

**Business and Information Technology Department  
Spring 2009**

**Missouri University of Science & Technology**  
**Information Science and Technology 151**  
**Implementing Information Systems - Data Perspective**  
*Spring Semester 2009 – Syllabus*

**Class Information**

Class: Monday, Wednesday, and Friday 10:00-10:50  
Class Room: Centennial Hall 105

**Contact Information**

Instructor: [Carla Bates](#)  
Email: [mailto:carla@mst.edu?subject=IST\\_151\\_questions](mailto:carla@mst.edu?subject=IST_151_questions)  
Phone: 341-6078(office)  
Office: Computer Science 101  
Office Hrs: By appointment (not available Wednesdays after 1 p.m.)

**COURSE INFORMATION**

**Catalog Description:**

Continuation to object-oriented programming in the context of developing and implementing the various components of an information system with particular attention given to database incorporation. Class will include numerous projects covering intermediate topics. Prerequisite: IST 51.

**Extended Description:**

Over the last several years the department has previously taught Visual Basic and Java during the first year of introductory programming. After much deliberation, we have decided to teach Visual C# in the IST 51 and IST 151 classes. Visual C# includes many of the best features of Visual Basic and Java, and also has the full power of the .NET Framework. From the student's perspective, this will result in you being able to create much more power programs with less effort. Furthermore, a year on one language allows more depth with less repetition of concepts.

Information systems are the focus of the Information Science and Technology department. An information system is a large set of programs and interfaces that provide timely data for business operations and decision making requirements. There are many important aspects of information systems common to most commercial implementation. This course will introduce students to the Visual C# language in the context of implementing an information system. In particular, IST 151 focuses on the issues of implementation surrounding the system data layer. This layer will be composed of file structures as well as relational databases.

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**Course Prerequisites:**

IST 51

**Required Materials:**

*Wrox Visual C# 2005*, Darli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner, Eric White, Wiley Publishing Company, ISBN-13: 978-0-7645-7847-2

**Instructional Methods:**

The instruction is a combination of lecture and laboratory. The lectures will be used to teach important concepts, definitions, and techniques. The labs will be highly interactive and directed experiences allowing a hands-on approach to learning the programming exercises.

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**Course Learning Objectives:**

| Course Objectives   | Program Learning Objectives |                   |                        |                       |
|---|-----------------------------|-------------------|------------------------|-----------------------|
|   | Communication Skills        | Critical Thinking | Information Technology | Teamwork & Leadership |
| Understand the various components of an information system and their role in a corporate organization | X                           |                   | X                      | X                     |
| Learn how to use the Visual C#.NET environment to build information system components                 | X                           | X                 |                        |                       |
| Understand and utilize basics of object-oriented design and how it relates to .NET Framework          |                             | X                 | X                      |                       |
| Understand the event driven programming style, including basic controls and methods                   |                             | X                 | X                      |                       |
| Understand how to build simple relational databases   |                             | X                 | X                      |                       |
| Build simple databases using MS Access  |                             | X                 | X                      |                       |
| Integrate databases into Visual C# programs using ADO.NET   |                             | X                 | X                      |                       |
| Master the core programming concepts with regards to the manipulation of data fields                  |                             | X                 | X                      |                       |
| Learn how to display information from databases on interfaces   |                             | X                 |                        |                       |
| Learn to read simple programming requirement documents  | X                           |                   |                        |                       |
| Learn to write simple technical specification documents   | X                           |                   |                        |                       |

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**COURSE ASSIGNMENTS**

**Homework and Labs:**

Homework and computer laboratory assignments will be made frequently. These are to be done individually. Homework and lab exercises are to be completed on the specified date and time. Late homework or lab exercises will NOT be accepted and will result in a zero for that assignment.

**Examinations:**

Examinations will take several forms. We will have regular quizzes. These will be administered at the **start** of the class and will be multiple choice. These will use the Blackboard assessment tool and your score will be posted immediately. These will be open notes and book but must be taken in class that day. We will have more than 20, but only the best 20 will be used to calculate your grade (this will allow for you to miss a few classes without your grade suffering).

The midterm and final will consist of two part examinations. You will have a technical writing component and an applied programming problem. In the technical writing component, you will use a technique within Visual Studio to convert your comment into web pages. The point of the exercise is to produce quality comments. The technical problem will be to debug and modify existing code that you did not write. Both of these are classic information technology exercises.

**COURSE POLICIES AND GRADING**

**Attendance:**

Attendance is strongly encouraged, particularly as the tests will be based on the important definitions and concepts presented in the lectures. You will likely want to ask questions. The class moves quickly and it is easy to fall behind and not get caught up. The more you miss class, the more material that will be foreign to you. If a student has missed an extended or excessive amount of classes or has failed to turn in multiple assignments, the instructor will send that student an Academic Alert. The alert will be emailed to the student and student's advisor. The student must meet with the instructor within three days or the instructor will send out another alert. If the student has not met with the instructor after the second alert, the instructor reserves the right to drop the student.

If emergency circumstances arise, please contact the instructor as soon as possible to avoid penalties, and to try to catch up to the rest of the class.

