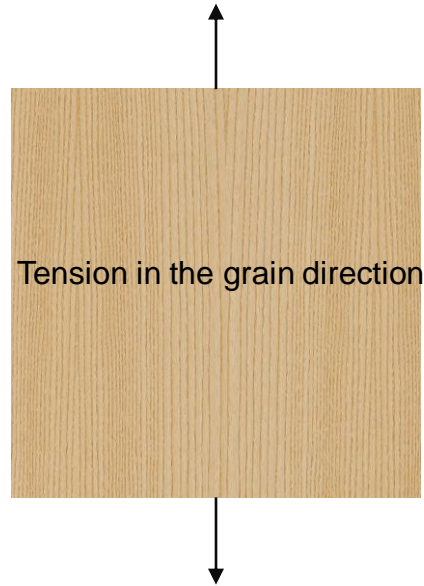
It stays approximately at the same height



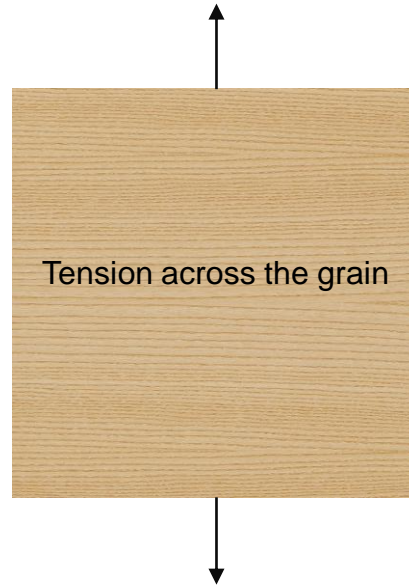
NO

It moves upwards

Grain orientation does not influence wood strength?



=

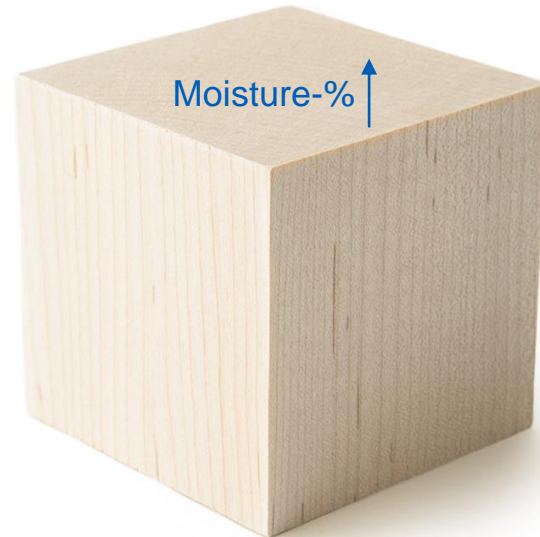


YES
Strength is the same



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?



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

3:31 / 3:45

Scroll for details

Aalto University - Wood Science