

The challenge and benefits for research universities in delivering life-long-learning

ICA-CoP Bio-Edu Workshop

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Zagreb

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University of Eastern Finland

- a multi-disciplinary university with a bioeconomy as a strategic corner-stone

2
campuses

Joensuu | Kuopio

4
faculties

**Philosophical Faculty
Faculty of Science, Forestry and Technology
Faculty of Health Sciences
Faculty of Social Sciences and Business Studies**



100

Major subjects

3,200

Members of staff

16,000

Degree students

1,200

International Degree Students



- Sustainably managed forest resources
 - 89% / 1,6 Mill ha forestry land
- Annual growth 9,3 Mm³
- Annual harvesting 6 – 7,5 Mm³
- Half of forests private family-owned
 - average size 30 ha

Recognized World-leading businesses



Proven world-class hub of research, development and education



Joensuu - The Forest Capital of Europe

- 600+ experts
- 600+ companies
- 6000+ jobs
- 2 B+ euros turnover
- Forestry gateway to global markets



UEF is a member of European Bioeconomy University - holding a presidency in 2025-2026

EBU Alliance

AgroParisTech (National Institute of Technology for Life, Food and Environmental Sciences) ▾

University of Bologna ▾

University of Natural Resources and Life Sciences (BOKU) ▾

University of Hohenheim ▾

Wageningen University and Research ▾

University of Eastern Finland ▾

Warsaw University of Life sciences (SGGW) ▾

Swedish University of Agricultural Sciences (SLU) ▾

Our mission

Is the empowerment of the European knowledge-based bioeconomy

- ▶ **educating** a new generation of **truly European experts**
- ▶ **fostering** rigorous, relevant and responsible **research**
- ▶ **transferring knowledge** into society and the economy

European knowledge-based bioeconomy will be driven by necessity and accomplished by intellectual leadership. The European Bioeconomy University will work visibly and effectively to empower the European knowledge-based bioeconomy and accelerate this transition by

- ▶ **educating a new generation of truly European experts:** Our education and training will exploit the full potential of the future bioeconomy by attracting the best talents and training them as the best suited experts to meet the sector's needs.
- ▶ **fostering rigorous, relevant and responsible research:** Excellence in multi- and trans-disciplinary research and innovation form the cornerstone of the European Bioeconomy University. This allows for rigorous, relevant and responsible research.
- ▶ **transferring knowledge into society and the economy:** The successful transfer of knowledge into the social and economic systems through technological and social innovations will provide evidence of the transformation towards a knowledge-based bioeconomy

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Outline

Motivation: Understanding different perceptions on the life-long-learning (LLL) in the field of bioeconomy particularly in scientific Universities

Cases: Experiences on LLL in forestry, National project for the Bioeconomy Specialising Studies and Open Batch of Forest Sciences, Initiative for European Bioeconomy Academy under EBU-university consortium

Data: the documents along the project (project documents, minutes, a survey...)

The challenge



Two simultaneous transitions

- Bioeconomy
- Life-Long-Learning



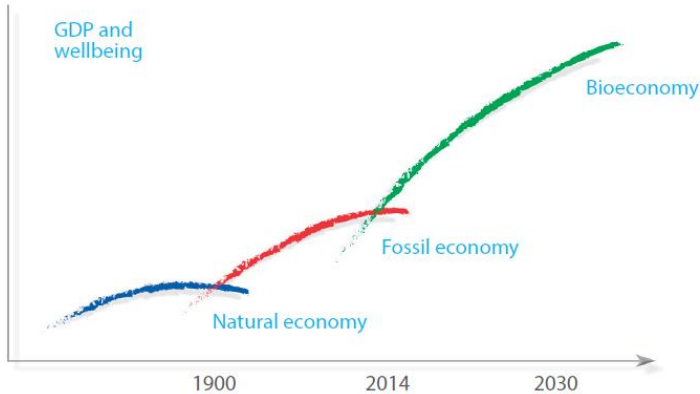


What belongs to bioeconomy?

Generations of bioeconomy debate

BIOECONOMY IS THE NEXT WAVE OF THE GLOBAL ECONOMY

Bioeconomy is the next wave of the global economy, producing growth and prosperity. According to estimates, Finland may nearly double the value of its bioeconomy.



By 2030, the world will need 50 percent more food, 45 percent more energy and 30 percent more water than now.

