



The University of New South Wales
School of Information Systems, Technology and Management

INFS2609 Software Implementation

Course Outline - Session 1, 2006

<http://sistm.web.unsw.edu.au/courses/infs2609/>

1. Course Description

INFS2609 introduces fundamental concepts for object oriented software design and implementation in the development of information systems. The course focuses on the *whole* of the implementation process. It examines object-oriented methodologies for defining the software problem, designing the solution, constructing and implementing systems that meet specified requirements. The course provides a foundation for software implementation in the business context through the practical application of a commercial object-oriented programming language. The programming language used is **Java**. The concepts principles and theoretical approaches presented in the course are reinforced in weekly laboratory exercises and course assignments. Students will gain experience in the use of an IDE (interactive development environment) application for project programming requirements. This course is suitable for students approaching a programming language for the first time.

The aims of the course are to provide students with:

1. An introduction to software engineering and the software development process within the context of information systems development
2. A general understanding of object-oriented programming with emphasis on the relationship to information systems development
3. Knowledge of the Unified Modelling Language (UML) and techniques used for graphical representation in object-oriented analysis and design.
4. Experience in working in a team environment, managing group dynamics and project reporting
5. Knowledge of a commercial programming language used extensively for distributed applications in the domain of electronic commerce
6. Working knowledge of the fundamentals of computer programming languages including the use of data types, selection, iteration, functions, arrays and data structures in procedural programs;
7. Experience in the use of an IDE (interactive development environment) application for managing project requirements.

The Student Learning Outcomes are:

1. Awareness of the overall software development process in the implementation of information systems
2. Knowledge of object oriented analysis and design methodologies for software development and implementation
3. Appreciation of the concepts behind object oriented programming languages
4. Familiarity in modeling systems requirements, and documenting and communicating systems design to stakeholders
5. Understanding of processes for software quality assurance, including planning, designing and testing
6. Experience in using a commercial programming language in an interactive development environment
7. Demonstrate an understanding of the core concepts and principles of the course through the development of practical applications

2. Prerequisites / Relationships to other courses

This course is worth 6 Units of Credit (UOC).

The prerequisites are first year courses INFS1602, Computer Information Systems and INFS16503, Business Data Management which gives the fundamentals about computer and information systems. Since this course uses the Java programming language, it is related to the second-year course INFS2603, Systems Analysis and Design, which introduces object-oriented design and analysis.

3. Contact information

Lecturer in charge: Fethi Rabhi Quad 2099 f.rabhi@unsw.edu.au
Course tutors: Feras Dabous Quad 2066 f.dabous@unsw.edu.au
Hairong Yu Quad 2103 hairong.yu@unsw.edu.au

3.1 Lectures and Laboratory Sessions

Lectures: Wednesdays 16:00-18:00, Webster A

Supervised Lab Sessions: Wednesdays 11:00-12:00 (Lab 4), 15:00-16:00 (Lab 4), 18:00-19:00 (Lab 4)

3.2 Email communication

Students should note that it is school policy to only respond to email messages that are clearly identifiable as having originated from legitimate accounts. Legitimate email accounts are:

- A UNSW student account
- An identifiable employer provided account
- An identifiable ISP account (bigpond, ozemail, etc)

Messages from Hotmail, Yahoo, Google and other similar services will not be replied to. All students and staff are expected to use email responsibly and respectfully.

3.3 Consultation arrangements

Staff will be available for consultation without appointment **only** during advertised consultation times for the semester. Check the course web site for details of consultation times. To consult with a staff member outside of these times you must first make an appointment.

4. Teaching and Learning Approaches

4.1 Delivery mode

The course is presented in a *mixed* delivery mode. Each week will comprise a minimum of 1 hour lecture and 1 hour laboratory session. An additional 1 hour lecture or 1 hour laboratory will be arranged each week and advertised in advance. The start time for fixed lectures and laboratories will be the same for each session. The majority of the lecture material will be directly related to the practical component of the course and will not be repeated in laboratory sessions.

4.2 Workload expectations

It is expected that you will spend at least ten hours per week studying this course. This time should be made up of reading, research, working on exercises and problems, performing computer tasks and attending classes. In periods where you need to complete assignments or prepare for examinations the workload may be greater.

