

IT/ITM 462 / ITM 562 Web Site Design, Management and Application Development Spring 2005

Instructor: Ray Trygstad

Address: IIT Daniel F. and Ada L. Rice Campus, 201 E Loop Rd., Wheaton, IL 60187
Telephone: 630.682.6032
Home Phone: 630.778.7443
Fax: 630.682.6010
Email: trygstad@iit.edu
Office: Rice Campus - Room 227

Main Campus - 3424 South State Street, Room 4C8-2
Office Hours: Rice Campus: Thursday 3:00-5:00pm
Main Campus: Wednesday 1:00-3:00pm, 4:30-5:30pm
Online: Thursdays 3:00-5:00pm and 9:30-10:30pm; other times by appointment
(Online via Blackboard or telephone 630.682.6032)

Course Catalog Description: The design of effective Web site including page layout, user interface design, graphic design, content flow and site structure as well as management of Web site resources including security and intranet management and design considerations are addressed. Programming the Common Gateway Interface (CGI) for Web pages is introduced with emphasis on creation of interfaces to handle HTML form data. Students design and create a major Web site with multiple pages and cross-linked structures, create basic CGI programs with Web interfaces and process data flows from online forms with basic database structures.

Prerequisites: ITM 461/561 / IT 461 **Credit:** 2-2-3 Semester Hours for ITM 462/562; 6.4 CEUs for IT 462

Lecture/Lab Day, Time & Place: Mondays and Wednesdays 3:15-4:30pm, Main Campus (classroom TBD) or online via IITOnline

Course Background:

Students enrolled in the course are assumed to have some previous experience in programming. You should have access to the Internet at home; Internet access via America Online is adequate but not recommended.

Operating system emphasis: Since you should already have a reasonable level of knowledge and experience using a graphical operating system, the course continues to place a great deal of emphasis on use of UNIX/Linux servers. The vast majority of Web servers still run under Apache on UNIX or Linux variants, and you need to learn to build and manage Web sites in this new and unaccustomed environment. If you can build and manage sites under UNIX/Linux, site construction and management under Windows should be relatively simple. This UNIX/Linux emphasis is an important component of the course.

Exercises: Nearly every lesson includes exercises; as a hands-on course, the exercises are a critical component of the course. The instructor will demonstrate or discuss each exercise during the lecture; in many cases you should follow along in real-time if your situation allows.

Accreditation: This course was written to meet accreditation requirements for the Association of Internet Professionals Certification Accreditation Council (ACAC) Technical Foundation Level; the course should also serve as preparation for examination-based certifications such as Certified Internet Webmaster and CompTIA i-Net+.

Hardware:

All students should have access to the Internet at home, preferably via DSL or broadband; Internet access via America Online will suffice **but is not recommended**.

All students should have a computer or access to a computer running Windows 2000 or XP Professional with administrator privileges on the system. If you have a system that is capable of running Windows 2000 or XP Professional but have Windows 98, ME or XP Home installed, contact the instructor regarding a free upgrade to Windows 2000 or XP Professional. Remote students can complete the course using a Linux or Macintosh system but not all exercises will operate as demonstrated in class; Linux users should have at least Redhat 7.3 or later or the equivalent and Macintosh users should have OS X or later. The quality of your learning experience will be greatly enhanced if you have access to an Internet-connected computer during lectures.

Schedule of Topics/Readings:

Wednesday, January 19

Topic 1: Introduction to WYSIWYG Web Page Editors

Exercise: Using a WYSIWYG Web page editor

Reading: Niederst pp. 29-31

Online Reading: Web Tools <http://itwebmaster.iit.edu/resources/webtools.html>

Monday, January 24

Topic 2: Server Side Includes and Maximizing your Page Exposure

Exercises: Using meta tags, Server Side Includes and boilerplate

Reading: Niederst *Nutshell* Chapter 18 & pp. 113-114

Online Reading: Meta Tags/Promoting Your Page <http://itwebmaster.iit.edu/resources/metatags.html>

Using Server Side Includes <http://itwebmaster.iit.edu/resources/ssi.html>

Wednesday, January 26

Topic 3: Typography & Graphic Design for the Web

Exercises: Designing Graphical Text Elements

Reading: Niederst Chapters 14 & 15, Williams Chapters 10 & 11, Niederst *Nutshell* pp. 31-36

Online Reading: Graphics Tools <http://itwebmaster.iit.edu/resources/graphicstools.html>

Monday, January 31

Topic 4: Using Photographs and Imagemaps

Exercise: Creating an Imagemap

Readings: Niederst *Nutshell* Chapters 19-22 & pp. 154-160, Niederst pp. 43-46

Optional Readings: Ditto 165-167

Online Reading: Photos and Imagemaps <http://itwebmaster.iit.edu/resources/webphoto.html>