- First generation - A resource-driven vision of the bioeconomy, combining forestry – agriculture – horticulture
- Second generation – focus on innovation and new technologies
- Third generation – circular bioeconomy for sustainable development
- Fourth generation – Bioeconomy is a sustainable solution and societal change



Very first view towards bioeconomy – different scale energy innovations

<https://energiaraitti.karelia.fi/esittelykohteet/>

Investments on large scale innovations and technologies featured forest bioeconomy in Finland -> second generation



<https://www.metsafibre.com/fin/yhtio/Tuotantolaitokset/Biotuotetehdas/Pages/default.aspx>

Photos: BEMDiverso-project.BR

Bioeconomy of a forest owner – cascade use of forest resources



Third generation of bioeconomy: circularity and cascade use

Photos: Forest owner Kauko Kärkkäinen



Fourth generation of bioeconomy: societal change - glocal



Focus also on local communities

Photos: <http://www.findglocal.com/Fin/Outunsalo/101144452298481/Entisajan-Joulumarkkinat>

Discourses on bioeconomy

















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Shaping the concept of bioeconomy in participatory projects – An example from the post-graduate education in Finland

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Piritta Torssonen ^a  , Rosa Valkeavirta ^a  , Tapani Pöykkö ^b  

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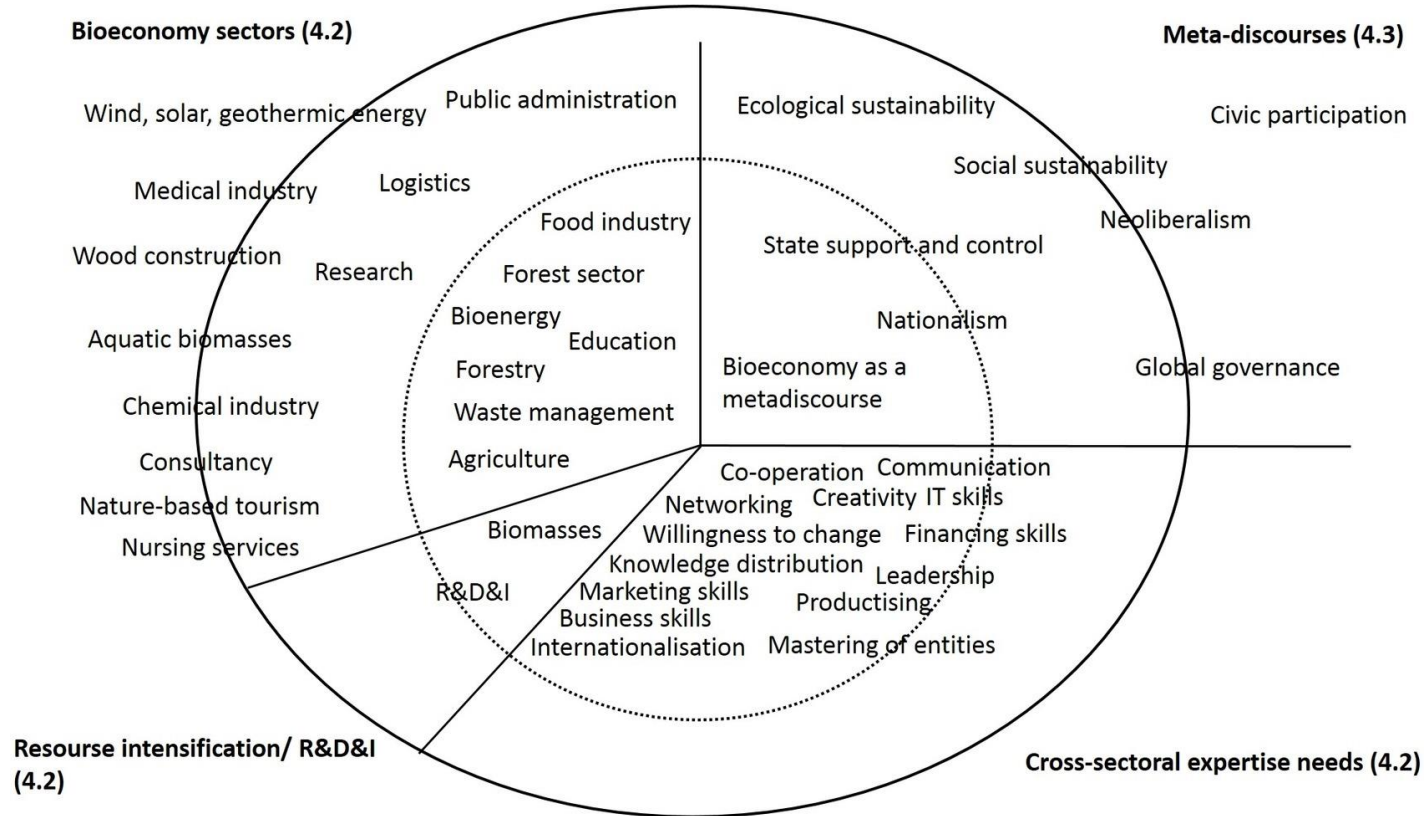
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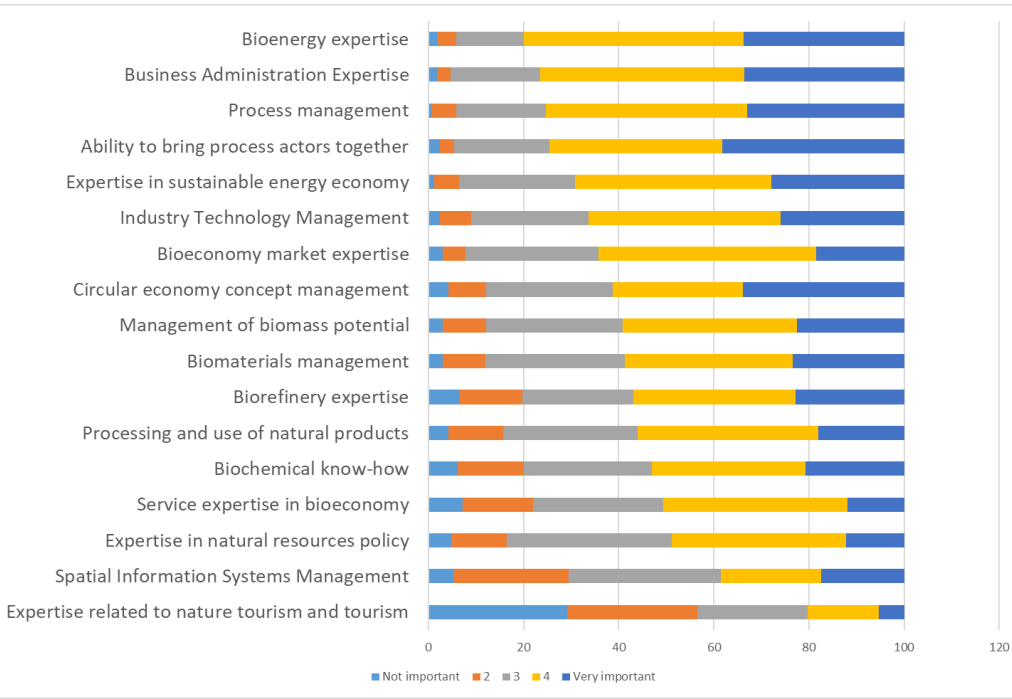
The idea of bioeconomy by the bioeconomy actors in Finland



