

Course Syllabus

1. **Program of Study** Bachelor of Science (Computer Science)
Faculty/Institute/College Mahidol University International College
 Mahidol University
- Course Code** ICCS 413 **Course Title** Data Warehousing and Data Mining
2. **Number of Credits** **4 (Lectures/lab) (4 - 0)**
3. **Prerequisite(s)** ICCS 411
4. **Type of Course** Elective
5. **Trimester / Academic Year** Trimester II / Year 2005 - 2006

6. **Course Description**
 Data Warehouse modeling and implementation: data extraction, cleansing, transformation and loading, data cube computation, materialized view selection, OLAP query processing; Data Mining: fundamentals of data mining process and system architecture, relationship of data mining with data warehouse and OLAP systems, data pre-processing, mining techniques and application: association rules, mining sequence and time-series data, text mining; implementation of selected techniques

7. **Course Objective(s)**
 After the completion of the course, students will
1. Understand the concepts of data warehousing and OLAP,
 2. Understand the data mining concepts and techniques,
 3. Be able to efficiently design and manage data storages using data warehousing, OLAP, and data mining techniques,
 4. Select and apply appropriate data mining techniques for different applications.

8. Course Outline

Week	Topic		Instructor
	Lecture	Hour	
1	Introduction to the course, basic statistics, probability.	4	Dr. Udom Silparcha
2	Evolution of data management technologies, introduction to data warehousing concepts.	4	
3	Data pre-processing, data extraction, transformation, loading processes, data cleansing algorithms.	4	
4	Defining subject areas, design of fact and dimension tables, data marts.	4	
5	Online analytical processing (OLAP), roll-up, drill-down, slice, and dice operations.	4	
6	Midterm Examination, Knowledge discovery in databases (KDD), problems solving with data mining.	4	

Week	Topic		Instructor
	Lecture	Hour	
7	Decision trees, design and applications.	4	Dr. Udom Silparcha
8	Association rules, design and applications.	4	
9	Clustering, design and applications, k-means algorithm.	4	
10	Time series analysis, web mining, text data mining.	4	
11	Supervised vs unsupervised clusterings, evolutionary computation, Genetic algorithms, Course reviews	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. Written and programming assignments (×5)	20%	2. Mid-term exam	40%
		3. Final exam	40%

13. Reference(s)

Alex Berson, Stephen J. Smith, *“Data Warehousing, Data Mining, & OLAP”*, McGraw-Hill, 1997.

Richard J. Roiger, Michael W. Geatz, *“Data Mining & Tutorial-Based Primer”*, Addison Wesley, 2003.

14. Instructor(s)

Dr. Udom Silparcha

15. Course Coordinator

Dr. Udom Silparcha