BIO east

BOOST 4BIOEAST

D5.1

Ready to use education materials in bioeconomy, needs and gaps

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Disclaimer

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Table of Contents

Index of Tables

Index of Figures

Abbreviations

BIOEAST UniNet	Network of the Bioeconomy Universities in the BIOEAST macro region
CEE	Central and Eastern Europe
EU	European Union
EFI	European Forest institute
MBA	Master of Business Administration
MOOC	Massive Open Online Course
RTU	Riga Technical University
TWG	Thematic Working Group
VET	Vocational education and training
YLPMED	Young Leadership Programme Mediterranean

Introduction to the project

BOOST4BIOEAST is a Coordination and Support Action funded by the European Commission developed to support the BIOEAST Initiative with the aim of empowering national stakeholders in the Central Eastern European and Baltic countries for the development of national bioeconomy action plans and to build long-lasting structures and spaces of dialogue for national and macro-regional cooperation. The project will enrich knowledge on the bioeconomy and stimulate related research and innovation across the macro-region.

Executive summary

The transition to a sustainable bioeconomy requires a skilled and adaptable workforce supported by responsive and integrated education systems. In the BIOEAST macro-region, shortages in human capital and fragmented educational approaches pose significant challenges to this transition.

As part of the BOOST4BIOEAST project, a comprehensive assessment was conducted to identify educational needs and gaps in bioeconomy learning across Central and Eastern Europe (CEE). The work included a survey-based needs assessment and a mapping of existing educational programs and materials.

Findings reveal a mismatch between current educational offerings and the evolving needs of the bioeconomy sector. While traditional fields like natural sciences are well covered, emerging areas such as engineering, business administration, and waste management and valorisation are underrepresented. Lifelong learning and vocational training, both critical for workforce development, are also insufficiently addressed in CEE.

Despite some good examples of good practice in the macro-region, disparities remain. These gaps are shaped by structural and societal factors but can be addressed through targeted national efforts and strengthened cross-country collaboration.

These results provide a foundation for further analysing education needs at country level and developing policy recommendations to improve bioeconomy education and support a sustainable bioeconomy in the macro-region.

1 Introduction

The bioeconomy is in constant development, shaped by strategic priorities, social demands and the rise of the use of new technologies and digitalization. These trends can result in the development and modernization of value chains and new markets and business models, which require of a workforce that is equipped with the right knowledge, skills and competencies to be able to support the development of a sustainable bioeconomy.

Education plays a critical role in keeping professionals and future professionals qualified aligning with the evolving bioeconomy demands. Therefore, education must constantly adapt as well, not only in the knowledge it imparts, but also in the teaching methods used. This is especially important in the CEE macro-region, where according to the BIOEAST Foresight Report, there is a shortage of human resources in higher education and research, which poses a significant barrier to building a knowledge-based bioeconomy and accomplishing the goals of the European Green Deal (Kosir *et al*., 2021).

One general issue of bioeconomy education is that it is often fragmented, contrary to its overarching and multidisciplinary nature (Kurtsal, *et al*., 2023). This highlights the need for a broader and more integrated educational perspective, one that not only addresses individual bioeconomy sectors, student groups, and formal education programs, but also embraces transdisciplinary approaches, includes other key bioeconomy actors, and incorporates informal sources of learning. Moreover, bioeconomy education should also be integrated in wider strategies that support the fulfilment of its specific requirements and needs.

To have a better understanding of the BIOEAST countries' bioeconomy education, a macro-regional mapping exercise was conducted in collaboration with the BIOEAST HUBs and Thematic Working Groups (TWGs). The mapping aimed to unfold bioeconomy-relevant educational needs and gaps in the CEE region, and to explore educational materials and programs to collect already existing bioeconomy knowledge, educational materials and learning experiences. The methodologies used for the identification of needs and the mapping of educational materials are described in Chapter 2 while Chapter 3 analyses the results gained and also presents some good examples of good practices in bioeconomy education. The last chapters discuss and summarise the relevance of results.

The results presented give an overview of the current situation of the bioeconomy education in BIOEAST countries and the alignment between what is needed and what is currently offered in terms of educational programs, audiences targeted, bioeconomy fields and skills addressed. The results will feed into *Task 5.2 Enhancing bioeconomy education through the BIOEAST UniNet* and be validated with a broad range of stakeholders and professionals in education through interviews by the end of 2025 that will examine key topics in each country, to develop recommendations for policy makers on how to support development of education in the CEE macro-region.

2 Methodology

2.1 Desk research and exploratory mapping of educational materials

The methodology started with desk research on existing literature, reports and databases related to bioeconomy educational needs and educational materials in CEE (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia) and across Europe. This allowed to gain an overview of the existing knowledge on bioeconomy education needs, and to identify collections and databases of materials that could be relevant to support the mapping. Useful resources identified were reports produced by European institutions (DG RTD *et al.*, 2022), European Union (EU) funded projects such as UrBIOfuture (https://www.urbiofuture.eu/), BIObec (https://biobec.eu/), NextFOOD (https://www.nextfood-project.eu/) and BIOEAST reports (Duic *et al.,* 2022).

Based on the results of the desk research, an explorative mapping of educational materials that could be of interest for the BIOEAST was carried out as an exercise of identifying types of materials and their classification. From the identified databases of educational materials, a list was compiled of those relevant to the bioeconomy and still actively maintained.

2.2 Classification of bioeconomy educational materials

A comprehensive categorization of bioeconomy educational materials, programs, and fields (Appendix 1) was developed based on:

- Desk research;
- Previous similar categorizations of educational materials;
- The International Standard Classification of Education (UNESCO, 2015), adapted to bioeconomy sectors (for bioeconomy educational sectors);
- The bioeconomy-related competencies identified in *Task 3.3 Assessment and consolidation of the competency and biomass mapping* (for cross-cutting topics and soft skills);
- Consultation with HUBs and TWGs via an online workshop and email communication.

The categorization included the following:

- Educational programs;
- Educational materials and sources of best practices;
- Target audiences;
- Bioeconomy fields and sectors:
    - Natural sciences;
    - Agriculture, forestry and fisheries;
    - Engineering, manufacturing and construction;
    - Waste management and valorisation;
    - Business administration and law;

    - Social sciences;
    - Bioeconomy education and training;
- Cross-cutting topics;
- Soft skills.

2.3 Identification of educational needs

The identification of needs and gaps in bioeconomy education aimed to assess perceptions at national and macro-regional levels about the state of the current educational offer and to highlight areas that require attention. Additionally, identifying the needs and gaps helped align the next step (mapping educational materials) with the main priorities.

The online survey "Educational needs in the bioeconomy in BIOEAST countries" (SurveyMonkey) (questions in Appendix 2) was prepared and structured based on the classification of bioeconomy educational materials (Appendix 1). The survey consisted of 5 sections:

a) Contact information: including information on the HUB and TWG the participant represented.
b) Sources of knowledge, educational materials and best practices: participants were asked to rate the relevance of various types of formal and non-formal education, as well as educational materials and sources of best practices, in delivering bioeconomy education.
c) Target audience: participants were asked to assess the existing gaps in bioeconomy education for the different target groups.
d) Bioeconomy educational fields and sectors: participants were asked to assess the existing gaps in different bioeconomy education fields based on the needs of their HUBs or TWGs.
e) Additional categories: a list of the cross-cutting topics and soft skills was presented to be commented.

Answer options to assess relevance were: Low, Medium, High relevance. Answer options to assess gaps were: No gap (totally covered), Minor gap (Some improvements needed), Moderate gap (Significant improvements needed), Major gap (Critical improvements needed), I am uncertain/I don't have this information. All questions included an open box to collect options that were not listed. The survey was distributed to 11 HUBs, 7 TWGs and their stakeholders between October and November 2024, with additional efforts to distribute it to the Network of the Bioeconomy Universities in the BIEOAST macro-region (BIOEAST UniNet).

2.4 Mapping bioeconomy educational materials

Another online survey "Mapping bioeconomy related knowledge and educational materials" was prepared (SurveyMonkey) (questions in Appendix 3) and structured around a refined categorization of bioeconomy educational materials. This categorization was adjusted to address the educational needs and gaps identified in the previous step, ensuring a focused mapping process.

The form consisted of 3 main sections:

a) General information:
   - Name of the resource;
   - Link to the source or upload of the resource;
   - Type of resource (first level) to choose between: Educational program, Educational material or Source of best practices, Project or National program, and Event;
   - Author or owner, country and language;
   - Type of resource (second level) only for: Educational program and Educational materials;
   - Target audience;

b) Bioeconomy educational field and sector;

c) Cross-cutting topics and soft skills.

The survey was distributed to 11 HUBs, 7 TWGs, and their stakeholders between December 2024 and June 2025.

The mapping included resources from both BIOEAST countries and other European countries. Incorporating sources from across Europe was essential to provide a comparative overview of the educational offerings in the CEE region against the rest of Europe. Access to educational resources from outside the region is particularly valuable for addressing gaps where local offerings are limited or unavailable. Additionally, it enables the BIOEAST countries to benefit from best practices and successful examples implemented elsewhere in Europe.

3 Results

3.1 Identification of bioeconomy needs and gaps in the BIOEAST countries

3.1.1 Respondent data

The survey was answered by 74 respondents, all HUBs and TWGs were represented as shown in Figure 1 and Figure 2. Results were analysed at a macro-regional level and at country level when the number of responses per country were at least 5 (Appendix 4).

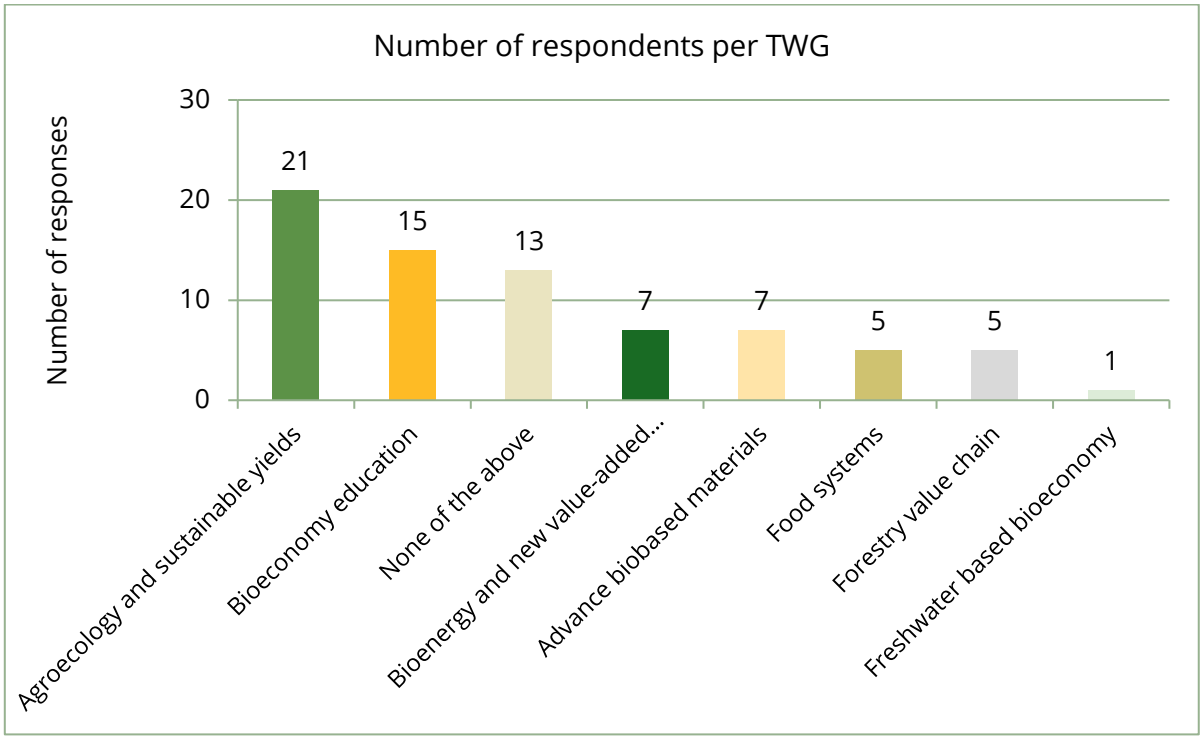

Figure 1. Number of responses per TWG to the survey

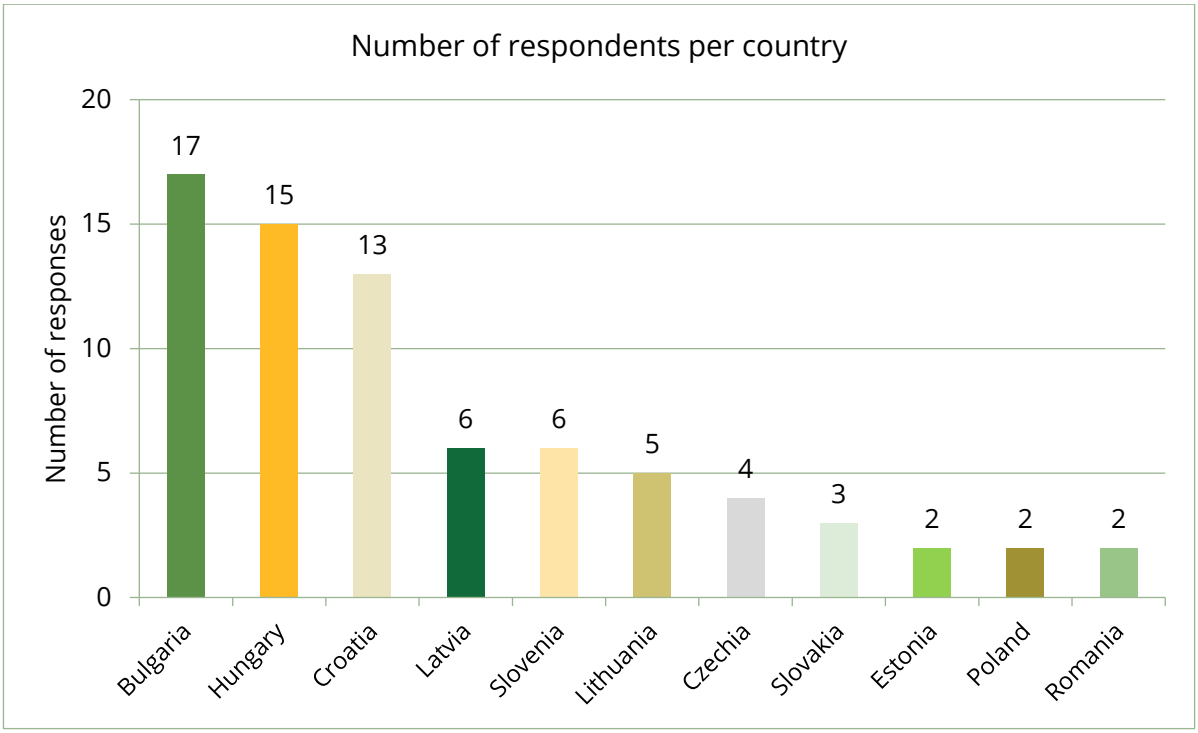

Figure 2. Number of responses per country to the survey

3.1.2 Educational materials and sources of best practices

National programs to integrate bioeconomy in education were considered highly relevant by almost 80% of respondents (Figure 3). This highlights the importance of integrating bioeconomy into national education through targeted programs, as this plays a crucial role in shaping a country's approach to bioeconomy education while addressing its specific needs.

Repositories of best practices, which are platforms that provide easy access to information in a centralized and curated way, were also rated as a highly relevant source of education. Also, materials that can normally be found in repositories such as *Guides and manuals, Toolkits, and Infographics* showed to be highly relevant for around 50% of the respondents. This suggests that didactic and lifelong learning materials are particularly valuable.

Reports and *Project deliverables* were highly relevant for around 40% of respondents, suggesting that more technical formats are slightly less preferred. On the other hand, other dynamic formats, such as *Podcasts*, were rated as highly relevant by only about 20% of respondents.

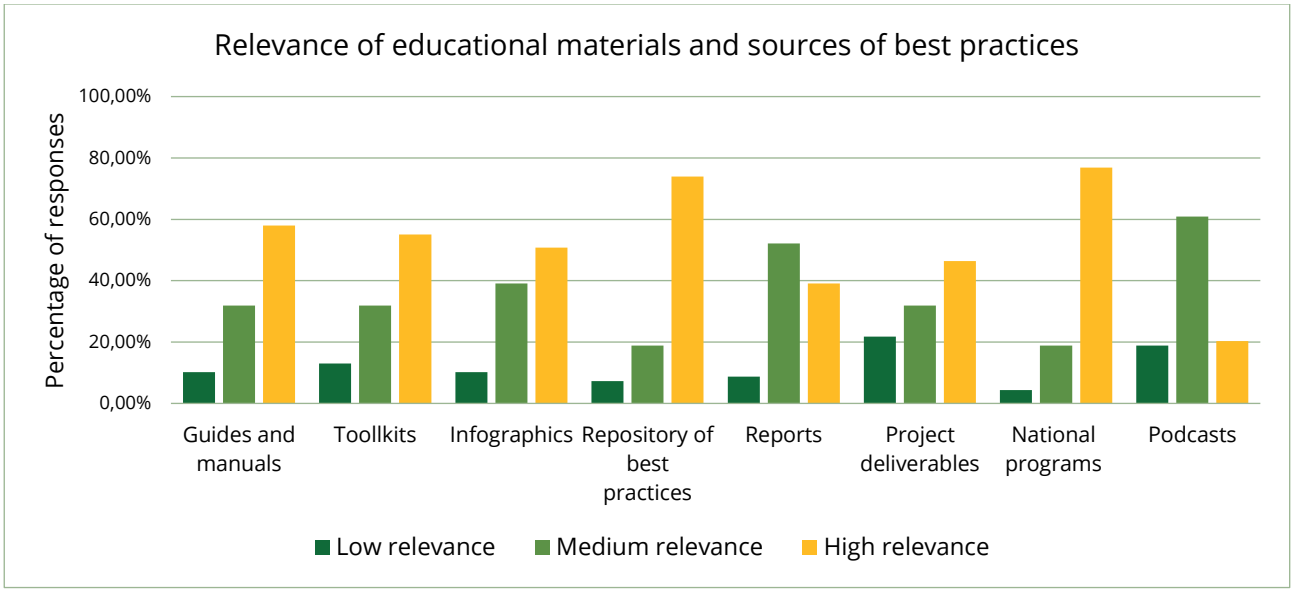

Figure 3. Relevance of educational materials and sources of best practices

At a country level, similar trends were observed, with the most notable difference relating to *Project deliverables*. In Slovenia, these were considered less relevant than the overall average, with 50% of respondents rating them as having low relevance. In contrast, in Croatia, project deliverables were rated as highly relevant by nearly 80% of respondents.

3.1.3 Educational programs

Events such as conferences, public discussions, and debates were highly rated by most participants (Figure 4), emphasizing the value of in-person interactions and networking around specific themes as effective platforms for knowledge sharing.

Formal education formats including *Bachelor's programs*, *Master of Science* degrees, *Regular university courses*, and *PhDs*, also received high ratings, showing that professional education is highly valued. *Vocational training* and *Summer schools* ranked slightly lower than other formal education programs.

Courses in digital formats such as *Massive Open Online Course (MOOC)* and *Online courses*, were rated slightly lower than formal education formats, suggesting that the in-person element in education is considered important.

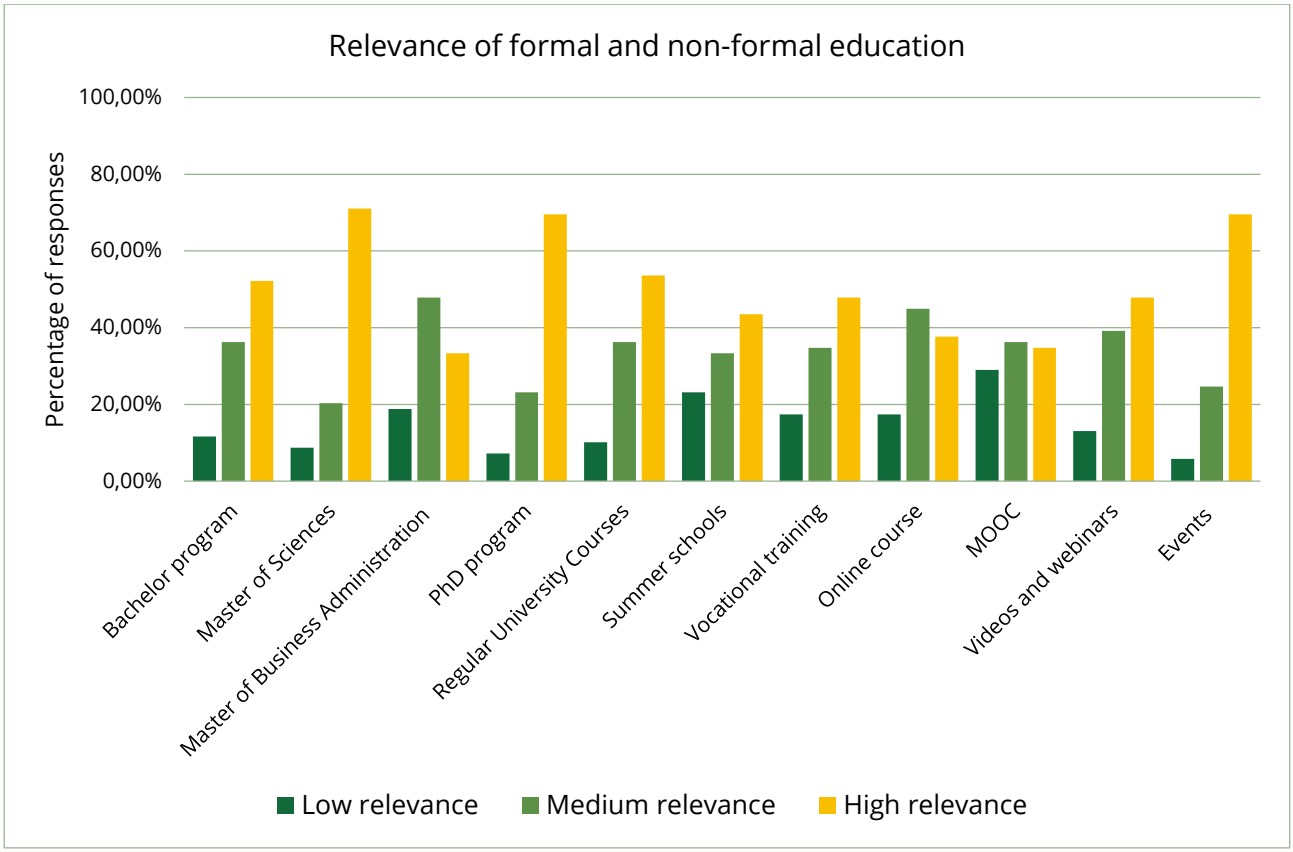

Figure 4. Relevance of formal and non-formal education

When looking at country level results, the main differences identified were for Bulgaria, which showed a lower relevance for *Bachelor programs* and *Summer schools* compared to the average (38% and 19% of high relevance respectively) and for Croatia, which showed a higher relevance for *Master of Business Administration* with over 80% of respondents rating it as highly relevant.

3.1.4 Target groups

The *General public* was identified as the group with the largest gap in bioeconomy education, while, on the other hand, *Professionals in the bioeconomy* were identified as the group with the smallest gap (Figure 5). This highlights the need for increased awareness and educational initiatives to enhance the general public's understanding and engagement with the bioeconomy.

Among students in various formal education programs, *Vocational training students* exhibited a larger gap than the rest, while *Postgraduate students* the smallest gap, suggesting a disparity in quality or availability of education targeting different types of students.

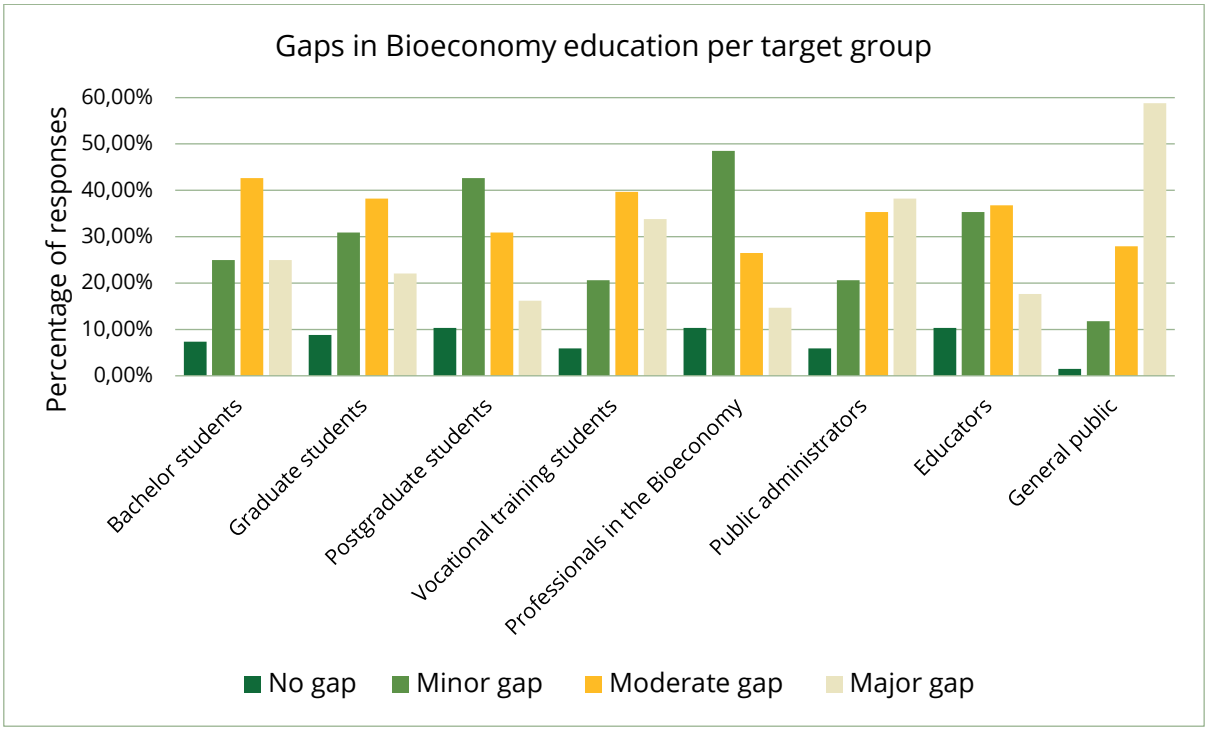

Figure 5. Gaps in bioeconomy education per target group

Results from Latvia showed that the perception of the gaps for *Bachelor, Graduate* and *Postgraduate students* were relatively lower than the average, with all respondents answering that these groups had no or minor gap. Similar case for *Public administrators*, for which over 60% of respondents identified minor gaps. In contrary, *Professionals in the bioeconomy* showed higher perceived gaps than the average with 50% of respondents identifying a moderate gap.

Other relevant results found at country level were for Hungary, where respondents identified *Vocational training students* as the group with the highest gap (60% of responses identified a major gap). While for Slovenia, the gap for *Educators* was higher than the average with 80% of respondents answering that this group had a moderate gap.

3.1.5 Bioeconomy educational fields and sectors

a. Natural sciences

Overall, the various fields of natural sciences were perceived as having minor to moderate gaps (Figure 6). This suggests that while knowledge on natural sciences is important, it may not be

the primary need of focus for the current bioeconomy trends, or that the existing offer in these areas may already be sufficient. The same trend was seen at country level.

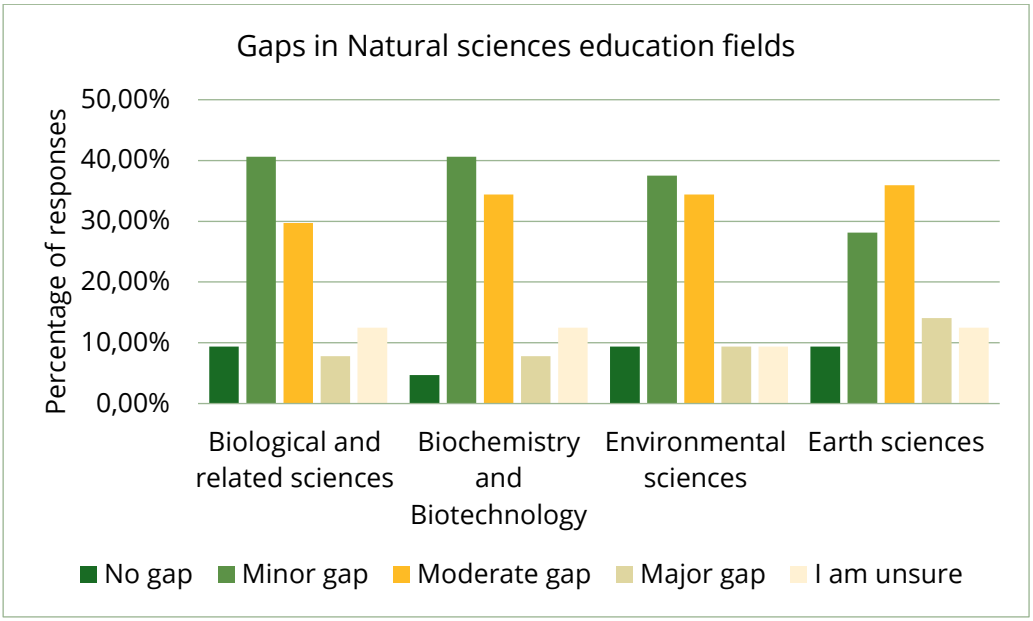

Figure 6. Gaps in Natural sciences education fields in the BIOEAST macro-region

b. Agriculture, forestry and fisheries

The results indicated that the *Agritech and Forestech* sectors were perceived as having slightly larger gaps compared to the *Agriculture* and *Forestry* sectors (Figure 7). This highlights the need to prioritize modernization by complementing the knowledge on the agriculture and forestry sciences with knowledge on the application of technologies and innovation that can improve efficiency and productivity.