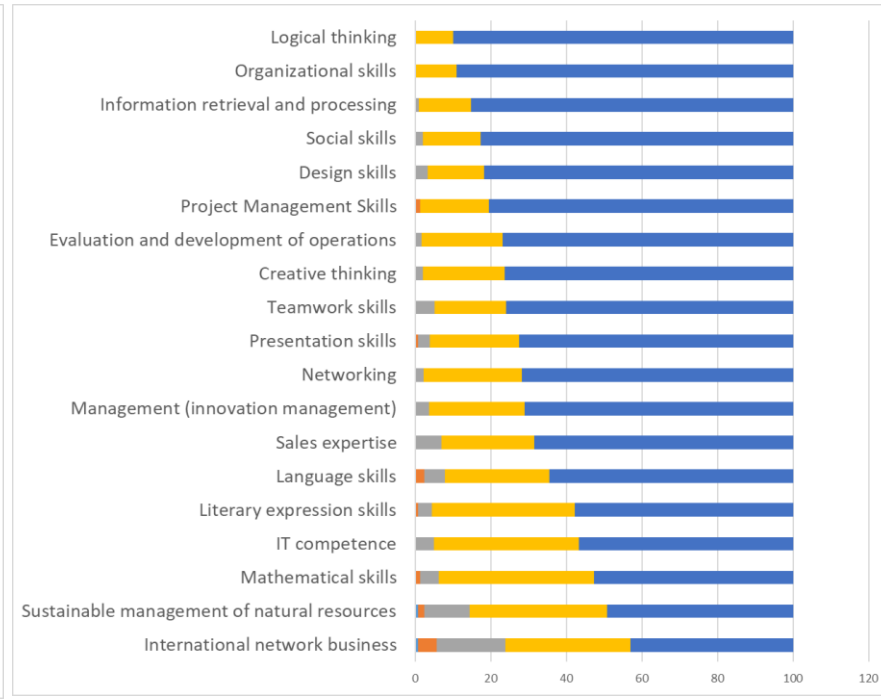


Bioeconomy employers emphasise generic competencies

How important are some subject competencies for bioeconomy professionals?



How important are some generic competencies for bioeconomy professionals?



Life-long-learning/continuous learning is

An every-day practice in work-places

- Need to continuously up-date one's knowledge and skills

A Challenge for education

- Flexible entrances back to studies along career
- Complementary studies on top of degrees
- Part-time studies in work-places

..."A necessary reform of University education ..."

