

PAB3102

Agribiosciences for Sustainable Global Development



Coordinator and Lecturer

David Styles

Module Description:

By 2050, the human population will be 9 billion (9000 million) people with requirements for food, feed, fuel (energy), fibre, chemicals & medicines to sustain their health & livelihoods. Agribiosciences innovations and systems transformations are required to ensure future food security & sustainable development. Using relevant case studies and life cycle assessment, this module explores the respective roles of agribiosciences innovations and more fundamental systems transformations to achieve sustainability. Critical thinking is encouraged to explore the compatibility of current business models and food systems with ecological boundaries.

Learning Outcomes:

- **LO1** Describe emerging mega-challenges for sustainable food systems
- **LO2** Employ life cycle thinking to identify more sustainable farming practices and food value chains
- **LO3** Undertake basic life cycle assessment of a chosen food- or farm-related product or service
- **LO4** Critically evaluate the sustainability of current business models in relation to ecological thresholds
- **LO5** Employ foresight and horizon-scanning to identify priority innovations for sustainable food security
- **LO6** Be proficient in science communication, and understand how policy interfaces with science and technology

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Interests: sustainable agriculture; bioeconomy; climate neutral land use; biosystems modelling.

<https://fusion-research.eu/>



Lecture Topics

1. Sustainable & secure food
2. Planetary boundaries
3. Food foot-printing
4. Food waste
5. Sustainable Intensification
6. Biofortification & breeding
7. Agroecology
8. Underutilised crops
9. Alternative proteins

Module Assessment:

Continuous Assessment

This module is assessed 100% through continuous assessment, described below.

Tutorials & Practicals – A mix of ten tutorial and practical sessions will be held on Fridays during the semester. Students will propose an agri-food system innovation to improve sustainability and resilience. Attendance is mandatory, and group work is assessed based on discussions with lecturer. 30% of the final mark.

Presentation – Groups will present their chosen innovation at the end of semester. 20% of final mark.

Report – Individual report critically evaluating project work and the focal innovation. 50% of final mark.