

# Web-Based Information Systems

Fall 2004

## CMPUT 410: Introduction

Dr. Osmar R. Zaiane



蔡頤安

University of Alberta

## Class and Office Hours

### Class:

Tuesdays and Thursdays from 14:00 to 15:20

Labs: Fridays 11:00 to 13:50

Fridays 14:00 to 16:50



### Office Hours:

Wednesdays from 9:30 to 11:00

By appointment:

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Tel: 492 2860

Office: ATH 3-52



### TA:



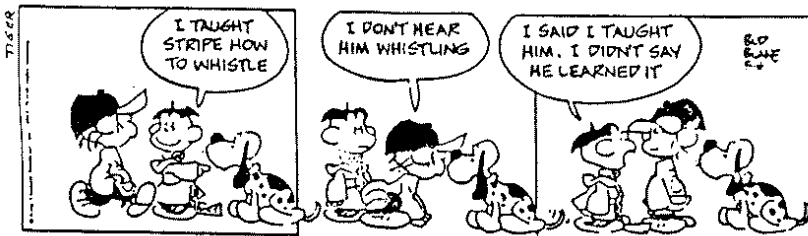
Jiyang Chen ([jiyang@cs.ualberta.ca](mailto:jiyang@cs.ualberta.ca))

Haobin Li ([haobin@cs.ualberta.ca](mailto:haobin@cs.ualberta.ca))



## Course Requirements

- Students who are taking this course need to have knowledge about database management systems and expertise in structured programming.
- CMPUT 291 and CMPUT 204 are required pre-requisites
- CMPUT 391, CMPUT 414 are ideal but not necessary

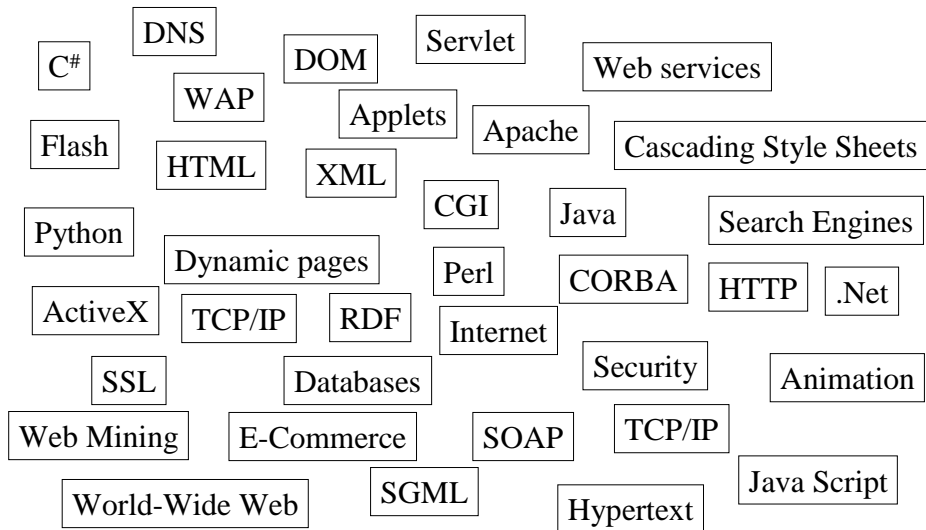


## Concepts to Learn

- What do you expect from this course?
- What do you want to learn?
- Let's discuss and enrich the course content together.
- You have the opportunity to contribute to the syllabus.



# Concepts to Learn



# Course Objectives

The objectives of the course are to introduce the students to the issues related to the design and implementation of web-based applications and acquaint the students with current technologies for information publishing and information exchange on the Internet. Students are introduced to concepts and techniques for constructing elegant and robust applications for the World-Wide Web.



After completing the course, students should be aware of prevailing technologies for web design and should be capable of building professional solutions for web-based applications.

Students are expected to learn by themselves by investigating beyond the basics covered in class, but will be guided in this process.

**and Have Fun!**

# Course Content

**Tentative**

- Introduction
- Internet and WWW
- Protocols
- HTML and beyond
- Animation & WWW
- CGI & HTML Forms
- Javascript
- Databases & WWW
- Dynamic Pages

- Perl & Cookies
- SGML / XML
- CORBA & SOAP
- Web Services
- Search Engines
- Recommender Syst.
- Web Mining
- Security Issues
- Selected Topics



Preliminaries

Publishing Web Content

Web-based Applications

Web Services

Intelligent Information Systems

# Course Content



- Introduction
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Preliminaries

# Objectives of Lecture 1

## Introduction

- Get a rough initial idea about the content of the course:
  - Lectures;
  - Resources
  - Activities;
  - Evaluation.

# Notes and Textbook



## Course home page:

<http://www.cs.ualberta.ca/~zaiane/courses/cmput410/>

## Textbook:

Internet and World Wide Web How to Program

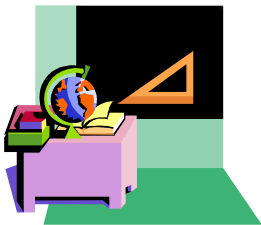
3<sup>rd</sup> Edition. +CDs

by Harvey M. Deitel, Paul J. Deitel, A. B. Goldberg

Prentice Hall, 2004



# On-line Resources



- CMPUT 410 web page
- Course slides
- Web links
- Glossary
- Student submitted resources
- U-Chat
- Frequently asked questions
- Announcements

There will be no handouts distributed in class.

