



## Description of 2 ECTS PhD/postdoc course on Agroecology, Aarhus, September 3-4, 2019

### Motivation:

Department of Agroecology has seen an influx of PhD students with a highly differentiated professional background. Many students are not recruited from within the agricultural sciences, but from various disciplines across the spectrum of the natural and social sciences. Consultations with current PhD students have indicated that, in spite of the department name, there is a lack of a coherent notion of what the term 'agroecology' might mean. With regards to establishing coherence within the department, as well as improving communication with the social environment of the department, a short PhD course (2 ECTS) aiming at addressing the perceived shortcomings in understanding is relevant. The course is aimed at PhDs and postdocs at Department of Agroecology.

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### Learning objectives:

Upon completion of the course, the participants are expected to be able to:

- ❖ Describe and characterize different types of agro-food systems, using concepts derived from systems thinking and agroecology
- ❖ Characterize different scientific perspectives and discuss their implications in the context of inquiry into agro-food systems
- ❖ Analyze and discuss the ecology of different types of agro-food systems in a critical perspective (ie environmental and social dynamics between agro-food systems and their environments)

Overall, the course is supposed to facilitate the development of a coherent notion of the term 'agroecology' among PhD students and postdocs at Department of Agroecology. It is thus NOT the aim of the course to advocate for certain interpretations of agroecology being more 'correct' understandings of the field than others – rather, we wish to emphasize that agroecology is a nexus between different fields of research. The students will be credited 2 ECTS, based on participation in the course and submission of a course report of max. 3 pages, as well as submission of a visual abstract prior to the course. Sign up for the course at <https://events.au.dk/AgroecologyCourse>

**Course organizer:** Chris Kjeldsen

**Course teaching methods:** Lectures, group work, plenary sessions

### Course teachers:

Course introduction (september 3): Erik Steen Kristensen, Chris Kjeldsen

Module 1 teachers (september 3): Chris Kjeldsen, Tommy Dalgaard, Per Schjøning, Martin Thorsøe, Morten Graversgaard