Time management issues and over commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

4.3 Course schedule

Wk	Commencing	Lecture topic	Readings
1	27 February	Programming Languages and Information Systems. Object Oriented Programming and Software Development	Readings: Horstmann, Chapter 1, Charatan & Kans, Chapter 1
2	06 March	Java Basics I	Readings: Horstmann, Chapter 2, Charatan & Kans, Chapter 4
3	13 March	Java Basics II	Readings: Horstmann, Chapter 3, Charatan & Kans, Chapters 2 & 3
4	20 March	Java Basics III	Readings: Horstmann, Chapter 4, Charatan & Kans, Chapter 5 & 6
5	27 March	GUI Objects and visual design	Readings: Horstmann, Chapter 5, Charatan & Kans, Chapters 9, 17 & 19
6	3 April	GUI Objects and visual design	Readings: Horstmann, Chapter

			5, Charatan & Kans, Chapters 9, 17 & 19
7	10 April	Collection Classes, Applets and Arrays	Readings: Horstmann, Chapters 8 and 9, Charatan & Kans, Chapters 6 & 7
		Easter Recess	
8	24 April	Java Database Connectivity	Readings: Course Lecture Notes
9	01 May	Project demonstrations	-
10	8 May	Large Scale Java Programming: Packages, Design, Testing	Readings: Horstmann, Chapter 10, Readings: Course Lecture Notes
11	15 May	Java for programming the Web	Readings: Course Lecture Notes
12	22 May	Advanced Object-Oriented Concepts: Inheritance, Inner Classes and Input/Output	Readings: Horstmann, Chapter 13, Charatan & Kans, Chapters 15 & 16
13	29 May	Project Demonstrations	-
14	05 June	Java Remote Method Invocation (RMI)	Readings: Course Lecture Notes

4.3 Lab schedule

In addition to the weekly lecture session students are required to attend a computer laboratory session each week. The session will be held in the computer laboratory for the course. The following schedule indicates what is happening each week:

Week	Week starts	Laboratory / Tutorial
1	28 February	No tutorials this week
2	07 March	Lab 1: JDK & KAWA
3	14 March	Lab 2: Java Basics I
4	21 March	Lab 3: Assessment 1: Java Basics
Break	Easter	Recess
5	4 April	Lab 4: GUI Objects/Events
6	11 April	Lab 5: GUI Objects/Events
7	18 April	Lab 6: Defining Classes/Strings & Arrays
8	25 April	Lab 7: Assessment 2: Strings & Arrays
9	02 May	Lab 8: JDBC + Project Demonstrations
10	9 May	Lab 9: Assessment 3: JDBC
11	16 May	Lab 10: Java RMI
12	23 May	Lab 11: Coding Exercises
13	30 May	Lab 12: Project Demonstrations
14	06 June	Lab 13: Demonstrations/Course Revision

Laboratory sessions are compulsory and students are expected to **attend at least 80%** of the sessions. Students who do not have satisfactory attendance **will** be asked to show cause why they should be allowed to pass this course.

All programming exercises must be completed within the laboratory time allocated in the relevant week.

Students will need to bring at least two new 9cm high density IBM formatted diskettes to use during labs.

4.4 General conduct and behaviour

You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and students may be asked to leave the class. More information on student conduct is available at: www.my.unsw.edu.au

5. Assessment

The assessable components for the course are divided into three distinct categories:

Assessable Component	Percentage	Learning Outcomes Assessed
I. Laboratory Work Regular lab exercises Assessments 1, 2 and 3 (Due weeks 4, 8, 10)	20%	3,6,7
II. Project Intermediate deliverables (specs, design). Due week 9. Demonstration. Due Weeks 13/14. Final report. Due Week 14.	30%	1,5,6,7
III. Final exam	50%	2,3,4

- The detailed requirements of each component will be on the course's Web site.
- Any number of the assessment components may be scaled
- All three components of the course must be completed to a satisfactory level. If a satisfactory level of performance is not achieved in any one of the components of assessment a grade of UF will be awarded
- Late submission of assignments will incur a penalty of 10% of the maximum assessment per day. An extension in the time of submission will only be granted under exceptional circumstances by the lecture-in-charge. **In all cases documented evidence must be provided**
- Failure to reference your work through the provision of bibliographies and cited sources will automatically result in a penalty of 10% of the maximum assessment. Team/Group members are expected to work in an harmonious and professional manner
- **This course will be assessed in accordance with the School's assessment policies that can be found at: <http://sistm.web.unsw.edu.au>**

6. Student resources: texts and required readings

6.1 Texts

The recommended text for this course is

C. Horstmann. Java Concepts, 4th Ed. 2005, John Wiley and Sons. ISBN 0-471-69704-4

6.2 Recommended readings

Getting started with Java

Charatan, Quentin & Aaron Kans. Java in Two Semesters, 1st Ed. 2002, United Kingdom, McGraw Hill. ISBN 0 07 709804

Deitel, H.M & Deitel. P.J. Java, How to Program, 4th Ed. 2001, Saddle River, New Jersey, Prentice Hall

Liang, Y. Daniel. Introduction to Java Programming, 3rd Ed. 2001, Upper Saddle River, New Jersey, Prentice Hall

Wu, C. Thomas. An Introduction to Object Oriented Programming with Java, 2nd Ed. 2001, Boston, USA, McGraw Hill.