Fishing and aquaculture mostly showed minor and moderate gaps.

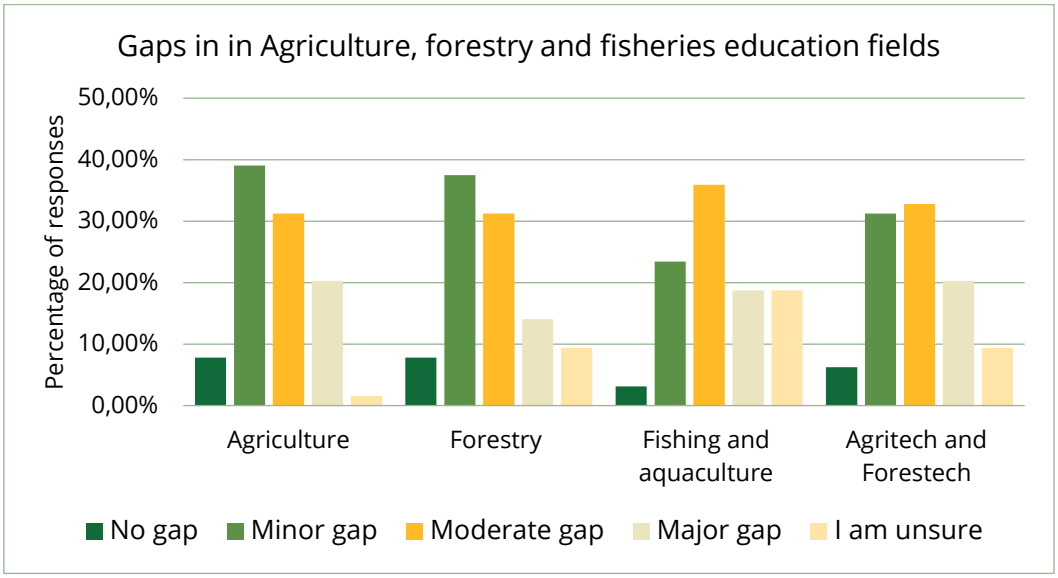

Figure 7. Gaps in in Agriculture, forestry and fisheries education fields in the BIOEAST macro-region

Results from Latvia showed that the perceived gaps for *Agriculture* and *Forestry* were considerably lower than for the average, with over 80% of the respondents identifying no or minor gap.

On the other hand, in Hungary, the fields of *Forestry*, *Fishing and aquaculture,* and *Agritech and Forestech*, showed major gaps than the average with over 50% of respondents identifying moderate and major gaps.

c. Engineering, manufacturing and construction

Architecture and bioconstruction was the sector with the highest number of responses identifying it as a sector with major gaps. Followed by *Bio-based textiles* and *Biomaterials* (Figure 8). *Food and feed* was the sector with the smallest gap identified.

It is also important to highlight that Engineering, manufacturing and construction was one of the fields with a higher number of respondents answering, "I am unsure", possibly due to being a field still under development and with lack of knowledge.

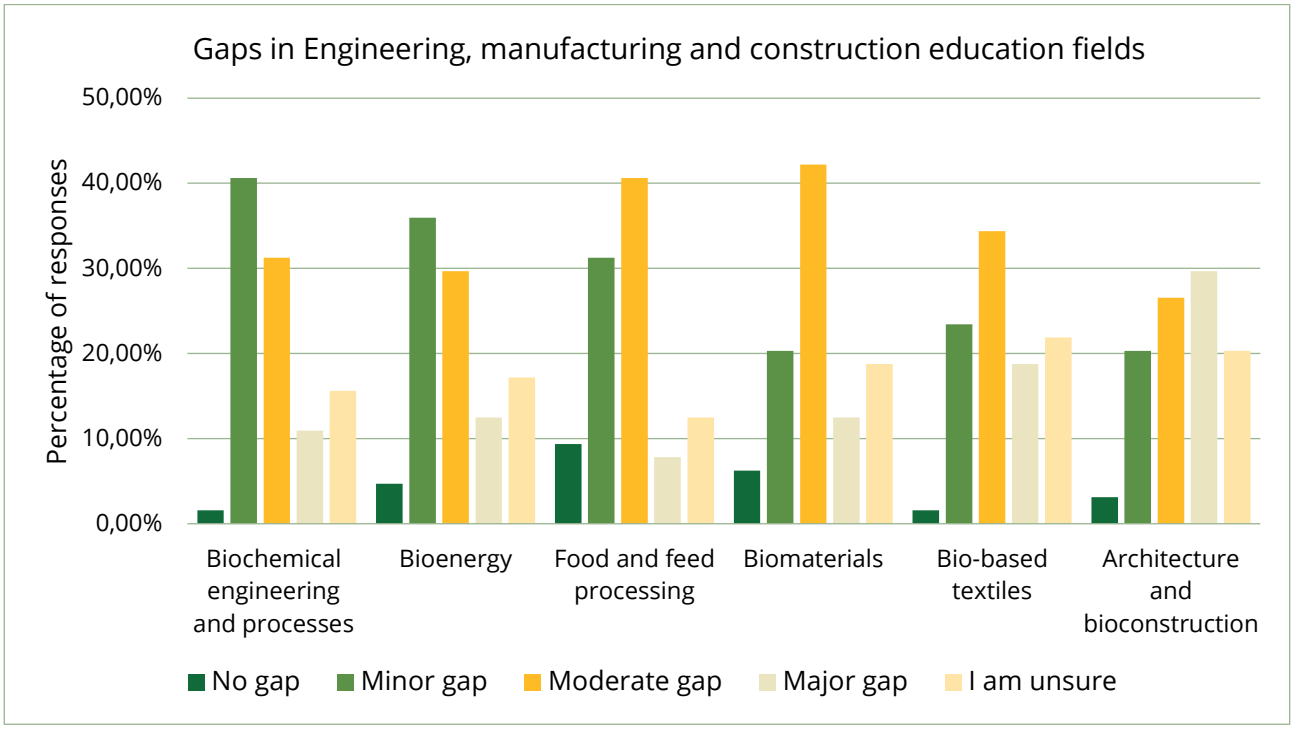

Figure 8. Gaps in Engineering, manufacturing and construction education fields in the BIOEAST macro-region

In Latvia, the fields of *Food and feed processing*, *Biomaterials*, and *Architecture and bioconstruction* were rated with smaller gaps than the average (more than 60% of respondents identified that there is no or minor gap), while in Slovenia, *Food and feed processing* and *Architecture and bioconstruction* presented larger gaps than the average (40% of respondents identified a major gap).

d. Waste management and valorisation

For both *Urban waste* and *Organic waste*, around half of respondents identified a moderate gap, having *Urban waste* a slightly major gap (Figure 9).

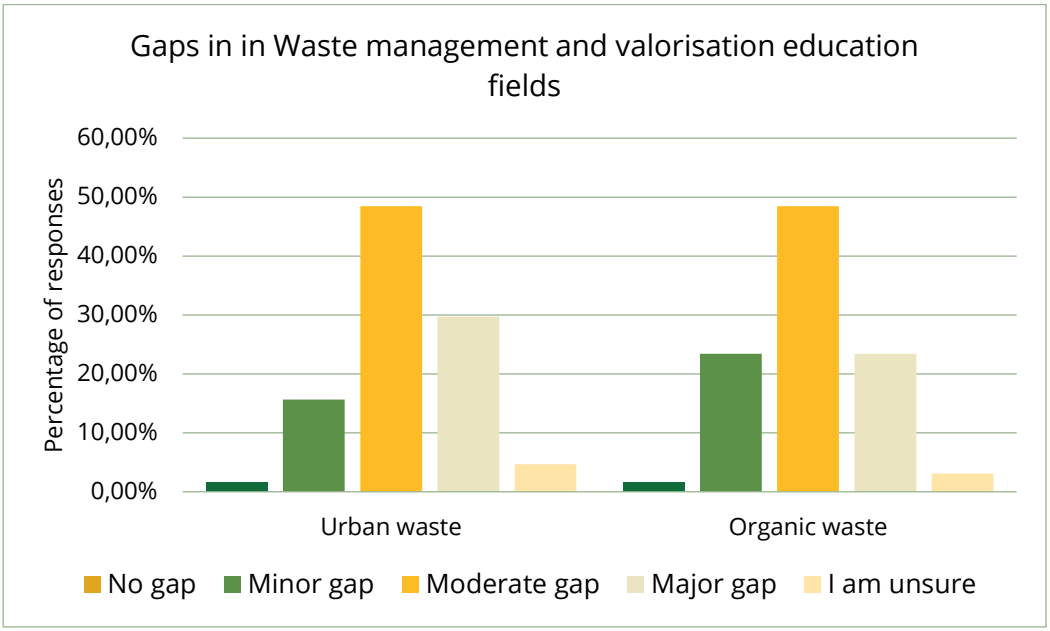

Figure 9. Gaps in in Waste management and valorization education fileds in the BIOEAST macro-region

At country level, similar trends were found, except for the case of Croatia and Hungary, where 50% of respondents identified major gaps for *Urban waste* management and valorisation.

e. Business administration and law

Compared to other fields, Business administration and law exhibited the largest gaps in bioeconomy education across all sectors. This suggests a strong need in the macro-region to develop expertise and understanding of the business and legal frameworks that enable the successful implementation of bioeconomy into the market.

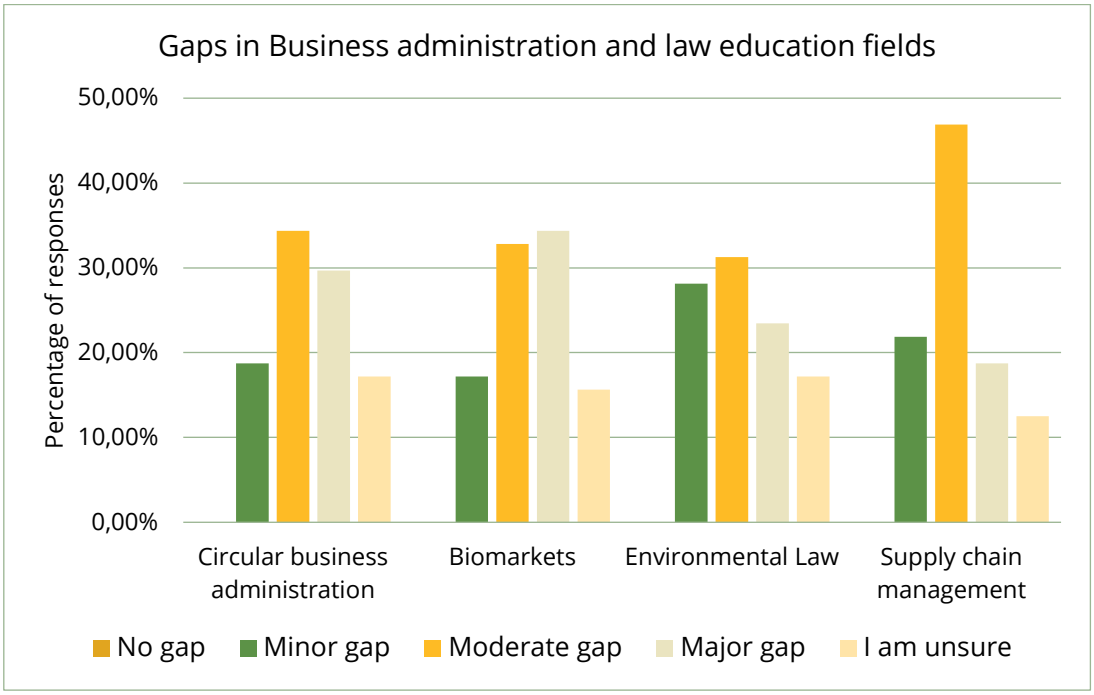

Figure 10. Gaps in Business administration and law education fields in the BIOEAST macro-region

At the country level, Latvia showed smaller gaps than the average across all categories, while Hungary and Croatia exhibited significantly larger gaps in *Biomarkets* and *Supply Chain Management* with over 50% of respondents identifying a major gap.

f. Social sciences

All sectors of Social sciences showed similar results with around 40% of respondents considering them with a moderate gap, and between 20% and 30% with a major gap (Figure 11). This suggests room for improvement across the field.

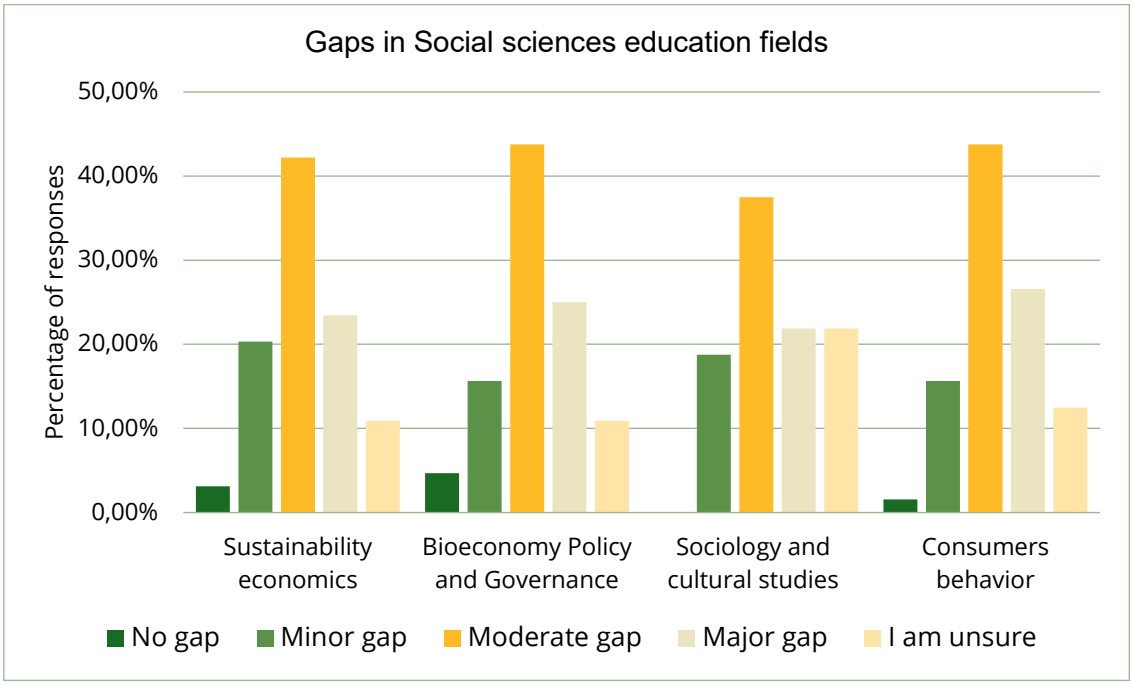

Figure 11. Gaps in Social sciences education fields in the BIOEAST macro-region

At the country level, notable results included significantly larger gaps reported by over 50% of respondents from Croatia for *Sustainability Economics* and *Consumer Behaviour*; in Slovenia for *Bioeconomy Policy and Governance* and *Consumers Behaviour*; and in Hungary for *Sociology and cultural studies.*

g. Education and training

Training in subject specialization on bioeconomy for both teachers and journalists were among the fields with the most significant gaps (Figure 12). This highlights the need to train educators and media professionals with the necessary knowledge on bioeconomy but also on skills to educate students and inform the public effectively.

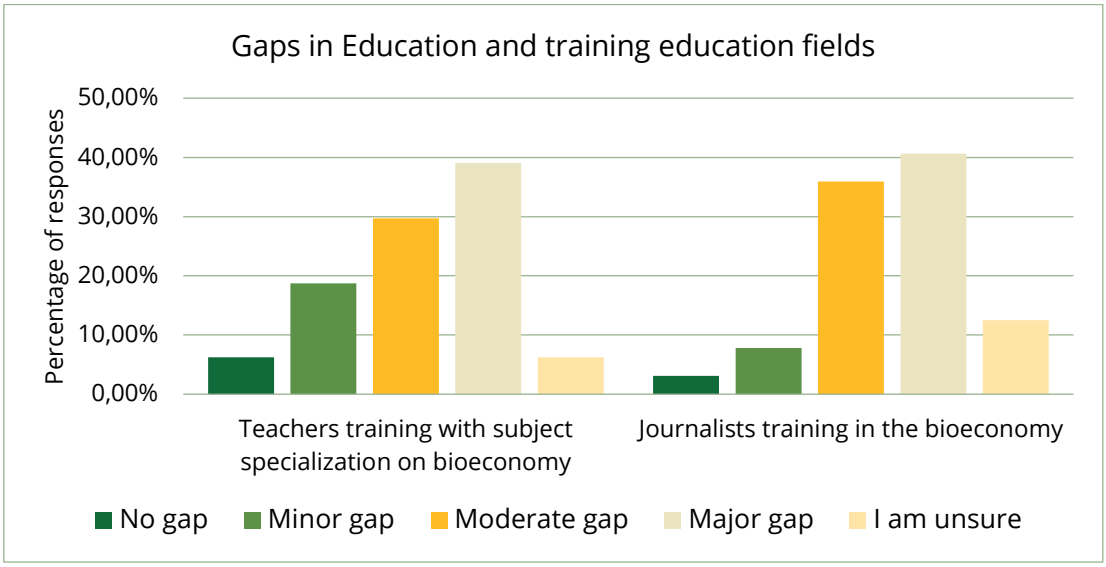

Figure 12. Gaps in Bioeconomy education and training education fields in the BIOEAST macro-region

At country level, considerably different results were found for Bulgaria, where over 70% of respondents identified minor or moderate gaps for both fields, while in Croatia over 60% of respondents identified a major gap.

3.2 Mapping of bioeconomy educational materials

The results of the mapping were compiled in an Excel document made available to BOOST4BIOEAST project partners via the project's SharePoint (Appendix 5). The mapping collected a total of 157 resources, 85 of them were collected via the form sent to HUBs, TWGs and their stakeholders, and 71 from a web and desk search.

Countries of origin

Of the resources, 67 come from BIOEAST countries, 84 from other European countries, and 6 from EU organizations like the European Commission (Table 1). For projects with multiple consortium members, the coordinator's country is counted as the country of origin. In the next sections, materials from EU organizations will be grouped with those from other European countries.

Type of resources

Educational programs were the most common type of education mapped (Table 1), Hungary had the highest number among the BIOEAST countries, with 22 programs. Among them the different *Educational programs*, *Master of Science* was the most frequent both in BIOEAST countries and other European countries, reflecting its perceived high relevance. In contrast, only a few *PhD and Bachelor programs* were mapped, indicating a notable gap in addressing bioeconomy at these levels. In the case of *PhD programs*, which was ranked as highly relevant by most of respondents in the survey, the three programs mapped do not originate from BIOEAST countries. Similar is the case of *Vocational training*, with only 4 programs mapped originating from BIOEAST countries (Hungary, Estonia, and Latvia).

There was a higher number of *Online courses and MOOCs* mapped than most of the other programs, nevertheless only one of them originate from a consortium with a strong presence of BIOEAST countries and coordinated by Lithuania (BalticBiomass4Value, 2025). As seen from their not so high relevance in the results of the survey, this could signal that online formats of education are not a preferred type of education in the macro-region.

Several *Projects and Programs* addressing bioeconomy education at a national or multinational level were identified, the BIOEAST countries with the highest number of projects and programs mapped were Estonia and Slovakia with 5 sources mapped each. While some of them address specific bioeconomy fields, such as *Horticulture 4.0 - Vocational Education for Digital Transformation in Horticulture* (https://h40.itstudy.hu/project) others such as the *Nobalis project* (https://nobalis.eu/) address multiple bioeconomy value chains via supporting innovation and entrepreneurship in curricula.

Type of educational sources		Countries of origin			
		BIOEAST countries	Other European countries	EU organizations	**Total**
Educational material / source of best practices	Guide / Manual	0	0	0	**0**
	Infographic	1	0	0	**1**
	Report / Project deliverables	7	1	2	**10**
	Repository of best practices	3	4	3	**10**
	Toolkit	0	3	1	**4**
	Video or webinar	0	1	0	**1**
	Others	1	1	0	**2**
	Total	**12**	**10**	**6**	**28**
Educational programs	Bachelor program	7	0	0	**7**
	Master of Science	21	23	0	**44**
	PhD program	0	3	0	**3**
	Regular university course	3	1	0	**4**
	Summer school	1	3	0	**4**
	Vocational training	4	4	0	**8**
	Online course / MOOC	1	15	0	**16**
	Others	0	6	0	**6**
	Total	**37**	**55**	**0**	**92**
Events		4	8	0	**12**
Project or National program		14	11	0	**25**
Total		**67**	**84**	**6**	**157**

Table 1. Types of educational materials mapped per country of origin

Target audience

The resources targeted different types of audiences, most of them targeting more than one (Table 2). When materials targeted more than 4 different audiences, they were tagged as *Multiple audiences*.

In contrast to the significant gap identified in bioeconomy education for the *General public*, the number of resources targeting this audience was relatively low. On the other hand, a significant number of materials were aimed at *graduated students*, despite their relatively smaller educational gap. Hungary had the highest number of materials targeting this group.

Target audience	Nr. of materials from BIOEAST countries	Nr. of materials from other European countries	Total
Graduated students	39	47	**86**
Bachelor students	17	18	**35**
Educators	13	7	**20**
Vocational training students	13	8	**21**
Professionals	14	20	**34**
General public	6	7	**13**
Public administrators	7	7	**14**
Multiple Audiences	10	21	**31**

Table 2. Target audience of the resources mapped

Fields of bioeconomy education

In the field of Natural sciences, the greatest number of resources were found for *Biochemistry and Biotechnology* as well as *Environmental Sciences*. In contrast, *Earth Sciences*, despite showing a slightly more pronounced educational gap in CEE, had fewer resources, all of which originated from other European countries (Figure 13). Similar case can be seen in the field of Agriculture, forestry, and fisheries. The highest number of educational resources were found for *Forestry*, and *Agriculture*, with the highest number of materials coming from BIOEAST, while *Agritech and Forestech* had notably fewer resources mapped, originating from Hungary and Estonia (Figure 14). This may indicate that the current educational offer in CEE still has a predominant focus on conventional science disciplines.

For the field of Engineering, Manufacturing and Construction, *Biomaterials, Biobased textiles, Architecture and bioconstruction,* which showed a higher gap than the rest, fewer resources were mapped, most of them originating from other European countries (Figure 15).

Business administration and law, the field with the most significant gaps identified, nonetheless mapped a considerable number of resources, most of which originated from other European countries (Figure 17). In the CEE, sources in this field originated from Bulgaria and Slovakia.

Waste management and valorisation, Social sciences, and Education and training, were the fields with the lowest number of materials mapped, despite their considerable gap identified (Figures 16, 18 and 19).

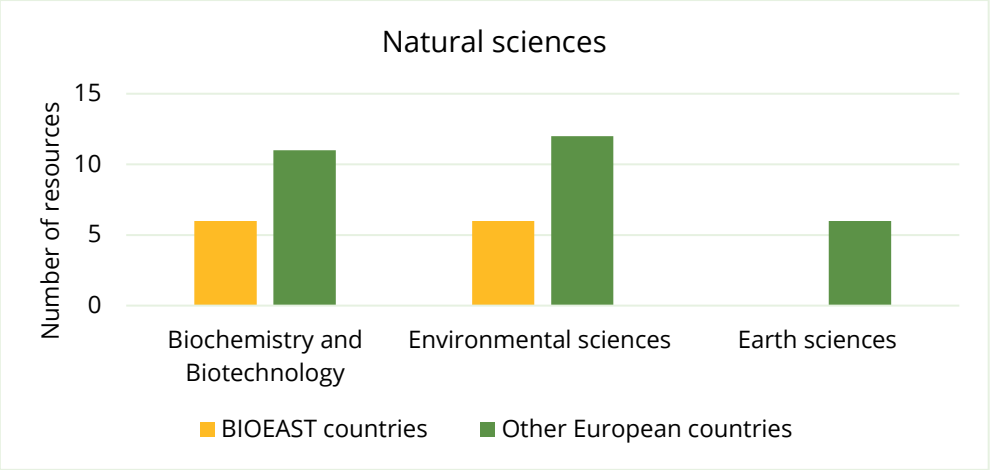

Figure 13. Number of resources mapped for Natural sciences education fields

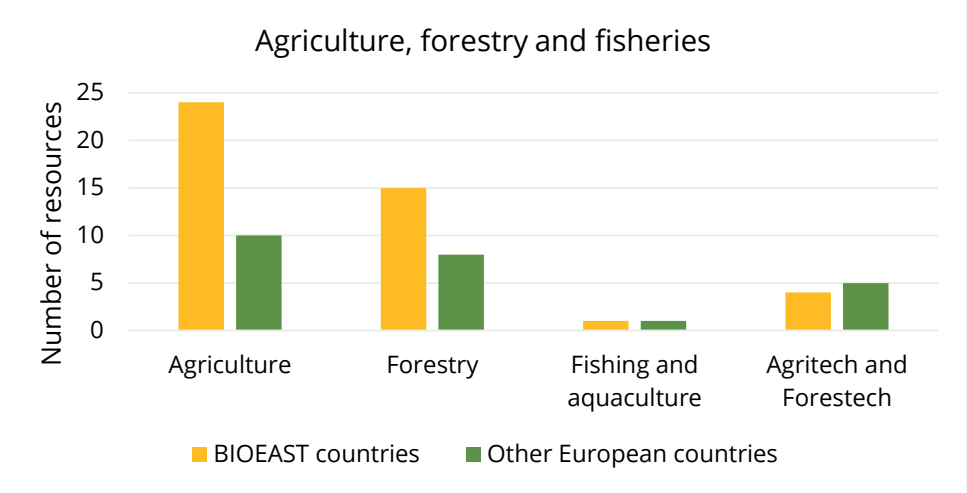

Figure 14. Number of resources mapped for Agriculture, forestry and fisheries education fields

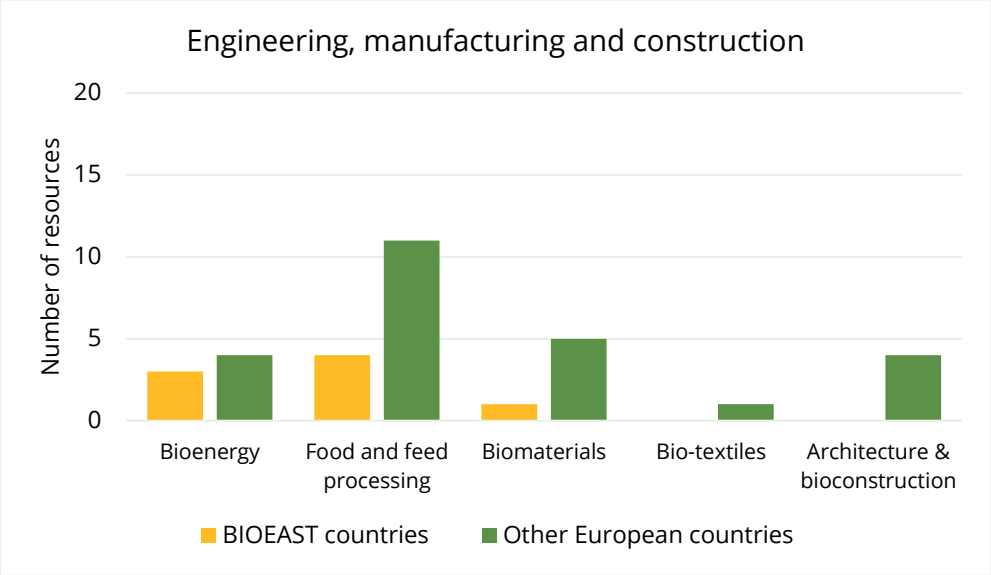

Figure 15. Number of resources mapped for Engineering, manufacturing and construction education fields

