3KA3 System Analysis & Design
Fall 2009 Course Outline
DeGroote School of Business
McMaster University

COURSE OBJECTIVE

This course introduces the process and methodology for system analysis and design. Students will be able to learn the process of system development, the traditional structural approach and modern object-oriented approach for system analysis and design, system development strategy and new trends of system development. Through class discussion, hands-on assignments and team project, students will learn how to translate business requirement into information systems that support a company's short- and long-term objectives.

INSTRUCTOR AND CONTACT INFORMATION

Dr. Yufei Yuan **Instructor**	**Lori Burch** **Secretary**	**Steven Way** **TA**
yuanyuf@mcmaster.ca Office: DSB A204 Office Hours: Thursdays 11:30-12:20 Tel: (905) 525-9140 x23982	burchl@mcmaster.ca Office: DSB 403 Office Hours: 09:00-16:00 Tel: (905) 525-9140 x 24434	steveway@mcmaster.ca Office: DSB A210 Office Hours: To be arranged Tel: (905) 525-9140 x 26957

Class Location: KTH B124
Class Hours:
Thursdays 8:30 - 11:20

Course Website: http://www.business.mcmaster.ca/courses/com3ka3

COURSE ELEMENTS

Credit Value:	3	Team skills:	Yes	IT skills:	Yes	Global:	Yes
ELM:	No	Verbal skills:	Yes	Numeracy:	No	Political:	No
Participation:	Yes	Written skills:	Yes	Innovation:	Yes	Social:	No

COURSE DESCRIPTION

This course aims to develop an understanding of system analysis in a rapidly changing world. Approaches to systems analysis and design will be described, including traditional structural approach and modern object-oriented approach. Alternative development approaches such as

adaptive development methodology and Model-Driven Architecture will also be discussed. Student will learn from lectures, as well as hands-on assignments and a team project for a real-world business analysis. Through the course students will learn how to translate business requirement into information systems that support a company's short- and long-term objectives.

LEARNING OUTCOMES

The course provides basic understanding and practical skills of system analysis and design. It will help students to work in information systems related field in the future. The course will cover the following topics

- The need for system analysis and the role of system analysts
- Information systems development lifecycle
- System analysis approaches and methodologies
- Requirement analysis using structured approach and object-oriented approach
- System design and development strategy
- System architecture and user interface design
- Security and reliability issues
- Advances of system development approaches

RECOMMENDED COURSE MATERIALS AND READINGS

G. B. Shelly, T. J. Cashman, H. J. Rosenblatt, *Systems Analysis and Design*, Seventh Edition, Thomson, 2008.

OPTIONAL COURSE MATERIALS AND READINGS

Reference Textbook (Reserved in INNIS Library)

[R1] J. W. Satzinger, R. B. Jackson, and S. D. Burd, *Systems Analysis and Design in a Changing World*, Forth edition. Thomson, 2007,
[R2] J. A. Hoffer, J. F. George, and J. S. Valacich, *Modern Systems Analysis and Design*, Fifth Edition, Prentice Hall, 2008.
[R3] J. Conallen, *Building Web Applications with UML*, Addison-Wesley, 2000.

Reference Materials on the Web

IT Job Market http://www.itjobuniverse.ca/
IT World Canada http://www.itworldcanada.com/
InfoWorld http://www.infoworld.com/index.html
Tech Republic http://techrepublic.com.com/

Visible Analyst http://www.visible.com/
Microsoft Visio http://office.microsoft.com/en-us/visio/default.aspx
Unified Modelling Language http://www.uml.org/
IBM Rational Unified Process http://www-306.ibm.com/software/awdtools/rup/
Oracle on Demand http://www.oracle.com/ondemand/index.html
Outsourcing http://www.outsourcing.com/
Extreme Programming http://www.extremeprogramming.org/

EVALUATION

Learning in this course results primarily from reading materials, in-class discussion, assignment, team projects, and exams.

Components and Weights The components of the course grade will be weighted as follows, tentatively. The instructor reserves the right to modify the weightings to adjust for more or less material covered during the semester.

COMPONENT			PERCENT
Assignments		Individual	20%
Project		Team work	30%
Proposal	5%		
Presentation	10%		
Report	15%		
Midterm Exam		Individual	20%
Final Exam		Individual	30%
Total			100%

NOTE: The use of a McMaster standard calculator is allowed during examinations in this course.

Grade Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.