Wednesday, February 2

Topic 5: Basic Page Design Concepts

Exercise: Examining online designs

Reading: Williams Chapters 5 & 6; Niederst Chapter 5, Niederst *Nutshell* Chapters 2-3

Online Reading: Web Design Fundamentals <http://itwebmaster.iit.edu/resources/webdesign.html>

Monday, February 7

Topic 6: The Page Grid and Page Templates

Exercise: Creating a page template

Online Resources: Web Page Grid Template <http://itwebmaster.iit.edu/resources/Gridtool.pdf>

Web Page Pixelmeasure Template <http://itwebmaster.iit.edu/resources/pixelmeasure.html>

Wednesday, February 9

Topic 7: Web Site Proposals & Final Project Discussion

Exercise: Final Project Proposal and Design

Online Reading: Web Site Proposals <http://itwebmaster.iit.edu/resources/proposals.html>

Monday, February 14

Topic 8: User Interface Design & Web Site Structure

Exercise: Designing a Web site: top-down and bottom-up with a user interface for your site

Reading: Williams Chapters 4 & 7; Niederst Chapter 18

Online Reading: Web User Interface Design <http://itwebmaster.iit.edu/resources/webui.html>

Yale/AIM Style Manual <http://imc.iit.edu/internet.access/manual/>

February 16

Topic 9: Cascading Style Sheets (CSS)

Exercise: Use of CSS to control page appearance across a site

Readings: Niederst *Nutshell* Chapter 17

Online Reading: Cascading Style Sheets <http://itwebmaster.iit.edu/resources/css.html>

Monday, February 21

Topic 10: Color Theory &

Exercise: Color in Context: Color in Tables and CSS

Readings: Niederst Chapter 12

Online Reading: Color Theory <http://itwebmaster.iit.edu/resources/colortheory.html>

Wednesday, February 23

Topic 11: The Business of Web Development

Online Reading: The Business of Web Development

<http://itwebmaster.iit.edu/resources/webbusiness1.html>

Monday, February 28

Topic 12: Web Programming Languages, Databases and Plug-Ins

Exercise: Creating Dynamic HTML with JavaScript

Readings: Niederst pages 367-368, Niederst *Nutshell* Chapters 28-29

Optional Readings: Ditto Chapter 15; Powell Chapters 14 & 15

Online Reading: Programming Languages, Databases and Plug-ins

<http://itwebmaster.iit.edu/resources/prog.html>

Wednesday, March 2

Topic 13: Web Site Management

Exercises: Using the directory structure, redirects, and symbolic links

Optional Readings: Ditto Chapter 4

Online Reading: Web Site Management <http://itwebmaster.iit.edu/resources/webmgmt.html>

Monday, March 7

Topic 14: Design Standards for Site Consistency

Exercise: Drafting a design standard

Online Reading: Web Standards <http://itwebmaster.iit.edu/resources/webstandards.html>

Wednesday, March 9

Topic 15: Midterm Examination

Monday, March 14 *Spring Vacation:* No class

Wednesday, March 16 *Spring Vacation:* No class

Monday, March 21

Topic 16: Animations, Sound and Video: Pages That Dance & Sing

Exercise: Creating animated .gif files

Readings: Niederst Chapter 16, Niederst *Nutshell* Chapters 23-26

Online Reading: Video & Audio for the Web <http://itwebmaster.iit.edu/resources/webanim.html>

Wednesday, March 23

Topic 17: Internet Security Overview

Optional Reading: Stein Chapters 2, 3, 4, & 11

Online Reading: Introduction to Internet Security

<http://itwebmaster.iit.edu/resources/netsecurity.html>

Monday, March 28

Topic 18: Controlling Access: Web Site Security

Exercises: Using .htaccess and other server access control mechanisms

Optional Reading: Ditto Chapter 6, Stein Chapters 1, 8, 9 & 10

Online Reading: Securing Your Site and Controlling Access

<http://itwebmaster.iit.edu/resources/webaccess.html>

Wednesday, March 30

Topic 19: Web Site Testing

Exercise: Testing Your Site

Online Reading: Web Testing <http://itwebmaster.iit.edu/resources/webtesting.html>

Monday, April 4

Topic 20: Introduction to CGI and Perl

Exercise: Basic Perl Scripting: the Hello World Program

Supplemental Reading: Castro Introduction, pp. 13-22

Online Reading: Introduction to CGI Programming with Perl

<http://itwebmaster.iit.edu/resources/perlcgi1.html>

Wednesday, April 6

Topic 21: Designing Your CGI

Exercise: CGI Pseudocode

Online Reading: Pseudocode <http://itwebmaster.iit.edu/resources/pseudocode.html>

