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**BUS341A – Information Systems Analysis**  
Spring Term: January 17 – May 4, 2006

**Instructor: Dr. Vladimir V. Riabov**

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**Web: <http://www.rivier.edu/faculty/vriabov/>**

**Office Hours: Tu: 4:00 - 5:30 PM; Wed 2:30 - 4:30 PM, and Th: 4:00 - 7:30 PM**

**COURSE DESCRIPTION:**

This course is a study of the activities necessary for analyzing large or small business information systems. The analysis encompasses the problem definition phase, the feasibility phase, system design, system implementation and systems operation and support phase. Case studies are utilized to examine various viewpoints that need to be traded off while encouraging critical thinking that is shared via class discussions. A continuing case study that spans all phases of the system development life cycle (*SDLC*) is used to promote active participation in learning about systems analysis and design. A blend of traditional development with current technologies is used to present a practical approach to system design and analysis. A student project is required.

**COURSE OBJECTIVES:**

- Define and describe in detail the five phases of the system development life cycle (*SDLC*): Systems Planning; Systems Analysis; System Design; System Implementation; and System Operation and Support.
- Gain knowledge of a comprehensive System Analysis Toolkit that highlights the importance of communications, economic analysis, and project planning skills across all phases of the SDLC.
- Gain an in-depth understanding of how information systems support business requirements in today's intensely competitive environment.
- Make use of the *World Wide Web* as an online information resource.
- Learn real-world systems analysis and design skills in the context of solving realistic problems while presenting practical guidelines.
- Provide a clear picture of how systems analysts interact with users, management, and other information systems professionals in a typical business organization.

**REQUIRED TEXTBOOK FOR THE COURSE:**

- Shelly, Gary B.; Cashman, Thomas J.; and Rosenblatt, Harry J.: Systems Analysis and Design, Sixth Edition, Cambridge, MA, Course Technology, 2006.
- Lecture slides, laboratory manuals, links to additional topics of interest, and links to materials developed by other scholars can be downloaded from <http://www.rivier.edu/faculty/vriabov/>.

**REQUIRED MATERIAL:**

- Please have a **3.5" floppy disk** and **notebook** with you for every class and all lab work.

**RECOMMENDED BOOKS:**

- Hoffer, J. A.; George, J. F.; and Valacich, J. S.: Modern System Analysis and Design, 4<sup>th</sup> Edition; Prentice Hall, 2005.
- Marakas, G. M.: System Analysis and Design: An Active Approach, 2<sup>nd</sup> Edition; Mc-Graw-Hill, 2006.
- Kendall, K. E.; and Kendall, J. E.: System Analysis and Design, 5<sup>th</sup> Edition; Prentice Hall, 2002.
- (SAD) Fertuck, Len: System Analysis and Design; Business & Educational Technologies, 1995.
- Frenzel, C. W.; and Frenzel, J. C.: Management of Information Technology, 4<sup>th</sup> Edition; Cambridge, MA, Course Technology, 2004.
- (OOD) Dennis, Wixom, and Tegarden: System Analysis & Design: An Object-Oriented Approach with UML, 2<sup>nd</sup> Edition; John Wiley & Sons, 2005 (Resources: <http://www.wiley.com/college/dennis/>).
- Schach, S. R.: An Introduction to Object-Oriented Systems Analysis and Design with UML and the Unified Process, McGraw-Hill, 2004 (Resources: <http://www.mhhe.com/schach/>).
- Satzinger; Jackson; and Burd: Object-Oriented Systems Analysis & Design with the Unified Process, Cambridge, MA, Course Technology, 2004.

- George, J. F.; Batra, D.; Valacich, J. S., and Hoffer, J. A.: Object-Oriented Systems Analysis and Design, Prentice Hall, 2005.
- Dewitz, S.; and Olson, M.: Semantic Object Modeling with SALSA: A Casebook; Mc-Graw-Hill, 1994.
- Brigham, E. F.; and Gapenski, L. C.: Financial Management: Theory and Practice, 8<sup>th</sup> Edition; Dryden Press, 1997.
- Thommes, Mauren; and Carey, Jane: Using Visible Analyst Workbench for Windows; Dryden Press, 1995.
- Dittman: Student Edition for Use with System Architect; Irvin, 1995.

