MSIS 558: Advanced Software Development with Web Applications

Syllabus

CSUF, Spring 2001, Schedule #16901
Lecture: M 7:00-8:15 pm. MH 663
Lab: M 8:30-9:45 pm. LH 317

http://www.ics.uci.edu/~burke/msis558-s01/

Prof. Robin Burke
Office: LH 502A;
Office phone: (714) 278-5513
Hours: M 5:00-7:00pm, W 10:00 – 12 noon
and by appointment
e-mail: rburke@fullerton.edu

Course Prerequisites: MSIS 408, 550, 552
Skill Prerequisite: Facility with Visual Basic 6.0 and associated technologies

Course Description
MSIS 558 covers advanced topics in Visual Basic software development. The class will concentrate on component-based development, exploring the deployment of Visual Basic components in a variety of contexts including web applications. We will also cover object-oriented development and design patterns. Each student will be expected to complete a portfolio of VB implementations.

Course Required Readings
Other readings will be available on-line.

Course Organization
The course is divided into lecture and lab periods. During lecture periods, I will present material related to readings from the Vogel book. All students are expected to have read this material before class, and to be active participants in the lecture portion of the course. In addition, there will be student presentations of design patterns based on material in the Stamatakis book.
Each student will be required to complete a portfolio of programs in Visual Basic. Students with incomplete portfolios cannot get a passing grade in the course. Lab sessions provide the opportunity for students to work on their portfolios and for pattern teams to work on their presentations (although all assignments will require work outside of lab time).

Learning Objectives
This course calls on you to demonstrate: (1) knowledge of Visual Basic and COM technologies, applications, protocols and concepts, (2) the ability to reason through analysis, evaluation and design of Visual Basic applications and components, and (3) the ability to effectively apply this knowledge to the construction of such programs. Students will be expected to use the course texts and readings as well as outside references to supplement lecture material.

Assessment Measures
Students will be assessed based on their portfolios of completed programming assignments, design pattern presentations and performance on the two exams.

Portfolio
The portfolio will consist of 6 Visual Basic programs, all of which are different implementations of the computer game “Battleship”.
1. Basic implementation
2. Object-oriented implementation
3. ActiveX implementation
4. Database-backed implementation
5. MTS implementation
6. IIS implementation

The implementations will build on each other, so that, for example, the solution to #4 will require a working version of implementation #3. The programs will be due throughout the semester, but students will have some time at the end to revise all of the assignments before submitting the complete portfolio. To get credit for revisions in the final portfolio, the original hardcopy with my feedback must be included with each resubmitted program. During the final class, students will be expected to demo their final implementations for the instructor and fellow students.

The first assignment in the portfolio is a pre-test designed to ensure that each student has the prerequisite programming skills. Students who do not get a passing grade on this assignment will be strongly encouraged to withdraw from the course.

Design pattern presentations
There will be nine student presentations on design patterns. These will be half-hour presentations in which student teams present one of the design patterns described in the Stamatakis book. The presentation should be divided into 4 parts:

I. Overview and motivation for the pattern
II. Description of the pattern’s object model
III. A walk-through of a sample VB implementation
IV. Discussion, which includes trade-offs, relation to other patterns, and consequences.

The entire team is responsible for the presentation as a whole and should prepare and present it together. The grade will be apportioned based on group self-evaluation forms completed by all members of the team.

Teams are encouraged to use PowerPoint and to make their presentations available on the course web site.

Midterm and Final
The midterm and final will be closed-book written exams covering lectures, assignments and design patterns.

Course Grade Calculation
- Portfolio (50%)
- Pattern presentation (10%)
- Midterm (15%)
- Final Exam (15%)
- Attendance/Participation (10%)
- Note: A student cannot achieve a passing grade if the first portfolio assignment receives an F.

Attendance
I expect you to come to class every meeting day, arrive on time, and participate fully in class discussions and exercises. Attendance is especially important because this course meets only once a week. Thus you will be allowed only one absence during the course of the semester. If you are absent a second time, your course grade will drop by one full point. If you are absent three times, you will fail the course. This policy applies to both excused and unexcused absences. Students may only be excused for documented medical or family emergencies or religious holidays. You must notify me as soon as possible of documented absences.

