



The University of Southern Queensland

## Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.  
Please consult the web for updates that may occur during the year.

### Description: XML and Semantic Web Services

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
CSC	8409	90233	2, 2009	ONC	1.00	Toowoomba

<b>Academic group:</b>	FOSCI
<b>Academic org:</b>	FOS003
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	020199

### STAFFING

Examiner: Ji Zhang  
Moderator: Stijn Dekeyser

### REQUISITES

Pre-requisite: Students must be enrolled in one of the following Programs: MCOP or MPIT

### OTHER REQUISITES

Recommended Pre-requisite: CSC3400 and CSC2406

### RATIONALE

In a very short time span XML has found acceptance in a wide field of computer applications. Where one of the original reasons for the emergence of XML was exchange of data, specifically in the context of the Internet, today XML is central in topics such as web content management and delivery, document authoring and exchange, development of mark-up languages for anything from chemicals to user interfaces, and data management, integration and exchange. Furthermore, it is the basis for the ongoing development of the web, both in Web Services, and the Semantic Web. This course looks at XML from all these perspectives, and aims to develop a basis for students to consider this new technology while also looking at its shortcomings.

### SYNOPSIS

This course starts with looking at XML from the perspective of data management. As such, we look at the semi-structured data model and contrast it with the relational data model and unstructured data. Then we briefly look at XML from the perspective of document languages, by comparing it to SGML and HTML. In the second module we look at two schema definition languages which enable us to check the validity of XML documents. Next we look at using XML within programming languages, by discussing two parsing techniques for documents. The fourth module studies two query languages widely used in XML tools, namely XPath and XSLT. The latter is contrasted to XQuery in the next module, which looks at native XML databases. Module 6 gives an overview of a selection of markup languages based on XML. Finally, we look at two emerging web developments: Web Services and the Semantic Web, studying such standards as SOAP and RDF.

The assessment for this postgraduate course consists of a project to be set in consultation with the examiner. Note that students who have completed CSC3419 XML and the Web may not enrol in this course.

## OBJECTIVES

On successful completion of this course students will be able to:

1. understand and contrast the semi-structured data model with the relational data model and unstructured data; (All Assessments)
2. create well-formed XML documents; (All Assessments)
3. create DTDs and simple Schemas, and check validity of XML documents with respect to these schemas; (All Assessments)
4. understand and contrast DOM and SAX parsers; (All Assessments)
5. translate English language query statements to XPath and XQuery expressions; (All Assessments)
6. author XSLT style sheets to transform documents into XHTML and other markup languages; (All Assessments)
7. understand the use and challenges of XML-based databases; (All Assessments)
8. have some knowledge of assorted markup languages; (All Assessments)
9. understand and use the concepts behind web services and the Semantic Web. (All Assessments)

## TOPICS

Description	Weighting (%)
1. Semi-structured data and XML	20.00
2. Schema Languages for XML	15.00
3. Parsing with SAX and DOM	10.00
4. XML Transformations	15.00
5. Markup Languages	15.00
6. Native XML Databases	10.00
7. Web Services and Semantic Web	15.00

## TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

Introductory Book 2009, *Course CSC8409 XML and Semantic Web Services*, USQ Distance and e-Learning Centre, Toowoomba.

Study Book 2009, *Course CSC8409 XML and Semantic Web Services*, USQ Distance and e-Learning Centre, Toowoomba.

(The Introductory Book and Study Book are also accessible from the course website and hence do not require to be purchased.)

## REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Ayala, D, Browne, C, Chopra, V, Poornachandra Sarang, Dr., Apshankar, K & McAllister, T 2002, *Professional Open Source Web Services*, Wrox Press, Birmingham, UK, ISBN: 1-861007-46-9.

Bates, C 2003, *XML in Theory and Practice*, J.Wiley, New York.

(ISBN: 0-470-84344-6)

Carey, P 2004, *New Perspectives on XML*, Course Technology, Cambridge, Mass.

(ISBN: 0-619-10188-1)

Castro, E 2000, *XML for the World Wide Web*, Peachpit Press, Berkeley, California.

(This book is also available online through Safari Books.)

Chaudri, A, Rashid, A & Zicari, R 2003, *XML Data Management: native XML and XML-enabled database systems*, Addison Wesley, Boston, MA.

(ISBN: 0-201-84452-4)

Newcomer, E 2002, *Understanding Web Services: SML, WSDL, SOAP, and UDDI*, Addison Wesley, Boston.

(ISBN: 0-201-75081-3 This book is also available online through Safari Books.)

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Laboratory or Practical Classes	60.00
Lectures	26.00
Private Study	60.00
Tutorials	13.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
PROJECT PROPOSAL	10.00	5.00	11 Aug 2009
PROJECT MILESTONE 1	10.00	10.00	28 Sep 2009
PROJECT REPORT	100.00	85.00	28 Oct 2009

## IMPORTANT ASSESSMENT INFORMATION

### 1 Attendance requirements:

It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to

- study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:  
To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item.
  - 3 Penalties for late submission of required work:  
If students submit assignments after the due date without (prior) approval of the examiner then a penalty of 5% of the total marks gained by the student for the assignment may apply for each working day late up to ten working days at which time a mark of zero may be recorded. No assignments will be accepted after model answers have been posted.
  - 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.
  - 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.
  - 6 Examination information:  
There is no examination in this course.
  - 7 Examination period when Deferred/Supplementary examinations will be held:  
As there are no examinations in this course, there will be no deferred or supplementary examinations.
  - 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.