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**Academic Integrity Statement (<http://registrar.mst.edu/academicregs/>):**

Violations of the University's academic code include, but are not limited to, possession of or use of unauthorized materials during quizzes or tests; providing unauthorized information to another student; or copying the work of another person. Violations may result in academic penalties in addition to receiving an "F" on the assignment in question. (See page 30 of Mst's "Student Academic Regulations" handbook for further details about student standards of conduct relative to the system's Collected Rules and Regulations section 200.010.)

**Academic Alert System (<http://academicalert.mst.edu/>):**

Missouri S&T is committed to the success of its students by providing an environment conducive to teaching and learning. To ensure that every student takes full advantage of the educational opportunities and support programs on campus, the University has implemented an Academic Alert System, a web-based application. The purpose of the System is to improve the overall academic success of students by:

- Improving communication between students, instructors, and advisors;
- Reducing the time required for students to be informed of their academic status;
- Informing students of actions they need to perform in order to meet the academic requirements in the courses they are taking.

To assist you, I will initiate an academic alert for students who are not meeting academic course requirements through poor performance on assignments or poor attendance. When an alert is initiated, an email is immediately sent to the instructor, student, and advisor. You are encouraged to respond quickly to all academic alerts. If you fail to open the alert within one week, email notification is sent to your advisor.

**Disability Support Services (<http://counsel.mst.edu/>):**

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation. If you have a disability that might require academic accommodations, please visit Disability Support Services in 204 Norwood Hall (341-4211; [dss@mst.edu](mailto:dss@mst.edu)) very early in the semester.

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**COURSE GRADING**

**Grading Breakdown:**

Grades will be based on total points, as defined below. There may be bonus points from time to time, which would be added to whatever category the bonus applies to. Boundaries for grades may be adjusted downward slightly, if deemed needed. You can expect that there will be class assignments, labs, or tests most every week.

**Point Distribution:**

| Assessment           | Description                                    | Points | Number | Total Points |
|----------------------|--|--------|--------|--------------|
| <b>Assignment 1</b>  | Managing Rich Text Files                       | 50     | 1      | 50           |
| <b>Assignment 2</b>  | Reading a Comma Separated Variable File        | 50     | 1      | 50           |
| <b>Assignment 3</b>  | Modifying a Comma Separated Variable File      | 50     | 1      | 50           |
| <b>Assignment 4</b>  | Creating Databases in Access                   | 50     | 1      | 50           |
| <b>Assignment 5</b>  | Reading Information from a database            | 100    | 1      | 100          |
| <b>Assignment 6</b>  | Updating Information in a database             | 100    | 1      | 100          |
| <b>Assignment 7</b>  | Reading One-to-Many relational information     | 100    | 1      | 100          |
| <b>Assignment 8</b>  | Updating One-to-Many relation information      | 100    | 1      | 100          |
| <b>Examination</b>   | Information System Maintenance                 | 100    | 1      | 100          |
| <b>Writing</b>       | Information System Documentation               | 100    | 2      | 200          |
| <b>Daily Quizzes</b> | Quizzes over the Reading Material and Lectures | 10     | 20     | 200          |
|                      |  |        |        | <b>1,100</b> |

**Grades:**

- A: 100% - 90%
- B: 89% - 80%
- C: 79% - 70%
- D: 69% - 60%
- F: Below 59%

**COURSE OUTLINE**

The course will proceed as follows. This schedule is a best estimate. We may drift a bit from it.

It should be made clear that you are expected to work on the assignments outside of class. Many of the assignments will be worked during lectures, but you will need time to bring them closure. Plan on a couple of hours outside of class for each hour spent in class.

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| Day | Date    | Tasks   | Reading (Ch. & Section)                                      | Notes  | Building Block Objects                       |
|-----|---------|---|--|--|--|
| M   | 1/12/09 | Welcome to the Course                                   |  |  |  |
| W   | 1/14/09 | Creating a Project;<br>Manipulating Solution<br>Folders | Ch. 2 Window<br>Forms<br>Applications                        | <b>Assignment 1<br/>given</b>                                  |  |
| F   | 1/16/09 | Working with Rich Text<br>Files                         | Ch. 14 The<br>RichTextBox<br>control. Ch. 16<br>File Dialogs |  | FileDialog,<br>MenuStrip,<br>RichTextBox     |
| M   | 1/19/09 | No class  |  | <b>Martin Luther<br/>King Holiday</b>                          |  |
| W   | 1/21/09 | Managing Errors with<br>Dialogs                         | Ch. 14 The<br>RichTextBox<br>control. Ch. 16<br>File Dialogs | <b>Assignment 1<br/>due,<br/>Assignment 2<br/>given</b>        | MessageBox,<br>DialogResult                  |
| F   | 1/23/09 | Working with Comma<br>Separated Variables<br>Files      | Notes  |  |  |
| M   | 1/26/09 | FileStream,<br>StreamWriter,<br>StreamReader            | Ch. 22 The<br>Classes for<br>Input and<br>Output             |  | FileStream,<br>StreamWriter,<br>StreamReader |
| W   | 1/28/09 | Tokenizing a string                                     | Ch. 22 The<br>StreamReader<br>Object                         |  | String, string[]                             |
| F   | 1/30/09 | List and Dictionary<br>Navigation                       | Ch. 12 Using<br>Generics                                     |  | List<T>,<br>Dictionary<K,T>                  |
| M   | 2/2/09  | "Binding" interface<br>controls to data fields          | Notes  |  |  |
| W   | 2/4/09  | As Needed   |  | <b>Assignment 2<br/>due,<br/>Assignment 3<br/>given</b>        |  |
| F   | 2/6/09  | "CRUD" and information<br>files                         | Notes  |  |  |
| M   | 2/9/09  | "CRUD" and Linked<br>Lists                              | Notes  |  |  |
| W   | 2/11/09 | Information Validation                                  | Notes  |  |  |
| F   | 2/13/09 | As Needed   |  |  |  |
| M   | 2/16/09 | As Needed   |  |  |  |
| W   | 2/18/09 | XML Documentation,<br>NDoc                              | Notes  | <b>Assignment 3<br/>due,<br/>Documentation<br/>Examination</b> |  |