- Universities have to offer learning possibilities along life-spans
- Also normal degree oriented education/teaching has to be adjusted to enable 3L

What belongs to LLL

- **Flexible learning modes/services** to respond on increasing learning needs of work places
 - Postgrad studies
 - Short-courses
 - Parts of degrees as continuing education
 - International learning services/products
- **Streamlining learning paths**
 - Change of professional orientation (degree) inside universities
 - Bringing education levels closer to each other
 - Co-operation between universities, professional schools and secondary schools



Pedagogic challenges of transitions

- Life long learning
 - Varying backgrounds of students
 - Existing working-life connections
 - Daily-life coordination
 - Learning experiences may be old
- Bioeconomy
 - A multidisciplinary by nature
 - Direct focus on professional competency
 - Very diverse core-competencies among student groups
 - Immediate needs to improve existing, often narrow competencies
 - No need for degrees nor time for long participation in education



Cases





The specialisation education

- a rather new format of universities for life-long-learners in Finland
- complements previous degrees for people working in certain professions → stronger expertise in their current jobs
- in fields where degree programmes are not available
- 30-60 ECTS



Bioeconomy specialisation education

UEF in collaboration with Karelia and Savonia Universities of Applied Sciences

TARGET GROUP

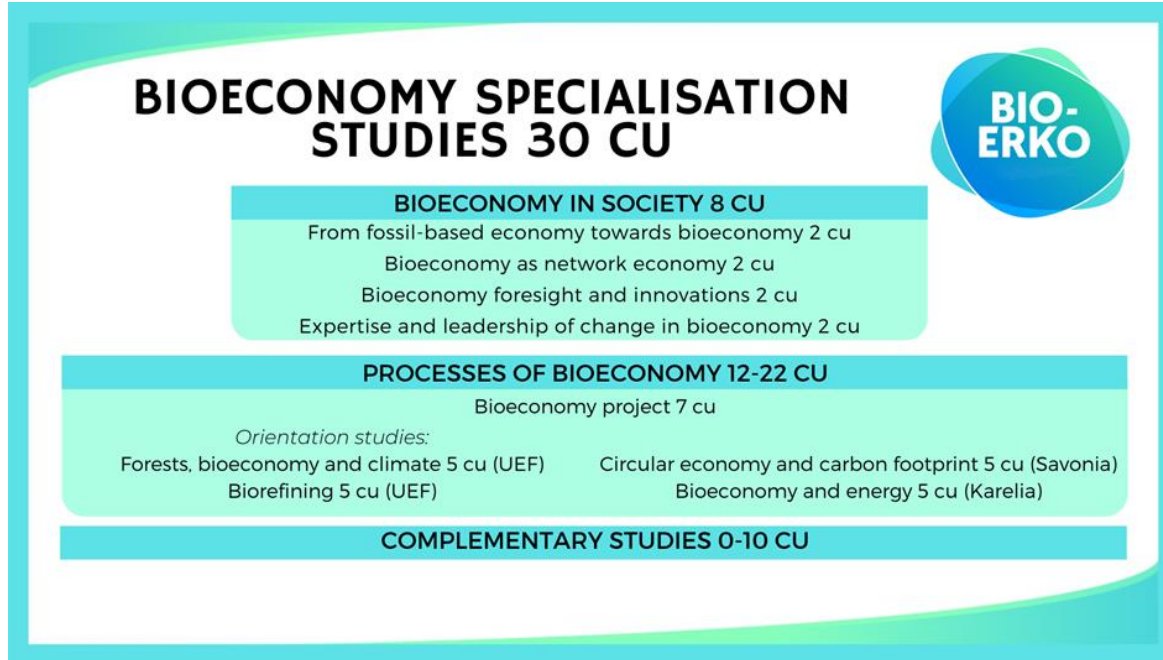
- People in the field of bioeconomy (e.g. companies, consultation, promotion, teachers, operators in the public sector, entrepreneurs)
- A suitable university degree or other suitable degree for the different fields of bioeconomy

LEARNING OBJECTIVES – key words

- new bioeconomy services and products
- biomass streams, side streams and their potential uses, new production and utilisation processes for biomass
- circular economy and digitalisation
- innovation processes and network
- impacts of bioeconomy
- legislation



Eastern Finnish solution for Bioeconomy specialising education



- Personal study plans
- Timing of studies
- Selection of courses based on student's needs
- Company-specific development tasks
- Multisectoral networks
- Modes of study:
 - Mainly independent studying online, physical meetings still highly valued
 - Workshops and visits
 - Reading materials, videos, model exercises, essays, discussions, laboratory work

Mentoring

- The primary goal of mentoring is to provide new perspectives on a personal development project.
- The mentors in the training are academic, working life and peer mentors.



