

**CS 50.15B Course Outline as of Fall 2015****CATALOG INFORMATION**

Dept and Nbr: CS 50.15B Title: INTRO TO XML 2

Full Title: Introduction to XML 2

Last Reviewed: 11/8/2010

| Units   | Course Hours per Week |                   | Nbr of Weeks |      | Course Hours Total |       |
|---------|-----------------------|-------------------|--------------|------|--------------------|-------|
| Maximum | 1.50                  | Lecture Scheduled | 1.50         | 17.5 | Lecture Scheduled  | 26.25 |
| Minimum | 1.50                  | Lab Scheduled     | 0            | 4    | Lab Scheduled      | 0     |
|         |                       | Contact DHR       | 0            |      | Contact DHR        | 0     |
|         |                       | Contact Total     | 1.50         |      | Contact Total      | 26.25 |
|         |                       | Non-contact DHR   | 0            |      | Non-contact DHR    | 0     |

Total Out of Class Hours: 52.50

Total Student Learning Hours: 78.75

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

This course introduces students to writing computer programs using Extensible Markup Language (XML). Students will learn how to transform XML using XSLT (Extensible Stylesheet Language Transformation) and programming tools. Students will be given projects requiring research, implementation and deployment of computer programs that process XML.

**Prerequisites/Corequisites:**

Course Completion or Current Enrollment in CS 50.15A

**Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:****Schedule of Classes Information:**

Description: This course introduces students to writing computer programs using Extensible Markup Language (XML). Students will learn how to transform XML using XSLT (Extensible Stylesheet Language Transformation) and programming tools. Students will be given projects requiring research, implementation and deployment of computer programs that process XML. (Grade or P/NP)

Prerequisites/Corequisites: Course Completion or Current Enrollment in CS 50.15A

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

**AS Degree:**      **Area**      Effective:      Inactive:

**CSU GE:**      **Transfer Area**      Effective:      Inactive:

**IGETC:**      **Transfer Area**      Effective:      Inactive:

**CSU Transfer:**      Effective:      Inactive:

**UC Transfer:**      Effective:      Inactive:

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

### **Outcomes and Objectives:**

Upon completion of the course, students will be able to:

1. Produce short XML applications which will validate error-free according the W3C [World Wide Web Consortium] XML validator.
2. Experiment with and create well-formed and valid XML documents.
3. Create and utilize simple Document Type Definition (DTD) files.
4. Create and utilize simple XML schema files.
5. Successfully prepare data for Electronic Data Interchange (EDI) and transmit the data over the World Wide Web.
6. Transform XML using XSLT [XSL Transformations].

### **Topics and Scope:**

1. XSLT
  - a. Transforming XML with XSLT
  - b. Beginning an XSLT Stylesheet
  - c. Creating the Root Template
  - d. Outputting HTML Code
  - e. Outputting a Node's Content
  - f. Creating and Applying Template Rules
  - g. Batch-Processing Nodes
  - h. Processing Nodes Conditionally
  - i. Sorting Nodes Before Processing
  - j. Generating Attributes
2. XPath [XML Path Language]
  - a. Determining the Current Node
  - b. Referring to the Current Node

- c. Selecting a Node's Descendants
  - d. Disregarding the Current Node
  - e. Selecting a Node's Attributes
  - f. Selecting Subsets
3. The Document Object Model (DOM)
- a. Declaring an Internal DTD
  - b. Writing an External DTD
  - c. Naming an External DTD
  - d. Declaring a Personal External DTD
  - e. Declaring a Public External DTD
4. Defining Elements and Attributes in a DTD
- a. Defining Elements and Element Types
  - b. Defining Choices
  - c. Defining How Many Units
  - d. About Attributes
  - e. Defining Simple and Unique Value Attributes
  - f. Referencing and Restricting Attributes
5. Entities and Notations in DTDs
- a. Creating Shortcuts for Text
  - b. Using Shortcuts for Text
  - c. Shortcuts for Text in External Files
  - d. Creating and Using Shortcuts for DTDs
  - e. Creating Entities for Unparsed Content
  - f. Embedding Unparsed Content
6. XML Schema
- a. Simple and Complex Types
  - b. Local and Global Declarations
  - c. Beginning a Simple Schema
  - d. Indicating a Simple Schema's Location
  - e. Annotating Schemas
7. Defining and Using Simple and Complex Types
- a. Declaring an Element with a Type
  - b. Deriving and Using Custom Simple Types
  - c. Specifying a Set of Acceptable Values, Pattern and Ranges
  - d. Limiting a Simple Type
  - e. Creating List Types
  - f. Predefining an Element's Content
  - g. Limiting Elements
  - h. Defining and Referencing Named Groups
  - i. Referencing Already Defined Elements
  - j. Basing Complex Types on Complex Types
  - k. Defining and Declaring Basic Complex Types
  - l. Elements with Anonymous Complex Types
  - m. Declaring and Requiring Attributes
  - n. Predefining an Attribute's Content
  - o. Defining and Referencing Attribute Groups
8. Namespaces, Schemas, and Validation
- a. Designing and Declaring a Namespace
  - b. Namespaces for Individual Elements
  - c. Namespaces, Attributes, DTDs, and Valid Documents
  - d. Schemas and Namespaces
  - e. Populating a Namespace

- f. Adding Declared Elements
  - g. Referencing Components in Schemas
  - h. The Schema of Schemas as the Default
  - i. Namespaces and Validating XML
  - j. Indicating and Locating a Schema
9. Links and Images: XLink [XML Linking Language] and XPointer
- a. Creating a Simple Link and a Linkset
  - b. Defining Reference Points and Connections
  - c. Using a Linkset
  - d. Linking to Part of a File
  - e. Creating the Simplest XPointer
  - f. Creating Walking XPointers
  - g. Creating an XPointer Range

**Assignment:**

- 1. 5 to 6 short error-free XML applications
- 2. Validate and correct all class work prior to submission for grading by using the W3C XHTML, CSS, and XML validators
- 3. Location of 3 to 5 online XML resources for submission as a class resource page maintained by the instructor
- 4. Web page report on current and/or projected uses of XML for web page developers
- 5. 2 to 4 quizzes and exams
- 6. Readings of 20 to 40 pages per week from textbook

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Reports and XML applications

Problem solving  
70 - 80%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations  
0 - 0%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes and exams: multiple choice, true/false, short answer

Exams  
20 - 30%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

Beginning XML, by Hunter, David. Wrox Press: 2007.

Learning XML, by Ray, Erik T. O'Reilly Publishers: 2003.