

INNOVATION IN BIO-BASED MATERIALS FOR THE FASHION INDUSTRY



KEY COURSE DETAILS

Format: Virtual Lectures and Online Material (Blended), including exercises and end-of-course exam.

Cost: € 950 / person (exc. VAT). Discounts available.

Time: 10 weeks x ca. 1.5 hour

Dates: September 3rd 2021 – 12th November (Autumn 2021)

Class Size: 20 people (max)

Bespoke (In-Person, On-Site and Workshop) for Teams - on request

For booking enquiries:
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COURSE SYLLABUS

Week 1: Bio-Based Materials in the Context of a Circular Economy

Week 2: Biosynthetics: Bio-Based Polyamides

Week 3: Biosynthetics: Bio-Based Alternative Polyesters and Elastanes

Week 4: Biosynthetics: Biodegradable and Compostable Polyesters

Week 5: Man-Made Cellulosic Fibres

Week 6: Natural fibres – Hemp, Agricultural Wastes and bast fibres

Week 7: Regenerated Protein Fibres (Casein, Spider Silk Protein) and Alginates

Week 8: ‘Plant-based’ Leather and Alternatives

Week 9: Bio-Based Foams and Soles for Footwear

Week 10: Critical Skills: Project, End of Course Assessment

FAQ

WHO IS THIS COURSE FOR?

This course is aimed at professionals in the fashion and textiles industry, including designers, sustainability and innovation teams, sourcing teams, material scientists, and product developers.

This course is for anyone, or any group, who wishes to learn more about the choice of different bio-based materials, their practical applications, the science behind them, their environmental impact and how they will fit into the concept of a 'circular economy'.

This course is right for you if you are:

- Developing or designing a new bio-based product line
- Scouting for new bio-based material innovations
- Developing skills to break into a new role
- Training and upskilling a sustainability or innovation team
- Starting a new sustainable or eco-focused brand

WHAT ARE THE PRE-REQUISITES?

Course participants should have a general understanding of the key concepts of the circular economy and at least a high-school level knowledge of chemistry, and background knowledge on the fashion, apparel or textiles industry.

WHAT IS OUR APPROACH?

The Circuvate Academy aims to provide in-depth coverage of key topics of relevance to enable the fashion and textiles sector to engage with innovation, sustainability and circular concepts with a scientific grounding.

Courses at the Circuvate Academy are informed by academic, peer-reviewed research and are coupled with practical insights from the industry with contributions and insights from leaders in sustainable innovation.

The breadth and depth of material is taught on our courses are typically not covered at major universities, institutes, or other online courses. We always strive to keep our courses up-to date and comprehensive.

WHAT WILL YOU LEARN?

The course starts with an introduction to key concepts and definitions including how we define and verify what is “bio-based” and how we break down and classify different types of materials that fall under this banner, including the key concepts of biodegradability and compostability. We will also evaluate the potential of bio-based materials in the context of a circular economy, and how materials might fit into a “biological” or “technical” nutrient cycle. Lastly, throughout the course we will evaluate these new materials through in respect to their end-of-life pathways and their known carbon and environmental footprint.

Next, the course covers in detail bio-based alternatives to synthetic fibres such as polyamides (Nylon) and polyesters, also known as “biosynthetics”, as well as compostable and biodegradable synthetics. We will learn how a bio-based feedstock is chemically transformed into a synthetic polymer, what properties they have, and what applications they may find in the fashion industry.

Innovation in man-made cellulosic fibres (rayon) is a growing topic, and we will cover the new types of fibres (carbamate, microfibrilated) coming on the market, alternative feedstocks (agricultural wastes, bacterial cellulose) and greener pulping processes.

Conventional “natural” fibres, too, such as cotton and bast fibres such as flax (linen) should not be forgotten, too – but what else can be considered? We will dig into innovation with novel feedstocks, including agricultural wastes, cottonized hemp and alternative bast fibres that each have their unique properties and impact potential when compared to cotton. We will dedicate time to ‘regenerated protein fibres’ including fibres based on casein and artificial spider silks as well as fibres containing polymers from micro and macro algae (alginates and others).

We will also touch upon topics of interest for footwear and accessories such as ‘plant’ based leather alternatives, bio-based synthetic rubbers, natural rubbers and bio-based foams for footwear.

At the end of the course, course participants will take part in an project and exercise to develop their critical evaluation skills of new materials, bringing together all the knowledge from the course, and is capped off with an end-of-course exam.

WHO TEACHES THE COURSE?

This course is led by Dr. Ashley Holding, a scientist and sustainable materials consultant with a background in polymer and materials chemistry. Dr. Holding regularly gives lectures and talks on topics relating to sustainability and the circular economy in the fashion and textiles sector. He is known for being able to break down complex technical and scientific topics, making them understandable to general audiences. He is passionate about science communication and making a transformative difference in the fashion and textiles sector through application of the principles of the circular economy, and the introduction of renewable (recycled and bio-based) materials.

WILL WE RECEIVE A CERTIFICATE?

Yes. Course participants will receive a certificate upon completion of the course, and passing the final assessment.

HOW DO WE BOOK THE COURSE?

You can sign up to express your interest in the course by following the link at circuvate.com/academy or by emailing academy@circuvate.com

Once registered, we will be in touch with a booking link and payment instructions closer to the course start date where you can confirm your participation.

ARE THERE ANY DISCOUNTS AVAILABLE?

For the first 10 participants to sign up there is an early-bird discount of 10% - 855 EUR per person.

Additionally, if you would like to invite a friend (from another organisation) to the course, we offer an 5% referral discount for both parties.

DO YOU OFFER CUSTOM TAILORED COURSES?

Yes. If you are a larger group or team, we can offer bespoke courses tailored to your needs, including on site sessions and workshops. Please get in touch via email: academy@circuvate.com for more details, making sure to include details of your organisation and requirements.