IE565 Service-Enabling Enterprises Spring 2008

Course Description

Service-enabling is a promising methodology for enterprise integration and formation of virtual organizations. In this course we will examine Service-Oriented Architectures (SOA) as a means of service-enabling an enterprise. In particular we will study SOA vision, strategy and road map, identify major business challenges that SOA resolves, work on planning, architecting and implementing a SOA for an organization, identify opportunities for service-enabling, analyze and design services; establish services integration model within an organization, define SOA governance and behavior models for an organization, develop an organizational model for service-enabling; develop metrics for SOA and evaluate organizational return of investment (ROI) for SOA. Concepts studied will be illustrated using real case studies and practical assignments.

Course objectives:

Major objective of the course is to give an overview of the service-enabling an enterprise with emphasis on data and application integration using services and service-oriented architectures. Specific objectives include:

1. Understand the context of service-enabled enterprises
2. Analyze the services-oriented needs of a large scale enterprise
3. Understand and work with services and service-oriented architectures
4. Design and implement enterprise integration through service-enabling
5. Learn the tools, frameworks and standards that support service-enabling of enterprises.

Department of defense architecture framework and the U.S. government enterprise architecture concepts and successful implementations such as grants.gov consolidation and department of defense net-centric enterprise initiatives will be used to illustrate the various concepts covered. We will also study real-world applications from finance, government, healthcare, life sciences, business (customer management) and (steel) industry.

On completion of this course students will be able to analyze opportunities for service-enabling an enterprise, to design a service-oriented architectural model for an organization and evaluate the value of service-enabling.

Course Information

Website:	http://www.cse.buffalo.edu/~bina/ie565/spring2008
Instructor:	Bina Ramamurthy (bina@cse.buffalo.edu)
Lecture Time:	T: 5-6.40PM
Lecture Location:	Bell 340C
Office:	127 Bell Hall
Office Hours:	MF: 10.00AM – 11.30AM

Textbook and other material

The primary textbook for this course is:
The Semantic Web: Real-World Applications from Industry (Semantic Web and Beyond) (Hardcover)
by Jorge Cardoso (Editor), Martin Hepp (Editor), Miltiadis Lytras (Editor)
Hardcover: 308 pages
Publisher: Springer; 1 edition (October 12, 2007) ISBN-13: 978-0387485300

Other online references and links of interest will be made available on course web site.

Pre-requisites

Graduate standing is required. Familiarity with information system analysis and design and working knowledge of a programming language such as Java and Web services are recommended.

Grading Distribution

Grades will consist of the following components:

Component (Quantity)	Percentage
Assignments (3)	30%
Term project (1)	20%
Project presentation	10%
Midterm (1)	20%
Final (1)	20%

Point distribution guideline will be as follows:

Point Range	Letter Grade
95.00-100	A
90.00-94.99	A-
85.00-89.99	B+
80.00-84.99	B
75.00-79.99	B-
70.00-74.99	C+
65.00-69.99	C
60.00-64.99	C-
55.00-59.99	D+
50.00-54.99	D
0-49.99	F

I reserve the right to alter component weighting or provide a "curve" on an assignment as warranted.

Assignments

The course covers a wide range of topics related to SOA and web services. There will be reading assignments at the end of every class. Take home work will be assigned that encourages students to research the concepts discussed during lecture. Sample assignments include analyzing the requirements of an enterprise SOA, design of a workflow, design of a service, design of simple SOA, comparison of alternatives for SOA implementation (ex: REST vs WS). While these assignments allows students to explore and understand SOA concepts, the term project gives them experience in implementing (design, code and deploy) an SOA.

Exams

There will be a midterm that will be administered and graded before the resign date. Midterm material will cover all lecture and reading assignments before the exam, as well as concepts from the assignments. The final is a comprehensive exam, covering all lecture, project, and homework areas.