# Course Schedule

(Tentative, subject to changes)

Tentative



There are 14 weeks from September 9<sup>th</sup> to December 8<sup>th</sup>

There are 6 assignments that you can do in the lab or at home. However, implementation of assignments should be demonstrated in the lab.

Assignment 1 distribution **week 2** due **week 3** (web page design & implementation)

Assignment 2 distribution **week 2** due **week 5** (Form input validation)

Assignment 3 distribution **week 4** due **week 8** (Javascript drag and drop)

Assignment 4 distribution **week 5** due **week 9** (Cookies)

Assignment 5 distribution **week 6** due **week 10** (XML and XSLT)

Assignment 6 distribution **week 6** due **week 11** (Web services)

We will have lab exercises. They won't be marked, but if not done will result in negative points for the assignments.

Midterm **week 8 (Probably October 26th)**

Epilogue test **Week 14 (December 8<sup>th</sup>) last day of class**

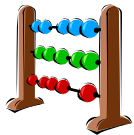
Out of town  
Nov. 2<sup>nd</sup>  
Nov. 4<sup>th</sup>



Week 9

# Evaluation and Grading

Your final grade will depend on the entire profile of the grades in your lecture section (bell-curve distribution) and a particular composite score does not guarantee a particular final grade. However, your composite score will be computed using the following weights:



- Assignments 30% (6 assignments, 5% each)
- Midterm exam 15% (before reading week)
- Class presentation 10% (10 minutes on relevant topic)
- Project 30% (team work)
- Epilogue test 15% (one hour)

**There is no final exam for this course.**

- A+ will be given only for **outstanding** achievement.

# More About Evaluation

## Re-examination.

None, except as per regulation.



## Collaboration.

Do Collaborate on assignments; do not merely copy.

Do not exchange machine-readable code (programs)

**Plagiarism, cheating, misrepresentation of facts and participation in such offences are viewed as serious academic offences by the University and by the Campus Law Review Committee (CLRC) of General Faculties Council. Sanctions for such offences range from a reprimand to suspension or expulsion from the University.**

## Plagiarism.

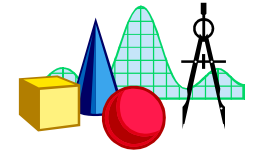
Work submitted by a student that is the work of another student or any other person is considered plagiarism. Read **Sections 26.1.4** and **26.1.5** of the University of Alberta calendar. Cases of plagiarism are immediately referred to the Dean of Science, who determines what course of action is appropriate.

# Collaboration Policy

- Exams, Assignments and Lab Exercises are to be done individually.
- Even though you are allowed to form study groups and discuss assignments, each student must come up with his/her own solution by him/herself.
- Students may be asked at anytime to explain and/or justify their solutions and if they are clearly unable to do so then a zero mark may be assigned to the assignment in question and, if warranted, the case may be treated as a potential case of misconduct.

**Plagiarism is a serious offence. It has been, and will continue to be, dealt with very seriously.**

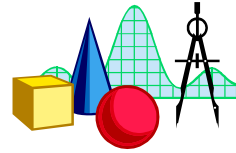
# Course Project



- The objectives of the course project are to gain hands-on experience in design and implementation of Web-based information systems and develop team work skills.
- Important factors for project evaluation:
  - Scalability (use of database management system)
  - System and design quality (user interface, functionality, ease of use, robustness)
  - Component-based design



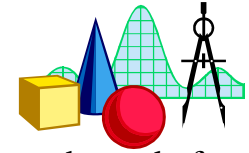
## Course Project



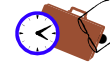
- The whole course should revolve around the implementation of a term project.
- The project will be built step by step and new concepts will be incorporated as they are covered in class.
- The project are team projects with 4 students per team.



## Course Project



- Projects will be demonstrated in class at the end of the semester.
- The idea is to build a web-based application (for a fictive e-business) from the ground up with technologies such as:



Databases, dynamic pages, secure transactions, servlets, javascript, Web services for object exchange, etc.

- The e-business would pertain to either:

or

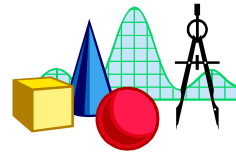
Past  
Projects



Gift  
Registry

Hotel  
Reservation

## Course Project



- The project implementation will have two major modules:
  - Retail (What the customers see)
    - Selecting, ordering, shopping cart, personalization, recommendation, etc.
  - Management (what the store manager sees)
    - customer management, shipping, billing, stock, etc.
- Teams will divide as they wish to implement these modules



## Class Presentation



- There will be class presentations (by students) on a variety of relevant technologies such as:
  - Semantic Web, RDF, .Net, Flash, etc.
- Topics will be selected later.
- Presentations should be done as professional training tutorials.
- 5 students per topic presented, working together
- 20 minutes per presentation, as well as a report to be put on-line for students to access.
- Evaluation based on Report, Presentation and Peer evaluation.