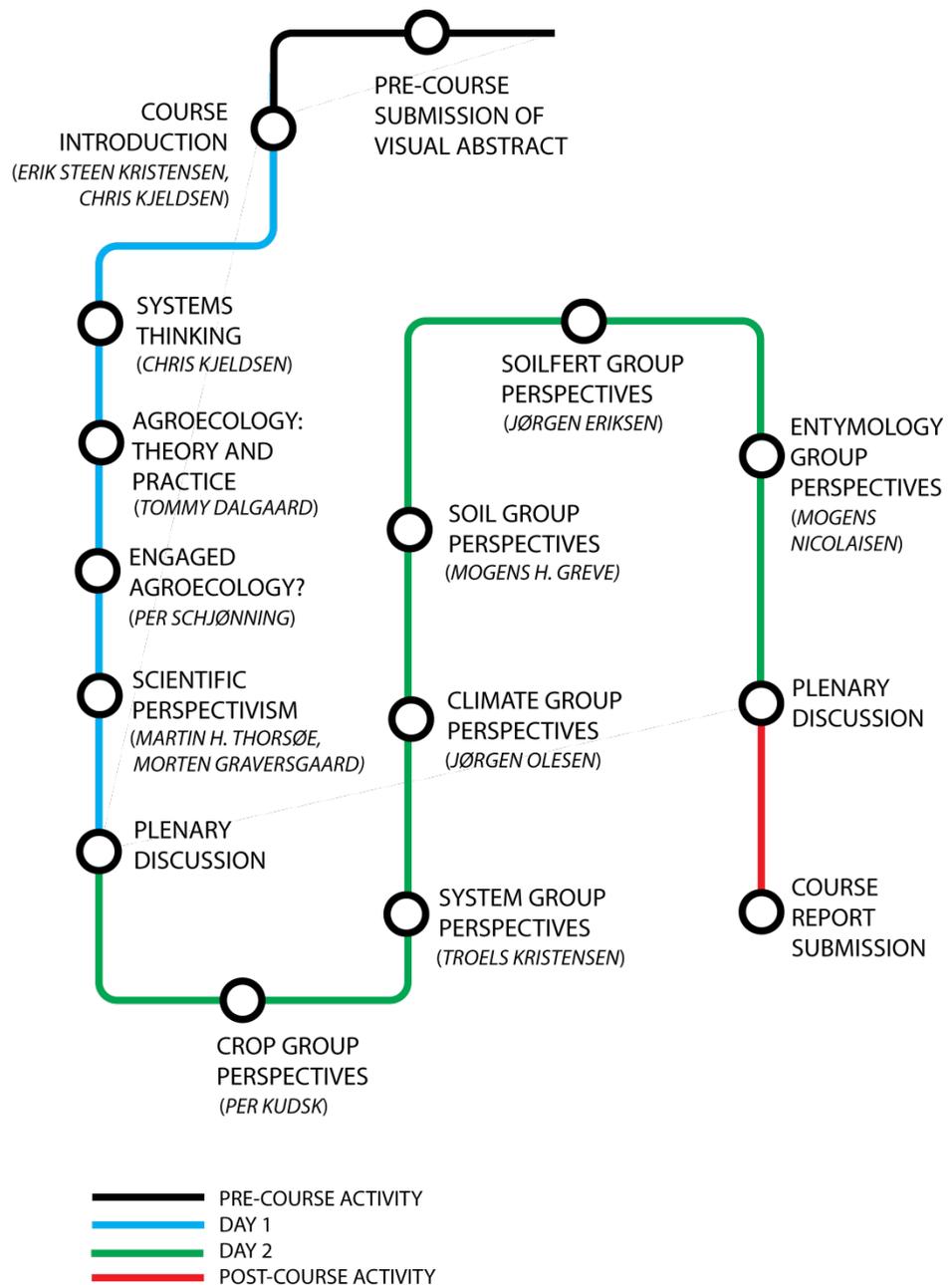
Module 2 panel members (september 4): Mogens Greve, Jørgen Olesen, Troels Kristensen, Jørgen Eriksen, Mogens Nicolaisen, Per Kudsk. (Facilitation: Chris Kjeldsen)

**Time and venue of the course:**

September 3-4, AU Aarhus campus, undisclosed location (will be announced later).

**Course content:**

The course is set to take place over two days in Aarhus. The structure of the course is illustrated below.



Prior to the course, the participants should submit a visual abstract of maximum 1 page, which describes your field of research (e.g. your PhD project) and what outcomes you expect from that work. The visual abstract of your project should be submitted two weeks prior to the course via email to [Chris.Kjeldsen@agro.au.dk](mailto:Chris.Kjeldsen@agro.au.dk).

With regards to guidelines for doing visual abstracts, you can find various examples at <https://www.elsevier.com/authors/journal-authors/graphical-abstract>

The first day is a theoretical module, which aims at exploring the core notions of *agroecology*, *systems thinking*, *engaged agroecology* and *scientific perspectivism*. Agroecology is framed as both an area of scientific inquiry into agricultural systems, as well as a social movement. How do we engage ourselves as agricultural scientists in relation to our field of inquiry, but also with regards to our social environment? The presentation on 'Engaged Agroecology?' offers a perspective on that, based on the presenters experience as a soil scientist. Scientific perspectivism offers conceptual tools to discuss the nature of scientific inquiry into agricultural systems and the modes of inquiry by which the latter can be explored. Systems thinking has been deployed by various staff members at the department and offers a theoretical framework to guide inquiry into agricultural systems, and is thus relevant to consider in the context of the course.

The second day of the course is a plenary panel session, where senior members of the department staff will be asked to present their field of scientific inquiry, meaning what they work with, why and how they do that. They will also be asked to reflect on their understanding of the notion 'agroecology'. The course participants will, based on the conceptual tools introduced in the first module, discuss with the panel members. The outcome of the plenary panel session is an exploration of both coherence as well as differentiations of the scientific inquiries taking place at the department.