Monday, April 11

Topic 22: Learning Perl

Exercise: Functions and Data Types

Supplemental Reading: Castro Chapter 1, pp. 23-28; Chapter 6, pp. 73-82; Chapter 9, pp. 117-118; Chapter 13, pp. 177-179; Chapter 14, pp. 189-196

Online Reading: Perl Functions and Variables <http://itwebmaster.iit.edu/resources/funcvar.html>

Wednesday, April 13

Topic 23: Adapting Existing CGI Scripts

Exercise: Adapting a CGI Script

Supplemental Reading: Castro Chapter 16, pp. 217-222

Online Reading: Free CGI <http://itwebmaster.iit.edu/resources/freecgi.html>

Monday, April 18

Topic 24: HTML Forms in Perl

Lab 24: Writing a Form Handler

Supplemental Reading: Castro Chapters 3,4, & 5, pp.43-70; Chapter 13, pp. 177-179; Appendix A 223-230

Online Reading: Form Handler <http://itwebmaster.iit.edu/resources/formhandler.html>

Wednesday, April 20

Topic 25: CGI Database Handling

Exercise: Intro to Databases

Supplemental Reading: Castro Chapters 7 & 8, pp. 83-115

Online Reading: CGI Flat-File Databases <http://itwebmaster.iit.edu/resources/cgidb1.html>

Monday, April 25

Topic 26: Dynamic Web Page Creation

Exercise: Dynamic Web Page Creation

Online Reading: Dynamic Web Pages with CGI <http://itwebmaster.iit.edu/resources/dynpages.html>

Wednesday, April 27

Topic 27: Searching with Perl

Exercise: Simple Search of a Site

Supplemental Reading: Castro Chapter 11, pp. 137-159

Online Reading: Searching with Perl <http://itwebmaster.iit.edu/resources/perlsearch.html>

Monday, May 2

Topic 28: CGI Security

Exercise: Logging In and Out

Supplemental Reading: Castro Chapter 10, pp. 127-135

Wednesday, May 4

Topic 29: Web Database Management

Exercise: Advanced Database Interaction

Supplemental Reading: Castro Chapter 10, pp. 127-135

Finals Week (Week of May 9)

Final Examination

Required Textbooks: (Included in course materials for IT students; must be purchased by ITM students)

- Niederst, Jennifer, *Learning Web Design: A Beginner's Guide to HTML, Graphics, and Beyond*; (2nd Edition) O'Reilly, 2003 ISBN; 0596004842 (Niederst)
- Neiderst, Jennifer, *Web Design in a Nutshell*, (2nd Edition) O'Reilly 2001 ISBN; 0596001967 (Niederst *Nutshell*)
- Williams, Robin, *The Non-Designer's Web Book: An Easy Guide to Creating, Designing, and Posting Your Own Web Site*, (2nd Edition) Peachpit Press, 2000; ISBN: 0201710382
- Castro, Elizabeth, *Perl and CGI for the World Wide Web: Visual QuickStart Guide*, (2nd Edition) Peachpit Press, 2001; ISBN: 0201735687. Companion Web site: <http://www.cookwood.com/perl/>
- Webmaster Sources LLC, *Web Site Design, Management and Application Development Class Notes*; Naperville, Illinois, 2005

Optional Textbooks: (On course reserve in the Biegler Library for all other students; the Charuhas books may be downloaded as noted)

- Ditto, Christopher, *Webmaster Answers! Certified Tech Support*, Osborne, 1998; ISBN: 0078824591
- Powell, Thomas A., *HTML: The Complete Reference* Third Edition; Osborne, 2001 ISBN 0072129514
- Stein, Lincoln D., *Web Security: A Step-by-Step Reference Guide*; Addison-Wesley Pub Co., 1998; ISBN: 0201634899

- Charuhas, Chris, *HTML and JavaScript for Visual Learners*; Visibooks, 2000; ISBN: 0970747926; free at <http://itwebmaster.iit.edu/resources/htmljavascript.pdf>
- Charuhas, Chris, *Dreamweaver 4 for Visual Learners*; Visibooks, 2000; ISBN: 097074790X; free at <http://itwebmaster.iit.edu/resources/dreamweaver4.pdf>
- Charuhas, Chris, *The Visual Learners Guide to Managing Web Projects*; Visibooks, 2000; ISBN: 0970747934; free at <http://itwebmaster.iit.edu/resources/managingwebprojects.pdf>

Course Objectives:

Each successful student will demonstrate foundation knowledge of Web site design, design principles, site proposals and documentation and CGI Web programming. Each student will propose, design and create a complex Web site including interactivity using server-side programming on a UNIX-based server.