## Quick Tour of the Course Web Site

Course Profile

Course Profile	Course Content	Course Activities	Course Evaluation	Course Resources
Introduction	Introduction	Assignments	Grading Scheme	Classroom
Internet & WWW	Prerequisites	Exam Schedule	FAQ	FAQ
Scripting	Prerequisites	Readings	Chapters	Web Links
HTML & CSS	Prerequisites	Details Slides	Workshops	Workshops
JavaScript	Prerequisites	Workshops	Workshops	Workshops
XML	Prerequisites	Workshops	Workshops	Workshops
SOAP	Prerequisites	Workshops	Workshops	Workshops
Security Issues	Prerequisites	Workshops	Workshops	Workshops

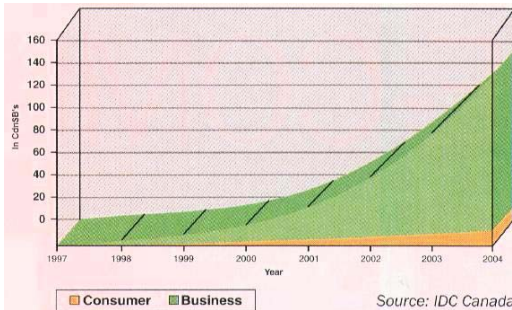
<http://www.cs.ualberta.ca/~zaiane/courses/cmput410>

## Project Topic Ideas

- Hotel Reservation
  - Each team deals with one city
  - A customer reserves in multiple cities but using only one interface (business)
  - Businesses communicate using web-services
  - Recommend other hotels when choices are not available.
  - Constraints limited to price, stars, swim/pool & restaurant
- Gift Registry
  - Each team deals with one store
  - Products are limited and standardized across stores
  - Businesses communicate using web-services
  - Recommend other products to groom/bride and recommend products to customers.

## Impact

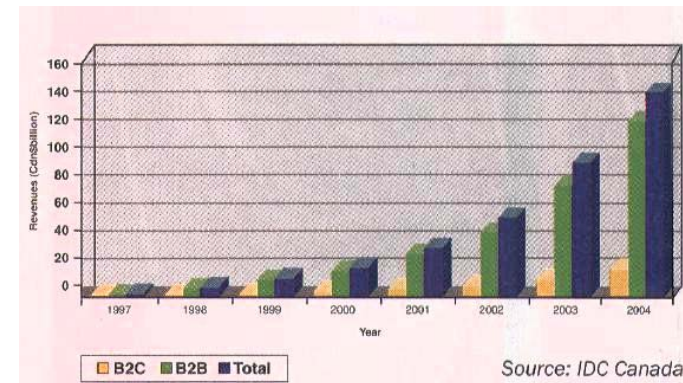
- A teenager is buying his first CD on-line.
- A grandmother is e-mailing her friends around the world using her television.
- The Internet has a profound impact not only on the new generation, but on all people off all ages where ever they are.



### Growth of E-Commerce in Canada

Predicted to be over \$148 billion by 2004.

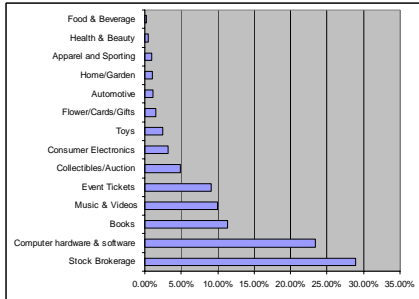
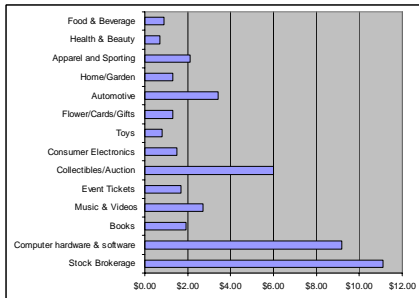
## B2C and B2B Market Shares



Business-to-Business is already more important in Canada than Business-to-Consumer. B2B is predicted to represent 87% of the total by 2004.

# Online Internet Sales Penetration

Industry or market sector	Online sales 2000 (in US\$ billions)	Online as % of total market
Stock Brokerage	\$11.10	28.90%
Computer hardware & software	\$9.20	23.40%
Books	\$1.90	11.40%
Music & Videos	\$2.70	9.90%
Event Tickets	\$1.70	9.10%
Collectibles/Auction	\$6.00	4.90%
Consumer Electronics	\$1.50	3.20%
Toys	\$0.80	2.40%
Flower/Cards/Gifts	\$1.30	1.50%
Automotive	\$3.40	1.10%
Home/Garden	\$1.30	1.00%
Apparel and Sporting	\$2.10	0.90%
Health & Beauty	\$0.70	0.50%
Food & Beverage	\$0.90	0.20%



Sources: Shops.org, Boston Consulting Group, Wall Street Journal