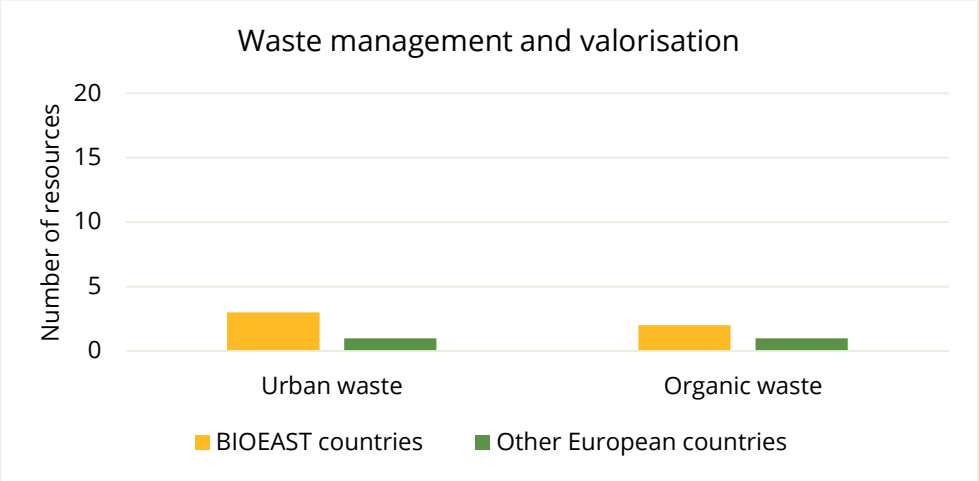

Figure 16. Number of resources mapped for Waste management and valorisation education fields

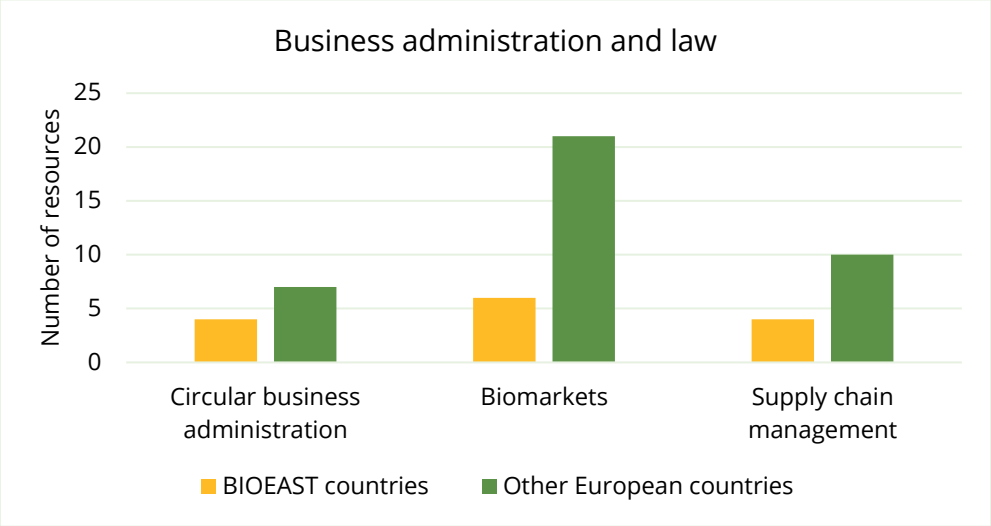

Figure 17. Number of resources mapped for Business administration and law education fields

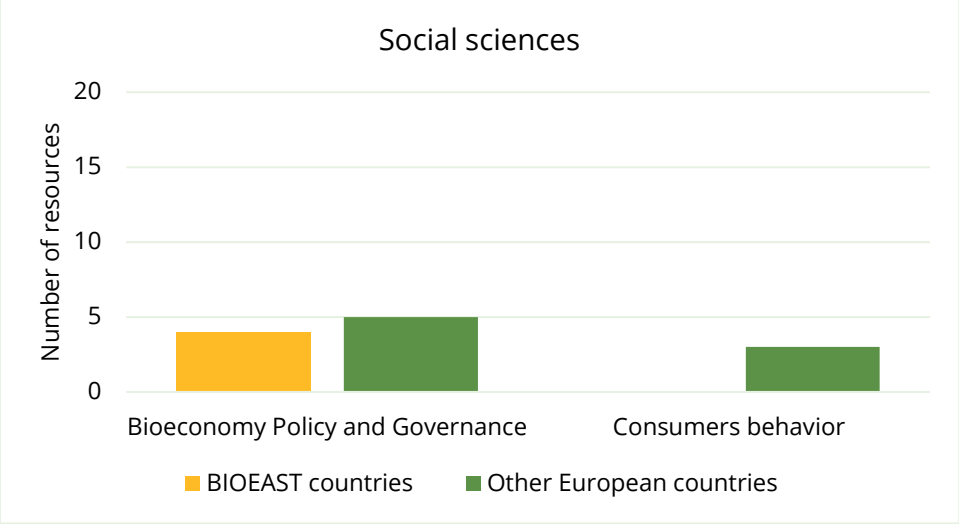

Figure 18. Number of resources mapped for Social sciences education fields

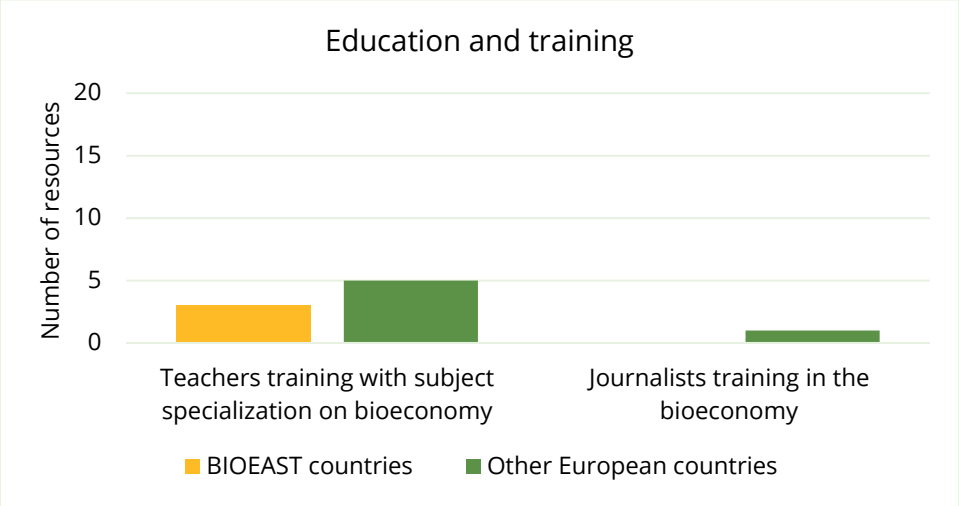

Figure 19. Number of resources mapped for Education and training education fields

Cross-cutting topics

Cross-cutting topics in bioeconomy education, many of them also identified as relevant competencies for the bioeconomy in the BOOST4BIOEAST project, were tagged when mentioned or clearly implied in the description of the resources' content.

Among the resources mapped from the BIOEAST countries, the cross-cutting topic with the highest number of mentions was *Sustainability*, as this is a common term used in natural sciences and bioeconomy related topics. *Innovation* was the second most mentioned, followed by *Multidisciplinarity* in the bioeconomy, meaning that they included several sectors of the bioeconomy. Topics with the lowest number or no mentions were *Open science, Gender and diversity,* and *Artificial intelligence* (Figure 20).

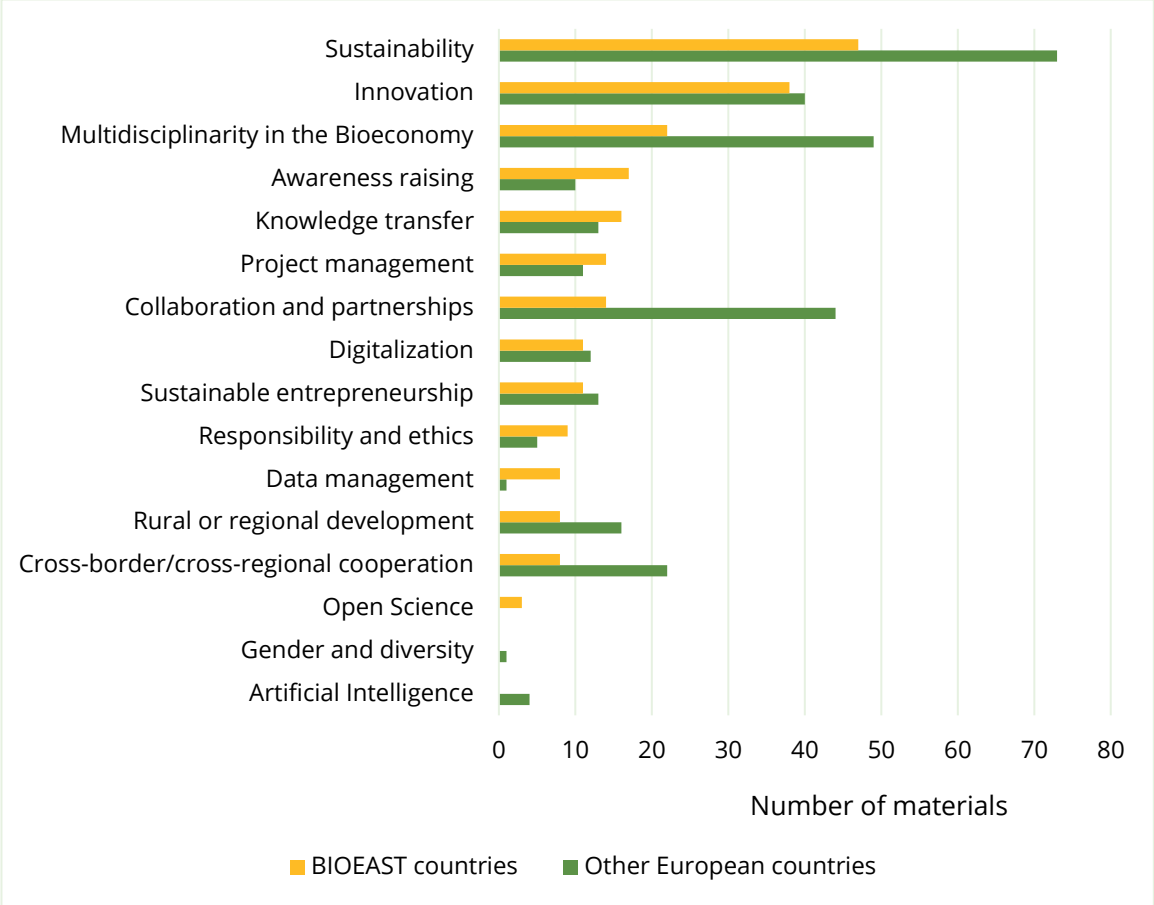

Figure 20. Cross-cutting topics addressed in the resources mapped

Soft skills

Soft skills were identified in a similar way as the cross-cutting topics. It is relevant to mention that soft skills are not always explicitly described in the resource's descriptions, therefore this identification does not represent a thorough analysis, but an overview of the skills clearly mentioned. The soft skills most often mentioned in resources form the BIOEAST countries were *Problem solving*, *Critical thinking*, and *Decision-making* as they are commonly mentioned in educational programs such as Master's. The soft skills less mentioned was *Conflict resolution* and *Networking skills* (Figure 21).

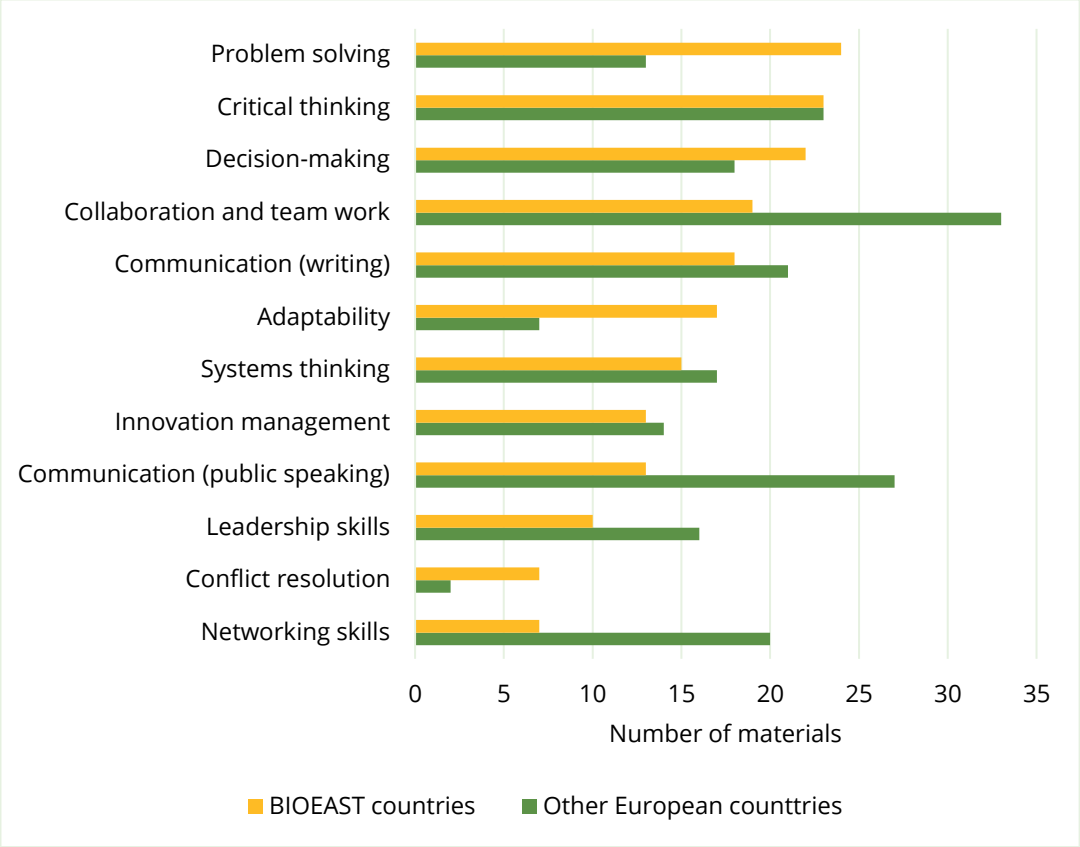

Figure 21. Soft skills addressed in the materials mapped

3.3 Examples of good practices in bioeconomy education

This section presents some examples of good practices in bioeconomy education in different formats.

a) Projects

Horticulture 4.0 **Vocational Education for Digital Transformation in Horticulture**	
Description: The project aims to contribute to the digital and green transition of agriculture by delivering innovative, high quality learning materials for vocational education and training (VET) teachers on smart greenhouses, involving actors from the labour market. The project will:	**Type of source:** Project **Project coordinator:** Alföldi ASZC Galamb József Mezőgazdasági Technikum és Szakképző Iskola **Countries:** Hungary, Romania, Serbia **Language:** English

• identify the digital skills needed for smart greenhouses in collaboration of companies in order to tackle future skills mismatches in horticulture; • facilitate the development and scale-up of flexible, modular, and learner-centred micro-courses enabling VET schools of the agriculture sector to give quick and relevant response to the needs of the labour market; • foster technical and digital skills and effective, innovative training methods of teachers in agriculture, help them to learn and teach in virtual environments and provide them up-to-date knowledge on smart greenhouses (https://h40.itstudy.hu/project).	**Duration**: March 2022 to March 2025 **Target audience:** Educators, Vocational training students, Professionals **Bioeconomy educational fields:** Agriculture, Teachers training with subject specialization on bioeconomy **Cross-cutting topics addressed:** Artificial Intelligence, Innovation, Digitalization **Soft skills addressed:** Adaptability **Link to source**

BioGov.net project **Mobilizing European Communities of Practice in bio-based systems for better governance and skills development networks in bioeconomy**	
Description: The strategic objective of BioGov.net is to support the establishment of the innovative governance models in bioeconomy training and skills development. In this way better informed decision-making processes, social engagement of all actors and uptake of sustainable innovation in bioeconomy will be achieved. The specific objective is to provide validated guidelines for the setup of regional bioeconomy training and mentoring frameworks. Especially those based on case studies from 8 EU regions (https://www.biogov.net/).	**Type of source:** Project **Coordinator:** Civitta (Estonia) **Countries:** Consortium of 10 partners from 8 different countries among them Estonia, Slovakia and Czechia. **Language:** English **Duration:** June 2022 to May 2025 **Target audience:** Educators, professionals, public administrators, others **Bioeconomy educational fields:** Bioeconomy Policy and Governance **Cross-cutting topics addressed:** Innovation, Awareness raising, Sustainability, Knowledge transfer **Soft skills addressed:** Decision-making, Critical Thinking, Innovation Management, Networking **Link to source**

b) Reports

Proposal for educational programs and vocational education in forestry in Slovakia	
Description: In Slovakia, three educational programs targeting interconnected groups from the perspectives of environmental education and professional forestry training are planned. The first one, called LESU ZDAR! (Wood Now!)- an innovative training program designed for secondary school teachers. Its focus is on deepening, expanding, and innovating the professional competencies of pedagogical staff to enable them to utilize opportunities for collaboration with industry professionals effectively. Second is proposal LES PRE MLADÝCH (Forest for youth) - a forest pedagogy educational program aimed at youth (aged 15-19), implemented in the practices of forest educators. The third is a proposal for professional forestry topics for further education of forest owners and managers NOVÉ VÝZVY V LESNÍCTVE (New challenges in forestry). The Implementation Report is the final output of the project EE_YOUTH: *Transfer of Knowledge and Practical Experiences in Youth Education in the Field of Environmental Education and Transfer of Knowledge and Further Training in Forestry* (Melcerová *et al*. 2024).	**Type of source:** Report **Country:** Slovakia **Owner:** National Forest Center **Language:** Slovak and English **Target audience:** Educators, Professionals, Youth (aged 15-19) **Bioeconomy educational fields:** Forestry **Cross-cutting topics addressed:** Innovation, Digitalization, Awareness raising, Sustainability, Responsibility and ethics, Knowledge transfer **Soft skills addressed:** Collaboration and teamwork, Adaptability, Communication, Critical thinking, Systems thinking Link to source

c) Educational programs

Bioeconomy and eco-entrepreneurship MSc program in Bulgaria	
Description: The master's program in Bioeconomics and Eco-Entrepreneurship is aimed at providing training and theoretical knowledge, practical and analytical skills for assessment and development of sustainable bio-based industries. The program is a balanced combination of theoretical and practical knowledge in the field of bioeconomics, but at the same time combines methods	**Type of source:** Educational program **Type of program:** MSc program **Country:** Bulgaria **Owner:** Trakia University - Stara Zagora **Language:** Bulgarian **Target audience:** Graduated students

that empower the student as an active participant in real economic life. The bioeconomy offers an opportunity to increase the potential of agricultural production to generate added value and stimulate economic development, while ensuring relationships throughout the food chain. The developed material offers a basis for in-depth research, training, analysis and evaluation on the following key issues: Strengthening and scaling up bio-based sectors, unlocking investments and markets; Opportunities for development of local bioeconomies; Ecological boundaries of the bioeconomy (Trakia University - Stara Zagora, 2025).	**Bioeconomy educational fields:** Business Administration and Law, Social Sciences **Cross-cutting topics addressed:** Innovation, Digitalization, Awareness raising, Sustainability, Responsibility and ethics, Knowledge transfer **Soft skills addressed:** Critical thinking, Innovation management **Link to source**

European Forest Institute (EFI) - Young Leadership Programme	
Description: The EFI's Young Leadership Programme is aimed at young professionals working in the research and development, governance, administration or business side of the forest sector, or a related area. The 5-day programme offers a unique opportunity for young professionals with leadership potential to interact with a network of Mediterranean peers and experts and share practical experience through group exercises. The Young Leadership Programme Mediterranean 2025 (YLPMED 2025) empowers young leaders in Southeastern Europe to champion sustainable forest management and climate resilience by focusing on the selection, conservation, and use of high-quality forest reproductive material. The programme aims to leverage the region's rich biodiversity and its crucial role as a climate refuge to ensure the long-term health and resilience of its forests. Top-level experts, who animate the programme, provide training on good practices in the selection, collection, and handling of forest reproductive material	**Type of source:** Educational program **Country:** Croatia **Language:** English **Target audience:** Young professionals **Bioeconomy educational fields:** Agriculture, Forestry and Fisheries, Business Administration and Law, Social Sciences **Cross-cutting topics addressed:** Cross-border/cross-regional cooperation, Collaboration and partnerships, Knowledge transfer **Soft skills addressed:** Collaboration and teamwork, Problem solving, Adaptability, Communication (public speaking), Communication (writing), Leadership skills, Networking skills **Link to source**

and on modern techniques in genetic conservation and tree breeding (https://efi.int/ylp-med-2025).	

Riga Technical University (RTU) - Olaine College of Technology higher and education programs	
Description: RTU Olaine College of Technology offers its students the opportunity to obtain high-quality sustainable education by acquiring study courses in a state-of-the-art technology environment (RTU, 2025). First level professional higher education study programs offered: • Biotechnology • Environmental Protection Technology • Food Quality Control • Food Processing and Manufacturing Technology Vocational secondary education study programs offered: • Chemical Technology • Environmental Protection • Chemical Technology • Engineering Mechanics • Food Quality Control	**Type of source:** Educational program **Type program:** Vocational training **Country:** Latvia **Language:** Latvian, English **Target audience:** Vocational training students **Bioeconomy educational fields:** Biochemistry and Biotechnology, Environmental sciences, Food and feed processing **Cross-cutting topics addressed:** Sustainability **Link to source**

4 Discussion

Among the most relevant findings of this report, is that traditional fields such as those of Natural sciences, present smaller gaps and are also well covered by the educational offer in the BIOEAST macro-region. While these fields remain relevant, it is essential that they are complemented and modernized incorporating the knowledge on the use of new technologies and digital tools, engineering, economics and marketing (Sakellaris, 2021), enabling bio-based solutions to reach the market and have substantial impact. Educational resources mapped, especially educational programs and projects are already addressing multidisciplinarity in their curricula and activities, acknowledging the importance of approaching bioeconomy holistically.

Results also provide valuable insights into other important issues worth assessing further such as educational formats. Several authors mention the importance of life-long learning in the bioeconomy (Sakellaris, 2021) (Duic *et al.,* 2022) (LIFT, 2020) highlighting its role in providing accessible and flexible education to different types of audiences, and being a source of continuous access to knowledge. Despite their important role, lifelong learning opportunities rank low compared to other types of formal education, and few such materials were identified in the mapping. This finding aligns with previous findings noting that lifelong learning is not yet a common practice in the macro-region (Duic *et al*., 2022).

Vocational training is another type of education often mentioned as highly important due to its role in matching the skills needed by the primary production sectors and industry (LIFT, 2020). Although a strong need for education for vocational students was identified, the number of vocational training programs mapped in BIOEAST countries was relatively low. This aligns with (Duic *et al*., 2022) findings, stating that educational agencies in the BIOEAST providing this type of education are limited, and that vocational training programs commonly address specific topics and not bioeconomy holistically.

5 Conclusion

In order to support the development of a sustainable bioeconomy, it is necessary that bioeconomy education constantly adapts to the current trends and needs of the sector. In this report, the current gaps and needs in bioeconomy education at BIOEAST macro-regional and country level (when possible) were assessed holistically, identifying the needs of relevant educational aspects including different target audiences, educational programs and materials in different formats, and the multiple bioeconomy fields.

The needs assessment was complemented by a mapping of educational resources, which, although not exhaustive, serves as a representative sample of the current educational offerings in Europe and the CEE region. The results revealed a mismatch between several bioeconomy fields identified as having high needs and the available education. These findings can help

identify important elements to be considered at the moment of designing new curricula, developing educational programs or materials.

Despite the presence of several inspiring practices in bioeconomy education within the BIOEAST macro-region, there remains room for improvement particularly in educational formats and programs such as vocational training, innovative learning approaches, and in aligning educational content with labor market needs.

Moreover, there are differences in bioeconomy education offers in the BIOEAST countries compared to the rest of Europe for certain bioeconomy areas such as Engineering, manufacturing and construction, and Business administration and law. These differences have structural origine, but they can also be a result of societal economic and political differences. Although country specific elements need to be particularly addressed, cross-country collaboration and cooperation is essential to effectively accelerate progress, bridge common gaps and support knowledge sharing.

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7 Appendices

Appendix 1. Classification of bioeconomy educational materials

Educational programs	Formal education • Bachelor program • Master of Science • Master of Business Administration • PhD program • Regular university courses • Summer schools Informal education • Vocational training • Online courses • MOOC • Videos and webinars • Events (e.g. conferences, public discussions, debates)
Educational materials and sources of best practices	• Guides and manuals • Toolkits • Infographics • Repositories of best practices • Reports • Project deliverables • National programs to integrate bioeconomy and education • Projects • Podcasts
Target groups	• Bachelor students • Graduated students • Postgraduate students • Vocational training students • Professionals in the bioeconomy • Public administrators • Educators • General public
Bioeconomy educational fields and sectors	Natural Sciences: • Biological and related sciences (e.g. biology, botany, zoology) • Biochemistry and Biotechnology • Environmental sciences (e.g. ecology, environmental science, nature conservation, wildlife) • Earth sciences (e.g. climate research, geology, geography) Agriculture, forestry and fisheries: • Agriculture (e.g. crop and livestock production, horticulture) • Forestry (e.g. silviculture, logging)

	• Fishing and aquaculture (e.g. sustainable fishing, aquaculture technologies) • Agritech and Forestech (i.e. the use of technology applied to enhance agriculture and forestry e.g. remote sensing, machinery, drones, etc.) Engineering, Manufacturing and construction: • Biochemical engineering and processes (e.g. biorefinery, fermentation processes, enzymes production) • Bioenergy • Food and feed processing • Biomaterials (e.g. pulp and paper, bioplastics, wood products) • Bio-based textiles • Architecture and bioconstruction Waste management and valorisation: • Urban waste • Organic waste Business administration and law: • Circular business administration • Biomarkets (e.g. business models) • Environmental Law • Supply chain management Social sciences: • Sustainability economics • Bioeconomy policy and governance • Sociology and cultural studies (e.g. environmental sociology and rural sociology) • Consumers behaviour Bioeconomy education and training: • Teachers training with subject specialization on bioeconomy • Journalists training in the bioeconomy
Cross-cutting topics	• Innovation • Digitalization • Artificial Intelligence • Circularity • Awareness raising • Sustainable entrepreneurship • Sustainability • Gender and diversity • Responsibility and ethics • Project management
Soft skills	• Collaboration and teamwork • Conflict resolution

	• Problem solving • Adaptability • Communication (public speaking) • Communication (writing) • Decision-making • Critical thinking • Systems thinking • Innovation management

Appendix 2. Questions of the survey: Survey on educational needs in the bioeconomy in BIOEAST countries

Contact information

1. Full Name
2. Which Thematic Working Group are you representing?
3. Which HUB country are you representing?

Sources of knowledge, educational materials and best practices

4. How would you rate the relevance of the following types of formal and non-formal education in the bioeconomy? (Low relevance, Medium relevance, High relevance)

- Bachelor program
- Master of Sciences (MSc)
- Master of Business Administration (MBA)
- PhD program
- Regular university courses
- Summer schools
- Vocational training
- Online course
- Massive Open Online Course (MOOC)
- Videos and webinars
- Events (e.g. conferences, public discussions, debates)
- Other (please specify and assess the gap)

5. How would you rate the relevance of the following types of educational materials and sources of best practices and experiences in bioeconomy education? (Low relevance, Medium relevance, High relevance)

- Guides and manuals
- Toollkits
- Infographics
- Repository of best practices
- Reports
- Project deliverables
- National programs to integrate bioeconomy and education
- Podcasts
- Other (please specify and assess the gap)

Target audience

6. How would you assess the existing gaps in bioeconomy education for the following target groups in your country? (Low relevance, Medium relevance, High relevance)

- Bachelor students
- Graduate students
- Postgraduate students
- Vocational training students
- Professionals in the Bioeconomy
- Public administrators
- Educators
- General public
- Other (please specify and assess the gap)

Bioeconomy educational fields and sectors

How would you assess the existing gaps in the following bioeconomy education fields based on the needs of your HUB or TWG? (No gap (Totally covered), Minor gap (Some improvements needed), Moderate gap (Significant improvements needed), Major gap (Critical improvements needed), I am unsure / I don't have this information.

