



Description of 2 ECTS PhD/postdoc course on Agroecology, Aarhus, February 1, 2021

Motivation:

Department of Agroecology at Aarhus University 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 within 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 theoretical underpinnings of agroecological research
- ❖ Characterize different scientific perspectives and discuss their implications in the context of inquiry into agro-food systems
- ❖ Analyze and discuss the approaches in their own projects in a critical perspective

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.

Course organizer: Chris Kjeldsen

Course teaching methods: Lectures, group work, plenary sessions

Course teachers:

Tommy Dalgaard (*Professor, Department of Agroecology, Agricultural Systems and Sustainability*)

Chris Kjeldsen (*Senior Scientist, Department of Agroecology, Agricultural Systems and Sustainability*)

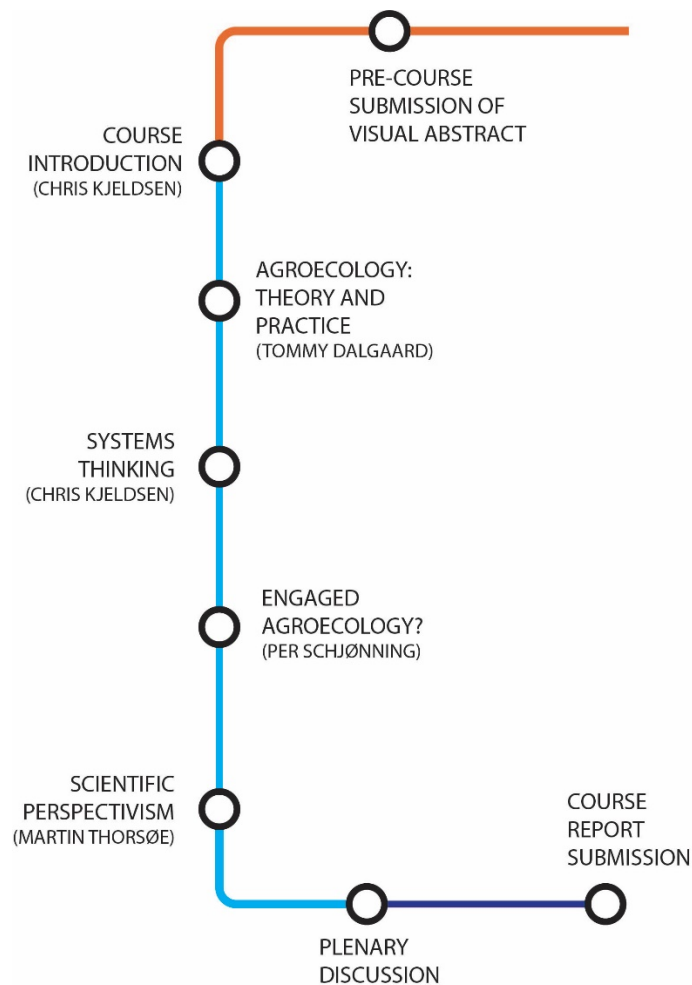
Per Schjønning (*Senior Scientist, Department of Agroecology, Soil Physics and Hydropedologi*)

Martin Thorsøe (*Scientist, Department of Agroecology, Agricultural Systems and Sustainability*)

Time and venue of the course: February 1, 2021, at 9.00 am to 4 pm. The course venue is Preben Hornung stuen, Studenterhusfonden, Fredrik Nielsens Vej 4, 8000 Århus C. See location at <https://goo.gl/maps/RxEKFKoUnA28qujm6>

Course content:

The structure of the course is:



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

The course is primarily theoretical and seeks to explore 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.

Guidelines for course report:

After the course participants will submit a brief course report (max. 3 pages). The course report should be written as an essay, focusing on addressing the following issues:

- ❖ Departing in your visual abstract, describe your own research inquiry. Consider both research practice, methodology, and normative foundation
- ❖ Is the notion of agroecology helpful to focus your attention with regards to issues you could include in your inquiry?
- ❖ How does your research inquiry incorporate concerns of sustainability and ethics, and how might you improve your research design in that regard?

Detailed schedule for the course:

09.00	Arrival to Preben Hornung stuen, Fredrik Nielsen Vej 4
09.15	Welcome and introduction to the course by Chris Kjeldsen
09.30	Session: 'Agroecology – theory and practice' by Tommy Dalgaard
10.30	Coffee break
10.45	Session: 'Systems thinking applied to agriculture and food systems' by Chris Kjeldsen
11.45	Session: 'Engaged Agroecology?' by Per Schjønning
12.45	Lunch at Stakladen (same building)
13.45	Session: 'Scientific perspectives' by Martin Thorsøe
14.45	Coffee break
15.00	Plenary discussion
16.00	Conclusion of the day

Course literature:

Course literature will be supplied in electronic format (pdf) to the course participants. A zip-file containing all the listed references below in pdf-format can be downloaded from the location

www.provenance.dk/download/course_literature.zip

Literature for 'Agroecology – theory and practice' (Tommy Dalgaard)

- Dalgaard, T., N. J. Hutchings, and J. R. Porter. 2003. Agroecology, scaling and interdisciplinarity. *Agriculture, Ecosystems & Environment* 100 (1):39-51.
- Gliessman, S. R. 2015. *Agroecology: The Ecology of Sustainable Food Systems* (Third Edition). Boca Raton: CRC Press. (Chapters 1 + 2)
- 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.

Optional reading:

- Bayliss-Smith, T. P. 1982. *The Ecology of Agricultural Systems*. Cambridge: Cambridge University Press.
- 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.

Literature for 'Systems thinking applied to agriculture and food systems' (Chris Kjeldsen)

Systems thinking offers a framework to guide inquiry into agricultural and food systems. The module will explore notions such as system, hierarchy, and emergence, as well as the development of systems thinking. The module will also present a case study of the Hawkesbury paradigm, an example of the application of systems thinking to agriculture and food systems.

- Bawden, R. 2012. How should we farm? The ethical dimension of farming systems. In *Farming Systems Research into the 21st century: The New Dynamic*, eds. I. Darnhofer, D. Gibbon and B. Dedieu, 115-136. New York: Springer.
- 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.
- Bawden, R., and R. Packham. 1993. Systemic Praxis in the Education of the Agricultural Systems Practitioner. *Systems Practice* 6 (1):7-19.
- Wilson, J. 1992. *Changing agriculture: An introduction to systems thinking*. Sydney: Kangaroo Press. (Part 1)

Optional reading:

- 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.
- 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.
- Wilson, J. 1992. *Changing agriculture: An introduction to systems thinking*. Sydney: Kangaroo Press.

Literature for 'Engaged agroecology?' (Per Schjønning)

- 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.

Literature for 'Scientific perspectivism' (Martin Thorsøe)

- Giere, R. N. 2006. *Scientific Perspectivism*. Chicago: The University of Chicago Press. (Chapters 1 + 4)