

Course in Systems Ecology

by Sven Erik Jørgensen

Date: 28-30 September 2014

Place: Finnish Environment Institute, Helsinki, Finland

The course will present the up-to-date, consistent ecosystem theory, that is increasingly applied as the theoretical basis in ecological modeling, ecological engineering, application of ecological indicators, ecological informatics and calculations of ecological services. System ecology is the prerequisite for the wide use of these sub-disciplines in ecological and environmental management of today.

Systems ecology provides an indispensable, profound understanding of both qualitative and quantitative applications of ecological considerations in environmental management. With a good knowledge to system ecology it is possible to predict of course not yet all, but many ecosystem reactions to changed impacts, which will be demonstrated several times during the course.

Program

The First day

9.00-10.45 The basic thermodynamic laws applied on ecosystems, Chapters 1-3

10.45-11.15 Coffee break

11.15-12.30 Growth and Development of Ecosystems, Chapter 4

12.30-13.30 Lunch

13.30-14.15 Biochemistry of ecosystems, Chapter 5

14.15-14.30 Short break

14.30-16.00 The Ecological Law of Thermodynamics, Chapters 6-7

16.00-16.45 Coffee break and formations of the groups for the group works and selection of the group work

16.45-17.00 Presentation of the groups and their group work selection

17.00-18.00 Ecosystems are open systems, Chapter 8

The Second day

9.00-10.45 Hierarchy Theory and Ecosystem Diversity, Chapters 9-10

10.45-11.15 Coffee break

11.15-12.15 Ecosystems have high buffer capacity, resistance and resilience, Chapter 11

12.15-13.15 Lunch

13.15-14.45 Ecosystems form cooperative networks, Chapter 12

14.45-16.00 Ecosystem Information and emergent properties, Chapter 13-14

16.00-18.30 Group work with coffee break

The Third day

9.00-10.30 Application of systems ecology in environmental management, ecological engineering and for the assessment of ecosystem health and ecosystem services. Chapter 15

10.30-15.30 Group work with coffee break and lunch

15.30-16.00 Coffee break

16.00-18.30 Presentation of group work. Discussion of group work

Proposals for the group works will be given before the start of the course. If some of the participants would like to work with a particular problem in systems ecology, please contact msijapan@hotmail.com in due time before the course.

The lectures will be based on the new book by **Sven Jørgensen: Introduction to Systems Ecology** (see flyer attached). The book will be included in the course fee.