

ECT 360

Introduction to XML

Fall 2005
Section 701
M 5:45 – 9:00 pm, Room Lewis 1507

Professor: Robin Burke
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Office hours: Mondays 10:30 – 12 noon (office) and Wednesdays 10:00 – 12 noon (Rm 920) and by appointment.
Prerequisites: One quarter of programming (CSC 211 or CSC 261 or equivalent) and IT 130
Course web site: <http://josquin.cti.depaul.edu/~rburke/courses/f05/ect360/>

Description

This course is an introduction to Extensible Markup Language (XML). We will focus particularly on web applications of XML using XSLT to render XML documents for web browsers, and using AJAX introduce the XML DOM API using JavaScript. We will also cover two different technologies for XML validation: DTDs and XML Schemas.

Readings

Required: Hunter, D. et al. *Beginning XML*. 3rd Edition. Wiley Publishing, 2004. ISBN 0-7645-7077-3.
There are also on-line readings accessed from the course web site and from Course On-Line.

Note

The schedule and other information in the syllabus is subject to change. Consult the Course On-Line website and the course home page for the most up-to-date information.

Resources

Information such as lecture notes and assignments can be found on the course home page. I will try to have slides available 24 hours in advance of class, but I cannot guarantee it.

Students are encouraged to download and install XML Spy Home Edition (http://www.altova.com/download_spy_home.html) and request a free license from Altova in order to use it. All of the assignments in the course can be done using only Internet Explorer's built-in XML tools (version 5.0 or later). Several lab sessions will be scheduled during the quarter for hands-on exercises using XML. You may use a different XML editor and processor for your coursework. However, I cannot provide support for alternate editors.

Assessment

Student progress will be assessed through a combination of regular homework assignments, a research presentation and a final project. These components will be weighted as follows:

- Homework – 35%
- Participation (including in-class exercises and labs) – 15%
- Quizzes – 20%
- Final project – 30%

The final project will be a group project involving the creation of a new XML application, XML content, and several XSLT stylesheets or AJAX applications for rendering the XML content in different ways. Details on this project will be made available on the first day of class.

Grades will be awarded as follows:

A: Excellent work. Demonstrates thorough knowledge of the subject matter, going beyond what is covered in class. Contains well-considered and creative solutions to problems. Well-written answers and/or employment of impeccable coding style.

B: Very good work. Demonstrates complete knowledge of the subject matter based on coverage in class and textbook. No major errors of reasoning in problem solutions. Competent written answers and readable coding style.

C: Average work. Some gaps in knowledge of subject matter. Some errors or omissions in problem solving. Written answers may contain grammatical and other errors; coding may be stylistically awkward.

D: Below average work. Substantial gaps in knowledge of subject matter. Problem solving incomplete or incorrect. Poor English in written answers; ineffective coding style.

Tentative Schedule

9/12: Introduction

Introduction to the course. XML structure. Namespaces.

Reading: *Beginning XML*, Chapters 1–3.

Assigned: Homework #1

9/19: XML Validation I

Defining XML languages. Document type definitions (DTDs). Lab session introducing XML tools.

Reading: *Beginning XML*, Chapter 4 (pp. 91 – 129)

Due: Homework #1

Assigned: Homework #2

Project Milestone #1: Form project group

9/26: XML Validation II

More DTD topics: entities, modularization and parameterization. In-class exercise.

Reading: *Beginning XML*, Chapter 4 (pp. 129 – 148)

Due: Homework #2

Project Milestone #2: Select application area

10/3: Document Analysis

Document modeling as a discipline. Documents and processes. Narrative and transactional data. Document analysis. Component analysis.

Reading: *Document Engineering*, Chapters 11 and 12 (on-line at course web site)

Quiz #1: DTDs

10/10: XML Validation III

XML Schemas. Defining elements and complex types. Built-in and user-defined data types

Reading: *Beginning XML*, Chapter 5

Assigned: Homework #3

Project Milestone #3: Document analysis

10/17: XPath and XSLT / XSLT Lab

Introduction to XML transformations. Introduction to XPath. Transformations. Lab exercises with XSLT examples.

Reading: *Beginning XML*, Chapter 7 and 8 (pp. 291 – 303)

Due: Homework #3

10/24: XSLT 2

XML transformations, continued. Conditional nodes and predicates. Creating & inserting nodes in an XML document. Numbering. Functional programming concepts. Variables, functions and recursion.

Reading: *Beginning XML*, Chapter 8 (pp. 303 – 326)
Quiz #2: Schemas and Document Engineering
Assigned: Homework #4
Project Milestone #4: Schema or DTD

10/31: DOM Programming
Programming the XML DOM in JavaScript. Reading and writing XML documents. Manipulating document structure.
Reading: *Beginning XML*, Chapter 11
Due: Homework #4
Assigned: Homework #5

11/7: AJAX / AJAX Lab
Interactive web applications combining Active JavaScript and XML. Problems of traditional web applications. Dynamic page updates with JavaScript and XMLHttpRequest. Example AJAX applications in lab.
Reading: Garret, J. J. "Ajax: A New Approach to Web Applications"
(<http://www.adaptivepath.com/publications/essays/archives/000385.php>)
McClellan, D. "Very Dynamic Web Interfaces" (<http://www.xml.com/pub/a/2005/02/09/xml-http-request.html>)
Due: Homework #5
Project Milestone #5: Web page mockups

11/14: Advanced Topics
Advanced topics in XML as selected by instructor.
Reading: TBA
Quiz #3: XSLT

11/21: Final projects due. No final exam.

Policies

Students are expected to attend all classes and participate in in-class exercises. Class will start promptly at 5:45 pm. Students are individually responsible for material they may have missed due to absence or tardiness.

In a team project, it is important to divide the project effort fairly among team members. Group participation will be evaluated. Student having difficulties within their project group should contact the instructor as soon as possible.

Assignments will be submitted in ZIP format to the Course On-Line site. Do not submit assignments by email. **All assignments should be completed and submitted by class time on the due date.** Late assignments will be accepted up to two days after the due date with a 10% penalty per day. The final project may not be submitted late.

Assignments must represent a student's individual effort. While students are permitted to discuss assignments at the conceptual level, under no circumstances should students share specific answers (electronically or otherwise). You may also not use XML or XSLT code within an assignment or project unless that code was developed by you, the only exception being when given specific permission by the instructor to do so. In presentations, diagrams and examples that are not your own work must be clearly attributed.

School Policies

Online Instructor Evaluation

Course and instructor evaluations are critical for maintaining and improving course quality. To make evaluations as meaningful as possible, we need 100% student participation. Therefore, participation in the School's web-based academic administration initiative during the eighth and ninth week of this course is a requirement of this course. Failure to participate in this process will result in a grade of incomplete for the course. This incomplete will be automatically removed within seven weeks after the end of the course and replaced by the grade you would have received if you had fulfilled this requirement.

Email

Email is the primary means of communication between faculty and students enrolled in this course outside of class time. Students should be sure their email listed under "demographic information" at <http://campusconnect.depaul.edu/> is correct.

Plagiarism:

The university and school policy on plagiarism can be summarized as follows: Students in this course, as well as all other courses in which independent research or writing play a vital part in the course requirements, should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work a report, examination paper, computer file, lab report, or other assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

Incomplete:

An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the School of Computer Science, Telecommunications and Information Systems. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request.