

August Semester 2006

Core course

TENTATIVE PROGRAM
Post-Graduate Education in
Environmental Toxicology, Technology and Management
ED 78.27 Environmental Toxicology (2 credit)

Course Description: The course provides the student with a background of major groups of toxic substances encountered by man and animals through the food and environment, and also through exposure at the workplace. These toxicants include mycotoxins, naturally occurring toxins, N-nitroso compounds, solvents, plastics, pesticides, pollutants and radiation (UV, electromagnetic, ionizing). The course focuses on the chemistry, fate and distribution in the environment, mechanisms of their actions, toxic manifestation in living organisms as well as toxic syndrome in human beings.

Course Coordinator: *Khunying* Mathuros Ruchirawat (Ph.D)

Date: 17-28 July, 2006

Place: M 04C Room, M Floor, Biomedical Building, Chulabhorn Research Institute

Lecturer:

1. Prof. John H. Duffus
Director, Center of Toxicology, Edinburg, U.K.
And Honorary fellow, Department of Community Health Sciences,
University of Edinburgh Medical School, Teviot Place, Edinburgh, Scotland, U.K.
2. Dr. Roger Walk
Director, Worldwide Scientific Affairs PM, USA
And Acting Director Asia-Japan-Australia (Richmond VA) USA
3. Prof. Leonard Ritter
Executive Director
Department of Environmental Biology, University of Guelph, Ontario, Canada
4. Dr. Panida Navasumrit
Laboratory of Environmental Toxicology
Chulabhorn Research Institute
5. Dr. Daam Settachan
Laboratory of Environmental Toxicology
Chulabhorn Research Institute

Course Schedule

| Time | Topics | Lecturer |
|--|---|--|
| 17 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 | Orientation-general sources of information- books and websites Chemicals in the environment-organic chemical distribution and routes of human exposure Persistence, bioconcentration and toxicity Distribution modelling- EQC fugacity models | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus |
| 18 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 | General Discussion Principles of ecotoxicology Ecotoxicity testing and aquatic toxicology Factors affecting exposure concentrations, bio- availability and resultant toxicity | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus |
| 19 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 | General Discussion Data interpretation for ecotoxicological risk assessment and risk management Human exposure to chemical hazards, especially inhalation exposure Human exposure to particulates, vapors and gases | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus |
| 20 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 | General Discussion Human exposure and risk assessment Hazardous waste-classification Hazardous waste risk assessment | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus |
| 21 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 | General Discussion Biomarkers Occupational exposure standard setting Toxicity of industrial chemicals to humans- metallic and other inorganic elements and derivatives-speciation | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus |
| 24 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 13.30-14.00 14.00-15.00 15.00-16.00 | General Discussion Metallic and other inorganic elements (continued) Organic solvents and gases Safety evaluation of chemicals General Discussion Introduction to the use, value and market presence of pesticides on an international scale A succinct review of the principles of toxicological hazard and risk assessment for pesticides I | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus L. Ritter L. Ritter |

| Time | Topics | Lecturer |
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| 25 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30-12.30 13.30-14.00 14.00-15.00 15.00-16.00 | General Discussion Web based sources of MSDS, other data, and their interpretation Case studies of industrial chemical hazards Concluding review of course content General Discussion-JHD A succinct review of the principles of toxicological hazard and risk assessment for Pesticide II An analysis of the hazard and risk assessment of dietary pesticide residues in food I | J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus J.H. Duffus L. Ritter L. Ritter |
| 26 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 13.00-13.30 13.30-14.30 14.30-15.30 | General Discussion An analysis of the hazard and risk assessment of dietary pesticide residues in food II Exposure assessment General Discussion Radiation I Radiation II | L. Ritter L. Ritter R.Walk R.Walk |
| 27 July 2006 09.00-09.30 09.30-10.30 10.30-11.30 11.30- 12: 00 13.00-14.00 14.00-15.00 15.00-16.00 | General Discussion Epidemiological assessment Possible approaches to assessment of atmospheric effect I General Discussion Possible approaches to assessment of atmospheric effect II Indoor air pollution Toxicants in food I | L.Ritter R.Walk R.Walk R.Walk D. Settachan |
| 28 July 2006 09:00- 09:30 09:30-10:30 10:30-11:30 13:00-14:00 14:00-15:00 15:00- 16:00 | General Discussion Toxicants in food II Food additives Environmental carcinogens I Environmental carcinogens II Environmental carcinogens: Case studies | D. Settachan D. Settachan P. Navasumrit P. Navasumrit P. Navasumrit |
| | Examination to be announced later | |