7. Natural sciences:

- Biological and related sciences (e.g. biology, botany, zoology)
- Biochemistry and biotechnology
- Environmental sciences (e.g. ecology, environmental science, nature conservation, wildlife)
- Earth sciences (e.g. climate research, geology, geography)
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

8. Agriculture, forestry and fisheries:

- Agriculture (e.g. crop and livestock production, horticulture)
- Forestry (e.g. silviculture, logging)
- Fishing and aquaculture (e.g. sustainable fishing, aquaculture technologies)
- Agritech and Forestech (i.e. the use of technology applied to enhance agriculture and forestry e.g. remote sensing, machinery, drones, etc.)
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

9. Engineering, manufacturing and construction:

- Biochemical engineering and processes (e.g. biorefinery, fermentation processes, enzymes production)
- Bioenergy
- Food and feed processing
- Biomaterials (e.g. pulp and paper, bioplastics, wood products)
- Bio-based textiles
- Architecture and bioconstruction

- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

10. Waste management and valorization:
- Urban waste
- Organic waste

11. Business administration and law:
- Circular business administration
- Biomarkets (e.g. business models)
- Environmental law
- Supply chain management
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

12. Social sciences:
- Sustainability economics
- Bioeconomy Policy and Governance
- Sociology and cultural studies (e.g. environmental sociology and rural sociology)
- Consumers behavior
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

13. Bioeconomy Education and training:
- Teachers training with subject specialization on bioeconomy
- Journalists training in the bioeconomy
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

Additional categories

The following topic and skill categories were selected based on the social bioeconomy-related competencies identified in the BOOST4BIOEAST project and a desk research

14. The following list shows topics that can be relevant across bioeconomy fields and sectors. Do you have any comment or suggestion to improve the list?
- Innovation
- Digitalization
- Artificial Intelligence
- Circularity
- Awareness raising
- Sustainable entrepreneurship
- Sustainability
- Gender and diversity

- Responsibility and ethics
- Project management

15. The following list shows relevant soft skills for bioeconomy education. Do you have any comment or suggestion to improve the list?

- Collaboration and team work
- Conflict resolution
- Problem solving
- Adaptability
- Communication (public speaking) · Communication (writing)
- Decision-making
- Critical thinking
- Systems thinking
- Innovation management

16. Any comments or suggestions?
17. Do you have any good examples of educational knowledge sources that could be relevant for the mapping?

Appendix 3. Questions of the form: Mapping bioeconomy related knowledge and educational materials

General Information

1. Educational resource title
2. Please provide the link to your source, if applicable
3. Please upload your file here, if applicable
4. What type of educational resource related to bioeconomy are you sharing?

Educational Materials

5. General information about the educational material or a source of best practices

- Author(s)
- Organisation(s)
- Country(s)
- Laungage(s)
- Year of publication

6. Type of the educational material

- Guides and manuals
- Toollkits
- Infographics
- Repository of best practices
- Reports
- Project deliverables
- National programs
- Podcasts
- Other (please specify and rate its relevance for providing bioeconomy education)

7. Target Audience

- Bachelor students
- Graduated students
- Vocational training students
- Public administrators
- Educators
- General publi
- Other (please specify)

Educational programs

8. General information about educational program
- University / Organisation that's provide the program:
- Country(s):
- Language:

9. Type of the educational program
- Bachelor program
- Master of Sciences
- Master of Business Administration
- PhD program
- Regular University Courses
- Summer schools
- Vocational training
- Online course
- MOOC
- Videos and webinars
- Events
- Other (please specify and rate its relevance for providing bioeconomy education)

10. Target Audience (Select all that apply)
- Bachelor students
- Graduated students
- Vocational training students
- Public administrators
- Educators
- General public
- Other (please specify)

11. Educational Event / Project
- General information
- Organisation(s)
- Country(s)
- Language(s)
- Year(s)

12. Target Audience (Select all that apply)
- Bachelor students
- Graduated students
- Vocational training students

- Public administrators
- Educators
- General public
- Other (please specify)

Bioeconomy Education Fields

13. The Bioeconomy Education Fields (This question has logic applied)
- Natural Sciences sectors
- Agriculture, Forestry and Fisheries sectors
- Engineering, Manufacturing and Construction sectors
- Waste Management and Valorization sectors
- Business Administration and Law sectors
- Social Sciences sectors
- Social Sciences sectors
- Bioeconomy Education and training sectors

14. Natural Sciences sectors
- Biological and related sciences
- Biochemistry and Biotechnology
- Environmental sciences
- Earth sciences
- Other

15. Agriculture, Forestry and Fisheries sectors
- Agriculture
- Forestry
- Fishing and aquaculture
- Agritech and Forestech
- Other

16. Engineering, Manufacturing and Construction sectors
- Biochemical engineering and processes
- Bioenergy
- Food and feed processing
- Biomaterials
- Bio-based textiles
- Architecture and bioconstruction
- Other

17. Waste Management and Valorization sectors

- Urban waste
- Organic waste
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

18. Business Administration and Law sectors

- Circular business administration
- Biomarkets
- Environmental Law
- Supply chain management
- Other

19. Social Sciences sectors

- Sustainability economics
- Bioeconomy Policy and Governance
- Sociology and cultural studies
- Consumers behavior
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

20. Bioeconomy Education and training sectors

- Teachers training with subject specialization on bioeconomy
- Journalists training in the bioeconomy
- Other (please specify and rate its gap: No gap, Minor gap, Moderate gap, Major gap.)

Cross-cutting topics and soft skills

21. The following list shows topics relevant across bioeconomy fields and sectors. Please select all that apply to your resource

- Artificial Intelligence
- Innovation
- Digitalization
- Awareness raising
- Sustainable entrepreneurship
- Sustainability
- Gender and diversity
- Responsibility and ethics
- Project management
- Cross-border/cross-regional cooperation
- Rural or regional development
- Data management

- Open Science
- Collaboration and partnerships
- Knowledge transfer
- Multidisciplinarity in the Bioeconomy
- Other (please specify)

22. The following list shows soft skills relevant to bioeconomy education. Please select all that apply to your resource

- Collaboration and team work
- Conflict resolution
- Problem solving
- Adaptability
- Communication (public speaking)
- Communication (writing)
- Decision-making
- Critical thinking
- Systems thinking
- Innovation management
- Leadership skills
- Networking skills
- Other (please specify)

23. If you have additional relevant resources in bioeconomy education, please fill out the form again or provide the links here:

	Bulgaria				Croatia				Hungary				Latvia				Slovenia				Others			
	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total
Guides and manuals	13 %	19 %	69 %	100 %	0 %	25 %	75 %	100 %	17 %	50 %	33 %	100 %	17 %	33 %	50 %	100 %	0 %	50 %	50 %	100 %	12 %	29 %	59 %	100 %
Toollkits	25 %	31 %	44 %	100 %	0 %	17 %	83 %	100 %	25 %	25 %	50 %	100 %	0 %	50 %	50 %	100 %	0 %	50 %	50 %	100 %	12 %	35 %	53 %	100 %
Infographics	19 %	56 %	25 %	100 %	8 %	25 %	67 %	100 %	0 %	42 %	58 %	100 %	0 %	17 %	83 %	100 %	17 %	33 %	50 %	100 %	12 %	41 %	47 %	100 %
Repository of best practices	13 %	25 %	63 %	100 %	8 %	0 %	92 %	100 %	8 %	25 %	67 %	100 %	0 %	0 %	100 %	100 %	17 %	33 %	50 %	100 %	0 %	24 %	76 %	100 %
Reports	13 %	50 %	38 %	100 %	0 %	50 %	50 %	100 %	17 %	58 %	25 %	100 %	0 %	33 %	67 %	100 %	0 %	67 %	33 %	100 %	12 %	53 %	35 %	100 %
Project deliverables	25 %	31 %	44 %	100 %	8 %	17 %	75 %	100 %	25 %	58 %	17 %	100 %	17 %	0 %	83 %	100 %	50 %	17 %	33 %	100 %	18 %	41 %	41 %	100 %
National programs	13 %	19 %	69 %	100 %	0 %	17 %	83 %	100 %	8 %	17 %	75 %	100 %	0 %	0 %	100 %	100 %	0 %	33 %	67 %	100 %	0 %	24 %	76 %	100 %
Podcasts	19 %	69 %	13 %	100 %	8 %	75 %	17 %	100 %	25 %	50 %	25 %	100 %	17 %	83 %	0 %	100 %	17 %	50 %	33 %	100 %	**24 %**	47 %	29 %	100 %

Table 3. Relevance of educational materials and sources of best practices per country

	Bulgaria				Croatia				Hungary				Latvia				Slovenia				Others			
	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total	Low rel.	Medium rel.	High rel.	Total
Bachelor program	19 %	44 %	38 %	100 %	8 %	58 %	33 %	100 %	17 %	17 %	67 %	100 %	0 %	17 %	83 %	100 %	33 %	0 %	67 %	100 %	0 %	47 %	53 %	100 %
Master of Sciences	19 %	25 %	56 %	100 %	8 %	8 %	83 %	100 %	33 %	17 %	75 %	100 %	17 %	17 %	83 %	100 %	17 %	17 %	83 %	100 %	18 %	29 %	65 %	100 %
Master of Business Administration	13 %	69 %	13 %	100 %	8 %	25 %	67 %	100 %	8 %	50 %	17 %	100 %	0 %	50 %	33 %	100 %	0 %	50 %	33 %	100 %	6 %	41 %	41 %	100 %
PhD program	13 %	19 %	69 %	100 %	8 %	17 %	75 %	100 %	8 %	42 %	50 %	100 %	0 %	17 %	83 %	100 %	0 %	17 %	83 %	100 %	6 %	24 %	71 %	100 %
Regular University Courses	25 %	31 %	44 %	100 %	8 %	42 %	50 %	100 %	8 %	42 %	50 %	100 %	0 %	17 %	83 %	100 %	0 %	50 %	50 %	100 %	6 %	35 %	59 %	100 %
Summer schools	31 %	50 %	19 %	100 %	17 %	50 %	33 %	100 %	25 %	25 %	50 %	100 %	17 %	17 %	67 %	100 %	17 %	0 %	83 %	100 %	24 %	29 %	47 %	100 %
Vocational training	13 %	38 %	50 %	100 %	17 %	33 %	50 %	100 %	17 %	33 %	50 %	100 %	17 %	50 %	33 %	100 %	17 %	33 %	50 %	100 %	24 %	29 %	47 %	100 %
Online course	25 %	50 %	25 %	100 %	0 %	50 %	50 %	100 %	17 %	50 %	33 %	100 %	17 %	33 %	50 %	100 %	17 %	17 %	67 %	100 %	24 %	47 %	29 %	100 %
MOOC	38 %	19 %	44 %	100 %	25 %	50 %	25 %	100 %	25 %	42 %	33 %	100 %	33 %	17 %	50 %	100 %	17 %	33 %	50 %	100 %	29 %	47 %	24 %	100 %
Videos and webinars	13 %	63 %	25 %	100 %	8 %	42 %	50 %	100 %	17 %	33 %	50 %	100 %	0 %	33 %	67 %	100 %	17 %	0 %	83 %	100 %	18 %	35 %	47 %	100 %
Events	13 %	38 %	50 %	100 %	8 %	8 %	83 %	100 %	8 %	42 %	50 %	100 %	0 %	0 %	100 %	100 %	0 %	17 %	83 %	100 %	0 %	24 %	76 %	100 %

Table 4. Relevance of formal and non-formal education per country

	Bulgaria					Croatia					Hungary					Latvia					Slovenia					Others				
	No gap	Minor gap	Mod. gap	Major gap	Total	No gap	Minor gap	Mod. gap	Major gap	Total	No gap	Minor gap	Mod. gap	Major gap	Total	No gap	Minor gap	Mod. gap	Major gap	Total	No gap	Minor gap	Mod. gap	Major gap	Total	No gap	Minor gap	Mod. gap	Major gap	Total
Bachelor students	0 %	44 %	44 %	13 %	100 %	0 %	17 %	42 %	42 %	100 %	0 %	0 %	67 %	33 %	100 %	50 %	50 %	0 %	0 %	100 %	0 %	20 %	40 %	40 %	100 %	12 %	24 %	41 %	24 %	100 %
Graduate students	13 %	50 %	31 %	6 %	100 %	0 %	25 %	50 %	25 %	100 %	0 %	17 %	50 %	33 %	100 %	50 %	50 %	0 %	0 %	100 %	0 %	20 %	60 %	20 %	100 %	6 %	24 %	35 %	35 %	100 %
Postgraduate students	13 %	63 %	19 %	6 %	100 %	0 %	33 %	50 %	17 %	100 %	0 %	33 %	50 %	17 %	100 %	67 %	33 %	0 %	0 %	100 %	0 %	60 %	20 %	20 %	100 %	6 %	35 %	29 %	29 %	100 %
Vocational training students	13 %	38 %	38 %	13 %	100 %	0 %	0 %	58 %	42 %	100 %	0 %	17 %	25 %	58 %	100 %	17 %	33 %	50 %	0 %	100 %	0 %	20 %	40 %	40 %	100 %	6 %	18 %	35 %	41 %	100 %
Professionals in the Bioeconomy	19 %	38 %	38 %	6 %	100 %	8 %	50 %	17 %	25 %	100 %	0 %	67 %	25 %	8 %	100 %	33 %	17 %	50 %	0 %	100 %	0 %	60 %	20 %	20 %	100 %	6 %	53 %	18 %	24 %	100 %
Public administrators	6 %	31 %	38 %	25 %	100 %	8 %	25 %	33 %	33 %	100 %	8 %	0 %	33 %	58 %	100 %	17 %	67 %	17 %	0 %	100 %	0 %	0 %	40 %	60 %	100 %	0 %	12 %	41 %	47 %	100 %
Educators	13 %	44 %	25 %	19 %	100 %	0 %	42 %	33 %	25 %	100 %	0 %	17 %	67 %	17 %	100 %	33 %	67 %	0 %	0 %	100 %	0 %	20 %	80 %	0 %	100 %	18 %	29 %	29 %	24 %	100 %
General public	0 %	31 %	25 %	44 %	100 %	8 %	0 %	8 %	83 %	100 %	0 %	0 %	17 %	83 %	100 %	0 %	33 %	50 %	17 %	100 %	0 %	0 %	60 %	40 %	100 %	0 %	6 %	35 %	59 %	100 %

Table 5. Gaps in bioeconomy education per target group per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Biological and related sciences	7 %	53 %	33 %	7 %	0 %	100 %	0 %	17 %	42 %	8 %	33 %	100 %	0 %	40 %	50 %	0 %	10 %	100 %	17 %	50 %	17 %	0 %	17 %	100 %	20 %	40 %	0 %	40 %	0 %	100 %	19 %	38 %	19 %	6 %	19 %	100 %
Biochemistry and Biotechnology	0 %	53 %	40 %	0 %	7 %	100 %	0 %	42 %	17 %	17 %	25 %	100 %	10 %	10 %	70 %	0 %	10 %	100 %	17 %	50 %	0 %	0 %	33 %	100 %	0 %	40 %	40 %	20 %	0 %	100 %	6 %	38 %	31 %	13 %	13 %	100 %
Environmental sciences	20 %	47 %	27 %	7 %	0 %	100 %	0 %	25 %	42 %	17 %	17 %	100 %	10 %	20 %	50 %	10 %	10 %	100 %	17 %	67 %	17 %	0 %	0 %	100 %	0 %	40 %	40 %	20 %	0 %	100 %	6 %	31 %	31 %	13 %	19 %	100 %
Earth sciences	7 %	60 %	27 %	0 %	7 %	100 %	8 %	8 %	33 %	33 %	17 %	100 %	10 %	0 %	50 %	30 %	10 %	100 %	33 %	33 %	33 %	0 %	0 %	100 %	0 %	40 %	20 %	20 %	20 %	100 %	6 %	19 %	44 %	13 %	19 %	100 %

Table 6. Gaps in Natural sciences education fields in the BIOEAST macro-region per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Agriculture	7 %	40 %	27 %	27 %	0 %	100 %	0 %	33 %	50 %	17 %	0 %	100 %	0 %	30 %	40 %	30 %	0 %	100 %	33 %	50 %	17 %	0 %	0 %	100 %	0 %	40 %	0 %	40 %	20 %	100 %	13 %	44 %	31 %	13 %	0 %	100 %
Forestry	0 %	47 %	40 %	7 %	7 %	100 %	0 %	25 %	50 %	17 %	8 %	100 %	0 %	10 %	40 %	30 %	20 %	100 %	50 %	33 %	17 %	0 %	0 %	100 %	0 %	60 %	20 %	20 %	0 %	100 %	13 %	50 %	13 %	13 %	13 %	100 %
Fishing and aquaculture	0 %	27 %	33 %	13 %	27 %	100 %	0 %	25 %	42 %	25 %	8 %	100 %	0 %	10 %	30 %	40 %	20 %	100 %	0 %	17 %	67 %	0 %	17 %	100 %	0 %	20 %	40 %	20 %	20 %	100 %	13 %	31 %	25 %	13 %	19 %	100 %
Agritech and Forestech	7 %	33 %	40 %	7 %	13 %	100 %	0 %	17 %	50 %	25 %	8 %	100 %	0 %	10 %	40 %	50 %	0 %	100 %	17 %	67 %	17 %	0 %	0 %	100 %	0 %	20 %	20 %	20 %	40 %	100 %	13 %	44 %	19 %	19 %	6 %	100 %

Table 7. Gaps in in Agriculture, forestry and fisheries education fields in the BIOEAST macro-region per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Biochemical engineering and processes	0 %	47 %	33 %	0 %	20 %	100 %	0 %	42 %	33 %	8 %	17 %	100 %	0 %	20 %	30 %	30 %	20 %	100 %	17 %	50 %	17 %	0 %	17 %	100 %	0 %	40 %	40 %	0 %	20 %	####	0 %	44 %	31 %	19 %	6 %	100 %
Bioenergy	0 %	40 %	33 %	0 %	27 %	100 %	0 %	33 %	50 %	8 %	8 %	100 %	0 %	20 %	30 %	30 %	20 %	100 %	33 %	33 %	17 %	0 %	17 %	100 %	0 %	40 %	0 %	20 %	40 %	####	6 %	44 %	25 %	19 %	6 %	100 %
Food and feed processing	7 %	27 %	53 %	0 %	13 %	100 %	0 %	25 %	67 %	0 %	8 %	100 %	0 %	20 %	50 %	10 %	20 %	100 %	50 %	33 %	0 %	0 %	17 %	100 %	0 %	40 %	0 %	40 %	20 %	####	13 %	38 %	31 %	13 %	6 %	100 %
Biomaterials	0 %	20 %	60 %	7 %	13 %	100 %	0 %	25 %	50 %	17 %	8 %	100 %	0 %	20 %	40 %	20 %	20 %	100 %	50 %	17 %	17 %	0 %	17 %	100 %	0 %	20 %	40 %	0 %	40 %	####	6 %	19 %	31 %	19 %	25 %	100 %
Bio-based textiles	0 %	33 %	33 %	13 %	20 %	100 %	0 %	17 %	50 %	25 %	8 %	100 %	0 %	10 %	30 %	30 %	30 %	100 %	17 %	33 %	33 %	0 %	17 %	100 %	0 %	40 %	20 %	0 %	40 %	####	0 %	19 %	31 %	25 %	25 %	100 %
Architecture and bioconstruction	0 %	33 %	33 %	20 %	13 %	100 %	8 %	17 %	25 %	33 %	17 %	100 %	0 %	0 %	40 %	30 %	30 %	100 %	17 %	50 %	0 %	0 %	33 %	100 %	0 %	40 %	0 %	40 %	20 %	####	0 %	6 %	31 %	44 %	19 %	100 %

Table 8. Gaps in Engineering, manufacturing and construction education fields per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Urban waste	0 %	20 %	47 %	27 %	7 %	100 %	0 %	8 %	42 %	50 %	0 %	100 %	0 %	0 %	50 %	50 %	0 %	100 %	0 %	33 %	67 %	0 %	0 %	100 %	0 %	40 %	20 %	20 %	20 %	100 %	6 %	13 %	56 %	19 %	6 %	100 %
Organic waste	0 %	27 %	47 %	27 %	0 %	100 %	0 %	17 %	58 %	25 %	0 %	100 %	0 %	10 %	40 %	50 %	0 %	100 %	0 %	33 %	67 %	0 %	0 %	100 %	0 %	20 %	40 %	20 %	20 %	100 %	6 %	31 %	44 %	13 %	6 %	100 %

Table 9. Gaps in in Waste management and valorisation education fields per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Circular business administration	0 %	33 %	33 %	7 %	27 %	100 %	0 %	0 %	42 %	42 %	17 %	100 %	0 %	10 %	30 %	60 %	0 %	100 %	0 %	50 %	33 %	0 %	17 %	100 %	0 %	40 %	0 %	40 %	20 %	100 %	0 %	6 %	44 %	31 %	19 %	100 %
Biomarkets	0 %	20 %	53 %	20 %	7 %	100 %	0 %	17 %	8 %	58 %	17 %	100 %	0 %	10 %	30 %	50 %	10 %	100 %	0 %	50 %	33 %	0 %	17 %	100 %	0 %	20 %	40 %	20 %	20 %	100 %	0 %	6 %	31 %	38 %	25 %	100 %
Environmental Law	0 %	53 %	20 %	13 %	13 %	100 %	0 %	0 %	42 %	42 %	17 %	100 %	0 %	10 %	40 %	40 %	10 %	100 %	0 %	67 %	17 %	0 %	17 %	100 %	0 %	0 %	40 %	0 %	60 %	100 %	0 %	31 %	31 %	25 %	13 %	100 %
Supply chain management	0 %	33 %	47 %	0 %	20 %	100 %	0 %	0 %	33 %	50 %	17 %	100 %	0 %	10 %	60 %	30 %	0 %	100 %	0 %	67 %	17 %	0 %	17 %	100 %	0 %	20 %	40 %	20 %	20 %	100 %	0 %	19 %	63 %	13 %	6 %	100 %

Table 10. Gaps in Business administration and law education fields per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Sustainability economics	0 %	40 %	40 %	13 %	7 %	100 %	0 %	0 %	25 %	58 %	17 %	100 %	0 %	10 %	60 %	30 %	0 %	100 %	17 %	33 %	17 %	17 %	17 %	100 %	0 %	0 %	60 %	0 %	40 %	100 %	6 %	25 %	50 %	13 %	6 %	100 %
Bioeconomy Policy and Governance	0 %	27 %	47 %	20 %	7 %	100 %	0 %	8 %	50 %	25 %	17 %	100 %	0 %	10 %	60 %	30 %	0 %	100 %	33 %	17 %	17 %	17 %	17 %	100 %	20 %	0 %	0 %	60 %	20 %	100 %	0 %	19 %	50 %	19 %	13 %	100 %
Sociology and cultural studies	0 %	40 %	27 %	7 %	27 %	100 %	0 %	8 %	42 %	33 %	17 %	100 %	0 %	0 %	30 %	60 %	10 %	100 %	0 %	50 %	33 %	0 %	17 %	100 %	0 %	20 %	40 %	20 %	20 %	100 %	0 %	6 %	50 %	13 %	31 %	100 %
Consumers behavior	0 %	27 %	67 %	0 %	7 %	100 %	0 %	17 %	17 %	50 %	17 %	100 %	0 %	10 %	40 %	50 %	0 %	100 %	17 %	17 %	50 %	0 %	17 %	100 %	0 %	0 %	0 %	80 %	20 %	100 %	0 %	13 %	56 %	13 %	19 %	100 %

Table 11. Gaps in Social sciences education fields per country

	Bulgaria						Croatia						Hungary						Latvia						Slovenia						Others					
	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total	No gap	Minor gap	Mod. gap	Major gap	I am unsure	Total
Teachers training with subject specialization on bioeconomy	0 %	40 %	40 %	13 %	7 %	100 %	8 %	8 %	8 %	67 %	8 %	100 %	0 %	10 %	30 %	60 %	0 %	100 %	17 %	33 %	17 %	17 %	17 %	100 %	0 %	0 %	40 %	40 %	20 %	100 %	13 %	13 %	38 %	38 %	0 %	100 %
Journalists training in the bioeconomy	0 %	27 %	47 %	7 %	20 %	100 %	8 %	0 %	17 %	67 %	8 %	100 %	0 %	0 %	20 %	70 %	10 %	100 %	17 %	17 %	50 %	0 %	17 %	100 %	0 %	0 %	20 %	60 %	20 %	100 %	0 %	0 %	50 %	44 %	6 %	100 %

Table 12. Gaps in Bioeconomy education and training education fields per country

Appendix 5. Database of bioeconomy educational resources

Name	Country	Language	Owner	Type of source	Type of material	Type of Program	Target Audience	Bioeconomy Education Fields	Bioeconomy sectors	Cross-cutting topics	Soft skills	Description	Links
From Fossil Resources to Biomass: A Business and Economics Perspective	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students	Business Administration and Law Social Sciences	Biomarkets Supply chain management Consumers behavior	Sustainability Collaboration and partnerships	Systems thinking	The course explores how to create a sustainable future by moving away from dependence on fossil to biomass resources for the production of food, chemicals, and energy-carriers. The key is using microorganisms and catalysts to create biobased products. This course focuses on the end of the supply chain and how to market and sell those products within a profitable business model.	https://www.wur.nl/en/education-programmes/education-for-professionals/biotechnology-and-chemistry/bio-economy-1/from-fossil-resources-to-biomass-a-business-and-economics-perspective.htm
Catalytic Conversions for Biobased Chemicals and Products	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students	Natural Sciences Engineering, Manufacturing and Construction	Biochemistry and Biotechnology			This course explores the relevant fundamental knowledge on (bio)catalytic conversion for producing (new) biobased building blocks, chemicals and products. In this course: - Microbial, biochemical and chemical (i.e., catalytic) conversion routes. - How to use biocatalysts, home- or heterogeneous catalysts and optimize the process of conversion. Tune catalysts to their specific advantages and disadvantages for biobased conversions. - The influence of the reactor choice as an inevitable asset in the process. - How to describe the productivity of catalytic processes depending on the choice of the reactor and how the choice of the reactor can add to the stability of the conversion process.	https://www.wur.nl/en/education-programmes/education-for-professionals/biotechnology-and-chemistry/bio-economy-1/catalytic-conversions-for-biobased-chemicals-and-products.htm
Business Strategy and Operations in a Biobased Economy	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Professionals	Business Administration and Law	Biomarkets Supply chain management	Sustainable entrepreneurship Sustainability Collaboration and partnerships Multidisciplinarity in the Bioeconomy		The course contains two key business perspectives. It starts with relevant strategic management considerations such as the trends impacting the transition of businesses and value chains towards a more circular economy, their multi-stakeholder collaboration, and the development of feasible biobased business models. Then, the course continues with operational considerations, on e.g. supply chain management issues, different types of planning problems that are encountered, and the development of decision support for the design and operations of biobased supply chains.	https://www.wur.nl/en/education-programmes/education-for-professionals/biotechnology-and-chemistry/bio-economy-1/business-strategy-and-operations-in-a-biobased-economy.htm
Biorefinery: From Biomass to Building Blocks of Biobased Products	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Professionals	Natural Sciences Engineering, Manufacturing and Construction	Biochemistry and Biotechnology Bioenergy Food and feed processing			Understand the tools and techniques needed to efficiently disentangle, separate and convert different biomass based feedstocks into simpler (functional) components. First, you'll learn about available techniques and processes for biomass activation, disentanglement and separation. Next, you'll explore how to design a biorefinery taking into account feedstock and sustainable energy use and dive into: - Mass and energy balances - Design of biorefinery process units to obtain multiple products from one type of biomass - How to recover energy and resources in the biorefinery system - Evaluation of the designed system with respect to sustainability and economic criteria - Evaluation of criteria for successful implementation	https://www.wur.nl/en/education-programmes/education-for-professionals/biotechnology-and-chemistry/bio-economy-1/biorefinery-from-biomass-to-building-blocks-of-biobased-products.htm
Capstone Business and Operations for a Circular Bio-Economy	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Professionals	Business Administration and Law	Biomarkets Supply chain management	Sustainable entrepreneurship Sustainability Project management Multidisciplinarity in the Bioeconomy	Systems thinking Decision-making	In the first three courses of the MicroMasters Program, you will learn about all the different steps in a biobased process and the business and operations aspects you should consider before choosing a certain process. In this capstone project, you will work on integrating the technological section with the business and operations sections to develop a sustainable biobased practice. The focus is on linking the various aspects into an integral research, based on literature research and applied to a practical case.	https://www.edx.org/es/learn/circular-economy/wageningen-university-research-capstone-business-and-operations-for-a-circular-bio-economy?index=spanish_product&queryID=f4363b69e361f700f5a7c22b8f8d17c8&position=1&results_level=first-level-results&term=bioeconomy&objectID=course-b37b28e6-f404-4acc-8b87-b38830fb2846&campaign=Capstone+Business+and+Operations+for+a+Circular+Bio-Economy&source=edX&product_category=course&placement_url=https%3A%2F%2Fwww.edx.org%2Fes%2Fsearch