LETTER GRADE	PERCENT	LETTER GRADE	PERCENT
A+	90-100	C+	67-69
A	85-89	C	63-66
A-	80-84	C-	60-62
B+	77-79	D+	57-59
B	73-76	D	53-56
B-	70-72	D-	50-52
		F	0-49

Communication and Feedback

Students that are uncomfortable in directly approaching an instructor regarding a course concern may choose to send a confidential and anonymous email to the respective Area Chair at:

http://www.degroote.mcmaster.ca/curr/emailchairs.aspx

Students who wish to correspond with instructors directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student.

Instructors should conduct an informal course review with students by Week #4 to allow time for modifications in curriculum delivery. Instructors should provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term.

ACADEMIC DISHONESTY

Please note that students involved in academic dishonesty will receive a **ZERO** grade on the particular component in which the infraction occurred and a notation of academic dishonesty in the Dean's office; and may receive a **ZERO** grade on the course, and a notation of academic dishonesty on their transcripts. The University Senate Resolutions on Academic Dishonesty states:

> Academic dishonesty is not qualitatively different from other types of dishonesty. It consists of misrepresentation by deception of by other fraudulent means. In an academic setting this may take any number of forms such as copying or use of unauthorized aids in tests, assignments, examinations, lab reports, term papers, or cases; plagiarism; talking during in-class examinations; submission of work that is not your own without citation; submission of work generated for another course without prior clearance by the instructor of both courses; submission of work generated by another person; aiding and abetting another student's dishonesty; and giving false information for the purpose of gaining admission or credits; and forging or falsifying McMaster University documents. No excuses for violation of this policy, including ignorance of the policy, are accepted.

For more detailed information please see:

http://www.mcmaster.ca/policy/ac_ethics.htm

Please be careful when handing in assignments, reports, essays and/or cases that are based on individual work. TAs have been instructed to **NOT** grade any paper that is deemed to have similar content with another person's work. In instances when work is suspected to be copied, all students involved will be notified and the case will be reviewed by the Dean's office.

COPYRIGHT

McMaster University has signed a license with the Canadian Copyright Licensing Agency (Access Copyright) which allows professors, students, and staff to make copies allowed under *fair dealing*. Fair dealing with a work does not require the permission of the copyright owner or the payment of royalties as long as the purpose for the material is private study, and that the total amount copied equals **NO MORE THAN 10 percent** of a work or an entire chapter which is less than 20 percent of a work. In other words, it is illegal to: i) copy an entire book, or ii) repeatedly copy smaller sections of a publication that cumulatively cover over 10 percent of the total work's content. Please refer to the following copyright guide for further information:

http://library.mcmaster.ca/about/copying.pdf

POLICY ON MISSED MID-TERM EXAMINATIONS / TESTS

The Faculty of Business has approved the following policy:

Where students miss a regularly scheduled midterm for legitimate reasons as adjudicated by the Academic Programs Office (APO), the weight for that test will be distributed across other evaluative components of the course at the discretion of the instructor. Documentation explaining such an absence must be provided to the APO within five (5) working days upon returning to school. The approved McMaster Medical Form must be used to document absence for health related reasons. If an exam is missed without a valid reason, students will receive a grade of Zero (0) for that component. University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Director of the program. Please see the following URL for APO forms:

http://www.degroote.mcmaster.ca/UG/register.html

Students unable to write at the posted exam time due to the following reasons: religious; work-related (for part-time students only); representing university at an academic or varsity athletic event; and conflicts between two overlapping scheduled midterm exams, have the option of applying for special exam arrangements. Such requests must be made to the APO at least ten (10) working days before the scheduled exam along with acceptable documentation. There will be only one common sitting for the special exam. Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by the APO.

RESEARCH USING HUMAN SUBJECTS

Research involving human participants is premised on a fundamental moral commitment to advancing human welfare, knowledge and understanding. As a research intensive institution, McMaster University shares this commitment in its promotion of responsible research. The

fundamental imperative of research involving human participation is respect for human dignity and well-being. To this end, the University endorses the ethical principles cited in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans:

http://www.pre.ethics.gc.ca/english/policystatement/policystatement.cfm

McMaster University has mandated its Research Ethics Boards to ensure that all research investigations involving human participants are in compliance with the Tri-Council Policy Statement. The University is committed, through its Research Ethics Boards, to assisting the research community in identifying and addressing ethical issues inherent in research, recognizing that all members of the University share a commitment to maintaining the highest possible standards in research involving humans.