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|   |         |  |  |   |  |
|---|---------|--|--|---|--|
|   |         |  |  | <b>Given,<br/>Maintenance<br/>Programming<br/>Given</b>   |  |
| F | 2/20/09 | As Needed  |  |   |  |
| M | 2/23/09 | Relational Databases   | Notes  |   |  |
| W | 2/25/09 | Relational Databases<br>and Normal form                          | Notes  | <b>Documentation<br/>Examination<br/>Due,<br/>Maintenance<br/>Programming<br/>Due,<br/>Assignment 4<br/>given</b> |  |
| F | 2/27/09 | Introduction to Access   | Notes  |   |  |
| M | 3/2/09  | Importing CSV files  |  |   |  |
| W | 3/4/09  | ADO.NET Introduction   | Ch. 24 What<br>is ADO.NET                                  |   |  |
| F | 3/6/09  | SQL Introduction   | Ch. 24 SQL<br>support in<br>ADO.NET                        |   |  |
| M | 3/9/09  | SQL Introduction   | Ch. 24 SQL<br>support in<br>ADO.NET                        |   |  |
| W | 3/11/09 | As Needed  |  |   |  |
| F | 3/13/09 | No Class   |  | <b>St. Pat's Break</b>  |  |
| M | 3/16/09 | More on ADO.Net  | Ch. 24<br>Overview of<br>ADO.NET<br>classes and<br>objects | <b>Assignment 4<br/>due,<br/>Assignment 5<br/>given</b>   |  |
| W | 3/18/09 | Common Database<br>interactions<br>Database and the<br>Interface | Ch. 24<br>Reading Data<br>with the<br>DataSet              |   |  |
| F | 3/20/09 | No Class   |  |   |  |
| M | 3/23/09 | No Class   |  | <b>Spring Break</b>   |  |
| W | 3/25/09 | No Class   |  | <b>Spring Break</b>   |  |
| F | 3/27/09 | No Class   |  | <b>Spring Break</b>   |  |
| M | 3/30/09 | Navigating   | Ch. 24<br>Reading Data<br>with the<br>DataSet              |   |  |
| W | 4/1/09  | Navigating   | Ch. 24<br>Reading Data<br>with the<br>DataSet              |   |  |
| F | 4/3/09  | As Needed  | Ch. 24<br>Reading Data                                     | <b>Assignment 5<br/>due,</b>  |  |



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|   |         |                         |                              |   |  |
|---|---------|-------------------------|------------------------------|---|--|
|   |         |                         | with the DataSet             | <b>Assignment 6 given</b>                   |  |
| M | 4/6/09  | "CRUD" and the database | Ch. 24 Updating the database |   |  |
| W | 4/8/09  | "CRUD" and the database | Ch. 24 Updating the database |   |  |
| F | 4/10/09 | "CRUD" and the database | Ch. 24 Updating the database |   |  |
| M | 4/13/09 | "CRUD" and the database | Ch. 24 Updating the database |   |  |
| W | 4/15/09 | As Needed               | Notes                        |   |  |
| F | 4/17/09 | One to Many             | Notes                        | <b>Assignment 6 due, Assignment 7 given</b> |  |
| M | 4/20/09 | One to Many             |                              |   |  |
| W | 4/22/09 | Database relationship   |                              |   |  |
| F | 4/24/09 | As Needed               |                              | <b>Assignment 7 due, Assignment 8 given</b> |  |
| M | 4/27/09 | CRUD and One to Many    |                              |   |  |
| W | 4/29/09 | CRUD and One to Many    |                              |   |  |
| F | 5/1/09  | CRUD and One to Many    |                              | <b>Assignment 8 due</b>                     |  |
| M | 5/4/09  | As Needed               |                              |   |  |
| W | 5/6/09  | As Needed               |                              |   |  |
| F | 5/8/09  | As Needed               |                              |   |  |
| M | 5/11/09 | Finals Week             |                              | <b>Finals Due</b>                           |  |
| W | 5/13/09 | Finals Week             |                              |   |  |
| F | 5/15/09 | Finals Week             |                              |   |  |