Economics and Policies in a Biobased Economy	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Graduated students Proffesionals	Business Administration and Law Social Sciences	Multiple Sector	Responsibility and ethics Multidisciplinarity in the Bioeconomy	Decision-making Networking skills	A series of 3 courses and a final capstone project designed to help you cover the economic and policy side of converting biological resources into biobased products. You will be able to contribute to managerial decision-making, as well as policy development.	https://www.edx.org/es/learn/economics/wageningen-university-research-economics-and-policies-in-a-biobased-economy?index=spanish_product&queryID=f4363b69e361f700f5a7c22b8f8d17c8&position=2&results_level=first-level-results&term=bioeconomy&objectID=course-791ba786-7112-4fc4-a0fb-f2ab5487c737&campaign=Economics+and+Policies+in+a+Biobased+Economy&source=edX&product_category=course&placement_url=https%3A%2F%2Fwww.edx.org%2Fes%2Fsearch
Circular Economy: An Interdisciplinary Approach	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Professionals	Business Administration and Law	Multiple Sector	Innovation Sustainability Project management Collaboration and partnerships	Systems thinking Innovation management	The MOOC Circular Economy: An Interdisciplinary Approach takes a systems approach to the circular economy, considering different stakeholder perspectives, their incentive structures, and their impact on circular alternatives. The circular solutions will be assessed by using applied, as well as emerging, technologies. You will learn how to use life cycle assessment and agent-based modelling to assess the socio-technical and manageable challenges and environmental benefits of alternative solutions.	https://www.edx.org/es/learn/circular-economy/wageningen-university-research-circular-economy-an-interdisciplinary-approach?index=spanish_product&queryID=f4363b69e361f700f5a7c22b8f8d17c8&position=3&results_level=first-level-results&term=bioeconomy&objectID=course-a7512d5c-f6d9-4da4-afec-f78cc712ba40&campaign=Circular+Economy%3A+An+Interdisciplinary+Approach&source=edX&product_category=course&placement_url=https%3A%2F%2Fwww.edx.org%2Fes%2Fsearch
Economics and Policies for a Circular Bio-Economy	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Professionals	Business Administration and Law Social Sciences	Biomarkets Supply chain management Bioeconomy Policy and Governance	Sustainability Collaboration and partnerships	Adaptability Decision-making	This MicroMasters programme will help you understand the basic economics of a circular biobased economy. You will learn to carry out economic assessments of the benefits and costs of new biobased technologies, in a dynamic value chain, where feedback occurs between different actors such as between retailers and food processors. At the end of the MicroMasters programme, in the last course, you will perform a capstone project in which you apply the knowledge from all courses to your own business case. This will give you the opportunity to receive feedback from experts in the field of circular bioeconomy economics and policies. Completion of this MicroMasters programme in Business and Economics for a Circular BioEconomy will provide you with knowledge and tools to analyse the economics and policy sides of converting biological resources into biobased products. Upon earning the programme certificate, you will	https://www.edx.org/es/masters/micromasters/wageningenx-economics-and-policies-for-a-circular-bio-economy?index=spanish_product&queryID=261ddac78dc6fd112e14d56f02919e4b&position=2&results_level=first-level-results&term=bioeconomy&objectID=program-0a342ee7-fe54-4795-85e2-7cb474a0164d&campaign=Economics+and+Policies+for+a+Circular+Bio-Economy&source=edX&product_category=micromasters&placement_url=https%3A%2F%2Fwww.edx.org%2Fes%2Fsearch
Summer School Circular Textiles Lab	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Summer school	Bachelor students Graduated students Professionals	Engineering, Manufacturing and Construction Business Administration and Law Social Sciences	Biomarkets Bio-based textiles Supply chain management Consumers behavior	Innovation Sustainability Collaboration and partnerships	Collaboration and team work Critical thinking Systems thinking Innovation management	In this Summer School you will be working in teams to jointly create an initiative that helps to foster systemic change in the (biobased) textile industry. The week will be full of masterclasses, workshops and coaching sessions with WUR experts and well-known guest speakers. This all with not only the aim to help you understand the complex steps in the value chain and the factors that influence them but also to help you become a change agent yourself. After following this online course you are expected to: - Recognise the need for a biobased textile and fashion industry - Understand the complex steps in the textile value chain - Understand the role of the consumer and the psychology of behaviour change - Have the tools to think about more sustainable business perspectives - Have inspiration from game changers to take the next steps - Have taken part in the shaping of a community in a biobased textile and fashion industry - Have the skills to work on change in a sustainable way	https://www.wur.nl/en/education-programmes/education-for-professionals/biotechnology-and-chemistry/bio-economy-1/summer-school-circular-textiles-lab.htm
Summer School Biotechnology, Agriculture and Food	The Netherlands	English	Wageningen University & Research	Educational program	Not applicable	Summer school	Bachelor students Graduated students Professionals	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction	Biochemistry and Biotechnology Agriculture Food and feed processing	Innovation Sustainability Multidisciplinarity in the Bioeconomy	Collaboration and team work	The Summer School offers an immersive exploration of the innovative technologies and trends shaping the future of the agri-food sector. This program is designed to equip participants with a comprehensive understanding of the Dutch agri-food system, renowned for its sustainability and efficiency. Through a combination of lectures, hands-on activities, and excursions, participants will delve into pressing global challenges such as climate change, food security, and sustainable farming practices. This course emphasizes a multidisciplinary approach, integrating insights from biotechnology, environmental science, and food technology. Participants will engage with leading experts, industry professionals, and fellow students, fostering collaboration and knowledge exchange that extends beyond the classroom.	https://www.wur.nl/en/education-programmes/education-for-professionals/biotechnology-and-chemistry/bio-economy-1/online-summer-school-biotechnology-agriculture-and-food-1.htm

Bioeconomy in the Circular Economy (Biocirce)	Italy	English	University of Bologna, University of Milano-Bicocca, University of Naples Federico II, and University of Turin	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Engineering, Manufacturing and Construction Business Administration and Law	Multiple Sector	Innovation Sustainability Sustainable Entrepreneurship Responsibility and Ethics Multidisciplinarity in the Bioeconomy	Collaboration and team work Problem solving Communication (public speaking) Communication (writing) Critical thinking	The Master's program in Bioeconomy in the Circular Economy (Biocirce), offers an extensive training program for professionals interested in working within the bio-based goods and services industry using biological resources and bio-technological processes. The program allows the professionals to go in depth in all the aspects related to the production and marketing sides of bio-based products, whilst using the latest technology	https://masterbiocirce.com/
Introduction to Sustainable Bioeconomy	Italy; Germany	English	University of Padova, The University of Freiburg	Educational program	Not applicable	Online course / MOOC	Multiple Audiences	Business Administration and Law Social Sciences	Bioeconomy Policy and Governance	Sustainability Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy	Collaboration and team work Innovation management Systems thinking Networking skills Communication (public speaking) Communication (writing)	The course has an introductory approach for multi-stakeholders' groups and it is a good example of translating complex and academic knowledge into accessible training and learning content for all. It addresses students and professionals at all level, as well as communication specialists and policy makers to better understand the emerging bioeconomy discourse and the latest policy developments at European level.	https://www.futurelearn.com/courses/society-and-bioeconomy
Bioeconomy: How Renewable Resources Can Help the Future of Our Planet	UK	English	University of York, BioYorkshire	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Proffesionals	Multiple Fields	Multiple Sector	Sustainability Multidisciplinarity in the Bioeconomy		You'll start this course by gaining an understanding of what a bioeconomy is and which sectors it includes. With the climate crisis being of constant concern, you'll assess why the move away from non-renewable resources is so important and identify the skills required to transition to a bio-based economy. This will also include the skills needed to pursue a career in the bioeconomy and the many career paths available. On this course, you'll delve into natural resources, such as plants and microbes, and how they can be used to produce high-value chemicals for the personal care, food, drink and pharma sectors. You'll also look at how food and agricultural waste can be used to make new products. This will cover the agricultural technologies that are helping sustainability, as well as methods like anaerobic digestion, which turns waste materials into renewable resources.	https://www.york.ac.uk/study/moocs/bioeconomy/
ROSEWOOD4.0 Training Programme	Germany	English	Wald und Holz NRW, Competence Centre Ltd. for research and development (CEKOM)	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Vocational training students Proffesionals	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction Business Administration and Law	Forestry Agritech and Forestech Biomarkets	Artificial Intelligence Innovation Digitalization Sustainability Collaboration and partnerships	Problem solving Decision-making Critical thinking	Find here all the training courses and learning materials developed by ROSEWOOD4.0 with the aim to promote innovation in the European forestry sector and to bring to different stakeholders all the tools to acquire new skills and help consolidating the digital transformation of the wood value chain.	https://rosewood-network.eu/resources/training/
BLOOM - Boosting Bioeconomy Knowledge in Schools MOOC	Belgium (coordinator)	English	BLOOM project, European Schoolnet	Educational program	Not applicable	Online course / MOOC	Educators	Bioeconomy Education and Training	Teachers training with subject specialization on bioeconomy	Awareness raising Sustainability Knowledge transfer Multidisciplinarity in the Bioeconomy	Collaboration and team work Communication (public speaking) Communication (writing)	The MOOC is dedicated and focused on the needs of educators and very practice oriented. It aims at supporting educators in the development of learning materials and scenarios to embed bioeconomy in the classroom and it includes peer learning activities and lesson plans. The overall approach is on teaching with bioeconomy rather than teaching bioeconomy.	https://www.europeanschoolnetacademy.eu/courses/course-v1:BLOOM+BoostBioec+2019/about
BLOOM webinar series - Bioeconomy in our daily lives	Belgium (coordinator)	English	BLOOM project	Project or National program	Not applicable	Not applicable	General public Professionals	Multiple Fields	Multiple Sector	Awareness raising Sustainability Multidisciplinarity in the Bioeconomy		The webinar series focuses on specific application of bioeconomy in context, in the daily lives, for citizens and professionals, with a practical approach to present opportunities.	https://bloom-bioeconomy.eu/bioeconomy-webinar-series/
Young Leadership Programme	International	English	EFI - European Forest Institute	Educational program	Not applicable	Other	Professionals	Agriculture, Forestry and Fisheries Business Administration and Law Social Sciences	Forestry Agritech and Forestech	Cross-border/cross-regional cooperation Collaboration and partnerships Knowledge transfer	Collaboration and team work Problem solving Adaptability Communication (public speaking) Communication (writing) Leadership skills Networking skills	EFI's Young Leadership Programme is aimed at young professionals working in the research and development, governance, administration or business side of the forest sector, or a related area. The 5-day programme offers a unique opportunity for young professionals with leadership potential to interact with a network of Mediterranean peers and experts, and share practical experience through group exercises.	https://efi.int/ylp#:~:text=EFI's%20Young%20Leadership%20Programme%20is,sector%2C%20or%20a%20related%20area.
Transition2bio - Capacity Building package for regional and national stakeholders	Italy (coordinator)	English, italian	Transition2bio project	Project or National program	Not applicable	Not applicable	Public administrators Educators General public	Business Administration and Law Social Sciences Bioeconomy Education and Training	Bioeconomy Policy and Governance Teachers training with subject specialization on bioeconomy Journalists training in the bioeconomy	Awareness raising Cross-border/cross-regional cooperation Collaboration and partnerships	Collaboration and team work Communication (public speaking) Communication (writing) Decision-making	The main aim of this package is to empower public actors at local, regional and national level and support them with contents and practices to strengthen their effectiveness in the implementation of awareness raising, communication and education activities. The package is designed based on identified needs and findings from several projects and initiatives and addresses specifically policy makers (EU Member States, EU Regions, National and regional stakeholders, National and Regional authorities). The training was deployed with several audiences, contexts and target beneficiaries, reaching more than 30 EU regions and Member States, and therefore already tested in practice.	https://www.transition2bio.eu/capacity-building/

ELLS - Summer schools and case studies competition	Austria, Germany, Sweden, Netherlands, Denmark, Czech Republic	English	Euroleague for Life Sciences	Educational material / source of best practices	Repository of best practices	Not applicable	Bachelor students Graduated students General public	Natural Sciences Agriculture, Forestry and Fisheries	Multiple Sector	Awareness raising Sustainability Multidisciplinarity in the Bioeconomy	Collaboration and team work Communication (public speaking) Communication (writing) Networking skills	The Euroleague for Life Sciences (ELLS) is a network of leading universities collaborating in Natural Resource Management, Agricultural and Forestry Sciences, Life Sciences, Animal Sciences, Food Sciences, Environmental Sciences, and Rural Development, including Agricultural Economics and Rural Sociology. Case Study Competitions and Student Challenges allow ELLS students to utilise their knowledge in practical issues related to real-life problems in the field of life sciences and related disciplines with an interdisciplinary approach and international context. ELLS also offer a wide range of summer schools in several bioeocnomy topics.	https://www.euroleague-study.org/en/summer
BIOVOICES - Mobilization and mutual learning workshops	Italy (coordinator)	English	BIOVOICES project	Project or National program	Not applicable	Not applicable	General public	Bioeconomy Education and Training	Multiple Sector	Awareness raising Sustainability Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy	Collaboration and team work Leadership skills Networking skills	This practice focuses on exchange and learning among a group of stakeholders. The BIOVOICES Platform offers detailed information about the workshops implemented, as well as guidelines and methodology for organising such activities that are easily adaptable to and for other contexts.	https://www.biovoices-platform.eu/registeredarea/mmls
FIT4FOOD2030 - Co-designing educational modules	Italy (coordinator)	English	FIT4FOOD2030 project	Educational material / source of best practices	Toolkit	Not applicable	Educators	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction Bioeconomy Education and Training	Agriculture Food and feed processing Teachers training with subject specialization on bioeconomy	Sustainability Collaboration and partnerships Knowledge transfer	Collaboration and team work Communication (public speaking) Critical thinking Networking skills	The model proposed is a workshop to co-create educational activities with a group of different stakeholders, with the purpose of working with a community on transforming the food system. This model is at the same time a learning activity, a community building and a co-creation process. It is implementable as short event, feasible in a variety of contexts, and yet it can produce a concrete output to further support the activities began within the workshop. The kit provides canvas and ready-made tools.	https://knowledgehub.fit4food2030.eu/wp-content/uploads/2020/06/FIT4FOOD2030_Tool_Co-designingEduModules.pdf
ABBEE - Bioeconomy courses	Italy (coordinator)	English	ABBEE Bioeconomy Education project	Project or National program	Not applicable	Not applicable	Bachelor students Graduated students	Multiple Fields	Multiple Sector	Sustainable entrepreneurship Innovation Sustainability Knowledge transfer Multidisciplinarity in the Bioeconomy		ABBEE is an EU collaboration between Wageningen University and Research (the Netherlands), University of Hohenheim (Germany), University of Eastern Finland (Finland) Aarhus University (Denmark) and other key stakeholders in industry and research. Four blended and interconnected learning modules have been created by the academic institutions in their respective expertise, each addressing a vital part within the bio-based economy value chain. Courses are: Concepts of sustainable bioeconomy, Forest bioeconomy in Europe, Agroproduction for biorefining and bioenergy, and Advances sustainable entrepreneurship	https://www.abbee.eu/index.html
Bio Inspired Innovation	The Netherlands	English	Utrecht University	Educational program	Not applicable	Master of Science	Graduated students	Engineering, Manufacturing and Construction Business Administration and Law	Multiple Sector	Innovation Sustainable entrepreneurship Sustainability Multidisciplinarity in the Bioeconomy	Collaboration and team work Systems thinking Innovation management Communication (writing) Communication (public speaking) Critical thinking	This Master's programme is aimed at students with a Bachelor's degree in Biological Sciences, who have a keen interest in combining design, research and systems-thinking. It will equip you with the research, design and collaborative skills that make you a bio inspired expert. The first year of the programme is research-based, while the second year focuses on the application of knowledge in innovation. You will contribute by using your biological perspective to innovate in the key sectors on nature's principles. As a Bioscience professional, you will advise and inform designers,policy and industry professionals.	https://www.uu.nl/en/masters/bio-inspired-innovation
International Master's Programme on Circular Economy (CIRCLE) Master	Austria	English	Univeristy og Graz	Educational program	Not applicable	Master of Science	Graduated students	Engineering, Manufacturing and Construction Business Administration and Law	Multiple Sector	Innovation Digitalization Sustainability Collaboration and partnerships Cross-border/cross-regional cooperation Multidisciplinarity in the Bioeconomy	Decision-making Innovation management Systems thinking	This study programme explores the creation and optimisation of technologies for sustainable development, and implementation of circular economy concepts at company, local, regional, national and international levels. Adresses methodological approaches as well as integrated evaluation and assessment of sustainable development and technical systems.	https://www.uni-graz.at/en/study/joint-programmes/international-masters-programme-on-circular-economy/
Biological resources	Germany	English	Rhine-Waal University of Applied Sciences	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Business Administration and Law	Biochemistry and Biotechnology Environmental sciences Earth sciences Biomarkets	Sustainability Sustainable entrepreneurship Collaboration and partnerships Multidisciplinarity in the Bioeconomy		The primary goal of Biological Resources M.Sc. is to enhance your understanding of soil, plant, animal and marine resources and inspire you, as a sustainability specialist, to devise new ways to make use of these resources, thus supporting the development of a bio-based economy. Over the course of your studies, you will acquire the expertise needed to recognise and utilise biological resources in terms of their economic potential, while also taking into consideration critical ecological and social constraints.	https://www.hochschule-rhein-waal.de/en/faculties/life-sciences/degree-programmes/biological-resources-msc
Bioeconomy	Germany	English	Univeristy of Hohenheim	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Business Administration and Law Social Sciences	Multiple Sector	Innovation Sustainability Digitalization Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Critical thinking Systems thinking	During the interdisciplinary program that looks at the entire bio-based value chain and networks, students examine the ecological, social, and economic dimensions of the bioeconomy on a micro and macro-level. At the same time, they learn to consider the requirements for innovations that need to come from the organizations working in the bio-based economy as well as the corresponding political framework conditions.	https://www.uni-hohenheim.de/en/bioeconomy-masters

Sustainable Technology	Sweden	English	KTH Royal Institute of Technology	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Engineering, Manufacturing and Construction Business Administration and Law	Multiple Sector	Innovation Sustainability Project management Collaboration and partnerships	Communication (public speaking) Communication (writing) Systems thinking	The master's programme in Sustainable Technology covers the concept of Industrial Ecology, focusing on the interaction of technical, economic, social and ecological systems and processes. Students will explore this interdisciplinary framework for designing and operating industrial systems interdependent of natural systems. Graduateds will balance environmental and economic performance and lead the development of strategies for a sustainable future.	https://www.kth.se/en/studies/master/sustainable-technology/msc-sustainable-technology-1.8721
Biodesign	UK	English	University Of The Arts London	Educational program	Not applicable	Master of Science	Graduated students	Engineering, Manufacturing and Construction Business Administration and Law	Biomaterials Architecture and bioconstruction	Innovation Sustainability Responsibility and ethics Multidisciplinarity in the Bioeconomy Collaboration and partnerships	Critical thinking Systems thinking Communication (public speaking) Communication (writing)	The MA Biodesign at Central Saint Martins specifically understands biodesign as a means to incorporate the inherent life-conducive principles of biological living systems into design processes – to transition into a more holistic, sustainable future. MA Biodesign explores bio-informed design strategies as a driver for sustainable innovation. You will articulate alternative and new innovative design propositions for the emerging bio-circular economy. Through this work, you will redefine the use of energy, water, air, waste and materials.	https://www.arts.ac.uk/subjects/textiles-and-materials/postGraduated/ma-biodesign-csm
Advanced Materials for Innovation and Sustainability (AMIS)	France	English	Grenoble INP and partner universities	Educational program	Not applicable	Master of Science	Graduated students	Engineering, Manufacturing and Construction Business Administration and Law	Biomaterials Biomarkets	Innovation Sustainability Sustainable entrepreneurship Project management Collaboration and partnerships	Communication (public speaking) Communication (writing) Systems thinking	The first year of the program includes courses focused on materials science, innovation, business and entrepreneurship. In year 2 it Includes one semester of courses in the specialisation areas offered by the exit universities: Grenoble INP: Materials interfaces: Surfaces, Films and Coatings Aalto University: Nanomaterials and interfaces: Advanced Characterisation and Modelling TU Darmstadt: Functional Ceramics: Processing, Characterisation and Properties University of Liège: Nanomaterials and Modelling University of Bordeaux: Advanced Hybrid Materials, Composites and Ceramics by Design Riga Technical University : Master Degree of Engineering Science in Materials Science and Nanotechnology	https://amis-master.eitrawmaterials.eu/
Biobased materials	The Netherlands	English	Maastricht University	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Engineering, Manufacturing and Construction Business Administration and Law	Biochemistry and Biotechnology Biomaterials Biomarkets	Sustainability Project management Collaboration and partnerships Cross-border/cross-regional cooperation Multidisciplinarity in the Bioeconomy	Collaboration and team work Problem solving Adaptability Critical thinking Systems thinking Networking skills	The programme offers a balanced combination of biology, chemistry and material science that delivers integrated fundamental knowledge and skills to enable you to design and manufacture the functional materials for a sustainable future of our high-tech society. Students are trained to: - Engineer green materials and biobased replacements from biomass - Design and optimise material production methods at every step along the value chain, from biomass up to applications - Use modern sustainable production technologies for a circular economy	https://curriculum.maastrichtuniversity.nl/education/master/biobased-materials?gad_source=1&gclid=CjwKCAiw_LOwBhBFEiwAmSEQAf5WYCADtzZuo1gvG4HIGM0q2zDA8aqi8Q1UVpuuUXHWgXv94MIT-hoCSAMQAvD_BwE
Wood Materials Science	Finland	English	University of Eastern Finland	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction	Bioenergy Biomaterials Architecture and bioconstruction	Innovation Sustainability Collaboration and partnerships		This programme creates a link between wood and the final products such as bio-based materials, chemicals and energy derived from renewable biological resources. MSc Wood Materials Science is a programme aims at training professionals who understand the entire chain from wood biomass production to product development and innovation management. It focuses on developing new products by combining wood with other materials and by creating novel materials and products from wood fibres. Our contemporary research is the basis for our teaching, which is developed in collaboration with the forest based industries.	https://www.uef.fi/en/degree-programme/masters-degree-programme-in-wood-materials-science
MPowerBIO	Denmark (coordinator)	English	MPowerBIO project	Project or National program	Not applicable	Not applicable	Professionals	Business Administration and Law	Biomarkets	Innovation Sustainable entrepreneurship Cross-border/cross-regional cooperation Collaboration and partnerships	Communication (public speaking) Collaboration and team work	MPowerBIO will empower 90 clusters within the bio-based industry across Europe to be better equipped to help SMEs overcome the challenge of finding sufficient investment to get from idea to business. By developing an online platform with digital tools our goal is to get 250 SMEs one step closer to capturing investment. It offers: 1.Training modules for Clusters: To enhance the investment readiness od SMEs, with training modules for clusters to be better equipped to help their SMEs. 2.Tools and Training Activities for SMEs: SMEs will be offered concrete tools through the online platform and through training activities which will improve their investment readiness and pitching skills. 3.Connect SMEs with investors: MPowerBIO will connect SMEs with investors by organizing regional and international events where SMEs have the opportunity to pitch their business proposition and network with the audience.	https://mpowerbio.eu/
BIOBEC E-learning materials	Spain (coordinator)	English	BIOBEC project	Educational material / source of best practices	Report / Project deliverables	Not applicable	Educators General public	Bioeconomy Education and Training	Teachers training with subject specialization on bioeconomy	Cross-border/cross-regional cooperation Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work	This E-learning suite aims to simplify the BIOBEC Project's outcomes for everyone. It's about providing tools and knowledge to recreate the BBEC (Bio-Based Education Centres) success in different places.	https://biobec.eu/e-learning-materials/

ForestMooc For Change	Belgium, Germany, Ireland,	English	Forêt.Nature; Pro Silva France; ANW; Teagasc Forestry Development Department	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students Vocational training students Professionals	Natural Sciences Agriculture, Forestry and Fisheries	Environmental sciences Forestry			ForestMoocForChange is an online introductory course on continuous cover forestry, covering the various aspects of this innovative form of forestry over an 8-week period. The course includes 74 videos produced in the field by experts, managers and owners. Each fortnight, a live session will be organized with the speakers so that you can ask your questions and discuss the topics covered with an expert. This MOOC (Massive Open Online Course) is designed to be comprehensive and open to all, helping you discovering continuous cover forestry, how it works and its dynamics, ranging from economic to ecological and social issues.	https://mooc.forestmoocforchange.eu/login?next=/courses/course-v1%3Aforestmoocforchange%2B1%2B2/course/
6th Summer School on Circular Bioeconomy	Greece	English	National University of Athens	Educational program	Not applicable	Summer school	Bachelor students Graduated students Vocational training students General public	Multiple Fields	Multiple Sectors	Sustainable entrepreneurship Sustainability Collaboration and partnerships Multidisciplinarity in the Bioeconomy		Expected outcomes of the Summer school: - Familiarization of students with current trends in Bioeconomy - Increased interest in the particular Balkan region - Introduction of new aspects and perspectives in sustainability and development - Hands-on Student involvement	5th Summer school - early registration & funding (bioeconomyassociation.org)
MSc in Bioeconomy: Biotechnology and Law	Greece	English	International Helenic University	Educational program	Not applicable	Master of Science	Graduated students	Business Administration and Law Social Sciences	Biochemistry and Biotechnology Bioeconomy Policy and Governance Consumers behavior	Sustainability Responsibility and Ethics Multidisciplinarity in the Bioeconomy		The programme is designed to provide knowledge and develop skills for those occupied in public or private services dealing with the consultation, management, studies of Biotechnological products and processes and willing to be involved in Bioeconomy. The programme is interdisciplinary and it has primarily a practical purpose. It provides legal and management expertise, directly usable in all groups of scholars, those with legal education, business and economical background and those trained in relevant scientific and technological disciplines. The programme is directed to students and executives who desire to expand their specialization in the relevant fields. The courses are taught exclusively in English in distance learning mode.	MSc in Bioeconomy: Biotechnology and Law – University Center of International Programmes of Studies (ihu.gr)
BIOCEB: European Master in Biological Engineering for a Sustainable Bioeconomy – Supporting knowledge transfer across universities	France (coordinator)	English	Tallinn University of Technology and others	Educational program	Not applicable	Master of Science	Graduated students	Business Administration and Law	Multiple Sector	Sustainability Project management Cross-border/Cross-regional Cooperation Multidisciplinarity in the Bioeconomy	Leadership skills Collaboration and team work Communication (public speaking) Communication (writing)	The Erasmus Mundus Joint Master Degree (EMJMD) Bioceb is a 2-year international programme in Biological and Chemical Engineering for a Sustainable Bioeconomy. Bioceb aims to qualify students to cope with the challenges related to bioeconomy value chains, from biomass to bioproducts and markets. The programme is designed to provide the job market with highly adaptable and entrepreneurial scientists trained in a holistic approach at different scales. Selected students will follow an intensive two-year curriculum with mandatory mobility periods among the partner universities, shared between academic courses, teamwork, practical training and internship for their master's thesis. This will allow them to acquire the necessary competencies and skills for their future professional responsibilities.	Bioceb - European Master in Biological and Chemical Engineering for a Sustainable Bioeconomy
EIT Master's in Food Systems, European Union: An all-encompassing approach to entrepreneurship education	Belgium (coordinator)	English	7 universities	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries Business Administration and Law	Food and feed processing Biomarkets Supply chain management	Innovation Sustainable entrepreneurship Sustainability Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Leadership skills Networking skills	Since 2019, EIT Food, a section of the European Institute of Technology (EIT), offers a two-year Master's programme in Food Systems (MFS). The programme's implementation was driven by a perceived need to support the transformation of the European food ecosystems towards being circular and sustainable. Acquiring entrepreneurship skills is a key objective of this programme. The MFS has an allencompassing approach, considering entrepreneurial thinking and acting from the selection of participants via learning objectives, methods, and contents of studies to students' Master thesis. The programme offers three major entrepreneurship components: The study area "management of food system innovations", an entrepreneurship Summer School, and the Emerging Technology Business Case Study. Since many students entering the MFF turned out to not yet have a sufficiently deep understanding of entrepreneurship, the programme begins with teaching basic knowledge, skills, and attitudes about entrepreneurship.	Master in Food Systems - EIT Food
Master's programme in Sustainable and Responsible Governance	Bulgaria	English	The University of Sofia	Educational program	Not applicable	Master of Science	Graduates students	Business Administration and Law Social Sciences	Bioeconomy Policy and Governance Biomarkets	Sustainability Sustainable entrepreneurship Responsibility and ethics Collaboration and partnerships	Problem solving Communication (public speaking) Communication (writing) Decision-making Systems thinking Leadership skills	The Master Programme builds on the bachelor's degree in specialties from all professional fields. It is structured in a way that allows high quality training at master's level. Its design ensures coverage of all major application of sustainable development in the practice - business modeling, corporate compliance, management of natural and human capital, investment and reporting on social progress. The Programme starts with two introductory courses on sustainable development, which cover topics for sustainability and sustainability management at the level of public and corporate sector. Some of the key courses are dedicated to sustainable leadership, social and environmental entrepreneurship, sustainable finance. Courses with a strong practical orientation such as corporate compliance and public-private partnership, responsible communications, systems and standards for corporate social responsibility management are also available.	Responsible and Sustainable Governance / Master's Degree Programmes for specialists / Business Administration / Faculty of Economics and Business Administration / Master's Degree Programmes / Degree Programmes / Faculty of Economics and Business Administration / Faculties / The University / Home - Софийски университет "Св. Климент Охридски" (uni-sofia.bg)

