



## **CIBIECO: Intensive course on circularity for Finnish and Argentinian students**

### **Call for applications 2023**

We invite applications for participation in an intensive course on “Circular Bio-Economy: From Theory to Practice” (CIBIECO). The programme is developed and coordinated by the Finnish-Argentinian project consortium and intended for students from Finnish and Argentinian universities involved in the project.

Participation in the course is free. The mobility (not less than 15 days) grant can be awarded to a registered degree student of a higher education institution participating in the project – 2250,00 € for Argentinian and 2100,00€ for Finnish students.

Project website: <https://www.arcticcentre.org/cibieco>

### ***Course outline:***

The 10 ECTS equivalent course will take place 2023-2024, both online (between mobility) and face-to-face (during mobility) in Finland (Rovaniemi, Lapland and Kokkola, Central Ostrobothnia, May 2023) and in Argentina (Rio-Cuarto, Cordoba and Ushuaia, Tierra del Fuego, Patagonia, November 2023). The course programme consists of face-to-face and online lectures (50 h) taught by a multidisciplinary team of social, natural and applied sciences experts. It also includes workshops and field trips (around 60 h) to diverse enterprises during the mobility in Finland and Argentina and students’ independent work (see detailed course description below).

### ***Course Goals and Learning Outcomes:***

1. Gain a sense of the potential and limits of circular approaches in a comparative sectoral and geographical context.
2. Locate the regional circularity issues in the context of broader discussions on “building capital from waste rather than reducing it”.

3. Identify structural, legal, efficiency and cost-related challenges in implementing the concept in practice
4. Practice using interdisciplinary theory and ethnographic methods in the cross-cultural and economic cross-sectoral application.
5. Gain an in-depth understanding of particular trajectories and technologies from the point of view of practitioners and advocates.
6. Develop individual and group skills at sharing field experiences and discussing and presenting circularity concept issues in a comparative context.

### ***Requirements***

Active participation in the lectures and seminars, reading requested course material.

Students are required to write 3-5 page essays on the suggested topics related to the circularity concept in dialogue with mobility experiences.

### ***Language***

The course language is English. Some individual lectures might be held in Spanish (with English translation). During the enterprise visits, the local language (Spanish or Finnish) might be used (with English translation).

### ***Proposed content***

The course contains the following themes:

#### **Finland:**

#### **Introduction. Shifting paradigms: From linear to a circular economy**

The lecture will address the theoretical baseline of different ‘green economy’ concepts and provide conceptual contours and the relationship between different approaches.

Visit to a recycling plant

*Lecturer: Dr Anna Stammler-Gossmann, Arctic Centre, University of Lapland, Rovaniemi*

#### **The Arctic as home: Communities and economies**

The lecture is based on case studies conducted in different Arctic regions. It looks at human adaptation to winter in northern communities and environmental changes in the context of northern economies. It explores places represented, sensed and experienced as a part of everyday practices, local and regional perspectives, and affiliated national discourses.

Field trip to tourism-related sites: Circularity approaches in the tourism sector, Rovaniemi

Indigenous handicraft workshop: Use of natural material in the Sami art, Saarenkylä.

Visit of Arktikum exhibition

*Lecturer: Dr Anna Stammler-Gossmann, Arctic Centre, University of Lapland, Rovaniemi*

### **Circular bioeconomy in extreme polar conditions: Impacts on the food system**

The lectures will explore the food system, circularity in extreme polar climates, and how it affects the food system. We will gain a better understanding of the impacts of climate change on the food system, the role of circularity in managing food resources in extreme polar regions and its global implications. What kind of digital solutions and other innovations are available in the food system? How do such innovations address food loss and waste, add value to production and ensure sustainable consumption?

Visit a local food business in Lapland.

*Lecturer: Dr Dele Raheem, Arctic Centre, University of Lapland, Rovaniemi*

### **Arctic waste: Transition to circular economy**

The lectures will focus on national, regional and local practices of the waste utilisation in Finland, circular approaches in food production and ‘smart city development’ concept. (online lectures within the Arctic Studies Programme)

*Lecturers: Dr. Dele Raheem, PhD candidate Teemu Loikkanen, Dr. Anna Stammler-Gossmann, Arctic Centre, University of Lapland, Rovaniemi, Dr. Adrian Braun*

### **Circular economy in energy production**

Sources of renewable energy. Side streams from agriculture and industry as an energy source. The utilisation of side streams from energy production. Energy storage solutions.

The lecture will include visit to Centria pilot facilities – chemistry factory Chemplant, 3D printing using wood fibre composites Platlab – one day

*Lecturer: Dr Egidija Rainosaló, Centria University of Applied Sciences, Kokkola*

### **Circularity in bioeconomy**

New products from natural and cultivated plants. Side and waste streams from the bio-based industry. The utilisation of side streams from the forest industry. Food industry side streams and their utilization.

The lecture will include visit to “N63 herbal cultivation“ cooperative (Halsua) – and Biogas reactor at the dairy farm (Toholampi)

*Lecturer: Dr Leena Favén, Centria, University of Applied Sciences, Kokkola*

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### **Argentina:**

#### **The agro-industrial waste**

The agro-industrial waste as an opportunity to build up a new technology-based company: a case of a circular economy.

