Course Syllabus

1. **Program of Study** Bachelor of Science (Computer Science)
   Faculty/Institute/College Mahidol University International College
   Mahidol University

   Course Code ICCS 453 **Course Title** Machine learning

2. **Number of Credits** **4 (Lectures/lab)** (4 - 0)

3. **Prerequisite(s)** ICCS 321

4. **Type of Course** Elective

5. **Trimester / Academic Year** Trimester II / Year 2005 - 2006

6. **Course Description**
   Foundation in machine learning; comparing and contrasting human learning with machine learning; examining the limitations of machine learning; the role of hypothesis bias and hypothesis representation; various learning algorithms and techniques, such as the candidate-elimination algorithms, artificial neural networks; implementation of selected algorithms

7. Course Objective(s)
By the end of the course students should be able to:
- Describe various forms of machine learning
- Compare and contrast different techniques in various learning situations
- Implement certain machine-learning algorithms

8. Course Outline

Week	Topic		Instructor
	Lecture	**Hour**	
1	Introduction	4	Dr. Krittaya Leelawong
2	Concept Learning and the General-to-Specific Ordering	4	
3	Decision Tree Learning, Artificial Neural Networks	4	
4	Evaluating Hypotheses	4	
5	Bayesian Learning	4	
6	Computational Learning Theory	4	
7	Instance-based Learning, Genetic Algorithms	4	
8	Learning Sets of Rules	4	
9	Analytical Learning, Combining Inductive and Analytical Learning	4	
10	Reinforcement Learning	4	
11	Conclusions	4	
	Total	44	

9. Teaching Method(s)
Lectures, in-class practical exercises, discussion, and self-study

10. Teaching Media

Text and teaching materials, Powerpoint, and handouts

11. Measurement and Evaluation of Student Achievement

Assessment made from stated criteria: students with 85% obtain grade A

12. Course Evaluation

1. Participation	5%	3. Mid-term exam	30%
2. Written & programming assignments (×5)	25%	4. Final exam	40%

13. Reference(s)

Mitchell, T.M., 1997. Machine Learning. McGraw-Hill Science/Engineering/Math.
Additional readings set by the instructor

14. Instructor(s)

Dr. Krittaya Leelawong

15. Course Coordinator

Dr. Krittaya Leelawong