Master's programme in Biology and Eco-innovation	Estonia	Estonian	University of Tartu	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Agriculture, Forestry and Fisheries	Environmental sciences Agriculture Forestry	Innovation Sustainability Project management Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy	Communication (public speaking) Communication (writing) Critical thinking Leadership Skills	The curricula focuses on the functioning of natural environment of Estonia and Europe and on the associations between innovative enterprise and technology, binding knowledge about nature with socio-economic field. The purpose of the curricula is to educate innovatively thinking people, having good knowledge about nature and its functions. The students will learn to understand social and economic processes and challenges in the global change, and eventually will become the leaders of innovation, ecosystem-friendly economy and society in Estonia and Europe. The knowledge acquired during the studies can be applied afterwards in enterprise leading, in advising local governments and public-sector organizations and in the academic field.	ÕIS II (ut.ee)
Cambridge Elements in Development Economics	UK	English	United Nations University World Institute for Development Economics Research	Educational material / source of best practices	Other: Series of studies	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sectors	Sustainability Gender and diversity		Open to both mainstream and heterodox contributions in the field of development economics, this series is consciously agnostic in its coverage so does not privilege one approach over another. A pool of thematic editors oversees nine research areas — macroeconomics, economic transformation, inequality and poverty, education and health, public finance, conflict, political economy of development, gender, agricultural development and environmental sustainability.	https://www.cambridge.org/core/publications/elements/development-economics
Towards sustainable food systems: an analysis of EU policy measures setting environmental sustainability requirements	EU	English	Joint Research Centre	Educational material / source of best practices	Report / Project deliverables	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Agriculture Food and feed processing	Sustainability	Systems thinking	The current challenges affecting the EU food system call for an urgent shift towards more sustainability. As set out by the Commission Farm to Fork Strategy, the path to achieve such an ambitious goal should promote policy coherence at EU and national level, mainstream sustainability in food-related policies and strengthen the resilience of food systems. In this report, we focus on provisions setting requirements to improve the sustainability of food products. This report was carried out to better understand the environmental impacts of such provisions and their evolution over time, as well as their coverage in terms of actors and environmental impacts of the EU food system. Available data show that the environmental impacts of the EU food system are increasing and current trends are expected to be maintained. An analysis of existing EU policies suggests that there is a complex and fragmented policy landscape in the EU and in the Member States, which can act as a barrier to more systemic and transformative approaches to the governance of food systems. A focus on food waste highlights the lack of monitoring in current initiatives, hindering the efficacy of the plan, as well as an incoherent uptake of initiatives across the EU. The relevant actors are involved in existing policy initiatives in an heterogeneous way resulting in environmental impacts not being addressed consistently along the entire supply chain. Furthermore, the environmental impacts of the EU food system are not addressed horizontally and consistently across existing legislation.	https://publications.jrc.ec.europa.eu/repository/handle/JRC134433
MPhil in Engineering for Sustainable Development	UK	English	University of Cambridge	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Engineering, Manufacturing and Construction Business Administration and Law	Biochemistry and Biotechnology Environmental sciences Earth sciences Biomarkets (e.g. business models)	Sustainability Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Problem solving Decision-making Critical thinking	The Engineering for Sustainable Development MPhil course is designed for Graduates who want to help tackle pressing global problems by developing practical engineering solutions. The course is about recognising that engineers have to operate within an increasingly complex set of constraints, and therefore must be capable of dealing with a range of challenges. The subject is based on some very straightforward principles: it is about living within Earth's finite limits and resources, helping everyone on the planet to achieve an acceptable quality of life; acting as stewards of the environment for future generations; dealing with complexity, and handling the many trade-offs which have to be made.	https://www.postGraduated.study.cam.ac.uk/courses/directory/egegmpesd
Environment, agriculture and resource management (INTER-EnAgro)	Croatia	English	University of Zagreb Faculty of Agriculture	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Agriculture, Forestry and Fisheries	Biochemistry and Biotechnology Environmental sciences Agriculture	Sustainability Rural or regional development	Systems thinking	The Graduated study programme INTER-EnAgro offers theoretical and practical knowledge targeted at sustainable use and management of natural resources such as soil and water as well as positive and negative effects of human activities, primarily agriculture, on these resources. The graduate study programme enables students to develop and apply their knowledge, skills and competencies in the following areas: — Knowledge/understanding in fundamental scientific areas of: agriculture, environmental protection and related natural, engineering and biotechnical sciences; — Intellectual skills in fundamental and applied scientific areas - the functioning of natural and agro-ecosystems using the interdisciplinary, holistic approach; — Practical skills and competencies in recognizing the current needs and trends in sustainable development of rural areas, notably the role of agriculture.	https://www.agr.unizg.hr/en/group/395/INTER-EnAgro
Renewable Energy Sources in Agriculture	Croatia	English	University of Zagreb Faculty of Agriculture	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction	Agriculture Forestry Bioenergy	Digitalization Sustainability Rural or regional development Data management		The Renewable Energy Sources in Agriculture Graduated program trains experts in the field of agricultural sciences and the interaction of agriculture and energy, as well as the sustainable use of biomass, biofuels, and waste in agriculture. The program trains experts in solving environmental problems related to agricultural production and the use of agricultural resources and residues for renewable energy production.	https://www.agr.unizg.hr/en/1283/Renewable+Energy+Sources+in+Agriculture
Play with Bioeconomy!	Slovakia	English, Italian, Slovak, Greek, Portuguese, Estonian and Spanish	PEDAL Consulting s.r.o.	Project or National program	Report / Project deliverables	Not applicable	Educators General public	Bioeconomy Education and Training	Teachers training with subject specialization on bioeconomy	Innovation Digitalization Awareness raising Multidisciplinarity in the Bioeconomy		Innovative way to communicate research through gamification: Series of 3 different bioeconomy games.	https://www.pedal-consulting.eu/play-with-bioeconomy/

Bioeconomy knowledge base: an online library to support EU policymaking - Edition 2022	EU	English	Joint Research Centre	Educational material / source of best practices	Report / Project deliverables	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Sustainability Knowledge transfer		The Knowledge Centre for Bioeconomy online library provides a one-stop shop for filtered and distilled knowledge on the bioeconomy to support evidence-based EU policymaking. Its strength is the relevance, quality and accessibility of its resources as a result of a curation process and method that emerged from a series of gradual improvements and optimisations based on the lessons learnt over the previous years. This library is constantly updated with the latest publications, datasets, events, news, visualisations and other resources, and made publicly accessible on the Commission's Knowledge for Policy Platform (https://knowledge4policy.ec.europa.eu/). This report describes the workflow process and methods used in the curation task, and details how the knowledge is organised, stored and shared. It contains statistics on the resources available and take-up from the users, and some concluding reflections on the approach, with recommendations on the way forward.	https://publications.jrc.ec.europa.eu/repository/handle/JRC132357
Beaming	Netherlands (coordinator)	English	Beaming project	Project or National program	Not applicable	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Innovation Cross-border/cross-regional cooperation Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy	Collaboration and team work Decision-making	BEAMING aims to promote excellence and innovation in the bioeconomy through collaboration among higher education institutions in Central, Eastern, and Southeast Europe, as well as the Western Balkans. The initiative focuses on improving global competitiveness and visibility by facilitating effective technology and knowledge transfer. Through structural reforms and a commitment to excellence, BEAMING seeks to strengthen the innovation capacity of these institutions and enhance the practical application of research results in bioeconomy.	https://beamingproject.eu/project/
Mainstream BIO	Netherlands (coordinator)	English	Mainstream BIO project	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	innovation Awareness raising Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy		Virtual library of best practices.	https://mainstreambio-digital-toolkit.eu/
Georgiev (2024). Agricultural land, governance, and institutional change: Evidence from a Bulgarian study. Journal of Infrastructure, Policy and Development 8 (6), 4304	Bulgaria	English	Agricultural University Plovdiv	Educational material / source of best practices	Report / Project deliverables	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries Business Administration and Law	Agriculture Bioeconomy Policy and Governance			New Institutional Economics (NIE) uses solutions from law, economics and organization. The purpose of this article is to link in a single analytical approach the institutional environment, its change in the organizations uniting in one, what is happening in contracts with agricultural lands. The explanation of this type of governance means to integrate: theoretical definitions; formal rules (laws, court decisions and other legal acts); economic institutions—means and mechanisms of exchange; legal and economic forms in which, through governance of transactions property rights are transferred and protected.	https://www.researchgate.net/publication/381739003_Agricultural_land_governance_and_institutional_change_Evidence_from_a_Bulgarian_study
Boosting bioeconomy knowledge in schools	Belgium (coordinator)	English	BlooM project	Educational program	Not applicable	Online course / MOOC	Educators General public	Bioeconomy Education and Training	Teachers training with subject specialization on bioeconomy	Sustainability Knowledge transfer Multidisciplinarity in the Bioeconomy		The Boosting Bioeconomy Knowledge in Schools Massive Open Online Course is an important action in upscaling the educational use of the bioeconomy educational resources included in the BLOOM School Box. The MOOC provides an accessible, flexible training platform for teachers interested in teaching bioeconomy as part of their science, technology, engineering and mathematics (STEM) lessons or simply in interested in learning more about bioeconomy and issues related to sustainability. The basis of the MOOC was the BLOOM School Box, a collection of lesson plans co-created by the 20 BLOOM pilot teachers from 10 countries, which illustrate how bioeconomy can be introduced in different STEM subjects.	https://bloom-bioeconomy.eu/mooc/-/-:~:text=The MOOC provides an accessible, flexible
Bioeconomy: how renewable resources can help the future of our planet	UK	English	York University	Educational program	Not applicable	Online course / MOOC	Bachelor students Graduated students	Natural Sciences Engineering, Manufacturing and Construction Business Administration and Law	Environmental sciences Bioenergy Biomarkets	Sustainability Multidisciplinarity in the Bioeconomy		On this course, you'll look at the ways you can make the most of renewable, biological resources, including what you might think of as 'waste', and how the world can move from a fossil-based economy to a bioeconomy. You'll start this course by gaining an understanding of what a bioeconomy is and which sectors it includes. With the climate crisis being of constant concern, you'll assess why the move away from non-renewable resources is so important and identify the skills required to transition to a bio-based economy. This will also include the skills needed to pursue a career in the bioeconomy and the many career paths available. On this course, you'll delve into natural resources, such as plants and microbes, and how they can be used to produce high-value chemicals for the personal care, food, drink and pharma sectors. You'll also look at how food and agricultural waste can be used to make new products. This will cover the agricultural technologies that are helping sustainability, as well as methods like anaerobic digestion, which turns waste materials into renewable resources.	https://www.york.ac.uk/study/moocs/bioeconomy/-/-:~:text=Bioeconomy: how renewable resources can help

TALLHEAD	Sweden	English	TALLHEAD project	Project or National program	Not applicable	Not applicable	Multiple Audiences	Bioeconomy Education and Training Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction	Biochemistry and Biotechnology Agriculture	Innovation Digitalization Sustainability Rural or regional development Collaboration and partnerships		Widening countries lag behind the European average in Research & Innovation investment and scientific excellence; the domain of Digital Agriculture (DA) is one prominent example. Higher Education Institutes(HEIs) of Widening countries, like Greece and Serbia, can play a central role in addressing this issue, but need support for achieving excellence in research and education in the DA domain. TALLHEDA will build a new long-term Alliance for DA between agricultural HEIs from Widening countries with leading non-widening agricultural universities, and local and international stakeholders. TALLHEDA Alliance will contribute to raising the critical mass of highly skilled scientists and to establishing liaisons with surrounding ecosystems, in order to foster the Quadruple Helix of innovation in Widening countries. The path to excellence will be paved with a portfolio of multi-actor, inter-sector and international complementary actions to support students, early-stage and experienced researchers, and academic staff of the Widening HEIs.	https://www.tallheda.eu/project
FOEBE+ - FOstering Entrepreneurship for a sustainable and innovative BioEconomy	France (coordinator)	English	European Bioeconomy University	Educational program	Not applicable	Other	Graduated students	Business Administration and Law	Multiple Sector	Innovation Sustainable entrepreneurship Sustainability Collaboration and partnerships Multidisciplinarity in the	Collaboration and team work Problem solving Leadership skills	The FOEBE+ project (FOstering Entrepreneurship for a sustainable and innovative BioEconomy) is co-funded by Erasmus+ for a period of 3 years, and aim to develop students' entrepreneurial skills in the bioeconomy in order to accelerate the deployment of this sector within the European Union.	https://www.agroparistech.fr/en/international/european-educational-projects/erasmus-partnerships/foebe-fostering-entrepreneurship-sustainable-and-innovative-bioeconomy
NEW EUROPEAN BAUHAUS ACADEMY	EU	English	NEW EUROPEAN BAUHAUS ACADEMY	Educational program	Not applicable	Other	Bachelor students Graduated students Educators General public Public administrators	Engineering, Manufacturing and Construction	Architecture and bioconstruction	Innovation Sustainability		The New European Bauhaus Academy (NEBA), a flagship initiative of the European Commission on skills for sustainable construction, accelerates the up- and re-skilling of the current and future workforce to transition to a resilient domestic building construction sector. "NEB Academy's mission is to train, upskill, and reskill the construction ecosystem to achieve a carbon neutral building sector and a beautiful, sustainable, and inclusive transformation of the built environment." The main goal is to unlock the decisive potential of the decarbonisation of the built environment by a major transformation. The ambition is to establish NEBA as the European point of reference for skills and knowledge on bio-based, circular and digital solutions in construction.	https://neb.academy/academy
Knowledge Centre for Bioeconomy	EU	English	European Commission	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Sustainability Multidisciplinarity in the Bioeconomy		The Knowledge Centre for Bioeconomy supports policymaking by - identifying, filtering and structuring relevant information and making it accessible - bringing together researchers, policymakers and other experts in the field - analysing, synthesising available evidence and communicating it in a transparent, tailored and concise manner	https://knowledge4policy.ec.europa.eu/bioeconomy_en
Agroinlog	Spain (coordinator)	English	Agroinlog project	Project or National program	Not applicable	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries Business Administration and Law	Agriculture Agritech and Forestech Biomarkets	Digitalization Rural or regional development		The main goal of AGROinLOG is the demonstration of Integrated Biomass Logistic Centres (IBLC) for food and non-food products, evaluating their technical, environmental and economic feasibility. The project is based on three agro-industries in the fodder (Spain), olive oil production (Greece) and cereal processing (Sweden) sectors that are willing to deploy new business lines in their facilities to open new markets in bio-commodities (energy, transport and manufacturing purposes) and intermediate bio-products (transport and biochemicals).	http://agroinlog-h2020.eu/en/home/
EUTOPIA	Belgium (coordinator)	English	Eutopia alliance	Educational program	Not applicable	Regular University course	Bachelor students Graduated students	Multiple Fields	Multiple Sector	Sustainability Collaboration and partnerships Responsibility and ethics		Established in 2019, EUTOPIA is an alliance of ten European universities, and six Global partners committed to developing a new model for integrated higher education institutions through transnational cooperation	https://eutopia-university.eu/
RUBIZMO	Sweden (coordinator)	English	RUBIZMO project	Educational material / source of best practices	Toolkit	Not applicable	Bachelor students Graduated students	Business Administration and Law	Circular business administration Biomarkets	Sustainability Rural or regional development Multidisciplinarity in the Bioeconomy		RUBIZMO is a new European initiative working to discover the vital ingredients for developing entrepreneurship and successful business models in rural areas	https://rubizmo.eu/business

GO-GRASS	Germany	English	Leibniz Institute for Agricultural Engineering and Bioeconomy	Project or National program	Not applicable	Not applicable	Multiple Audiences	Business Administration and Law	Circular business administration Biomarkets Supply chain management	Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships		The GO-GRASS project has developed small-scale bio-based solutions to unlock the overlooked potential of grassland across Europe and create new business opportunities for rural areas. By harnessing regional assets, GO-GRASS aims to diversify and revitalise rural economies and provide quality jobs and opportunities in co-operation with entrepreneurs and local authorities. Making grass a raw material for industrial processing offers farmers opportunities for organising new business models. GO-GRASS results show that farmers could work together in cooperatives to supply grass for processing, or that pre-treatment of the biomass could be undertaken by the farmers.	https://www.go-grass.eu/
Bioeconomy Strategy Accelerator Toolkit	Spain (coordinator)	English	POWER4BIO project	Educational material / source of best practices	Toolkit	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Rural or regional development Multidisciplinarity in the Bioeconomy		The Bioregional Strategy Accelerator Toolkit (BSAT) is an online platform for guiding decision-makers and stakeholders to develop their regional bioeconomy strategies using the proven POWER4BIO methodology. The toolkit is aimed to all kind of regions guiding you to the most relevant added value chains, regardless its maturity in the field of bioeconomy. It contributes to identifying specific regional assets, gaps/weaknesses and how-to-develop' tips on developing/strengthening its own regional bioeconomy strategy	http://bioeconomy-strategy-toolkit.eu/
Rural toolkit	EU	English	European Commission	Educational material / source of best practices	Toolkit	Not applicable	Multiple Audiences	Business Administration and Law	Circular business administration Biomarkets	Rural or regional development		The Rural toolkit is the comprehensive guide to EU funding and support opportunities for rural areas in the European Union. It aims to help local authorities, institutions and stakeholders, businesses and individuals to identify and take advantage of existing EU funds, programmes and other funding and support initiatives, and to foster development in rural territories.	https://funding.rural-vision.europa.eu/?lng=en
RuralSpot	Spain (coordinator)	English	RuralBioUp project	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Business Administration and Law	Circular business administration Biomarkets Supply chain management	Rural or regional development Collaboration and partnerships Knowledge transfer	Decision-making	RuralSpot is crucial as RuralBioUp's online platform and a good resource tool for developing effective Action Plans. RuralSpot is committed to ongoing refinement and enhancement, with input and feedback from stakeholders, ensuring its relevance and effectiveness in promoting rural bioeconomy endeavours.	https://ruralspot.eu/about-rural-spot/
TECH4BIOWASTE	Netherlands (coordinator)	English	TECH4BIOWASTE project	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Waste Management and Valorization	Urban waste Organic waste	Awareness raising Sustainability		TECH4BIOWASTE – A DYNAMIC DATABASE OF RELEVANT TECHNOLOGIES OF BIO-WASTE UTILISATION The Tech4Biowaste project provides the bio-based industry with a complete overview of existing and emerging technologies for biowaste utilisation and valorisation. The technology database contain up-to-date information and is accessible to everybody.	https://www.tech4biowaste.eu/wiki/Main_Page
Master of Science in European Forestry	Finland	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Forestry	Sustainability Cross-border/cross-regional cooperation Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Critical thinking	A joint course-based accredited double-degree Erasmus+: Erasmus Mundus Joint Master Degree programme run by six renowned European universities. The programme is a two-year interdisciplinary programme that provides academic education in the field of sustainable resource management with an emphasis on current bioeconomy issues. MSc EF offers a new approach to forestry and nature management markets and it connects the increasing number of forest-related issues with a European dimension at international as well as national levels.	https://sites.uef.fi/europeanforestry/
EnvEuro - Environmental Science - Soil, Water and Biodiversity	Denmark, Germany, Austria, Sweden	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences	Environmental sciences	Sustainability Cross-border/cross-regional cooperation Collaboration and partnerships	Collaboration and team work Communication (public speaking) Communication (writing) Critical thinking Networking skills	Environmental Science - Soil, Water and Biodiversity (EnvEuro) is a two-year European double degree Master Program in Environmental Science, offered by four leading European universities. It features an introduction to environmental science, scientific specialisations, and finally a Masters thesis in environmental science.	https://enveuro.eu/
Master Degree Mediterranean Forestry and Natural Resources Management	Portugal, Italy, Spain, Turkey	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Agriculture, Forestry and Fisheries	Environmental sciences Forestry	Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Communication (public speaking) Communication (writing) Decision-making Critical thinking Networking skills	It is the only program in Europe that simultaneously addresses the economic, ecological and social challenges of sustainable Mediterranean forestry and natural resources management. MEDFOR also address specific topics on the field of forestry, with particular emphasis on the Mediterranean area such as: - forest as a unique world heritage, - forest management and conservation - forestry role in the welfare of the society.	https://www.medfor.eu/
NARMEE - Natural Resources Management and Ecological Engineering	Austria	English	BOKU University	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences Agriculture, Forestry and Fisheries	Environmental sciences Agriculture Forestry	Digitalization Sustainability Cross-border/cross-regional cooperation Data management Collaboration and partnerships+L71	Collaboration and team work Communication (public speaking) Communication (writing)	The Master of Natural Resources Management and Ecological Engineering (NARMEE / NRE) is a two-year master programme combining both examination and thesis. Students are required to study at two universities, and will finish with a joint degree (BOKU-CZU) or a twinned degree (BOKU-LU).	https://boku.ac.at/international/themen/boku-students-going-international/englische-internationale-masterprogramme/euroleague-for-life-sciences-ells/narmee-natural-resources-management-and-ecological-engineering

EUR-Organic	Germany, Austria	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agriculture Food and feed processing	Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships	CollaborCommunication (public speaking) Communication (writing)	Four leading European universities offer a comprehensive and integrative education in all areas of organic farming, as well as the processing and commercialization of organic food. The core of EUR-Organic is comprised of areas of specialisation that enable the students to profit from the different foci of organic agriculture teaching and research of the partner universities. These different foci are reflected in thirteen study profiles offered by the partners.	https://www.eur-organic.eu/en
SAFETY IN THE FOOD CHAIN	Austria	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries Business Administration and Law	Agriculture Food and feed processing Supply chain management	Cross-border/cross-regional cooperation Collaboration and partnerships	Collaboration and team work Decision-making Critical thinking	The international Master programm "Safety in the Food Chain" (SIFC) was developed to provide a profound academic MSc programme concerning all areas of food safety. It offers a high level study course by combining all the existing expertise of European universities. The contents of the curriculum are focused on the whole spectrum of the food chain (regarding supply and production). This study programme especially targets students who hold a BSc degree in „Food Science and Biotechnology". Based on their fundamental knowledge in the fields of food science, natural and engineering science, students will gain special knowledge as well as practical skills in the area of food safety, risk identification, risk assessment, and risk communication. Food and feed related issues will be combined in a complementary way. The MSc SIFC was developed by 5 partner universities of the Euroleague for Life Sciences ELLS and the University of Ljubljana.	https://www.safetyinthefoodchain.com/en
AquaH	Netherlands	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Fishing and aquaculture	Sustainability	Problem solving	The AquaH programme combines 4 of Europe's leading institutes in aquaculture with industry expertise to provide students with an opportunity to become entrepreneurial pioneers and address the challenges of increased global demand on fish stocks.	https://aquah.eu/
International Master of Science in Soils and Global Change	Belgium	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences	Biochemistry and Biotechnology Environmental sciences Earth sciences	Sustainability Multidisciplinarity in the Bioeconomy	Communication (Writing)	The International Master in Soils and Global Change (IMSOGLO) educates this next generation of soil scientists equipping them with the knowledge and skills to understand the chemistry, physics and biology of soils, including their formation and interactions with plants, to measure, monitor and model soil properties and processes in space and time, and to develop and implement climate-smart soil management policies.	https://imsoglo.eu/
Sustainability in Agriculture, Food Production and Food Technology in the Danube Region	Italy	English	Multi university	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agriculture Forestry Food and feed processing	Sustainability Rural or regional development		Joint Master degree study "Sustainability in Agriculture, Food Production and Food Technology in the Danube Region" (Danube AgriFood Master – DAFM) focuses on sustainable development as competent response to the upcoming challenges of climate change and protection and promotion of livelihoods. It uses the Danube region as a model region for all riparian regions worldwide.	https://agrifoodmaster.eu/index.html
CBE Joint Undertaking	EU	English	Bio Based Industries Consortium	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector			Repository of Bioeconomy projects	https://www.cbe.europa.eu/projects?f%5B0%5D=cbe_ju_project_status%3A51
BIOWAYS repository	EU	English	Bio-Based industries and Bio-based Industries Consortium	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Awareness raising Sustainability Knowledge transfer Multidisciplinarity in the Bioeconomy		The BIOWAYS mission is to promote the huge potential of bio-based research results and raise public awareness of bio-based products, using a variety of communication techniques and through public engagement activities and the development of educational tools and materials.	https://www.bioways.eu/multimedia/videos/
Laste ja noorte kliimateadlikkuse kujundamine	Estonia	Estonian	Universities network	Project or National program	Not applicable	Not applicable	Educators	Natural Sciences	Environmental sciences	Awareness raising Sustainability Knowledge transfer Multidisciplinarity in the Bioeconomy		The training is aimed at all teachers at all levels of general education, as well as pre-school teachers and teachers in recreational and environmental education centres. The training will present the climate education teaching materials produced, together with methodological guidance on how best to use them. The aim of the training is to support the creation of a climate-resilient and climate-friendly society that values sustainable development, by developing the climate-friendly knowledge, skills and values of teachers at different levels of education to teach children.	https://kliimateadlik.ut.ee/koolitused/
TKNIKA	Spain	Spanish, English	Basque VET Applied Research Centre	Educational program	Not applicable	Vocational training	Vocational training students	Natural Sciences Engineering, Manufacturing and Construction Bioeconomy Education and Training	Environmental sciences Food and feed processing Biomaterials Architecture and bioconstruction	Innovation Sustainability Digitalization Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Critical thinking Adaptability Leadership Skills	TKNIKA coordinates a network of VET schools in the Basque region that promote bioeconomy skills. The network brings together VET providers to work together across different thematic areas on multi-disciplinary and innovative projects. It focuses in particular on sustainable agro-food with particular reference to the natural and ocean environments; smart building and sustainable construction; and environmental health and sustainable bioscience. The applied VET bioeconomy network focuses on applied innovation and research, generating economic value, and using resources of biological origin efficiently and sustainably. TKNIKA acknowledges the need to train trainers to meet the skill needs of the bioeconomy and provides training courses for VET teachers.	https://tknika.eus/en/

RTU Olaine College of Technology	Latvia	Latvian, English	Riga Technical University	Educational program	Not applicable	Vocational training	Vocational training students	Natural Sciences Engineering, Manufacturing and Construction	Biochemistry and Biotechnology Environmental sciences (e.g. ecology, environmental science, nature conservation, wildlife) Food and feed processing	Sustainability		RTU Olaine College of Technology educates and trains professional, high-level specialists in chemistry, pharmacy, biotechnology, environment, food and other fields. The College offers its students the opportunity to obtain high-quality sustainable education by acquiring study courses in a state-of-the-art technology environment. Chemical Technology (the qualification to be obtained: Biotechnology Process Technician). Environmental Protection (the qualification to be obtained: Environmental Technician). Chemical Technology (the qualification to be obtained: Analytical Chemistry Technician). Engineering Mechanics (the qualification to be obtained: Chemical and Biochemical Plant Mechanical Engineer). Food Quality Control (the qualification to be obtained: Food Quality Controller).	https://www.rtu.lv/en/university/structure-and-administration/regional-centres-and-schools/rtu-olaine-college-of-technology
Technician training for sustainable management of food supply chains	Italy	Italian	Fondazione ITS Agroalimentare Puglia	Educational program	Not applicable	Vocational training	Vocational training students	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction	Biochemistry and Biotechnology Food and feed processing Circular business administration	Sustainability		Fondazione ITS Agroalimentare Puglia (based in Bari, Italy) provides technician training for sustainable management of food supply chains. The course addresses resource efficiency and environmental sustainability in production processes. It is designed to train people in the management of production processes from a technical and organisational point of view, paying attention to the protection and enhancement of environmental resources from a circular economy perspective. Graduateds from the course go on to work as employees in public and/or private companies (e.g. agricultural and/or processing companies, producer organisations, distribution or marketing companies and certification bodies) or as self-employed external consultants. The course leads to the award of a post-secondary school diploma which takes two years to complete.	https://www.itsagroalimentarepuglia.it
Educational training courses	Italy	English	The Agribusiness School | ITS Academy AgriPuglia	Educational program	Not applicable	Vocational training	Vocational training students	Agriculture, Forestry and Fisheries Business Administration and Law	Agriculture Agritech and Forestech Food and feed processing Biomarkets	Innovation Sustainability Rural or regional development		The Agribusiness School | ITS Academy AgriPuglia Offers educational training courses in 5 areas: Innovation in the agro-industrial supply chain, Agri-food quality and certifications, Valorisation of agri-food production, Food processing and development and Agri-food business management. The courses are aimed at young people who have turned 18 years of age and who have a secondary school diploma, without age limits.	https://www.agribusiness.school/it/
Educational training courses	Belgium	English	Le Forem Environnement	Educational program	Not applicable	Vocational training	Vocational training students	Natural Sciences Business Administration and Law	Environmental sciences (e.g. ecology, environmental science, nature conservation, wildlife) Circular business administration Biomarkets (e.g. business	Innovation Sustainability		Le Forem Environnement , a member of the European Vocational Training Association (EVTA), is a vocational training center in Belgium specializing in environmental sectors. It offers a range of programs designed to equip individuals with the skills needed for careers in environmental management, sustainable development, and related fields. These programs combine theoretical knowledge with practical training, ensuring that participants are well-prepared to meet the demands of the evolving environmental industry.	https://www.evta.eu/centres-of-excellence-2/be-le-forem-environnement/
Bioeconomy Innovation Days	International	English	EFI Bioregions Facility	Event	Not applicable	Not applicable	Public administrators Proffesionals	Agriculture, Forestry and Fisheries Business Administration and Law	Multiple Sector	Artificial Intelligence Innovation Awareness raising Sustainability Cross-border/cross-regional cooperation Multidisciplinarity in the Bioeconomy	Innovation management Networking skills Communication (public speaking)	Bioeconomy Innovation Day - An exciting networking event featuring forward-looking keynotes, high-impact pitches of innovative solutions, and networking opportunities.	https://bioregions.efi.int/bioeconomy-innovation-day-2024/
Forest Innovation Workshop	Belgium	English	Various Organizations	Event	Not applicable	Not applicable	Public administrators Proffesionals	Agriculture, Forestry and Fisheries	Multiple Sector	Innovation Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Networking skills Communication (public speaking)	During this 2-day event, participants have the opportunity to engage with policymakers, forest owners, practitioners, researchers, associations, and NGOs. Together, we explored the latest innovations, discussed regional priorities, and fostered collaboration across the forest-based sector.	https://forestinnovation.eu
Pitch Perfect and Boost the European Bioeconomy	Belgium (coordinator)	English	Bio Base Europe Pilot Plant	Event	Not applicable	Not applicable	Public administrators Proffesionals	Multiple Fields	Multiple Sector	Innovation Digitalization Sustainability Cross-border/cross-regional cooperation Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Communication (public speaking) Networking skills	The 'Pitch Perfect and Boost the European Bioeconomy' event is a two day event of intense cross-border and cross-sectoral pitching, matchmaking and networking, with the aim to link industry to innovative (biobased) technologies, innovators to investors and to create new partnerships for the future and the further development of innovative, cross-border and cross-sectoral industrial value chains in the biobased economy.	https://www.pitchperfectbioeconomy.eu