*Lecturer: Dr. Arnaldo T. Soltermann, National University of Rio Cuarto (UNRC)*

#### **Reuse of sewage as a source of water and energy.**

The lecture will include visits to water reuse plant at UNRC and canals

*Lecturer: Ing Raul Crespi, National University of Rio Cuarto (UNRC)*

#### **Use of urban solid waste: A paradigmatic shift**

The lecture will include visits to Cooperative Todo Sirve ½ day and Rio Cuarto Municipality Plant of recycled waste ½ day

*Lecturer: Dr Claudia Kenbel, National University of Rio Cuarto (UNRC)*

**Biofuels: Bioethanol, biodiesel and biogas. Agreements and controversy.**

The lecture will include visits to BIO IV- Bioetanol Industrial Plant and UNRC

*Lecturer: Manuel Ron, National University of Rio Cuarto (UNRC)*

**Animal vs vegetable proteins for food production**

The lecture will include one-day field trip to the established pigeon Longo (Serrano)

*Lecturer: Franco Picco, National University of Rio Cuarto (UNRC)*

**Digital Technologies Applied to food production.**

A guide to the circular economy of digital devices.

The lecture will include visits to Coop Initia limitada and UNRC cooperative.

*Lecturers: Daniel Bellomo and Gustavo Aguirre, National University of Rio Cuarto (UNRC)*

**Agroecological and organic food production and commercialisation: The case of FERICAMBIO (seeds, production and bio inputs)**

The lecture will include visits to the FERICAMBIO (conducting and evaluating the survey), to the agroecological belt of Rio Cuarto and to Refugio Libertad. (Liberty Shelter)

*Lecturers: Laura Tamiozo, Arnaldo T. Soltermann and Daniel Bellomo. National University of Rio Cuarto (UNRC)*

**Native herbs and their potential use in food and medicine**

Land plants used as herbs and food ingredients with health-giving properties

*Lecturer: TBC, National University of Rio Cuarto (UNRC)*

**The ancestral cultures in the province of Cordoba and their relation with using natural resources.**

*Lecturer: Juan Vega + Specialist (TBC), National University of Rio Cuarto (UNRC)*

### **Stevia: A non-caloric sweetener and beneficial for human and animal health**

The benefits of stevia as a sweetener in the human diet.

*Lecturers: Fernanda Peralta, Armando Nilson, A.T. Soltermann. National University of Rio Cuarto (UNRC)*

### **Circular economy and philosophy:**

The status of nature to circular economy from a philosophical view.

*Lecturer: Department of Philosophy, (TBC). National University of Rio Cuarto (UNRC)*

### **Sustainable territorial development policies in the extreme south**

Sustainable territorial development policies in the extreme south: the case of the local government of Rio Grande concerning the circular economy and local food production.

*Lecturer: Juan Pablo Deluca and Adriana Urciuolo. National University of Tierra del Fuego, Antarctica and South Atlantic Islands*

### **Private and public initiatives for circular economy and local food production**

The circular economy concept and practice in the Rio Grande, Province of Tierra del Fuego, Antarctica and South Atlantic Islands.

*Lecturers: Juan Pablo Deluca and Rodolfo Iturraspe. National University of Tierra del Fuego, Antarctica and South Atlantic Islands*

### **Snow, Glaciers, Lakes and wetlands as crucial factors for water security in the sub-Antarctic basins of Tierra del Fuego**

The lecture (1 hour) will address the environmental and hydrological features of the sub-Antarctic water basins of Tierra del Fuego, focusing on water availability and water security as essential factors for local human well-being. The climate change effects and circular economy opportunities in this context.

The lecture will include visit to RAMSAR site (4 hours) -” Vinciguerra Glacier and related peatlands” near Ushuaia. The RAMSAR site protects the primary source of water supply for Ushuaia city.

*Lecturer: Rodolfo Iturraspe. National University of Tierra del Fuego, Antarctica and South Atlantic Islands*

### **Recycling and Circular economy in Ushuaia, Tierra del Fuego**

The lecture will include visits to municipal and private recycling centres in Ushuaia.

*Lecturer: (TBC). National University of Tierra del Fuego, Antarctica and South Atlantic Islands*

### **Mobility grant**

Participation in the course is free and travel support will be provided – 2.250€ for Argentinian and 2.100€ for Finnish students. The mobility (not less than 15 days) grant can be awarded to a registered degree student of a higher education institution participating in the project.

Interested in participating students should send the applications to the following persons:

Dr. Bamidele Raheem [Bamidele.Raheem@ulapland.fi](mailto:Bamidele.Raheem@ulapland.fi) (Finnish students in Rovaniemi)

Dr. Egidija Rainosalu <[Egidija.Rainosalu@centria.fi](mailto:Egidija.Rainosalu@centria.fi)> (Finnish students in Kokkola)

Prof. Arnaldo Soltermann [asolterman@exa.unrc.edu.ar](mailto:asolterman@exa.unrc.edu.ar) (Argentinian students in Rio Cuatro)

Prof. Rodolfo Iturraspe [riturraspe@untdf.edu.ar](mailto:riturraspe@untdf.edu.ar) (Argentinian students in Ushuaia)