Students' experiences

- Students see the provided education valuable for their professional development
- New networks
- Development project – connects studying and work
- Multidisciplinary view to bioeconomy
- Company visits and presentations
- Getting to know universities (education, RDI, professionals)
- Motivates to learn more
- Tools for communication in bioeconomy





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Digital badges in forest sciences at UEF



Microcredentials and digital badges

- Micro-credential is a (digital) certification that validates a learner's acquisition of specific skills or knowledge in a particular subject or competency.
- Micro-credentials may use digital badges as visual representation for sharing and verification of skills.

The European approach to micro-credentials offers a common definition that is valid across the different sectors of education:

“A micro-credential is the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes have been assessed against transparent and clearly defined standards.”

Courses leading to micro-credentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural or labour market needs.”



Digital badges in UEF

- Open badges are digital representations of skills, achievements, or learning experiences that can be easily shared across various platforms and contexts:
 - **Open Badge Factory** for creating, issuing and managing Open Badges
 - **Open Badge Passport** for receiving, storing, and sharing Open Badges
- UEF has adopted Open Badge



Open Badge
Passport



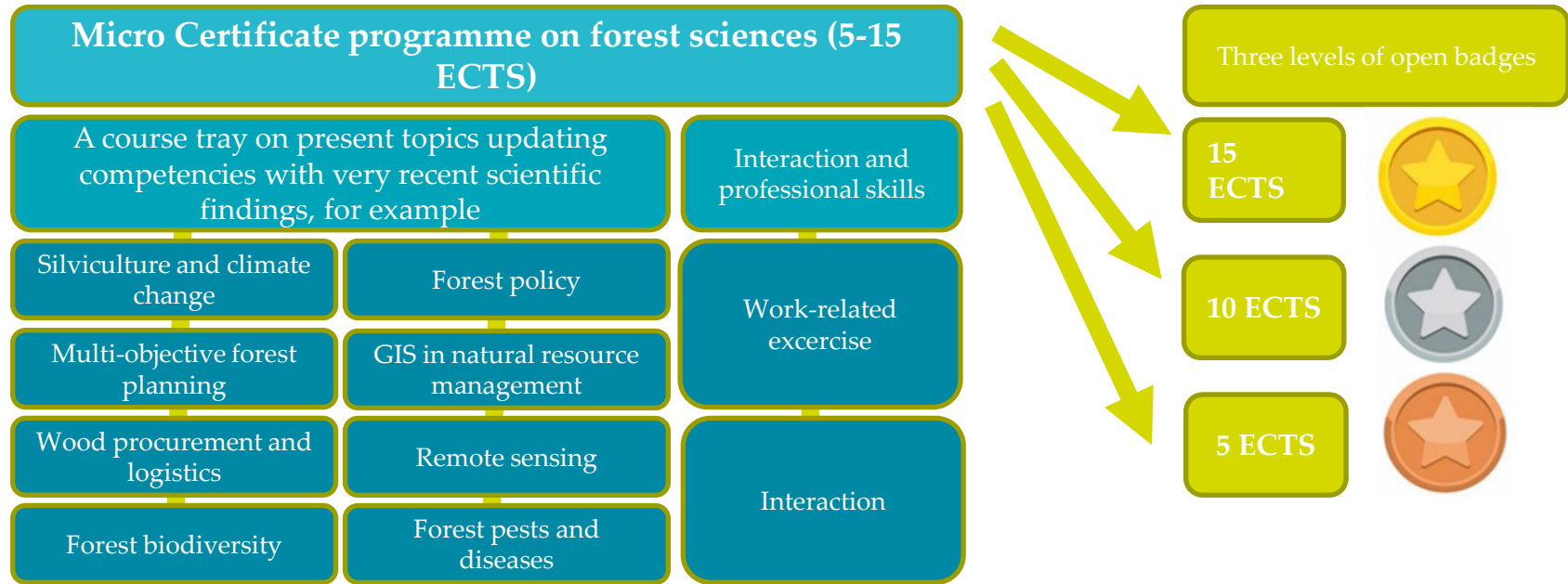
Micro-certificate programme on forest sciences

- The aim
 - strengthen the expertise of working professionals in forest sciences
 - address current and future skill needs in the field
 - and enhance the relevance of education to the workplace and promote networking.
- The target group is forestry professionals who wish to gain an overview of current issues in forest sciences based on their own interests.