Course Outcomes:

Students completing this course will be able to:

- Create a functional, navigable Web site reflecting adherence to good design principles, incorporating the use of graphics and style sheets
- Draft a proposal for a Web site
- Document a Web site with a design standard
- Write a Perl CGI program and incorporate it into a Web site to enhance the functionality of the site

Course Notes: Copies of the course notes will be available for purchase by ITM students and will be provided to IT students. These notes are intended to be very complete, but they are still an *outline* and are not intended to serve as a substitute for the lecture. You should be aware that note taking is encouraged and should help your understanding of the material.

Course Web Sites: <http://itwebmaster.iit.edu/> and <http://blackboard.iit.edu/>

Blackboard: The course will make intensive use of Blackboard (<http://blackboard.iit.edu/>) for communications, assignment submissions, group project coordination, providing online resources and administering examinations. All remote students will view the course lectures online via Blackboard, and online office hours will be conducted via Blackboard chat.

Readings: Readings for the class will be assigned from the textbooks as well as in the form of online reading. All readings should be done before coming to class on the assigned date, and are *mandatory* and *expected*. Generally if you do the readings you will *excel* in the course, as the lectures serve as a clarification and explanation of material you should already be familiar with. Specific readings are assigned by topic above.

Assignments: There will be two assignments for this class.

Assignment 1: A proposal for a Web site as described in Lessons 7.0 & 7.1. It may be submitted as a text or HTML file or in Word, WordPerfect, Wordpro, OpenOffice.org/StarOffice or AbiWord format; the paper will be submitted via the assignments page on Blackboard. This assignment will be due March 23.

Assignment 2: A World Wide Web site meeting specific requirements as described in Lesson 7.1 and as established by the instructor. The project will be placed on the Web and will be due May 4.

Exercises: Exercises for this class will be guided learning experiences; some exercises may include questions to ensure that the necessary skills have been mastered. The specific weight of exercises in grading is left to the instructor's discretion and will be included in the class participation grade. All Perl programs must be complete and function properly to receive full credit.

Quizzes: Quizzes may be given at the instructor's discretion and may be used for verification that assigned reading has been completed. As they are discretionary, weight of quizzes in grading is also left to the instructor's discretion and will be included in the class participation grade. Quizzes may be online via Blackboard.

Examinations: The midterm and final examinations will consist of multiple choice, fill-in-the-blank, short answer, and short essay questions to demonstrate mastery of the material covered; questions will be based on the learning objectives for each topic. The midterm exam will test material covered in the first half of the course; the final exam will only test material covered in the last half of the course and is not cumulative. The midterm examination will be closed-book/closed-notes. The final exam will be open-book/open-notes/open-web. Internet students residing in the Chicago area should make arrangements

to attend the examinations in Wheaton or at the Main Campus in Chicago, or arrange a time and place for each examination with the instructor.

Plagiarism: All work submitted by students must be their own. Plagiarism may result in an automatic grade of “E”. Even though it is incredibly foolish and painfully obvious (since the only real source for plagiarism is previous student work in the course) students have actually submitted plagiarised assignments in the past.

Distance Learning: The primary method of communications for all students will be via IIT Blackboard at <http://blackboard.iit.edu>. Examinations may be administered by IIT Online, but students in the Chicago metropolitan area are highly encouraged to take their examinations live with the class at Main Campus if at all possible. Students enrolled in distance learning sections are always welcome to attend the live course sessions at Main Campus.

Grading: Grading criteria for ITM/IT 462 students will be as follows:

A	<i>Outstanding work reflecting substantial effort.</i>	90-100%
B	<i>Excellent work reflecting good effort.</i>	80-89.99%
C	<i>Satisfactory work meeting minimum expectations.</i>	70-79.99%
D	<i>Substandard work not meeting expectations.</i>	60-69.99%
E	<i>Unsatisfactory work.</i>	0-59.99%

Grading criteria for ITM 562 students will be as follows:

A	<i>Outstanding work reflecting substantial effort.</i>	90-100%
B	<i>Adequate work fully meeting that expected of a graduate student.</i>	80-89.99%
C	<i>Weak but marginally satisfactory work.</i>	65-79.99%
E	<i>Unsatisfactory work.</i>	0-64.99%

The final grade for the class will be calculated as follows:

Assignment 1.	20%
Assignment 2.	20%
Midterm Exam.	20%
Final Exam.	20%
Quizzes, Labs and Class Participation.	20%

Other Class Resources: Online readings and other class resources may be found at <http://itwebmaster.iit.edu/>.

Computer Use Policies: Please ensure that you have read and understand the IIT and CPD Network and Computer Use Policies found at <http://itwebmaster.iit.edu/policies.html>.