Forestry Speed Dating	International	English	EFI Bioregions Facility	Event	Not applicable	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Multiple Sector	Artificial Intelligence Innovation Digitalization Sustainable entrepreneurship Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Communication (public speaking) Innovation management Networking skills	Bioregions Facility's Forestry Speed Dating is a dynamic event series showcasing innovative bioeconomy solutions. With a focus on knowledge sharing and collaboration, each event fosters sustainable growth in the forestry industry. Participants can learn about new innovations, connect with potential partners, and seize new opportunities.	https://bioregions.efi.int/speed-dating/
BIOKET	France	English	Bioeconomy For Change	Event	Not applicable	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction Business Administration and Law	Multiple Sector	Artificial Intelligence Innovation Digitalization Sustainable entrepreneurship Multidisciplinarity in the Bioeconomy	Communication (public speaking) Networking skills	BIOKET, short for BIOeconomy Key Enabling Technologies, is a global event dedicated to the processes and technologies applied to biomass. Created in 2018 by B4C – The French Bioeconomy Cluster, BIOKET was founded to fill a niche in highlighting the Key Enabling Technologies (KETs) that are essential for transforming biomass into high value added products. While many events focus on end-user markets, global trends and policy, BIOKET emphasizes the technologies that drive industrial modernization and the transition towards a greener economy.	https://bioket.tech/about/
European Biomass Conference & Exhibition (EUBCE)	Italy (coordinator)	English	Etaflorence	Event	Not applicable	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Innovation Sustainability Multidisciplinarity in the Bioeconomy	Collaboration and team work Networking skills	The EUBCE is now characterized as an event that addresses the balance between sustainability in terms of environment as well as the economic performance of the whole chain of biomass utilization, not forgetting the science. This conference covers all aspects of biomass, from resources, research, innovation, deployment to policies. A particular emphasis is given through the exhibition for a tight partnership between academia, research institutions and industry. The Technical Programme is coordinated by the European Commission Joint Research Centre.	https://www.eubce.com/
Bio360	France	English	Bees	Event	Not applicable	Not applicable	Public administrators Proffesionals	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction Business Administration and Law	Bioenergy Circular business administration Biomarkets Supply chain management	Innovation Digitalization Sustainability Multidisciplinarity in the Bioeconomy	Innovation management Networking skills	Bio360 isn't just a trade show; it's a platform for innovation, connection, and transformation. With a focus on expo renewable carbon, bioenergy, and bioeconomy, our event is where potential turns into progress. Explore cutting-edge technologies, discover new horizons, and immerse yourself in the world of renewable solutions that are revolutionizing industries and reshaping our world. Be a part of the sustainable future - jump aboard today.	https://www.bio360expo.com/
Environmental Science PhD program	Belgium	English	University of Antwerp	Educational program	Not applicable	PhD program	Graduated students	Natural Sciences	Biochemistry and Biotechnology Environmental sciences Earth sciences	Sustainability Multidisciplinarity in the Bioeconomy		A PhD in Environmental or Safety Sciences has an interdisciplinary orientation. This approach is particularly suited to analyze complex topical environmental/safety and sustainability issues.	https://www.uantwerpen.be/en/centres/environment-sustainable-development/research/phd/
Doctoral Programme in Science, Forestry and Technology	Finland	English	University of Eastern Finland	Educational program	Not applicable	PhD program	Graduated students	Natural Sciences Agriculture, Forestry and Fisheries	Environmental sciences Earth sciences Forestry	Innovation Digitalization Sustainability Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Critical thinking Networking skills	The Doctoral programme in Science, Forestry and Technology (LUMETO) covers all fields of science and forestry, as well as doctoral education in science, forestry and technology based on them. Research and doctoral training in the LUMETO programme focuses on UEF's "Environmental change and the sustainable use of natural resources" profile area, in particular, but also on the "Ageing, lifestyles and health" and "Diversifying learning and interaction" profile areas. The aim of the doctoral programme is to provide the students with the skills to generate new information, to apply the methods of scientific research critically and independently, and to manage specialist and research duties in the academic world, business life and the public sector. Research conducted in research groups of a high international standard is an integral part of the studies. During the studies, the students have the opportunity to network extensively.	https://www.uef.fi/en/degree-programme/doctoral-programme-in-science-forestry-and-technology
Doctoral Programme in Sustainable Use of Renewable Natural Resources (AGFOREE)	Finland	English	University of Helsinki	Educational program	Not applicable	PhD program	Graduated students	Natural Sciences Agriculture, Forestry and Fisheries	Multiple Sector	Sustainability Multidisciplinarity in the Bioeconomy	Communication (public speaking) Communication (writing) Networking skills	A doctoral degree in AGFOREE comprises a doctoral thesis and 40 credits of doctoral studies. The studies are divided into scientific content and transferable skills studies. Part of the studies can be completed flexibly by presenting your research at scientific conferences, teaching, supervising/mentoring others, writing popular articles and attending relevant seminars. Visit our study planning instructions for current doctoral students on the University's Instructions for Students. The programme organises theoretical and methodological courses with content suitable for all AGFOREE members. You can also complete doctoral-level courses from other Finnish Universities, as well as from international Universities and research institutes.	https://www.helsinki.fi/en/admissions-and-education/apply-doctoral-programmes/doctoral-programmes/doctoral-programmes-environmental-food-and-biological-sciences/doctoral-programme-sustainable-use-renewable-natural-resources

Educational training courses	Estonia	Estonian	Luua Forestry School	Educational program	Not applicable	Vocational training	Vocational training students	Agriculture, Forestry and Fisheries	Forestry Agritech and Forestech	Innovation Sustainability Collaboration and partnerships		Luua Forestry School, established in 1948, holds a unique distinction as the only vocational school in Estonia that specializes in various forestry-related subjects. Over the years, we have grown and diversified our curriculum to include three primary teaching fields: forestry, horticulture, and nature tourism.	https://www.luua.ee/en/about-us/
European Bioeconomy Scientific Forum 2025	Finland	English	Eropean Bioeconomy University	Event	Not applicable	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Cross-border/cross-regional cooperation Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy	Collaboration and team work	The European Bioeconomy Scientific Forum is the biannual official event of all EBU's representatives, and the 2025 event will focus on "Boosting regional and international bioeconomy collaboration and skills". The objective of this scientific forum is to shed light on the multi-scalar international collaboration in bioeconomy. The forum will discuss the various forms, promises, required skills, and critical success factors of such international collaboration, including sub-national, national, continental, and inter-continental levels. The event will bring together scientists, experts, policymakers, industry representatives, youth, and other stakeholders from across Europe and beyond.	https://www.european-bioeconomy-university.eu/ebsf2025/
BalticBiomass4Value training programme on circular bioeconomy development and its support systems	Multicountry (Baltic Sea Region)	English	BalticBiomass4Value project implemented under the Interreg Baltic Sea Region Programme	Educational program	Not applicable	Online course / MOOC	Public administrators Educators professionals	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction Waste Management and Valorization Business Administration and Law	Agriculture Forestry Bioenergy Food and feed processing Biomaterials Urban waste Organic waste Circular business administration Biomarkets	Innovation Sustainable entrepreneurship		The course provides representatives of public authorities with the knowledge and understanding of the fact that the bioeconomy and its development is of great importance both in one's country and around the world, and for human existence dependant on the sustainability of renewable resources. The main condition for a continuous development cycle to ensure continuous development is the attraction of investments and their realisation by the project management-oriented approach.	https://balticbiomass4value.eu/training-programme-on-circular-bioeconomy-development-and-its-support-systems/
BIOECONOMY: development roadmap	Lithuania	English	Latvia University of Life Sciences and Technologies	Educational material / source of best practices	Other: Monograph	Not applicable	Bachelor students Graduated students Vocational training students Public administrators Educators General public	Bioeconomy Education and Training	Multiple Sector		Systems thinking	The European Union first published the Bioeconomy Strategy (Innovation for Sustainable Growth: A Bioeconomy for Europe) in 2012. It has been 12 years since then, and achievements and progress made in Latvia have been . Initially, there was not much support for bioeconomy development issues, and one could observe concerns, misunderstandings, and doubts, but today the word "bioeconomy" is becoming more familiar to the public, and the industry's development is supported by innovations, promoting the development of the bioeconomy in Latvia. Today, the bioeconomy plays a major role, as its contribution will be significant in promoting the European Union's green transition and becoming a climate-neutral economy by 2050. Thoughtful use of natural resources, increasing added value, creating new knowledge and jobs, and attracting young people - these are all today's challenges, but at the same time, they also present opportunities. Amidst the hectic pace of modern living, it is important to pause for a moment, collect thoughts and knowledge, outline conclusions about successes and mistakes, and agree on the next steps, as we cannot and should not stop.	https://biokutatas.sharepoint.com/:b:/r/sites/boost4bioeast/Shared%20Documents/WP5%20Boosting%20Bioeconomy%20Education,%20Learning%20%26%20BIOEAST%20Unit%20Net/T5.1/D5.1/Additional%20resources/Bioeconomy%20development%20roadmap.pdf?csf=1&web=1&e=3Ax21U
BioBoosters	Finland (coordinator)	English	BioBoosters project	Project or National program	Not applicable	Not applicable	Graduated students Vocational training students Public administrators Educators Proffesionals	Natural Sciences	Earth sciences (e.g. climate research, geology, geography)	Innovation Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Problem solving Critical thinking Networking skills	BioBoosters aims to advance the green transition of bioeconomy business by matchmaking competence with needs. By employing a proven business-driven Hackathon process, we can solve challenges that the bioeconomy businesses are facing in transitioning to circular economy business models. BioBoosters Hackathon is connecting the bioeconomy innovation ecosystems of 9 regions across the Baltic Sea Region. By implementing the open innovation process in inter-regional co-operation, we can facilitate cross-sectoral knowledge transfer as well as connect SMEs, start-ups, and research groups with companies in an international context.	https://interreg-baltic.eu/project/bioboosters/
BeUBio	Estonia / Baltic Sea Region	English	Universities, public sector, NGOs, etc.	Project or National program	Not applicable	Not applicable	Graduated students Vocational training students Public administrators Educators Proffesionals	Multiple Fields	Multiple Sector	Awareness raising Sustainability Cross-border/cross-regional cooperation Collaboration and partnerships	Collaboration and team work	The project aims at engaging youth accross the Baltic Sea region to get more involved in planning and implementation of different actions foreseen by the BA Bioeconomy. In order to guarantee the sustainability of current actions, the future generation, which is going to be responsible for implementation and also benefiting from the results, needs to be informed and consulted as early as possible, thus the youth perspective is well integrated into the process. The project will as well raise awareness about the bioeconomy among different groups of stakeholders since the target audience/youth represent the civil society, governments, municipalities, academia etc.	https://www.emu.ee/beubio
IntAG2030	Estonia	English	Universities, public sector, NGOs, etc.	Project or National program	Not applicable	Not applicable	Graduated students Vocational training students Public administrators Educators Proffesionals	Multiple Fields	Multiple Sector	Sustainability Responsibility and ethics	Collaboration and team work Decision-making	IntAG2030 aims to explore the best practices on how to implement the Agenda 2030 towards sustainable development in organizations (both private and public). The focus is also to determine how authorities and municipalities can promote the UN Sustainable Developmental Goals (SDGs) and inspire the organizations to implement these in their daily activities and strategic planning towards a sustainable future. There are different types of good examples in the participating countries that are unique to the specific region, and therefore, there is a need to study and communicate it further.	https://www.emu.ee/implementing-2030-agenda-in-organizations-intag2030

BioBaltic	Estonia	English	Universities, public sector, NGOs, etc.	Project or National program	Not applicable	Not applicable	Graduated students Vocational training students Public administrators Educators Proffesionals	Multiple Fields	Multiple Sector	Awareness raising Cross-border/cross-regional cooperation Collaboration and partnerships	Collaboration and team work Networking skills	This project provides a platform for generating awareness of different bioeconomy models through peer-to-peer learning and building networks across Baltic and Nordic countries. This collaboration will enable knowledge generation and exchange among multiple actors, including youth. The collaboration will focus on different aspects of bioeconomy transition, including financing aspects, industrial partnerships and symbiosis or the opportunities of digitalisation.	https://www.emu.ee/biobaltic-nordicbaltic-cooperation-on-circular-bioeconomy
Circular bioeconomy - Ringbiomajandus	Estonia	Estonian	Eesti Maaülikool	Educational program	Not applicable	Bachelor	Graduated students	Multiple Fields	Environmental sciences Biomarkets Supply chain management	Innovation Sustainability Multidisciplinarity in the Bioeconomy	Collaboration and team work Critical thinking Innovation management	Estonia's fields, forests and water bodies provide a wealth of high-quality bio-resources. But how can we make more efficient use of these resources and the by-products they produce, while preserving the environment? To do this, we need a good knowledge of the sustainable cultivation and use of plants, forests, animals, fish and other aquatic organisms, as well as innovative technologies. The circular bioeconomy curriculum teaches you how to find and create innovative but environmentally friendly solutions for the efficient use of bio-resources and by-products.	https://www.emu.ee/ringbiomajandus
Nobalis	Estonia	English	Universities, public sector, NGOs, etc.	Project or National program	Not applicable	Not applicable	Graduated students Vocational training students Public administrators Educators Proffesionals	Multiple Fields	Multiple Sector	Innovation Sustainable entrepreneurship Sustainability Cross-border/cross-regional cooperation	Collaboration and team work Adaptability Innovation management	NOBALIS is implemented by a Nordic- Baltic region consortium consisting of five universities with background in life sciences, agriculture and technologies and two organizations specializing in technology transfer, start-up support and acceleration programs. The focus is to develop, share and expand innovation and entrepreneurship support capabilities in the areas of sustainable food production, circular economy, and development of new green value chains, in line with the research areas of the participating HEIs, and regional smart specialization strategies. The project builds on a focused Innovation Vision Action Plan (IVAP) and combines variety to activities such as Entrepreneurship and Innovation Capacity Development Program for students and staff; start-up and mentor support; mapping of entrepreneurship and innovation courses, support for curricula and pedagogical tools development; mapping of institutional entrepreneurship and innovation support structures, practices and policies; creation of new partnership activities and development of an idea bank and videos.	https://nobalis.eu
Climate Awareness from School to Society: empowering children, youth and teachers to reduce the impacts of climate change	Estonia	English	Universities, public sector, NGOs, etc.	Project or National program	Not applicable	Not applicable	Graduated students Vocational training students Public administrators Educators Proffesionals	Bioeconomy Education and Training	Multiple Sector	Awareness raising Sustainability		The main objective of the project is to increase climate awareness in Estonian society through systematic climate education at all levels of education. To this end, we will create a climate education programme that addresses the causes of global warming, the impacts of climate change on nature and human society, and develops skills to mitigate and adapt to climate change. Climate education will shape climate-friendly values by supporting the creation of a climate-resilient and climate-friendly society that values sustainable development. We will create climate education strategies, modern science-based teaching materials and support the introduction of climate education in educational institutions.	https://kliimateadlik.ut.ee/?lang=en
Bioeconomy Initiative	Czechia	English	University of South Bohemia	Educational program	Not applicable	Summer school	Bachelor students Graduated students Vocational training students Educators	Bioeconomy Education and Training	Multiple Sector	Sustainability Responsibility and ethics Multidisciplinarity in the Bioeconomy		The benefits from the Bioeconomy are expected to improve citizen's health, boost the productivity of agriculture and industrial processes, and enhance environmental sustainability. However its potential requires concrete policy actions by governments, efficient regulations, a dedicated strategy by individual companies, effective communication by the stakeholders, and the necessary investments for its economic development. Clever consult works directly with the different actors to create practical solutions to move to a competitive and sustainable Bioeconomy	https://bei.jcu.cz/
Healthy Foods for a Strong Bioeconomy and Quality of Life PhD program	Bulgaria	Bulgarian	National Scientific Research Fund	Project or National program	Not applicable	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Agriculture (e.g. crop and livestock production, horticulture)	Rural or regional development		The general objective of the program is to conduct basic and applied research to create adapted modern models and technologies for the production of healthy foods for a strong regional bioeconomy and to improve the quality of life of the population of the Republic of Bulgaria.	https://www.uni-sofia.bg/index.php/bul/universitet_t/fakulteti/biologicheski_fakultet2/nauchna_i_mezhdunarodna_dejnost/nacionalna_nauchna_programa_zdravoslovni_hrani_za_silna_bioikonomika_i_kachestvo_na_zhivot

Strategic concept paper for Bioeconomy in Slovenia: from a patchwork of good practices to an integrated, sustainable and robust bioeconomy system	Slovenia	English	University of Ljubljana, Faculty of Biotechnology	Educational material / source of best practices	Report / Project deliverables	Not applicable	General public professionals	Multiple Fields	Multiple Sector	Sustainability Rural or regional development Multidisciplinarity in the Bioeconomy		While Slovenia has significant bioeconomy potential, it remains underutilized, facing challenges in primary bioeconomy sectors, their integration along value chains, uptake of industrial innovation, and institutional coordination. This paper aims to support the unlocking of Slovenia's bioeconomy potential, and foster sustainable and integrated development of its value chains. It provides the evidence base of the composition, volumes and current utilization of the available biomass streams from agriculture, forestry and aquatic systems. It discusses the potential uses of these resources and highlights the need for improved logistics and scalability. Additionally, the structure and performance of bioeconomy-related industries in Slovenia are examined, emphasizing the importance of firm consolidation and integration for successful bioeconomy development. It emphasizes the importance of sector-specific transformation pathways, from primary production to expanding hybrid sectors. The exchange between policymakers and stakeholders is encouraged to recognize synergies, accelerate cooperation, and improve economic performance while closing material and energy loops. The document also reviews the supporting environment for bioeconomy development and proposes steps for improved coordination and strategic planning.	https://open-research-europe.ec.europa.eu/articles/3-167
Agricultural biotechnology MSc programme	Hungary	English	Hungarian University of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Biochemistry and Biotechnology	Innovation Sustainability	Problem solving Communication (writing) Communication (public speaking) Decision-making	The Agricultural Biotechnology MSc programme fullfills the needs for the specialized higher education of the entire Hungarian agricultural sector on three campuses (Gödöllő, Budapest and Keszthely), with two specialisations (plant and animal biotechnology), with three forms of training (full-time, correspondence and dual trainings) and in two languages (Hungarian and English). The length of the programme is 2 years (4 semesters). One of the main features of the degree programme is that it is highly practice oriented.	https://genetics.uni-mate.hu/educational-activity
Bioeconomy - ECTS Study Programmes	Poland	English	Lodz University of Technology	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction	Multiple Sector	Innovation Sustainable entrepreneurship Sustainability Multidisciplinarity in the Bioeconomy	Communication (writing) Communication (public speaking) Problem solving	The education program includes engineering knowledge from several disciplines, including science and modern technologies, logistics, economics, legal regulations and intellectual property management. Therefore, in addition to providing the latest knowledge, the study program allows you to shape the skills of an innovative approach to problem-solving and creates competences for cooperation between science and business. The education is focused on learning new technologies and advisory assistance, familiarizing you with sources of financing pro-innovation activities and presenting opportunities for supporting, creating knowledge and awareness of innovation in entrepreneurs and society. The education program uses current knowledge and the latest scientific discoveries and achievements in the area of bioeconomy, especially in the field of food processing, environmental engineering, bioenergy and industrial technologies and processes.	https://programy.p.lodz.pl/ectslabel-web/?l=pl&s=karta-opisu-programu-ksztalcenia&pk=biogospodarka&pkId=1685&v=4&wersja202223=true
Bioeconomy – a new force for Poland and the European Union	Poland	Polish	Danuta Ciechańska Bioeconomy Cluster Association	Educational material / source of best practices	Repository of best practices	Not applicable	General public	Multiple Fields	Multiple Sector			Bioeconomy overview for Polish context	https://www.kpk.gov.pl/wp-content/uploads/2021/07/20210713_Ciechanska_Biogospodarka.pdf
BIOECONOMY TODAY AND TOMORROW	Poland	Polish	Warsaw University of Technology	Educational material / source of best practices	Infographic	Not applicable	Bachelor students Graduated students Vocational training students General public	Engineering, Manufacturing and Construction	Bioenergy			Bioeconomy overview for Polish context	https://www.is.pw.edu.pl/images/kandydaci/Biogospodarka.pdf
Aktuálne otázky ekonomiky a politiky lesného hospodárstva SR 2022	Slovakia	Slovak	National Forest Centre	Event	Not applicable	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Forestry (e.g. silviculture, logging)	Innovation Awareness raising Sustainability Open Science Knowledge transfer Other: Forest Policy	Conflict resolution	economic problems of the forestry sector in the Slovak Republic in the circles of the general forestry public. The latest results of research tasks supported by the contract between NLC and the Ministry of Forests of the Slovak Republic and other projects supported by the APVV were presented. Particular attention was paid to the project of the NLC Research Plan for 2022-2026, Economics of nature-friendly forest management (EPRIBLES). More than 60 participants were present at the conference.	https://web.nlcsk.org/prezentacie-z-vedeckej-konferencie-aoeplh-2022/
Zborník z vedeckej konferencie AOEPLH SR 2024	Slovakia	Slovak	National Forest Centre	Event	Not applicable	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Forestry (e.g. silviculture, logging)	Innovation Awareness raising Sustainability Open Science Knowledge transfer. Other: Forest Policy	Conflict resolution Problem solving Decision-making	The NLC hosted the traditional scientific conference Current Issues in Forest Economics and Policy of the Slovak Republic, organized by the Department of Forest Management. Selected presentations made at the conference were published on the NLC website in December. Another output is a peer-reviewed scientific proceedings	https://web.nlcsk.org/zbornik-z-vedeckej-konferencie-aoeplh-sr-2024/
ENVIRONMENTAL MANAGEMENT AND BIOECONOMY	Estonia	Estonian	Estonian University of Life Sciences	Educational program	Not applicable	Regular University course	Bachelor students	Natural Sciences Agriculture, Forestry and Fisheries Engineering, Manufacturing and Construction Waste Management and Valorization	Multiple Sector	Innovation Digitalization Sustainable entrepreneurship Sustainability Multidisciplinarity in the Bioeconomy	Problem solving Decision-making Critical thinking Systems thinking	Development of environmentally friendly attitudes, acquisition of knowledge and skills for environmental management. Acquisition of knowledge about the concept of bioeconomy, its role and potential in Estonian economy and the environmental impacts of bioeconomy.	https://biokutatas.sharepoint.com/:b:/r/sites/boost4bioeast/Shared%20Documents/WP5%20Boosting%20Bioeconomy%20Education.%20Learning%20%26%20BIOEAST%20Unit%20Net/T5.1/D5.1/Additional%20resources/ENVIRONMENTAL%20MANAGEMENT%20AND%20BIOECONOMY%20PROGRAM.pdf?csf=1&web=1&e=je7KW8

Biotechnology Bachelor program	Hungary	English	University of Pécs	Educational program	Not applicable	Bachelor	Bachelor students	Natural Sciences	Biochemistry and Biotechnology	Innovation Sustainability Data management	Critical thinking Systems thinking	The Biotechnology BSc programme aims to educate students to become immediately employable after graduation. The program will offer both theoretical and practical skills needed to start working as skilled biotechnologist in many industrial fields and offers several months of industrial placements for sufficient work experience. Using state of the art laboratory techniques students can also experience laboratory research and have a great variety of further education possibilities to choose from in medical, pharmaceutical, environmental and food biotechnology.	https://aok.pte.hu/biotechnology-bsc
Biotechnology MSc programme	Slovakia	English	Slovak University of Technology	Educational program	Not applicable	Master of Science	Graduated students	Engineering, Manufacturing and Construction	Food and feed processing	Innovation Digitalization Collaboration and partnerships Multidisciplinarity in the Bioeconomy	Collaboration and team work Problem solving	Graduated of the study program Biotechnology: • has extensive expertise in several areas of the field of study of biotechnology, which serves as a basis for the implementation of research and development and the creation of new knowledge in the field of biotechnology, however, Graduated profile is mainly based on the theme of his/her disertation work • controls the optimization of existing biotechnological processes or new, innovative solutions in industrial, agricultural, food, medical, pharmaceutical and environmental biotechnologies • has practical skills and abilities to work on complex experimental equipment, the Graduated is skilled in the preparation and implementation of a new biotechnology experiment, can draw conclusions obtained using modern instrumentation • can evaluate and appropriately select specific scientific methods of basic and applied research in the field of biotechnology • has experience in designing and planning experiments, in processing results, preparing and presenting reports on research results • has general knowledge of the priorities necessary for the development of society, professional and methodological knowledge from several areas of the field of biotechnology and its practice, serving as a basis for innovation and originality in practice necessary for the development of research and development design • can apply modern statistical methods for data management and parameter estimation • is able to formulate new hypotheses and strategies for further research and development of the study field of biotechnology • has communication experience in presenting research results in Slovak and technical English	https://www.stuba.sk/english/applicants-1/i-want-to-study/study-programmes.html?page_id=2019
Bioeconomy course	Slovakia	English	Slovak University of Agriculture	Educational program	Not applicable	Regular University course	Bachelor students Graduated students	Multiple Fields	Multiple Sector	Awareness raising Sustainability Rural or regional development	Systems thinking	The course contains basic knowledge from the field of bioeconomy, green, low-carbon economy, with the primary emphasis on ensuring a closed cycle of resources in the economy and waste reduction; topics include the transition from linear to circular economy, ensuring sustainable agri production, sustainable value chains, efficiency of biomass production, resource-efficient economy and consumption, usibility of biomass in Slovakia, social aspects of the circular economy etc.	no link
GenB project - database of educational resources related to bioeconomy	Slovakia	English	Pedal Consulting	Project or National program	Not applicable	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Awareness raising Sustainability Knowledge transfer		Whether you are a student, a teacher or a policy maker, you will find here plenty of materials that will help you to know more about the bioeconomy.	https://library.genb-project.eu/
CEE2ACT project - online inventory of good practices	Hungary (coordinator)	English	CEE2ACT project	Educational material / source of best practices	Repository of best practices	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Awareness raising Sustainability Knowledge transfer		Virtual library of best practices.	https://onlineinventory.bioeconomy.sk/
Agroforestry Engineering MSc program	Hungary	Hungarian	University of Sopron	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agriculture Forestry	Digitalization Project management Data management Multidisciplinarity in the Bioeconomy	Communication (public speaking) Communication (writing)	The aim of the training is to train agroforestry engineers who, with their knowledge of natural sciences, engineering and economics, are proficient in the disciplines and specialisations related to crop, livestock, timber, wood technologies and management practices in agroforestry systems. With their knowledge of ecology, they understand and recognise the interrelationships between the biotic community of agroforestry systems and environmental factors, the processes taking place in agroecosystems and their interrelationships.	https://emk.uni-sopron.hu/agroerdeszet-msc
Soil science (forestry site exploration) engineer specialist training	Hungary	Hungarian	University of Sopron	Educational program	Not applicable	Other: specialist training	Graduated students	Agriculture, Forestry and Fisheries	Forestry	Sustainability Multidisciplinarity in the Bioeconomy	Problem solving Decision-making Adaptability Systems thinking	The aim of the training is to enable the Graduateds to carry out modern and effective work in the fields of forestry site investigation, soil survey/soil mapping, planning, soil protection interventions, pollution remediation, application of soil conservation technologies, technical advice, education, management, legal issues and licensing. By transferring and expanding specialised soil expertise, we train specialists who are capable of solving soil protection problems, planning and managing soil protection and nutrient management, and exploring forestry sites in public and private forestry enterprises, advisory institutions, land offices, administrative, nature and environmental protection agencies, research institutes and higher education institutions.	https://emk.uni-sopron.hu/talajtani-erdeszeti-termohelyfeltarasi-szakmernok
Bioeconomy online tutotrials	Greece (coordinator)	English	HE BioRural project	Educational material / source of best practices	Video or webinar	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Multiple Sector	Innovation Awareness raising		Key and easily accessible bioeconomy knowledge are available for all stakeholders through 90+ stand-alone tutorials, 15 minutes each, presented by experts covering technical principles, case studies and cross cutting themes for all bioeconomy themes.	https://biorural-toolkit.eu/online-tutorials/