After the course participants will submit a brief course report (max. 3 pages). A month prior to the course, an update of the course description will be issued, which will detail the requirements of the course report.

### **Course literature:**

*(Note that the list of course literature is preliminary and will be updated in the early summer of 2019).*

- Alrøe, H. F., and E. Noe. 2016. Sustainability assessment and complementarity. *Ecology and Society* 21 (1):Article 30.
- Altieri, M. A. 1995. *Agroecology: The science of sustainable agriculture*. Boulder: Westview Press.
- Bawden, R. J., R. D. Macadam, R. J. Packham, and I. Valentine. 1984. Systems thinking and practices in the education of agriculturalists. *Agricultural Systems* 13 (4):205-225.
- Bayliss-Smith, T. P. 1982. *The Ecology of Agricultural Systems*. Cambridge: Cambridge University Press.
- Bouma, J. 2001. The new role of soil science in a network society. *Soil Science* 166 (12):874-879.
- Bouma, J. 2005. Soil scientists in a changing world. *Advances in Agronomy* 88:67-96.
- Bouma, J., A. C. van Altvorst, R. Eweg, P. J. A. M. Smeets, and H. C. van Latesteijn. 2011. The Role of Knowledge When Studying Innovation and the Associated Wicked Sustainability Problems in Agriculture. *Advances in Agronomy* 113:283-312.
- Dalgaard, T., N. J. Hutchings, and J. R. Porter. 2003. Agroecology, scaling and interdisciplinarity. *Agriculture, Ecosystems & Environment* 100 (1):39-51.
- Darnhofer, I., D. Gibbon, and B. Dedieu. 2012. Farming Systems Research: an approach to inquiry. In *Farming Systems Research into the 21st century: The New Dynamic*, eds. I. Darnhofer, D. Gibbon and B. Dedieu, 3-32. New York: Springer.

- Francis, C., G. Lieblein, S. Gliessman, T. A. Breland, N. Creamer, R. Harwood, L. Salomonsson, J. Helenius, D. Rickerl, R. Salvador, M. Wiedenhoef, S. Simmons, P. Allen, M. Altieri, C. Flora, and R. Poincelot. 2003. Agroecology: The Ecology of Food Systems. *Journal of Sustainable Agriculture* 22 (3):99-118.
- Gibbon, D. 2012. Methodological themes in Farming Systems Research and implications for learning in higher education. In *Farming Systems Research into the 21st century: The New Dynamic*, eds. I. Darnhofer, D. Gibbon and B. Dedieu, 95-118. New York: Springer.
- Gliessman, S. R. 2014. *Agroecology: The Ecology of Sustainable Food Systems (Third Edition)*. Boca Raton: CRC Press.
- Hubert, B., R. Ison, N. Sriskandarajah, C. Blackmore, M. Cerf, I. Avelange, M. Barbier, and P. Steyaert. 2012. Learning in European agricultural and rural networks: building a systemic research agenda. In *Farming Systems Research into the 21st century: The New Dynamic*, eds. I. Darnhofer, D. Gibbon and B. Dedieu, 179-200. New York: Springer.
- Meynard, J.-M., B. Dedieu, and B. Bos. 2012. Re-design and co-design of farming systems. An overview of methods and practices. In *Farming Systems Research into the 21st century: The New Dynamic*, eds. I. Darnhofer, D. Gibbon and B. Dedieu, 405-430. New York: Springer.
- Midgley, G. 2003. Science as Systemic Intervention: Some Implications of Systems Thinking and Complexity for the Philosophy of Science. *Systemic Practice and Action Research* 16 (2):77-97.
- Wezel, A., S. Bellon, T. Doré, C. Francis, D. Vallod, and C. David. 2009. Agroecology as a science, a movement and a practice. A review. *Agronomy for Sustainable Development* 29 (4):503-515.
- Wilson, J. 1992. *Changing agriculture: An introduction to systems thinking*. Sydney: Kangaroo Press.

Course literature will be supplied in electronic format (pdf) to the course participants.