Attendance Policy

You are responsible for the contents of all lectures and recitations (your assigned section). If you know that you are going to miss a lecture or a recitation, have a reliable friend take notes for you. Of course, there is no excuse for missing due dates or exam days. We do, however, reserve the right to take attendance in both lecture and recitation. We may use this information to determine how to resolve borderline grades at the end of the course, especially if we see a lack of attendance and participation during lecture sessions. During lectures, we will be covering material from the textbook. We will also work out several of the problems

from the text. You will be given a reading assignment at the end of each lecture to prepare for the next lecture.

Office Hour Policy

If you cannot meet during these hours, you will have to communicate with us via Email. Office hours are intended to resolve questions about the material that could not be answered in lecture. Come to office hours prepared.

Grading Policy

All assignments will be graded and returned in a timely manner. When an assignment is returned, you will have a period of one week to contest any portion of the grade. The TA who graded your assignment will be the first person to resolve a grading conflict. If the conflict cannot be resolved, the instructor will mediate the dispute. The judgment of the instructor will be final in all such cases. When contesting a grade, you must be able to demonstrate how your particular solution is correct. Also, when contesting a grade, the instructor or TA reserves the right to re-evaluate the entire lab or exam, not just the portion in dispute.

Incomplete Policy

We only grant incompletes in this course under the direst of circumstances. By definition, an incomplete is warranted if the student is capable of completing the course satisfactorily, but some traumatic event has interfered with their capability to finish within the timeframe of the semester. Incompletes are not designed as stalling tactic to defer a poor performance in a class.

Academic Integrity Policy

UB's definition of Academic Integrity in part is, "Students are responsible for the honest completion and representation of their work". It is required as part of this course that you read and understand the departmental academic integrity policy located at the following URL:
http://www.cse.buffalo.edu/academics-academic_integrity.shtml

There is a very fine line separating conversation pertaining to concepts and academic dishonesty. You are allowed to converse about general concepts, but in no way are you allowed to share code or have one person do the work for others. You must abide by the UB and Departmental Academic Integrity policy at all times. Remember that items taken from the Internet are also covered by the academic integrity policy! If you are unsure if a particular action violates the academic integrity policy, assume that it does until you receive clarification from the instructor. If you are caught violating the academic integrity policy, you will minimally receive a ZERO in the course.

Web Site

The CSE507 website should be checked frequently for important news. Course assignments, slides, grade reporting, and general hints and tips will be posted on the website. The same material will be available through ublearns blackboard.

Students with Disabilities

If you have special needs due to a disability, you must be registered with the Office of Disability Services(ODS). If you are registered with ODS please let your instructors know about this so that they can make special arrangements for you.

	Tentative Lecture Schedule	
Week of	**Topic**	**Material**
14-Jan	Review of CSE507: Service, service-oriented architecture;	
21-Jan	Semantic enterprises: Tools and technologies that support the scalability, availabilty and reliability requirements of enterprises;	Chapter 1,2
28-Jan	Enterprise enabling financial business	Chapter 3
4-Feb	SOA for government/municipal services access	Chapter 4
11-Feb	Enterprise integration for biomedical research	Chapter 5
18-Feb	Active semantic medical records management	Chapter 6
25-Feb	Developing services-based educational course management system	Chapter 7,8
3-Mar	Service-oriented customer management system	Chapter 9
7-Mar	Business process management	Chapter 10
10-Mar	Spring break	
17-Mar	service-enabling knowledge management in steel industry	Chapter 11
24-Mar	Service metrics and return of investment (ROI) model Federal government initiatives: FEA Consolidated reference model	FEA
31-Mar	Grants.gov integration	grants.gov
7-Apr	NESI:Net-centric enterprise solutions for interoperability (Department of Defence SOA initiative)	http://nesipublic.spawar.navy.mil/
14-Apr	NESI:Net-centric enterprise solutions for interoperability (contd.)	
21-Apr	Cloud computing: mapreduce, Apache Hadoop	Uwashington lectures
28-Apr	Project presentations	