**SOFTWARE:**

- The *ArgoUML* tool and *ArgoUML User's Manual* are available in EDU-305 and STH-135 classrooms (or downloaded free from <http://argouml.tigris.org/>). They will be used during the in-class labs and may be used for the team project development. The Project Team Leader will be responsible for assuring designers create “compatible” modules and properly link the modules.
- The *Visible Analyst* tool is available in EDU-305 classroom. The *Visible Analyst User's Manual* is available on the Internet from <http://www.visible.com/Products/Analyst/manual.pdf>.

**CLASSROOM POLICIES:**

- Attendance:** Active participation requires attendance and arrival to class in time to be prepared for work when the class period begins. You are expected to attend all classes. Much of the learning will take place in classroom activities that cannot be duplicated easily outside of class. If you miss class, you are responsible for doing all classroom activities you missed, getting the notes from a classmate, and turning in all work on the day it is due. If you miss more than two classes, your absences will be reported to the registrar and you must meet with the professor to discuss the advisability of your remaining in the course for the remainder of the semester. Students who miss three classes may be withdrawn from the course and receive disciplinary action from the college (see *Rivier College Attendance Policy*). If you anticipate that job-related duties or prior commitments will cause several absences, please discuss the matter with the instructor outside of class.
- Honesty policy:** All work turned in on tests, quizzes, and the final must be entirely your own. Behavior contrary to this will result in a grade of F on the test. Serious infractions may result in an F for the course. Similarly, the paper you write for your project must not be plagiarized. See library discussion on plagiarism. Regarding homework, the instructor will not give you credit for any work that is copied from another source (from a classmate, instructor, a text, the answer key, web assistance, tutor, etc.). Take notes while getting help, but put aside the notes as you attempt to do the problems on your own.
- Four Homework Assignments** are Case Studies that the student completes presenting “real-company” examples of studies to further illustrate the concepts taught during the class lecture. The Case Studies are usually several page papers that answer various assignments covering unique features of each applicable chapter in the context of business requiring system analysis and design. Appropriate Case Studies are assigned regularly for credit and require a sincere effort and amount of a student’s time (additionally at least four hours a week) to ensure success. All assignments must be completed on time (see Class Schedule section) according to the given parameters (otherwise grade loss will result) and submitted electronically to BlackBoard Drop-Box and by e-mail to [vriabov@rivier.edu](mailto:vriabov@rivier.edu). Any late assignments will receive a 10% grade discount. Only those situations involving instructor’s permission will be exempt from this policy. Instructor must know in advance of class that a student will not be present or an assignment will be late.
- Quizzes:** There will be four short quizzes that will consist of ten (10) Multiple Choice or True/False Questions similar to those questions that are at the end of each of the Chapters in your book. These quizzes are meant to give the student an evaluation of their understanding of the material while providing a preview of the types of questions that will be on the midterm and final exams.
- Group Project:** The group project is a written and oral package that utilizes the System Development Life Cycle (SDLC) concepts in a business context. Your group of ~3 people will write a 10+ page *MS-Word* paper describing your system analysis and design approach with diagrams. A handout will be provided with further details on the system analysis and design approach selected by the group. The group will also create a *MS PowerPoint* presentation (based on the project paper) that will be presented orally by each member of the group.

- f) **Lecture/Problem solutions:** The primary source of exam material is derived from what is done in class. Your notes are keys to success on exams. Each student should maintain a notebook exclusively for this course.
- g) **Midterm and Final Examinations:** There will be midterm and final in-class written examinations that consist of a combination of Multiple Choice, True/False, Matching, and/or Short Essay Questions, for all the material covering in the course. **Midterm Exam** is scheduled in EDU-305 classroom on Thursday, **March 2, 2006, 2:30 PM – 3:45 PM.** **Final Exam** is scheduled in EDU-305 classroom on Thursday, **May 4, 2006, 2:00 PM – 4:00 PM.**
- h) **In Computer Lab,** students will complete exercises and section labs from the CD-ROM in the main textbook and Labs published on the BUS341 Website: [http://www.rivier.edu/faculty/vriabov/bus341a\\_labs.htm](http://www.rivier.edu/faculty/vriabov/bus341a_labs.htm).
- i) Students need to have computer-resources-, blackboard-, and e-mail **accounts**, know how to access their accounts, and organize course labs and projects properly in designated bus341 folders in their accounts.
- j) **Classes and labs** are scheduled on **Tuesdays & Thursdays, 2:30 PM – 3:45 PM.**

**AMERICANS WITH DISABILITIES ACT (ADA):**

Rivier College wants to provide reasonable accommodations to students with disabilities. To accomplish this goal effectively and to ensure the best use of our resources, timely notice of a disability must be provided to the Office of Special Services for verification and for evaluation of available options. Any student whose disabilities fall within ADA should inform the instructor within the first two weeks of the term of any special needs or equipment necessary to accomplish the requirements for the course. To obtain current information on this procedure, contact the Office of Special Services at telephone extension 8497.

