

## Course Syllabus

1. **Program of Study** Bachelor of Science Program in Environment  
**Faculty/Institute/College** Mahidol University International College, Faculty of Science, Faculty of Environment and Resource Studies, Mahidol University
2. **Course Code** ICEN 467      **Course Title** Environmental Risk Assessment and Management
3. **Number of Credits** 4 **(Lecture/Lab)** (4-0)
4. **Prerequisite (s)** None
5. **Type of Course** Elective
6. **Trimester / Academic Year** Third / 2005
7. **Course Description**  
 Concept of risk assessment, human health risk assessment and ecological risk assessment, major risk, risk sources, primary control mechanism, transport and secondary control mechanism, target, exposure assessment, risk decision making and risk management, risk communication, environmental risk inventory system.
8. **Course Objective (s)**
  1. Understanding of the principles and methods of risk assessment,
  2. Critical discussions of the assumptions and reasons for using risk assessment,
  3. Conduct practical applications of risk methods in making decisions with uncertain hazards and risks likely to affect human or ecological communities in the short-or long-term through routine or catastrophic events,
  4. Become aware of the role of risk analysis methods with proper communication,
  5. Make decisions about human death, illnesses or injuries in public and occupational contexts through environmental risk inventory system.

## 9. Course Outline

Week	Topic			Instructor
	Lecture/Seminar	Hour	Lab	
1-2	Numerical aspects of risk calculations; the role of estimation, variability and uncertainty. Basic calculation schemes. Toxicological and epidemiological data; the fundamental types of studies generating those data: experimental designs, protocols, random sampling and other sampling schemes.	8		Dr.Vimut Prasertpun
3	Application to human risk assessment	4		Dr.Vimut Prasertpun
4	Application to ecological risk assessment	4		Dr.Vimut Prasertpun
5-6	Primary and secondary control mechanisms	8		Dr.Vimut Prasertpun
7	Target and exposure assessment	4		Dr.Vimut Prasertpun
8	Risk decision making and management	4		Dr.Vimut Prasertpun
9	Risk communication	4		Dr.Vimut Prasertpun
10	Environmental risk inventory system	4		Dr.Vimut Prasertpun
11	Student presentations	4		Dr.Vimut Prasertpun
	<b>Total</b>	<b>44</b>		

## 10. Teaching Method

1. Lecture
2. Practical Exercises
3. Discussion
4. Quiz
5. Self-Study

## 11. Teaching Media

1. Texts and Teaching Materials
2. Transparencies
3. Power Point Presentation

## 12. Course Achievement

Assessment made from the set-forward criteria. Student who gets 85% up, will have Grade A.

**13. Course Evaluation**

1. Exercises 10%
2. Oral Presentation 10%
3. midterm Examination 40%
4. Final Examination 40%

**14. References**

1. E. V. Ohanian, J. A. Moore, J. R. Fowle III, G. S. Omenn, S. C. Lewis, G. M. Gray and D. Warner North, Workshop Overview Risk Characterization: a bridge to informed decision making, *Fundamental and Applied Toxicology*, 39: 81 – 88 (1997).
2. J. Boyd and R. D. Simpson, Economics and biodiversity conservation options: an argument for continued experimentation and measured expectations, *Sci. Tot. Env.*, 240: 91-105 (1999).
3. M. J. Scott, G. Bilyard, S. O. Link, C. A. Ulibarri, H. E. Westerdhal, P. F. Ricci and H. E Seely, Valuation of ecological resources and functions, *Env. Management*, 22: 49 – 68 (1998).
4. M. Power (Ed.) Special Section, Perspectives of the Scientific Community on the status of Ecological Risk Assessment, *Env. Management*, 21: 803 – 830 (1997).
5. P. Calow, Ecological risk assessment: risk for what? How do we decide?, *Ecotox. & Env. Safety*, 40: 15 – 18 (1998).
6. P. F. Ricci, Health risk assessment: science, economics and law, *Ann. Rev. Energy*, 11: 77 – 94 (1986).
7. P. F. Ricci, Regulating cancer risks, *Env. Sci. & Tech.*, 19: 473 – 479 (1985).
8. R. Bonnie, Endangered species mitigation banking: promoting recovery through habitat conservation planning through the Endangered Species Act, *Sci. Tot. Env.*, 240: 11 – 19 (1999).

**15. Instructor**

Dr.Vimut Prasertpun

**16. Course Coordinator**

Dr.Vimut Prasertpun