Late Assignments
All assignments are due at class time on the assigned date. Late assignments will be accepted up to one week late with a one grade point penalty, but only if an extension is requested in advance. Requests made at the start of class are not “in advance.” Presentations must be made on the assigned date and cannot be made up. A team that is missing members must be prepared to perform the complete presentation.

Incompletes
If for some reason you need extra time to complete the course, you must submit a written request for an Incomplete (either in person or by e-mail). Such a request should be made in advance of the final exam date.
and should include 1) an explanation of why you are unable to meet your obligation, and 2) a completion proposal including a statement of work and the date on which you agree to submit it. Except in cases of documented emergency, I will not issue a grade of Incomplete if you ask for one on or after the date of the final.

I will handle requests for Incompletes on a case-by-case basis. If I approve your request, I will sign a copy and return it to you. Please be aware that your Incomplete is not approved until you receive the signed copy. Also, please be aware that I will not accept your work if you submit it after the date you yourself set for completion of the course.

Classroom Etiquette

- Please turn off pagers and cell phones before coming to class. If it rings, I will confiscate it.
- Please do not tape lectures or discussions. If you have a documented need, please let me know.
- Please do not get up and walk out in the middle of class. Such behavior is discourteous and disruptive. If you need to leave early, please let me know ahead of time.
- Please do not chit chat or eat loud food in class.
- Please be mindful that you are part of a learning community. Treat others with respect even if you do not agree with their positions or they with yours.

Important Note

I reserve the right to modify this syllabus at any time during the course of the term. The most current course information will be available on the course web site.

Academic Honesty

Except for team projects (the design pattern presentation), students are expected to do their own work. All parts of a programming assignment submitted by you must be your own work or clearly labeled otherwise. It is permissible (in fact, encouraged) for you to discuss problem-solving approaches and programming language details with classmates, but you are responsible for all low-level design and coding. Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. Since dishonesty in any form harms the individual, other students and the university, policies on academic integrity are strictly enforced. I expect that you will familiarize yourself with the academic integrity guidelines found in the current student handbook.

Schedule of Class Meetings & Assignment Due Dates

1/29 Introduction
   Lecture: Introduction, Course structure, Course portfolio.

2/5 Visual Basic and COM
   Due: Assignment #1 (Basic), Presentation teams.
   Reading: Vogel 1, Stamatakis 3

2/12 Object-based and Object-oriented programming
   Reading: Stamatakis 1, 2

2/19 Presidents’ Day (no class)
   Due: Assignment #2 (Object-oriented) Wednesday 2/21, 12 noon.

2/26 Visual Basic Objects
   Lecture: Parameter passing, User defined types. Instantiation and object references. Methods, properties and events. Persistence.
   Reading: Vogel 3, 4
   Pattern: Adapter
3/5 Components and Interfaces
Reading: Vogel 5, 6
Pattern: Bridge

3/12 Controls
Lecture: ActiveX controls. UserControl properties, events and methods. Property pages.
Internet distribution: Authenticode and code signing.
Due: Assignment #3 (ActiveX)
Reading: Vogel 8
Pattern: Object By Val

3/19 Midterm

3/26 Spring Break

4/2 Data Binding
Lecture: Data-bound controls, DAO, ADO. Data consumers and providers.
Reading: Vogel 9 and TBA
Pattern: Smart Proxy

4/9 Design Time Controls
Lecture: Applications of design time controls. Static and dynamic choices.
Due: Assignment #4 (Database)
Reading: Vogel 10
Pattern: Object Factory

4/16 Distributed Objects and MTS
Lecture: MTS architecture and services. Scalability and state management. Alternatives to MTS.
Reading: Vogel 12
Pattern: Prototypical Object Factory

4/23 Internet Applications I
Lecture: Web application basics. Web architecture. HTML, DHTML.
Due: Assignment #5 (MTS)
Reading: Vogel 13, Sections 1-3
Pattern: Singleton

4/30 Internet Applications II
Reading: Vogel 13, Section 4.
Pattern: State

5/7 Scripting and VBScript
Lecture: ActiveX scripting, VBScript. Script components. XML.
Due: Assignment #6 (IIS)
Reading: Vogel 14
Pattern: Event Service

5/14 COM+ / Windows 2000
Lecture: Component services. Load balancing. CORBA and CORBAServices.
Lab: Implementation demos
Due: Course portfolio
Reading: Vogel 16 and TBA

5/21 Final exam (7:30 – 9:20 pm)