

## 1 Instructor

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Hours: MW 2:00-4:00 or by appointment

## 2 Course Overview

The course focuses on the physical design and construction phases of the system development life cycle. Our goal is to implement a working prototype of the system defined and analyzed in SYS 390 (ISA) as a database-backed web application. We will cover web and database programming, advanced SQL topics, software project management practices, system architecture, and related web technology.

The course comprises two hands-on, lab-heavy segments.

1. For approximately the first five weeks, we will focus on the basics of developing a database-backed web application. This portion of the course is designed to provide everyone in the class with the knowledge and skills necessary to understand and construct a non-trivial web application. We will cover salient topics in class, and you will complete a series of lab exercises that give you practice with the topic of the day.
2. For the remaining ten weeks of the course, you will be working on constructing a prototype application that implements the requirements you gathered in ISA as reflected in your System Requirements Specification (ISA).

## 3 Learning Objectives

When you complete this class you should be able to:

1. Understand the importance of a formal system development methodology to information technology project success
2. Learn how to translate a logical design to a physical design
3. Improve user interface design skills
4. Learn agile software project management practices and tools
5. Sharpen group participation skills
6. Expand relational database skills, including SQL transactions, and stored procedures
7. Learn some technologies powering e-commerce: three-tier architecture, web pages, ASP.NET, Visual Basic
8. Learn and apply testing skills, including unit tests and client-side GUI tests
9. Improve presentation skills by sharing project results with the class

## 4 Text

We will continue to use the textbook from ISA.[1]

## 5 Project

We will continue the project begun in ISA. Our goal is to build working prototypes of a system that implements the bulk of the system you envisioned in your SRS in ISA.

### 5.1 Teams

Again this semester, you will work in teams, typically comprising 3-5 students. Unlike ISA, however, I will select the members of the teams in order to ensure each team has a fair balance of technical and non-technical expertise.

I will distribute a brief survey early in the semester that will help me gauge your technical background. The survey also asks you to indicate who you would—and would not—like to have on your team. Although a good balance of skills will trump your personal preferences, I do my best to honor your request.

### 5.2 DevelopmentProcess

Teams will employ a development process based on the standard agile process known as *Scrum*. We will employ an iterative approach to project development in which your team will focus on delivering small increments of functionality that provide both you and me a clear and demonstrable indication of your progress.

As in ISA, procrastination is the enemy. Using an agile, iterative process forces you and your team regularly to deliver working software, which not only gives you a clear view of your accomplishments, but helps stem the tide of procrastination.

### 5.3 Show-and-Tell

At the end of the semester, we will have a “show and tell” time, during which you will demonstrate your prototype application. Our customer will be invited to join us for your demonstrations, either in person or electronically.

Although this presentation is not nearly as formal as your final presentation in ISA, it is nonetheless your opportunity to show off the fruit of a year of your labor. Begin the semester with this end in mind, and stay focused on delivering an excellent and exciting final product!

### 5.4 Technology

We will be building the project prototypes using current versions of the Microsoft tool chain. Although Microsoft is not a favorite platform of mine, it is ubiquitous in business and deserves your careful attention.

1. We will develop using Microsoft Visual Studio, which is a very capable integrated development environment (IDE) that is quite accessible for CS&E and non-CS&E majors alike.

2. We will deploy our application prototypes using a development version of the standard Microsoft Internet Information Server (IIS), the standard Microsoft web server.
3. Our database will be Microsoft SQL Server, which includes Microsoft SQL Server Management Studio, a graphical front-end to the database manager itself.
4. Your web application will make heavy use of Microsoft's **.Net** ("dot net") framework, including Active Server Pages (**ASP.Net**).
5. Your application will be written primarily in Microsoft Visual Basic and in Microsoft SQL Server stored procedures. Although the **.Net** platform supports other programming languages—notably **C#** ("see sharp")—we will stick with Visual Basic, which is full member of the **.Net** language family yet employs a clear and simple syntax that is easy for all students to learn.

## 6 Classroom Expectations

Following are my expectations about classroom conduct.

### 6.1 Attendance

Attendance is required. I will be in class each day, and I expect you to be there also. I will log who attends each class session.

In general, I am very understanding about students who must miss class due to a sanctioned Taylor activity, job interview, family emergency, and the like. If possible, let me know in advance if you will not be in class. I will work with you to arrange make-up instruction, homework, exams, etc.

### 6.2 Conduct

I expect you to be prepared, awake, aware, and participatory during class. I will not hesitate to ask you to stand or move if you are distracted or sleepy.

I expect you to join in discussions, respond to questions from me and from your colleagues, and ask questions of me. I expect you to hold my feet to the fire if I am being unclear, unkind, or contradictory.

### 6.3 Gizmos

You may not use a laptop, tablet, or similar device to check e-mail, engage in social networking, surf the web, or any other activity not directly relevant to current classroom activity.

If you use an electronic gizmo during class for legitimate academic purposes (e.g., note taking), be prepared to demonstrate relevant use on demand at any time.

## 7 Moodle

The Computer Science and Engineering department uses Moodle as our Learning Management System. The URL for Moodle is <https://cms.cse.taylor.edu>. To sign on to the

course site for the first time, you will need an enrollment key. The key for this course is `nerds4christ`.

You are responsible for checking Moodle regularly to keep up with assignment due dates and other announcements posted to the site. For due dates, *the Moodle calendar is your friend*.

## 8 Evaluation

The grading breakdown for the course is as follows:

Deliverable	Weight
Labs and Homework	20%
Term Project	40%
Midterm Exam	20%
Final Exam	20%
Total	100%

Refer to the Periodic Table of the Grades (on Moodle) for my grading scheme. I reserve the right to award a higher grade than strictly earned; outstanding attendance and class participation figure prominently in such decisions.

## 9 Academic Integrity

As a student at an institution whose goal is to honor Christ in all that it does, I expect you to uphold the strictest standards of academic integrity. You must do your own work, cite others when you present their work, and never misrepresent your academic performance in any way. Violation of these standards stains the reputations of you as a student, Taylor as an institution, and Jesus as our Lord. Such a violation will result in your failing the course and other disciplinary action by the University. Refer to the Taylor catalog for the official statement of these issues.

## References

- [1] Joseph S. Valacich, Joey F. George, and Jeffrey A. Hoffer. *Essentials of Systems Analysis and Design*. Prentice-Hall, fifth edition, 2012.