**EXAMINATIONS and GRADING:**

Four Homework Assignments	16%
Four Labs	16%
Four Quizzes	8%
Project	15%
Midterm Exam	20%
Final Exam	25%

Grades for all exams, quizzes, and assignments will not be determined by curves. Letter grades submitted to the Registrar's Office would be based on the Rivier College Grading system. The conversion from numerical grade to letter grade will be based on the following table:

<u>Letter Grade</u>	<u>Honor Points</u>	<u>Numerical Grade</u>
A	4.0	93-100
A-	3.67	90-92
B+	3.33	87-89
B	3.0	83-86
B-	2.67	80-82
C+	2.33	77-79
C	2.0	73-76
C-	1.67	70-72
D+	1.33	67-69
D	1.00	63-66
F	0.0	Below 62

**COMPUTER LABORATORY:**

Students will be required to use computers in the Computer Lab and classroom for completing section labs and projects. If you have any problems with the equipment, contact Sister Martha's office in the Computer Lab.

**INSTRUCTOR AVAILABILITY:**

The instructor will be available before and after class, during the office hours at my office (STH-312) and via telephone: (603) 897-8613 or E-mail: [vriabov@rivier.edu](mailto:vriabov@rivier.edu) (E-mail is a preferable form for communication).

**CLASS SCHEDULE (Tuesdays & Thursdays, 2:30 PM – 3:45 PM):**

Date	Subject	Output from Class	Main Text Reading	Optional Reading
Jan. 17	Intro to Info Systems Analysis & Design; <b>Toolkit 1:</b> Guidelines for Written and Oral Communication	System Development Life Cycle; Structured Analysis Method	Ch. 1; Toolkit 1	Online resources
Jan. 19	System Development Tools, Techniques, and Methods; <b>Toolkit 2:</b> CASE Tools	Modeling, Prototyping, CASE tools; Object-Oriented Approach	Ch. 1; Toolkit 2	<b>OOD, Ch. 1;</b> Online resources
<b>Jan. 24</b>	Info System Planning (Phase 1); <b>Toolkit 3:</b> Financial Analysis Tools; <b>Project Groups are created</b>	<b>Quiz #1;</b> Feasibility Analysis Techniques	Ch. 2; Toolkit 3	<b>OOD, Ch. 2</b> Online
Jan. 26	Analyzing the Business Case; <b>Toolkit 4:</b> Project Management Tools	Preliminary Investigation Methods	Ch. 2; Toolkit 4	<b>OOD, Ch. 3</b> Online
Jan. 31	System Analysis (Phase 2); <b>Project Topics are selected by Project Groups</b>	UML; Joint-Application & Rapid-Application Development Activities	Ch. 3; Online resources	<b>OOD, Ch. 4;</b> Online resources
Feb. 2	System Requirements Modeling; <b>Project Plans are approved</b>	Modeling (CASE) Tools; Interview Techniques	Ch. 3	<b>OOD, Ch. 5</b> Online
<b>Feb. 7</b>	<b>Lab #1: Review of Chapters 1-3, Visible Analyst User's Manual Review</b>	<b>Homework #1 due;</b> <b>Lab #1</b>	Chs. 1-3	<i>VisibleAnalyst User's Manual</i>
Feb. 9	Data Modeling; OOD Use-Case Modeling; Data Flow Diagrams (SAD handouts); <b>Toolkit 5:</b> Object-Oriented Tools	Use-Case Diagrams; Prep-Lab Exercises; Data Flow Diagrams	Ch. 4; Toolkit 5; <i>handouts</i>	<b>OOD, Ch. 6;</b> <i>ArgoUML User's Manual</i>
Feb. 14	Process Modeling; Structural Modeling; <i>ArgoUML</i> software tool in depth.	Class and Object Diagrams; Prep-Lab Exercises	Ch. 4; Online resources	<b>OOD, Ch. 7;</b> <i>ArgoUML User's Manual</i>
<b>Feb. 16</b>	Behavioral Modeling; <b>Draft of Functional Specification submitted by the Project Groups</b>	Sequence Diagrams, Collaboration Diagrams, Statechart Diagrams	Online resources	<b>OOD, Ch. 8;</b> Online resources
<b>Feb. 21</b>	System Development Strategies; The Impact of the Internet; <b>Toolkit 6:</b> Internet Resource Tools	<b>Quiz #2;</b> Resources Overview on the Internet	Ch. 5; Toolkit 6	Online resources
Feb. 23	System Design Guidelines; Prototyping. Midterm Exam Preparation	Cost-Benefit Analysis; System Design Guidelines	Ch. 5	Online resources
<b>Feb. 28</b>	<b>Lab #2: Review of Chapters 4-5; Programming with ArgoUML; OOD Use-Case Modeling; Class Diagrams</b>	<b>Homework #2 due;</b> <b>Lab #2; Diagrams for students' projects</b>	Chs. 4-5	<i>ArgoUML User's Manual</i> <b>OOD, Chs. 6-7</b>
<b>March 2</b>	<b>MIDTERM EXAM</b>	<b>MIDTERM</b>	Chs. 1-5	
<b>Mar. 7-9</b>	<b>NO CLASSES (Spring Vacation)</b>	<b>NO CLASSES</b>		
Mar. 14	Info System Design (Phase 3); Output Design; Layered Design Architecture	Output Design Techniques; Design Layers; Packages	Ch. 6	<b>OOD, Ch. 9</b> online
Mar. 16	User Interface Design	User Interface Design Techniques	Ch. 6	<b>OOD, Ch. 11</b> online
<b>Mar. 21</b>	Data Design Concepts; Navigation Input & Output Data Design Concepts; <b>Draft of Design Specification submitted by the Project Groups</b>	<b>Quiz #3;</b> Data Design Concepts; Entity-Relationship Diagrams; Normalization	Ch. 7	<b>OOD, Ch. 12</b> online
Mar. 23	Database Models; Data storage and Access; Object Persistence, Class & Method Design	Tools for Data storage and Access	Ch. 7	<b>OOD, Chs. 13-14</b> online
<b>Mar. 28</b>	<b>Lab #3: Review of Chapters 6-7, Exploring Visible Analyst Tool</b>	<b>Homework #3 due;</b> <b>Lab #3</b>	Chs. 6-7	<i>VisibleAnalyst User's Manual</i>