Idea of the micro-certificate programme





Examples of open badge courses in forest sciences at UEF

▼ Metsätuhot muuttuvassa ilmastossa (2 op)



Metsäammattilaisen osaamisen ydintä on metsien terveyden ylläpitäminen. Ilmastonmuutoksen vaikutukset näkyvät kuitenkin metsissämme useilla tavoilla, joista yksi keskeisimmistä on metsien tuhojen lisääntyminen. Varsinkin hyönteistuhojen ennustetaan lisääntyvän lämpötilan noustessa. Sekä kotoiset lajimme, että vieraslajit runsastuvat ja aiheuttavat tulevaisuudessa yhä suurempia taloudellisia tappioita ja ekologisia haasteita metsissämme. Muuttuvassa nykytilanteessa metsätuholaisia koskevan tiedon päivittäminen ja syventäminen onkin keskeinen osa ammattilaisten tietotaitoa. Osaamismerkki-hankkeen koulutus tarjoaa uusinta tietoa Suomen metsätuhoista ja niihin valmistautumisen nykytilanteesta ja lähitulevaisuuden suunnitelmista. Samalla kerrataan eri tuhojen aiheuttajia ja dynamiikkaa, sekä hyvän metsänhoidon käytäntöjä terveen metsän ylläpitämiseksi. Kurssin osallistujat saavat uusimman päivityksen Suomen metsätuhotilanteesta ja tuhojen seurantaan ja varautumiseen liittyvästä työstä, sekä vastauksia omassa työssä nouseviin metsätuhoja koskeviin kysymyksiin.

Forest damages in changing climate

▼ Metsä- ja ympäristöpolitiikan ohjauskeinot (2 op)



Koulutuksen käytyään opiskelija ymmärtää metsä- ja ympäristöpolitiikan, erityisesti erilaisten metsän käytön ohjauskeinojen, roolin metsien monimuotoisuus- ja ilmastokysymysten ratkaisemisessa. Kurssilla perehdytään ohjauskeinojen luokitteluun ja politiikkakeinojen vaikuttavuuden tutkimuksiin sekä rakennetaan kokonaisnäkemys kansallisista, EU:n ja YK:n tämänhetkistä metsä- ja ympäristöpolitiikan foorumeista, prosesseista ja politiikkakeinoista. Metsäammattilaiset jäsentävät ohjauskeinot osaksi omaan työhönsä vaikuttavaa metsäalan sääntelyä (esim. metsälaki, sertifiointijärjestelmät ja metsänhoidon suositukset).

Toteutustapa: Verkko-opiskelu (DigiCampus). Kurssille sisältyy Metsäpolitiikan ajankohtaispäivä -seminaari, joka järjestetään 1.12.2023. Tilaisuuteen voi osallistua verkon välityksellä.

Kurssi järjestetään välillä 1.11.2023-31.12.2023

Forest and environmental governance

▼ Monimuotoisuus ja metsien käyttö (2 op)



Koulutuksen käytyään opiskelija ymmärtää kuinka monimuotoisuutta edistetään osana Suomen metsien käyttöä ja kuinka se osaa jäsentää monimuotoisuuden eri tasona boreaalisessa metsäluonnossa ja ymmärtää keskeiset tekijät, jotka vaikuttavat metsäluonnon monimuotoisuuteen. Opiskelija ymmärtää myös perusteet metsien luontai ja dynamiikasta. Kurssi yhdistää ajantasaisen tutkimuksen käytännön niin, että opiskelijat tietävät nykyisin käytössä olevien menetelmien ekologiset perusteet ja osaavat soveltaa johtettuja menetelmiä metsien rakenteellisen ja lajin monimuotoisuuden lisäämiseksi.

Biodiversity and forest use

▼ Metsäalan neuvottelutaidot (3 op)

