



National Environmental Research Institute
University of Aarhus · Denmark



STAIR

International Research Education Programme for Soil Technology And
inter-disciplinary Research in Soil and Environmental Sciences

PhD Course:
Hazardous chemicals in the environment. How do they affect terrestrial ecosystems and can we predict the risk?
April 12-16, 2010

Volume: 4 ECTS

Location: Aarhus University, National Environmental Research Institute, Department of Terrestrial Ecology, Silkeborg, Denmark

Course content: The course will provide an overview of state-of-the-art hazard and risk assessment procedures and soil-oriented ecotoxicology. The students will be presented, in theory as well as in practice, to ecotoxicological test procedures currently used to provide data for terrestrial risk assessment of chemicals. They will be introduced to statistical data treatment and derivation of useful cut-off values used in risk assessment. The course will consist of a mixture of practical exercises, lectures, and seminars where the participants present and discuss key papers or, if applicable, their own projects.

Duration: The course will last five days. Each day will begin with a lecture session. The second half of the day will involve hands-on modeling and measurement activities.

Monday April 12

a.m. – Terrestrial laboratory ecotoxicology basics

p.m. – Practical laboratory exercise with soil invertebrates

Tuesday April 13

a.m. – Excursion to Hygum – a copper polluted site

p.m. – Field work sampling soil animals etc - practical

Wednesday April 14

a.m. – Terrestrial field ecotoxicology - Theory

p.m. – Analysis of field samples – Practice

Thursday April 15

a.m. – Ecological Risk Assessment - Theory

p.m. – Data computing and analysis - Practice

Friday April 16

a.m. – Multiple stressors and risk assessment - Theory

p.m. – Synthesis and conclusions - Theory

Pensum:

Material to be covered in the sessions includes:

Ecotoxicology
Toxicity and defense mechanisms
Laboratory methods; acute and chronic effects
Field investigations;

Ecological risk assessment
The data basis
Statistical methods
Expert evaluations

Soil biology in a toxicological perspective
Impacts on biological structure and function
Biodiversity of soil communities

Multiple stressors
Interactions with natural stressors
Methods for estimation of synergism/antagonism

There will also be a possibility of individual consultancy concerning experimental problems.

Accommodation will be arranged in Silkeborg and transport will be arranged where necessary.

Fee: 1500 Dkr to cover accommodation, transport, and course materials

Target group: PhD students within soil science, agronomy, environmental engineering, ecotoxicology, soil biology

Teachers: Martin Holmstrup, John Jensen, Janeck Scott-Fordsmand, Lars-Henrik Heckmann (Aarhus University, Department of Terrestrial Ecology)