Mar. 30	System Architecture; Client-Server Approach; Internet-based Approach	Client-Server and Internet-based Architectures	Ch. 8	<i>OOD, Ch. 10; Online resources</i>
Apr. 4	Processing Methods; Network Models; System Design Specification	Online and Batch Processing; TCP/IP & OSI Reference Models; System Design Specification	Ch. 8	
<b>Apr. 6</b>	Systems Implementation (Phase 4); Software Quality Assurance; Coding	<b>Quiz #4;</b> Coding Standards; Software Quality Assurance Methods	Ch. 9	<i>OOD, Ch. 15 online</i>
<b>Apr. 11</b>	Testing the System; Documentation; <b>Draft of Test Plans submitted by the Project Groups</b>	Unit, Integration, and System Testing Methods; Program, System, Operations, and User's Documentation	Ch. 9	<i>OOD, Ch. 15 online</i>
<b>Apr. 13</b>	<b>NO CLASSES (Easter Vacation)</b>	<b>NO CLASSES</b>		
<b>Apr. 18</b>	<b>Lab #4: Review of Chapters 8-9, Visible Analyst Tool: Debugging &amp; Testing</b>	<b>Homework #4 due; Lab #4</b>		<i>VisibleAnalyst User's Manual</i>
Apr. 20	Systems Operation, Support, and Security (Phase 5)	User Support and Maintenance Activities; System Security Tools.	Ch. 10	<i>OOD, Ch. 16 online</i>
<b>Apr. 25</b>	<b>Project Presentations</b>	<b>Project Presentations</b>		
<b>Apr. 27</b>	<b>Project Presentations;</b> Course Review; Preparation for Final Exam	<b>Project Presentations</b>		
<b>May 2</b>	<b>NO CLASSES (READING DAY)</b>	<b>READING DAY</b>		
<b>May 4</b>	<b>FINAL EXAM (EDU305; 2:00 - 4:00 PM)</b>	<b>FINAL EXAM</b>	Chs. 6-10	