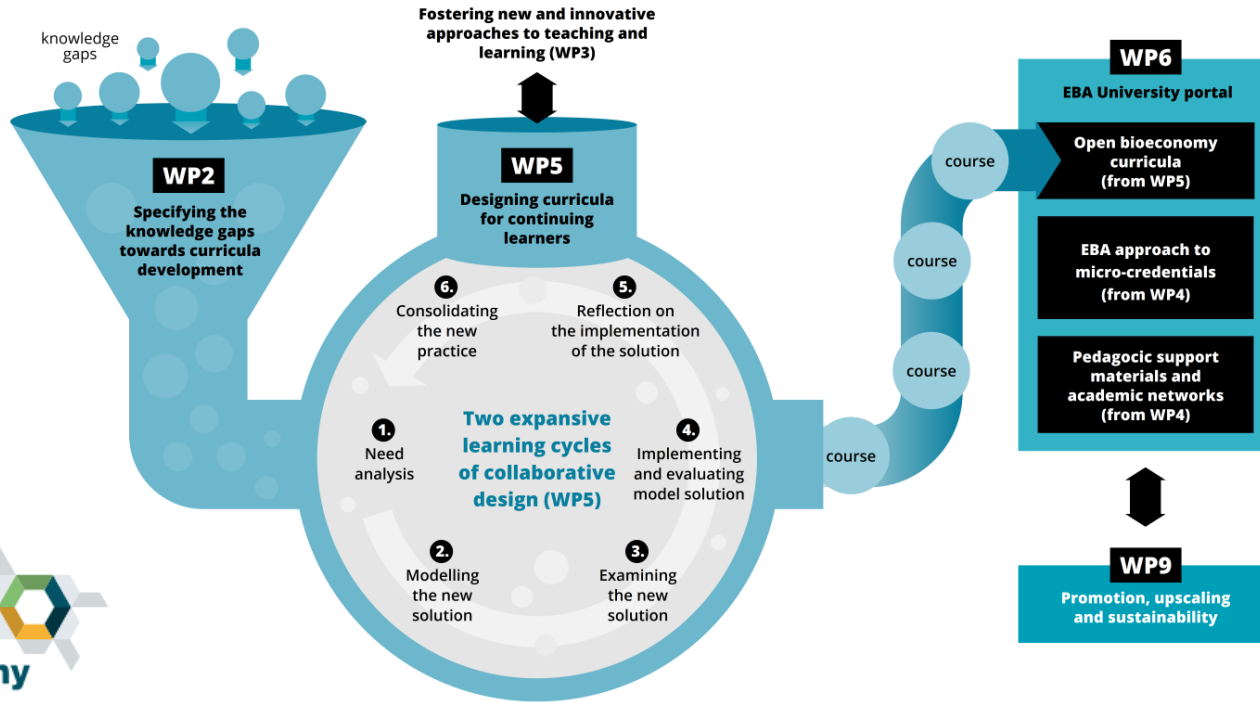


Kurssilla esitellään erilaisia metsäalalla ilmeneviä neuvottelutilanteita, kuten: palvelumyynit, metsäpalvelutilanteet, puukauppaneuvottelut sekä alirakojen kohtaaminen. Jokainen neuvottelutilanne on analysoitu neljän eri asiantuntijan toimesta. Asiantuntijat ovat neuvottelutilanteiden tutkijoita eri aihealueelta: myynnin ja johtamisen toimintamallit sekä strategiat, neuvottelutilanteiden toimintamallit ja strategiat, pedagoginen näkökulma neuvotteluihin sekä retorikka eli puhetaito ja kieliäus. Edellä mainitut neuvottelutilanteet ovat kaikkiä aitoja metsäalan ammattilaisten neuvottelutilanteita, jotka on videoitu tätä kurssia varten. Neuvottelutilanteet on kuvattu ns. 360-videokameralla, joka mahdollistaa neuvottelutilanteesta 360-asteisen näkymän. Päset siis tutustumaan neuvottelutilanteeseen sekä kaikkiin vaikuttaviin tekijöihin kokonaisuudessaan. Kurssi soveltuu aihealueittensa puolesta myös yleiseksi neuvottelutaidot -kurssiksi.

Negotiation skills in forestry

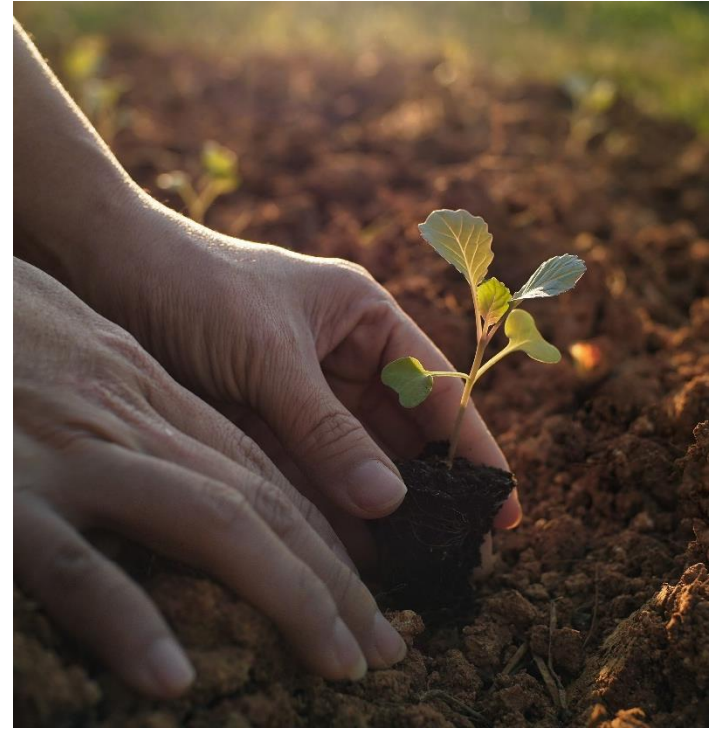


European Bioeconomy Academy – an initiative to develop European micro-certificate programme on bioeconomy





Summing up



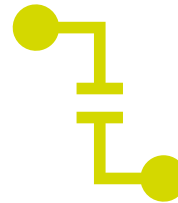
Key challenges of LLL in traditional science Universities



Shelf-steered research oriented experts

Novel tasks, like new education programs, or pedagogical developments, are considered as a threat for the research

