Information Systems and Operations Management  
Bryan School of Business and Economics  
University of North Carolina at Greensboro  

ISM 658: Web Services and Service-Oriented Architecture (SOA)  
Summer 2007  

Instructor: Dr. A. F. Salam  
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Phone: (336)-334-4991  
Email: amsalam@unCG.edu (preferred)  

Note: Please always send emails with Subject Starting with ISM 658  
This will help me organize and respond to your problems quicker.  

Office Hours:  TH : 4:30-5:30 pm  
and By Appointment  
Course Website: http://blackboard.unCG.edu  

Required Text  

Title: Service-Oriented Architecture (SOA)  
Concepts, Technology and Design  
Author: Thomas Erl  
Edition: 2005  
ISBN: 0-13-185858-0  
Publisher: Prentice Hall  

Note: Additional Handouts will be distributed to the students in time  

References:  

1) Oracle web site: http://www.oracle.com Service Oriented Architecture and  
BPEL Process Manager and Server  
2) IBM web site: http://www.ibm.com On Demand Computing  
3) World Wide Consortium (http://www.w3c.org) Web Services  
4) Microsoft http://www.microsoft.com BizTalk Server  

Introduction and Course Objectives:  

In this course, we are going to cover the foundation and basic principles of web services  
application development and service-oriented computing. Service-oriented computing  
is a recent development in the computing industry that builds upon the foundation of  
the Web Services Architecture (WSA). In this course, we will cover application
development using WSA. The Web services architecture is a worldwide standard that has some of its origins that can be traced to the RMI and the CORBA architecture. We had covered the architectural principle of the WSA and Distributed Computing in ISM 609. Given that the Web services architecture is a worldwide standard, companies are investing to develop systems, using this architecture, that can support their business processes.

It is not just sufficient to understand and use the Web services architecture. What we need is a clear understanding of how the business processes of an organization provide the templates that should guide the application and use of the Web services architecture. The initiative to integrate the business process view of an organization with the Web services architecture has resulted in the Service-Oriented Computing and Architecture (SOA) that we are going to cover in this course. Conceptualizing business processes of an organization as a set of services, which can be either supported or instantiated by the Web services architecture, is what leads to the idea of the Service-Oriented Computing and its application in business. In this sense, we need to have a good understanding of business processes within and across organizations that create value for the customer and then how such business processes can be automated using the Service Oriented Architecture. Therefore, this course will cover business view of the service oriented architecture and the technical foundations that are based upon the Web services architecture. So we end up covering both the business perspective as well as the technical perspective of the service-oriented computing.

**Course Objectives:**

After completion of this course, a student will be able to:

A) Analyze the requirements of the Web Service and Service-Oriented Architecture

B) Develop applications using SOA principles

C) Evaluate the application of SOA in business organizations

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**Student Requirements and Responsibilities**

I recommend that you to set aside at least 6 to 8 hours of study time for each class meeting. **I expect you to come to class prepared.** If you study the assigned class materials ahead of time then that gives you a chance to find out what you have understood and which concepts are difficult for you to grasp. This will allow you to ask questions in class for further clarification. This definitely makes your life easier in terms of understanding the lecture materials and also in terms of performing well in the exams and assignments. This will also make the course materials more interesting.

Try not to fall behind as each topic builds upon the previous topic and they are all interrelated similar to a puzzle. We have to understand each piece and its relationship with the other pieces to put the SOA puzzle together. Hence, this course
demands a lot from each student. Each student is expected to come to class on time and stay the entire class period.

Please take notes in class so that you can review them at home to clarify the concepts discussed in class. If you are unable to follow the lecture and the discussion, you will eventually lose interest in the course as it becomes more and more difficult for you. You have to become an active learner to do well in this course.

**Relationship to other ISOM Courses:** It is the philosophy of the ISOM Department to help the student to develop the appropriate background and critical skills needed to function effectively in a global, technology-driven business environment. It will also help the student succeed in professional life. With the advent of the Internet and related applications coupled with the new developments related to WSA and SOA, a good understanding of these technologies has become an imperative for everyone working in the IT industry.

**Instructional Methods:** The course is delivered through a mixture of readings, lectures, in-class exercises, and assignments. Most in-class delivery will consist of the presentation and explanation of the concepts and the consideration of examples. Students are strongly encouraged to participate in class discussions.

**Exams and Policy for Make Up Exams:** The course will include a Mid Term Exam and a Final Exam. Attendance at examinations is mandatory -- no make-up examination is given for any reason. If a student must miss an examination, and if that student has a written, verifiable, legitimate (health related issues) excuse for the absence, then the student must contact the instructor prior to the Exam Date and provide necessary written evidence for the absence (evidence for health related problems may be presented later in consultation with the instructor). The instructor reserves sole discretion in this matter of providing the opportunity for a make up Exam. This opportunity is available only once during the semester.