JDBC: Java Database Connectivity

Carnell John, Lauinger, Todd and Mukhar, Kevin. Beginning Java Database, 2001, Birmingham, USA, Wrox Press

White, Seth et al. JDBC API Tutorial and Reference. 2nd Ed, 1999, San Francisco, USA, Addison Wesley

Unified Modeling Language

Fowler, Martin. UML Distilled 2nd Ed. (Object Technology Series), 2000, Reading Mass. USA, Addison Wesley

6.3 Electronic resources

Java portal

<http://java.about.com>

Sun Microsystems Java Homepage

<http://java.sun.com>

6.4 Course Web Site

This course has a web site for notices, handouts, references and other useful information. It is suggested that you consult the web site at least once a week. The address of the web site is at:

<http://sistm.web.unsw.edu.au/courses/infs2609/>

To log in you will need your student number and unipass. Access is only available to students enrolled in INFS2609. Included on the Course Web Site will be:

- Lecture slides (PDF format)
- Academic staff contact details
- List of consultation times
- Notices
- Course readings.
- Copies of assignment cover sheets, registration and assessment forms

You are encouraged to visit this site regularly for updates and important notices.

7. General assignment requirements and academic conduct

7.1 Assignment requirements

All assignments must be submitted at an acceptable standard to meet the requirements of the course. Information about the format required for the submission of each assignment will be provided in documentation for the assignment.

ALL written work is expected to be clear, accurate, well-structured, grammatically correct and neat work, which does not contain spelling errors. Your work should be suitable for presentation to senior management in an organisation.

For the purposes of marking, electronic files and program code must be compatible with the software in the laboratories (i.e. display and function correctly in Internet Explorer 5.5+ and JDK2+)

When submitting written work:

- Do not use any plastic folders
- Use A4 sized paper only.
- Always include the correct assignment cover sheet and required administrative forms

When submitting electronic files:

- submit on a standard 9cm floppy disk
- submit an A4 envelope
- Always adhere the correct assignment coversheet to the envelope
- Enclose any additional administrative forms required for the assignment

7.2 Academic misconduct and plagiarism

Plagiarism is the presentation of the thoughts or work of another as one's own.* Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne.

7.3 Referencing

You should include references to the sources of your information, and a bibliography at the end of each of your submitted assignments, including lab assessment tasks. References cited in the text of your report should be included in the bibliography with sufficient detail to enable the reader to go directly to the relevant material. Some examples:

1. A book

Wu, C. Thomas. An Introduction to Object Oriented Programming with Java, 2nd Ed. 2001, Boston McGraw Hill.

2. A journal article

Durant, Luciana, 'The concepts and their implications, 'Extreme Programming, vol. 39, Spring, 1999. pp. 5-10

3. An internet URL

Author/editor. (Year). *Title* (edition), [Type of medium]. Producer (optional). Available Protocol (if applicable): Site/Path/File [Access date].

Harold, Elliotte Rusty (2002). *Brewing Java: A tutorial* [Online]. Available: <http://www.ibiblio.org/javafaq/javatutorial.html> [2002, February 12].

If you are uncertain about how to cite or reference the work of others, please refer to the collection of resources about citations and referencing located on the UNSW Library Web Site. This can be found at the following URL:

http://www.library.unsw.edu.au/links/Reference_Tools/
http://www.library.unsw.edu.au/links/Research_and_Study_Skills/

8. STUDENT SUPPORT AND ASSISTANCE

8.1 Education Development Unit

Additional learning support, tailored to the needs of FCE students, is available from the Education Development Unit (EDU) in the Faculty. The EDU offers a range of free and confidential services for FCE students including:

- o Academic skills workshops run throughout the session;
- o Printed and on-line study skills resources e.g. referencing guide, report writing and exam preparation;
- o A drop-in resource centre containing books and audio visual material that can be borrowed;
- o A limited consultation service for students with individual or small group learning needs.

More information about the EDU services including on-line resources, workshop details and consultation request forms are available from the EDU website. EDU services are free and confidential and are available to students of the Faculty of Commerce and Economics.

Contacts and location:

EDU Location: Room 2039, Level 2 Quadrangle Building, <http://education.fce.unsw.edu.au>

8.2 Other UNSW support

The UNSW Learning Centre provides academic skills support services for students. The Learning Centre is located on Level 2 of the Library and can be contacted by Phone: 9385 3890 or through their website: <http://www.lc.unsw.edu.au/>. Students experiencing problems of an academic or personal nature are encouraged to contact the Counselling Service at UNSW. This service is free and confidential and run by professional counsellors. The Counselling Service is located on Level 2, Quadrangle East Wing, and can be contact on 9385 5418.

9. CONTINUAL COURSE IMPROVEMENT

'Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process (http://www.ltu.unsw.edu.au/ref4-5-1_catei_process.cfm) is one of the ways in which student evaluative feedback is gathered. Significant changes to courses and programs within the School are communicated to subsequent cohorts of students'.