“Too close co-operation with working life may threaten academic autonomy”



Institutional constellations

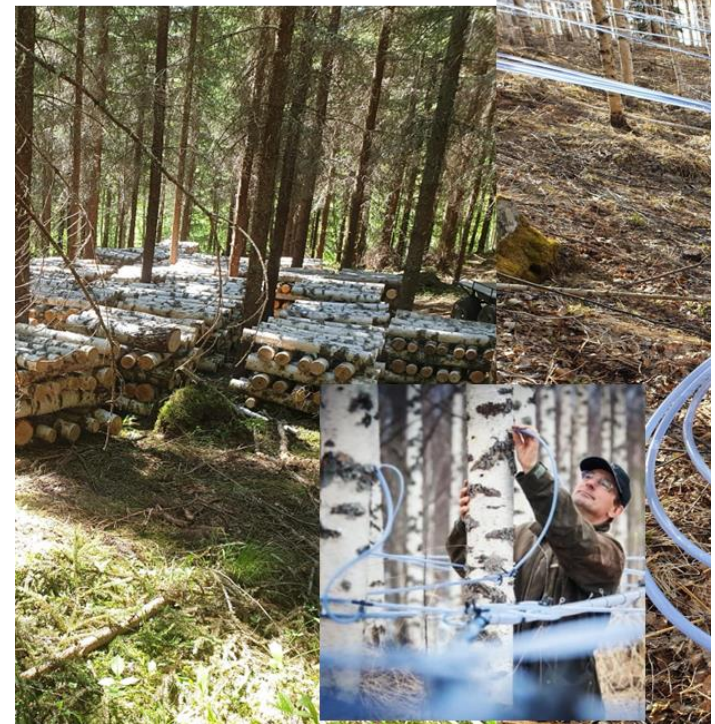
Firewall between market driven and public services

Salary-systems, incentives and career development



Key challenges (cont.)

- Universities internal and external operational environments regarding continuous education are very diverse
 - Ambition
 - Market competition
 - Organisational settings
 - From non-existing up to well developed and structured
- Hard to convince companies on the benefits of scientific continuous education
 - problem of payback-time



Characteristics of successful LLL-measures for bioeconomy professionals



The justification:
science-based updates
to competencies



Learning in practice

Realistic, driven from
demand contents and tasks

Development of generic skills
on focus by the aid of
learning constellations



Learning organization

Integration of research and
teaching

Self-regulation and critical
reflection on competencies

Multiple disciplines involved

Internal and external co-
operation



Support for learning

Flexible multi-location
learning constellations

Structural viewpoints

- LLL in to the "third" mission of Universities
 - Career path incentives
- Smart integration of continuing education with degree education
 - Reciprocal benefits
 - "Open university" concept
 - Mitigating the firewall

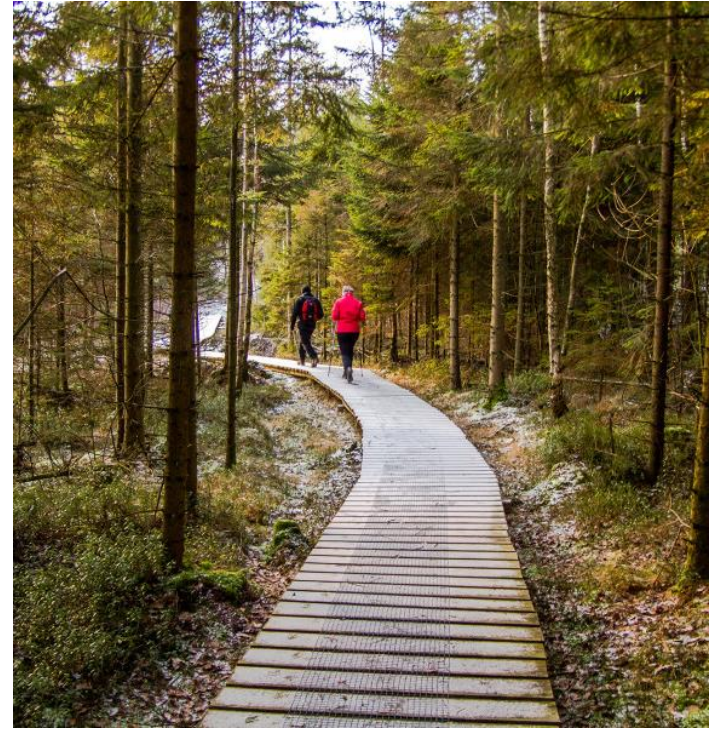




Benefits --

Why Universities should develop LLL on Bioeconomy?

- Rapidly evolving professional arena facing lot of public interest and lobbying
 - Need for scientifically sound solutions and arguments
- Smart integration of continuing education, degree education and research could improve working life relevance of degree education – and also research.



Thank You!