**Attendance Policy:** Each student is responsible for all of the information (including announcements and handouts) presented in class. Traditionally, poor performance in this class has been closely related to poor attendance. Any person missing the first two classes without providing prior notification to the instructor will be administratively dropped from the course. Any student missing more than three classes during the semester can expect to have his/her final grade lowered by as much as one letter grade. No work-related excuses will be accepted.

**Oral and Written Communication Content:** Importance will be given to oral and written communications. Students are expected to come to class prepared to ask questions and to (attempt to) answer questions posed to them. Students are expected to communicate with the instructor primarily via email when necessary.
Technology Applications: Technological advances in computing are addressed throughout the course.

Ethical Perspectives: This course will address ethical perspectives in the context of the set of networking and computing technologies as they relate to a business environment.

Global Perspectives: This course will address global perspectives only in the context of technology, its impact and management.

Demographic Diversity Perspectives: This course will not specifically address the issues of demographic diversity.

Political, Social, Legal, Regulatory, and Environmental Perspectives: This course will not specifically address the perspectives of Political, Social, Legal, Regulatory, and Environmental issues except those that are relevant to the use of the technologies covered in this course.

Honor Code Policies: University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery, and/or plagiarism. Students will NOT make, borrow, or “share” copies of their project assignments or files with other students. Plagiarism is defined as presenting as one’s own work that work which is, in whole or in part, the work of another person or persons without giving proper credit to the appropriate source (this includes any published material available on the Internet). This includes submitting work done by another as one’s own work. Helping one another to understand concepts and issues is allowed, but copying violates UNCG Honor Code Policy. No credit will be received for work that falls under plagiarism, and other penalties may be imposed. Please refer to the UNCG Honor Code Policies.

Inclement Weather: Rarely UNCG closes for inclement weather. Local radio and television stations should have closing information by 6:30 a.m. Students may also call 334-5000 for any messages related to weather closings. Do NOT call the ISOM Department.

Posting Grades: Grades for courses offered in the ISOM Department are not posted and are not supplied over the telephone. If you wish "advance" information regarding a final grade, you should supply your instructor with a stamped, self-addressed envelope.
Grading: Grades for the course are based on examinations, assignments, and research paper. The final grade for the course will be determined as follows:

<table>
<thead>
<tr>
<th>Individual Assignments (Tutorials and Problems)</th>
<th>40 points (40%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid Term Exam (Take Home) Theory and Concepts</td>
<td>30 points (30%)</td>
</tr>
<tr>
<td>Final Examination /Project (Individual)</td>
<td>30 points (30%)</td>
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<tr>
<td>(Includes Theory and Hands On)</td>
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The relationship between total points and letter grades is as follows:

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>95 &lt;= X &lt;= 100</td>
<td>A</td>
</tr>
<tr>
<td>90 &lt;= X &lt; 95</td>
<td>A-</td>
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<tr>
<td>87 &lt;= X &lt; 90</td>
<td>B+</td>
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<tr>
<td>83 &lt;= X &lt; 87</td>
<td>B</td>
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<td>77 &lt;= X &lt; 80</td>
<td>C+</td>
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<td>70 &lt;= X &lt; 77</td>
<td>C</td>
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<td>60 &lt;= X &lt; 70</td>
<td>D</td>
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<td>0 &lt;= X &lt; 60</td>
<td>F</td>
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## Tentative Course Schedule

*(Subject to change depending upon class pace)*

Chapter refers to the Chapter from *SOA’s Textbook*

Note: Handouts will be provided on BPEL and Oracle BPEL Process Manager in time

ISM 658: *Web Services and Service-Oriented Architecture*(SOA)

*Summer 2007*

*Instructor: Dr. A. F. Salam*

*Class Schedule*

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Materials to be Covered</th>
<th>Chapters</th>
<th>Assignments</th>
<th>Assignment Due Date (Hardcopy)</th>
<th>Due Date and Time Electronic Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (May 17, 2007)</td>
<td>SOA Fundamentals</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II (May 24, 2007)</td>
<td>SOA Design Principles</td>
<td>6 and 8</td>
<td>1</td>
<td>In Class Week III</td>
<td>By Midnight</td>
</tr>
<tr>
<td>III (May 31, 2007)</td>
<td>SOA</td>
<td>15</td>
<td>2</td>
<td>In Class Week IV</td>
<td>By Midnight</td>
</tr>
<tr>
<td>IV (June 7, 2007)</td>
<td>Midterm (Take Home)</td>
<td>16</td>
<td>3</td>
<td>In Class Week V</td>
<td>By Midnight</td>
</tr>
<tr>
<td>V (June 14, 2007)</td>
<td>BPEL, Windows WCF, WPF</td>
<td></td>
<td></td>
<td></td>
<td>By Midnight</td>
</tr>
<tr>
<td>VI (June 21, 2007)</td>
<td>Final Exam/Project</td>
<td></td>
<td></td>
<td>In ISOM Dept. Office by 4 pm (Bryan 479)</td>
<td>By Midnight</td>
</tr>
</tbody>
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Note: Chapters Refer to the Chapters in your Textbook unless otherwise specified.