Proposal for educational programs and vocational education in forestry	Slovakia	Slovak/English	National Forest Center	Educational material / source of best practices	Report / Project deliverables	Not applicable	Educators professionals Others: Youth (aged 15-19)	Agriculture, Forestry and Fisheries	Forestry	Innovation Awareness raising Sustainability Knowledge transfer		The content of the Implementation Report consists of three educational programs targeting interconnected groups from the perspectives of environmental education and professional forestry training. First, called "LESU ZDAR! - an innovative training program designed for secondary school teachers. Its focus is on deepening, expanding, and innovating the professional competencies of pedagogical staff to enable them to utilize opportunities for collaboration with industry professionals effectively. Second is proposal "LES PRE MLADÝCH (Forest for youth)" - a forest pedagogy educational program aimed at youth (aged 15-19), implemented in the practices of forest educators. The third part of the Implementation Report is a proposal for professional forestry topics for further education of forest owners and managers "NOVÉ VÝZVY V LESNÍCTVE (New challenges in forestry)". The National Forest Centre, Section for Science and Research, Centre will implement proposal into adult education for Knowledge Transfer and Forest Pedagogy, as part of its professional educational and advisory activities.	http://forestpedagogics.eu/portal/wp-content/uploads/2025/01/IMPLEMENTATION-REPORT_-english-version.pdf
Close-to-nature management, a prerequisite for ecological stability of forests	Slovakia	Slovak	National Forest Center	Project or National program	Not applicable	Not applicable	Professionals	Agriculture, Forestry and Fisheries	Forestry	Awareness raising Sustainability Knowledge transfer	Adaptability Critical thinking	The health of pine stands in the Záhorie region is becoming calamitous. Impact of extreme temperatures and prolonged drought is also reflected in the physiological weakening and subsequent death of beech individuals, especially in stands that are in the regeneration phase at pá- The re-growth phase of the re-growth process is in the early stages of development in the southern exposures. Large-scale disturbances are also significant caused by wind influence. The impact of these major factors makes it necessary to find cultivation solutions that to slow down or stop the unfavourable situation in forests, improve its physiological activity and preserve health. One of the important ways to address this situation is to of natural laws and processes in forest ecosystems and their maximum use in the design of cultivation practices that should be used to shape the structure and improve health status of Slovak forests. These cultivation practices are an integral component of nature's proximate forest management (PBHL), which has become a legislative component of the amendment to the 326/2005 Coll. on forests, which is valid from the beginning of 2020.	https://www.forestportal.sk/wp-content/uploads/2024/07/Prirode-blizke-hospodarenie-B5_web.pdf
Economics and Management of Natural Resources	Slovakia	Slovak	Technical University in Zvolen	Educational program	Not applicable	Master of Science	Bachelor students Graduated students	Agriculture, Forestry and Fisheries	Forestry	Innovation Sustainable entrepreneurship Project management Collaboration and partnerships	Problem solving Adaptability Communication (public speaking) Communication (writing) Critical thinking Networking skills	Study programmes (Bachelor, MSc, and PhD) cross-sectionally integrating more scientific fields so that they may facilitate the preparation of university-educated specialists for current conditions of present-day and future development of economy and the whole society.	https://www.tuzvo.sk/en/university-study-programmes?_gl=1%2A4yzis%2A_ga%2AMTE3NTUyODI2MS4xNzMyNjkyOTA0%2A_ga_9J6KQ0J5C0%2AMTc0MTU2MTkyOS41LjEuMTc0MTU2NDY5MS40NC4wLjIwMjMyMzgxODc.
Risks in Biomass Processing and Use	Slovakia	Slovak/English	Technical University in Zvolen	Event	Not applicable	Not applicable	Professionals	Engineering, Manufacturing and Construction	Multiple Sector	Innovation Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships Knowledge transfer	Networking skills	The conference objective is to evaluate the possibilities of growing woody plants for mechanical, chemical, and energy use, and analyze the sources of wood biomass and the possibilities for its processing for energy purposes. Assess the legislative framework and the economic efficiency of biomass production variants, from the establishment of energy plantations and intensive stands to their management and subsequent processing.	https://lf.tuzvo.sk/en/conference-risks-biomass-processing-and-use
Slovak BioEconomy Valley Conference 2024	Slovakia	Slovak/English	MoForeign Affairs, Reg. government, Matej Bel University, BioPark Slovakia	Event	Not applicable	Not applicable	Professionals Others: State and regional policy makers	Multuple fields	Multiple Sector	Innovation Awareness raising Sustainability Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships	Collaboration and team work Decision-making Critical thinking Networking skills	Conference objectives for Slovak BioEconomy Valley: - Establishing the mission of the "Slovak BioEconomy Valley" from the perspective of the national and international context - Creating the conditions for political and economic support for the creation of renewable energy carriers with sustainability and a fundamental impact on the competitiveness of the Slovak economy and the development of lagging regions of the Slovak Republic	https://www.bioeconomyvalley.sk/
Outputs from projects CityCircle	Slovakia	English	Slovak University of Agriculture in Nitra, Technical University in Košice, BioeconomyCluster	Project or National program	Not applicable	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Innovation Digitalization Sustainable entrepreneurship Project management Cross-border/cross-regional cooperation Rural or regional development Collaboration and partnerships	Collaboration and team work Problem solving Adaptability Innovation management	The CITYCIRCLE project facilitated innovation and technology transfer and improved services and business models in peripheral cities. By providing these with tools and knowledge linked to the circular economy, the project enabled a new generation of innovative solutions in their urban ecosystems in a long-run. A full circular economy package for cities deployed organizational structures, knowledge and tools, transnational value chains and presented visible benefits to their citizens.	https://programme2014-20.interreg-central.eu/Content.Node/CITYCIRCLE.html

Outputs from projects BIOECOup	Slovakia	English	Slovak University of Agriculture in Nitra, Technical University in Košice, BioeconomyCluster	Project or National program	Not applicable	Not applicable	Multiple Audiences	Multiple Fields	Multiple Sector	Innovation Awareness raising Cross-border/cross-regional cooperation Multidisciplinarity in the Bioeconomy	Collaboration and team work Adaptability Decision-making Critical thinking Innovation management Networking skills	The bioeconomy concept seeks to replace fossil resources with renewable raw materials in as many areas and applications as possible. The BIOECO-UP project widely establishes this concept across central Europe. The partners will design new circular value chains for the bioeconomy and change consumer behaviour. They will also support the policy level to push ahead with the transformation	https://www.interreg-central.eu/projects/bioeco-up/
Molecular biology and biotechnology	Lithuania	English	Vytautas Magnus university	Educational program	Not applicable	Master of Science	Graduated students	Natural Sciences	Biochemistry and Biotechnology	Innovation Sustainability Collaboration and partnerships	Adaptability Decision-making Critical thinking Networking skills	In this master's study program, you will deepen your knowledge of molecular biology and molecular ecology, practice in the molecular diagnostics laboratory, get acquainted with the main research directions and methods of immunogenetics, and analyze genetically modified organisms. In addition, you will be able to choose subjects that interest you: from molecular methods in forensic medicine to molecular biology of medicinal plants. After these studies, you will be able to create, apply and improve molecular biology and biotechnology research methods, ensure research quality and independently develop new biotechnologies. The available knowledge will allow you to pursue a career in various biotechnological, biopharmaceutical and food industry companies, environmental protection research institutions. You will also be able to continue your studies in doctoral programs in life sciences and related fields.	https://www.vdu.lt/en/
Circular Economy Analysis Centre - Circular economy university disciplines	Hungary	Hungarian	Hungarian University of Agriculture and Life Sciences	Educational program	Not applicable	Regular University course	Multiple Audiences	Multiple Fields	Multiple Sector	Knowledge transfer Multidisciplinarity in the Bioeconomy		Circular Economy Analysis Center, a Hungarian organization that coordinates independent projects, conducts analytical and research services, and serves as an umbrella organization by maintaining records of research and educational activities related to the circular economy at the university and their results.	https://korforgas.uni-mate.hu/k%C3%B6rforg%C3%A1sos-gazdas%C3%A1gi-egyetemi-diszcipl%C3%ADn%C3%A1k
Analysis of the state of environmental education and forestry vocational education in Slovakia and Norway	Slovakia	English	National Forest Center	Educational material / source of best practices	Report / Project deliverables	Not applicable	Multiple Audiences	Agriculture, Forestry and Fisheries	Environmental sciences Forestry	Innovation Cross-border/cross-regional cooperation Knowledge transfer		This outputs was created in project EE_YOUTH: Transfer of Knowledge and Practical Experiences in Youth Education in the Field of Environmental Education and Transfer of Knowledge and Further Training in Forestry,	http://forestpedagogics.eu/portal/wp-content/uploads/2025/01/ANALYZA_EE_YOUTH_ENGLISH-version.pdf
BioGov.net - Mobilizing communities in bioeconomy	Italy (coordinator)	English	BioGov.net project	Project or National program	Not applicable	Not applicable	Educators Professionals Public administrators Others	Business Administration and Law	Bioeconomy Policy and Governance	Innovation Sustainability Rural or regional development	Decision-making Critical Thinking Innovation Management Networking	The strategic objective of "BioGov.net – Mobilizing European Communities of Practice in bio-based systems for better governance and skills development networks in bioeconomy" is to support the establishment of the innovative governance models in bioeconomy training and skills development. In this way better informed decision-making processes, social engagement of all actors and uptake of sustainable innovation in bioeconomy will be achieved. The specific objective is to provide validated guidelines for the setup of regional bioeconomy training and mentoring frameworks. Especially those based on case studies from 8 EU regions.	https://www.biogov.net
Prebudova na prírode blízke hospodárenie v dubovo-bukových porastoch (Case study)	Slovakia	Slovak	National Forest Center	Educational material / source of best practices	Report / Project deliverables	Not applicable	Graduated students Proffesionals	Agriculture, Forestry and Fisheries	Forestry (e.g. silviculture, logging)	Sustainability	Problem solving Adaptability	The study focuses on the transformation towards close-to-nature forest management in oak-beech stands within the Duchonka area.	https://www.forestportal.sk/wp-content/uploads/2024/07/Pripadova-studia-Duchonka_web.pdf
Prebudova na prírode blízke hospodárenie v smrekových porastoch (Case study)	Slovakia	Slovak	National Forest Center	Educational material / source of best practices	Report / Project deliverables	Not applicable	Graduated students Proffesionals	Agriculture, Forestry and Fisheries	Forestry (e.g. silviculture, logging)	Sustainability	Problem solving Adaptability	The study focuses on transforming spruce-dominated forests in the Paráč area towards close-to-nature forestry practices.	https://www.forestportal.sk/wp-content/uploads/2024/07/Pripadova-studia-Parac_web.pdf
Economics and Management in Wood Processing Companies	Slovakia	English	Technical University in Zvolen	Educational program	Not applicable	Master of Science	Graduated students	Business Administration and Law	Circular business administration Biomarkets Supply chain management	Innovation Sustainable entrepreneurship Project management	Decision-making Critical thinking Innovation management Leadership skills	The Graduateds are able to solve problems of managerial relations in business functions and have knowledge to apply their in all sized businesses, especially in wood processing companies. They have competence and abilities to use of exact analytical methods, to identify factors determining the development trends of a business and influence of globalization, to identify a market opportunity, to estimate the threats and the potential consequences for the business, to manage the offer so as to seize the opportunity.	https://df.tuzvo.sk/en?_gl=1*myrxiu*_gcl_au*MTU0OTIyNzIyOS4xNzQxNTY0NzUy*_ga*MTE3NTUyODI2MS4xNzMyNjkyOTA0*_ga_9J6KQ0J5C0*MTc0MTU2MTkyOS41LjEuMTc0MTU2NDk0OS42MC4wLjIwMjMyMzgxODc.
Adaptive Forestry	Slovakia	English	Technical University in Zvolen	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Forestry	Innovation Digitalization Responsibility and ethics Collaboration and partnerships	Adaptability Critical thinking Systems thinking	The subjects of the study programme are built up so that they cover all the spheres of forest ecosystem management from the viewpoint of society´s demands for production and non-production functions of forests.	https://lf.tuzvo.sk/en?_gl=1*1d60fzv*_ga*MTE3NTUyODI2MS4xNzMyNjkyOTA0*_ga_9J6KQ0J5C0*MTc0MTU2MTkyOS41LjEuMTc0MTU2NDk5Mi4xNy4wLjIwMjMyMzgxODc.
Eco-friendly living starts at home	Croatia, Czechia, Hungary, Italy, Poland, Slovakia, Slovenia	English	BIOECO-UP	Educational material / source of best practices	Repository of best practices	Not applicable	General public	Other (please specify): bio-based products that can be easily interpreted by general public	Multiple Sector	Awareness raising Sustainability Knowledge transfer Multidisciplinarity in the Bioeconomy		This publication has been created to introduce readers to the fundamentals of bioeconomy. It provides practical tips on crafting bio-based products and explains their significance in building a sustainable future. Explore the possibilities that bio-based solutions offer, and join the movement toward a greener, more sustainable world.	https://biokultatas.sharepoint.com/:b:/r/sites/boost4bioeast/Shared%20Documents/WP5%20Boosting%20Bioeconomy%20Education.%20Learning%20%26%20BIOEAST%20Unit%20Net/T5.1/D5.1/Additional%20resources/ECO_FRIENDLY_LIVING_STARTS_AT_HOME%201.pdf?csf=1&web=1&e=mzUT2Z

Agricultural Environmental Management Engineering	Hungary	English/Hungarian	University of Debrecen	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries Waste Management and Valorization	Agriculture Urban waste	Digitalization Sustainability Data management	Collaboration and team work Problem solving Communication (public speaking) Communication (writing) Critical thinking	The MSc in Agricultural Environmental Management Engineering is designed to develop your underGraduated knowledge and improve it through application and research. The field of Agricultural Environmental Management Engineering is broad and the programme reflects this diversity, with emphasis on Natural Resource Management, Environmental Impact Assessment, Environmental Technologies, Environmental Informatics, which are the key research areas of the Department of Water and Environmental Management responsible for the course.	https://mek.unideb.hu/sites/default/files/inline-files/2023%20Agricultural%20Environmental%20Management%20MSc%20Bulletin.docx
Bioeconomy and eco-entrepreneurship MSc program	Bulgaria	Bulgarian	Trakia University - Stara Zagora	Educational program	Not applicable	Master of Science	Graduated students	Business Administration and Law Social Sciences	Circular business administration Biomarkets (e.g. business models) Supply chain management Bioeconomy Policy and Governance	Sustainable entrepreneurship Sustainability Multidisciplinarity in the Bioeconomy	Critical thinking Innovation management	The Master's program in BIOECONOMICS AND ECO-ENTREPRENEURSHIP is aimed at providing training and theoretical knowledge, practical and analytical skills for assessment and development of sustainable bio-based industries. The program is a balanced combination of theoretical and practical knowledge in the field of bioeconomics, but at the same time combines methods by which we empower the student as an active participant in real economic life. The bioeconomy offers an opportunity to increase the potential of agricultural production to generate added value and stimulate economic development, while ensuring relationships throughout the food chain. The developed material offers a basis for in-depth research, training, analysis and evaluation on the following key issues: Strengthening and scaling up bio-based sectors, unlocking investments and markets; Opportunities for development of local bioeconomies; Ecological boundaries of the bioeconomy.	https://trakia-uni.bg/en/admission/admission-after-higher-education/masters-programs/bioeconomisecomasters/
Bio-based industries and sustainable growth MSc program	Bulgaria	Bulgarian	Trakia University - Stara Zagora	Educational program	Not applicable	Master of Science	Graduated students	Business Administration and Law Social Sciences Agriculture, Forestry and Fisheries	Circular business administration Biomarkets Supply chain management Bioeconomy Policy and Governance	Innovation Sustainable entrepreneurship Sustainability Collaboration and partnerships Multidisciplinarity in the Bioeconomy		Master's program "Bio-based industries and sustainable growth" enables the realization of a dynamic and highly qualified workforce in bio-based industries. The training addresses the main challenges of the bioeconomy, including: characteristics and properties of bio-based resources and products; markets, innovation and public attitudes towards bio-based products; sustainable industrial processes; eco-entrepreneurship; policies and regulatory mechanisms to stimulate bio-based industries; financial instruments and investments in bio-based industries and blue economy.	https://trakia-uni.bg/en/admission/admission-after-higher-education/masters-programs/biobasedindustriesmasters/
Horticulture 4.0	Hungary, Romania, Serbia	English	Galamb József Agricultural Vocational School	Project or National program	Not applicable	Not applicable	Vocational training students Educators professionals	Agriculture, Forestry and Fisheries Bioeconomy Education and Training	Agriculture Teachers training with subject specialization on bioeconomy	Innovation Digitalization Awareness raising Knowledge transfer		The project aims to contribute to the digital and green transition of agriculture by delivering innovative, high quality learning materials for VET teachers on smart greenhouses, involving actors from the labour market. The project will: •identify the digital skills needs for smart greenhouses in collaboration of companies in order to tackle future skills mismatches in horticulture •facilitate the development and scale-up of flexible, modular, and learner-centred micro-courses enabling VET schools of the agriculture sector to give quick and relevant response to the needs of the labour market •foster technical and digital skills and effective, innovative training methods of teachers in agriculture, help them to learn and teach in virtual environments and provide them up-to-date knowledge on smart greenhouses.	https://h40.itstudy.hu/en/results
Horticulture 4.0	Hungary, Romania, Serbia	English	Galamb József Agricultural Vocational School	Project or National program	Not applicable	Not applicable	Vocational training students Educators professionals	Agriculture, Forestry and Fisheries Bioeconomy Education and Training	Agriculture Teachers training with subject specialization on bioeconomy	Innovation Digitalization Awareness raising Knowledge transfer		The project aims to contribute to the digital and green transition of agriculture by delivering innovative, high quality learning materials for VET teachers on smart greenhouses, involving actors from the labour market. The project will: •identify the digital skills needs for smart greenhouses in collaboration of companies in order to tackle future skills mismatches in horticulture •facilitate the development and scale-up of flexible, modular, and learner-centred micro-courses enabling VET schools of the agriculture sector to give quick and relevant response to the needs of the labour market •foster technical and digital skills and effective, innovative training methods of teachers in agriculture, help them to learn and teach in virtual environments and provide them up-to-date knowledge on smart greenhouses.	https://h40.itstudy.hu/en/results
Food Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Bachelor	Bachelor students	Agriculture, Forestry and Fisheries	Agriculture (e.g. crop and livestock production, horticulture)	Innovation Digitalization Sustainable entrepreneurship Responsibility and ethics Project management Data management Multidisciplinarity in the Bioeconomy	Collaboration and team work Conflict resolution Problem solving Adaptability Communication (public speaking) Communication (writing) Decision-making Critical thinking Systems thinking Innovation management Leadership skills Networking skills	Bachelor's degree in Food Engineering	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/elelmiszermernoki-alapkepzes-1/20123

Food Science and Technology Engineer	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Biochemistry and Biotechnology Agriculture (e.g. crop and livestock production, horticulture) Food and feed processing	Innovation Sustainability Responsibility and ethics Project management Data management Collaboration and partnerships Knowledge transfer Multidisciplinarity in the Bioeconomy	Collaboration and team work Conflict resolution Problem solving Adaptability Communication (public speaking) Communication (writing) Decision-making Critical thinking Systems thinking Leadership skills	Master's degree in Food Engineering	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/elelmiszermernoki-mesterszak/20123
Aquaculture Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Fishing and aquaculture (e.g. sustainable fishing, aquaculture technologies)	Innovation Sustainability Responsibility and ethics Project management Data management Open Science Multidisciplinarity in the Bioeconomy	Collaboration and team work Conflict resolution Problem solving Adaptability Communication (public speaking) Communication (writing) Decision-making Critical thinking Systems thinking Innovation management Leadership skills	Master's degree in Aquaculture Engineering	https://uni-mate.hu/képzés/-/content-viewer/haltenyésztő-mérnöki-mesterképzési-szak/20123
Professional horse breeding engineer	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Vocational training	Graduated students	Agriculture, Forestry and Fisheries	Agriculture (e.g. crop and livestock production, horticulture)	Innovation Sustainability Responsibility and ethics	Adaptability Communication (public speaking) Communication (writing) Decision-making Critical thinking	Professional horse breeding engineer / Professional horse breeding specialist specialist further training	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/hivatasos-lotenyeszto-szakmernok-/-hivatasos-lotenyeszto-szakember-szakiranyu-tovabbkepzes/20123
Waste management and utilization engineer	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Vocational training	Vocational training students	Waste Management and Valorization	Urban waste Organic waste	Innovation Sustainability	Collaboration and team work Problem solving	Waste management and utilization engineer professional training	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/hulladekkezelesi-es-hasznositasi-szakmernok-szakiranyu-tovabbkepzes/20123
Horticultural Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Bachelor	Bachelor students	Agriculture, Forestry and Fisheries	Agriculture	Sustainability Project management he Bioeconomy	Problem solving Decision-making	Bachelor's degree in Horticultural Engineering	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/kerteszmernoki-alapkepzes-1/20123
Horticultural Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agriculture	Multidisciplinarity in the Bioeconomy		Horticulture is the most dynamic and colorful sector of agriculture. Today, the tasks of horticulturists have expanded beyond just growing and processing plants. These activities are closely linked to, among others, business management, consultancy, organization, quality assurance, management, sales and services for the domestic and foreign markets. Graduates shall be able to assess and control the impact of the horticultural sector on the natural and social environment and to adopt a strategic approach. To this end, the Master's degree program combines horticultural expertise with natural sciences and interdisciplinary knowledge, providing a modern theoretical basis and practical skills. In addition to specialization modules (ornamental plants, medicinal plants, fruit crops, vine-growers and vegetable crops), advanced knowledge in genetics, physiology, environmental science, biometrics and related subjects is provided.	https://ed.uni-mate.hu/en/msc-in-horticultural-engineering
Agricultural Environmental Management Engineering	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agriculture	Sustainability Multidisciplinarity in the Bioeconomy	Communication (writing)	Master's degree in Environmental Management and Agricultural Engineering	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/kornyezetgazdalkodasi-agrarmernoki-mesterszak/20123
Mechanical Engineering in the Agriculture and Food Industry	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Bachelor	Bachelor students	Agriculture, Forestry and Fisheries	Agritech and Forestech	Sustainability Responsibility and ethics Data management	Communication (public speaking) Communication (writing) Problem solving	Bachelor's degree in Agricultural and Food Engineering	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/mezogazdasagi-es-elelmiszeripari-gepeszmernoki-alapkepzes/20123
Agricultural Water Management and Environmental Technology Engineering	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Bachelor	Bachelor students	Agriculture, Forestry and Fisheries	Agritech and Forestech	Innovation Multidisciplinarity in the Bioeconomy	team work Problem solving Communication (public speaking) Communication (writing) Decision-making	Bachelor's degree in Agricultural Water Management and Environmental Technology Engineering	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/mezogazdasagi-vizgazdalkodasi-es-kornyezettechnologiai-mernoki-alapkepzesi-szak/20123

Agricultural Water Management Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agritech and Forestech	Innovation Sustainability Project management	Collaboration and team work Conflict resolution Problem solving Adaptability Communication (public speaking) Communication (writing) Decision-making Critical thinking Systems thinking Innovation management Leadership skills	The aim of the program is to train agricultural water management engineers who, with the knowledge acquired in the Master's program, are able to apply the tools of sustainable integrated water management in the field of agricultural water management in a creative engineering way. With their qualifications, they are able to cooperate at a high level in solving national and international tasks related to their field. They are suitable for positions as design and development engineers, researchers and managers. They are prepared to continue their studies at doctoral level.	https://ed.uni-mate.hu/en/msc-in-agricultural-water-management-engineering
Plant genetics and plant breeding	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Other: Postgraduate Programme	Graduated students	Agriculture, Forestry and Fisheries	Agriculture	Innovation	Collaboration and team work Problem solving Adaptability Communication (public speaking) Communication (writing) Decision-making Critical thinking Systems thinking Innovation management	The aim of the Plant Genetics and Plant Breeding postgraduate course is to train specialists capable of addressing research challenges in plant genetics and breeding, solving methodological and management problems in seed production, and performing theoretical and practical tasks as researchers in genetic and biotechnological institutes. Further, to produce breeding materials using both traditional and molecular genetic and biotechnological techniques. The program includes training in modern phenotyping and genotyping methods, economic analysis in plant breeding, and relevant legal aspects.	https://en.uni-mate.hu/postgraduate-specialist-training-course-in-plant-genetics-and-plant-breeding?p_l_back_url=%2Fsearch%3Fq%3Dplant%2Bgenetics%2Band%2Bplant%2Bbreeding&p_l_back_url_title=Keres%C3%A9s
Crop Production Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Master of Science	Graduated students	Agriculture, Forestry and Fisheries	Agriculture	Innovation Sustainability Project management	Collaboration and team work Conflict resolution Problem solving Communication (public speaking) Communication (writing) Decision-making Critical thinking Systems thinking Innovation management Leadership skills	The aim of the training is to train crop production engineers who, with their knowledge of natural sciences, agricultural sciences and environmental sciences, are capable of performing and supervising the highest level of management tasks related to crop production activities, processes and quality assurance services, taking into account the complex interrelationships between agriculture, crop production and the environment. They are suitable for managerial and research positions.	https://ed.uni-mate.hu/en/msc-in-crop-production-engineering
Ecological Farming	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Other: Postgraduate Programme	Graduated students	Agriculture, Forestry and Fisheries	Agriculture	Innovation Sustainability Project management	Problem solving Adaptability Decision-making Critical thinking Systems thinking Leadership skills	Ecological Farming Engineer / Ecological Farming Specialist Training	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/okologiai-gazdalkodo-szakmernok-okologiai-gazdalkodo-szakiranyu-tovabbkepzes/20123
Precision agricultural engineering	Hungary	Hungarian	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Other: Postgraduate Programme	Graduated students	Agriculture, Forestry and Fisheries	Agriculture	Innovation Sustainability Project management	Problem solving Decision-making Critical thinking Innovation management	Precision agricultural engineer professional further training	https://uni-mate.hu/k%C3%A9pz%C3%A9s/-/content-viewer/precizios-mezogazdasagi-szakmernok-szakiranyu-tovabbkepzes/20123
Viticulture and Oenology Engineering	Hungary	Hungarian & English	Hungarian Univeristy of Agriculture and Life Sciences	Educational program	Not applicable	Bachelor	Bachelor students	Agriculture, Forestry and Fisheries	Agriculture	Innovation Sustainability Project management	Collaboration and team work Communication (public speaking) Communication (writing) Decision-making Critical thinking Innovation management Leadership skills	The aim of the training is to train qualified viticultural engineers who are familiar with the interdisciplinary basic sciences (natural and social sciences) that form the basis of their profession, and who are familiar with the characteristics of the wine sector and the wine market, innovative and up-to-date results of the sector, the millennial traditions of the sector, the Hungarian culture and the European and international perspective of the sector, the ability to use the latest scientific and practical findings, and the knowledge of the basic principles of the operation of the wine sector. They are able to apply their knowledge in this specialised field internationally. They are prepared to pursue their studies at doctoral level.	https://ed.uni-mate.hu/en/msc-in-viticulture-and-oenology-engineering

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