If you are conducting original research, it is vital that you behave in an ethical manner. For example, everyone you speak to must be made aware of your reasons for eliciting their responses and consent to providing information. Furthermore, you must ensure everyone understands that participation is entirely voluntary. Please refer to the following website for more information about McMaster University's research ethics guidelines:

http://www.mcmaster.ca/ors/ethics/students_intro.htm

Organizations that you are working with are likely to prefer that some information be treated as confidential. Ensure that you clarify the status of all information that you receive from your client. You **MUST** respect this request and cannot present this information in class or communicate it in any form, nor can you discuss it outside your group. Furthermore, you must continue to respect this confidentiality even after the course is over.

CLASS SCHEDULE

Week	Date	Topic	Readings
1	Sep. 10	Introduction	Ch. 1, [R1] Ch. 1-2
2	Sep. 17	Preliminary investigation and systems requirement gathering	Ch. 2, 3
3	Sep. 24	Traditional structured approach to requirement analysis	Ch. 4, Project proposal due
4	Oct. 1	Modern object-oriented approach to requirement analysis	Ch. 5 Assignment 1 Requirement collection due
5	Oct. 8	Requirements evaluation and system development strategies	Ch. 6 Assignment 2 Data flow diagram due
6	Oct. 15	Database and Interface design	Ch. 7,8 Assignment 3 Use case diagram due
7	Oct. 22	Mid-term exam	
8	Oct. 29	System architecture	Ch. 9
9	Nov. 5	Implementation and quality assurance	Ch. 10,11 Assignment 4 database and interface design due
10	Nov. 12	New trends in system development	[R1] Ch. 17
11	Nov. 19	Lessons and success factors of system development and implementation	Literature review
12	Nov. 26	Project presentation	
13	Dec. 3	Project presentation	Project report due

System Analysis Team Project

Objective

The objective of the student project is to do requirement analysis for an e-business initiative.

Regulations

1. Students should form a team consisting of up to two people to do a term project. Good teamwork is essential for the success of the project. All team members will be graded equally for the project with the assumption that each member contributes a fair share to the project.
2. It is the students' responsibility to find a real world business application in electronic commerce or create one of your own. A project agreement should be signed with the company involved.
3. The project should be carefully selected to demonstrate the business value of the project and to be completed in a reasonable amount of time. It is better to complete a small high quality project than to leave a large project incomplete or poorly done.
4. The project proposal should be formally prepared with attached project agreement and approved by the instructor.
5. Students will make a presentation on the project at the end of the term
6. The final report of the project should be submitted in class as scheduled.

Project Proposal

You need to form a team and select an interesting and valuable systems analysis project such as an e-commerce or mobile commerce applications. You can contact a real business or make your own business initiative. The project should be manageable, not too big and too complex so it can be accomplished in one term. You may discuss your idea with the instructor to get some advice. The proposal should include the project title, names of team members, the organization involved, and the brief description of the objective and the scope of the project. The proposal should be typed with no more than two pages. Handwriting is unacceptable.

Project Agreement

If you do a project for a real business company, you need to follow the university ethics policy and sign an agreement with the company.

Project Presentation

The project presentation will be evaluated by both the classmates and the instructor. The presentation is evaluated based on the real business value of the project and the quality of system analysis. PowerPoint should be used for presentation and the presentation file should be emailed to the instructor one day before the scheduled presentation date.

Project Report

The project report should consist of the components highlighted in the project agreement. The report should be typed and submitted at the end of the class. You may share the report with the client and ask the client's comments. The project report should consist the following

1. Project overview

Introduce the background of the company; identify business problems and opportunities; and describe the objective and the scope of the project.

2. Feasibility study

Analyse economical, technical, and operational feasibility of the project.

3. System requirement analysis

Identify the requirement of the system. Identify major business events and things that need to be recorded.

4. System modelling

Model the system requirement by using traditional or object-oriented approach.

5. Development strategy

Make recommendations on outsourcing or in-house development

6. System Architecture

Describe the major client/server setting and communication networks.

7. User interface design

Illustrate the user interface for major functions

8. Security and Performance Considerations

Security requirement and performance requirement

3KA3 System Analysis Project Agreement

This proposal outlines a project to be undertaken by the **Project Group**, students taking Course 3KA3 at McMaster University, for the **Client**, _____

_____

OBJECTIVE OF THE PROJECT

The Commerce course, 3KA3 – Systems Analysis & Design, is an advanced Information Systems course. The course teaches students basic concepts on systems analysis and design. The objective of the project for the **Project Group** is to conduct requirement analysis for an e-business initiative. The project will be presented in the class and evaluated by the instructor.

The objective of the project for the **Client** is to have students perform system analysis for an e-business initiative. The Client may want to start an e-business and wish to discuss with the Project Group about the idea and the company's needs. The Client also will provide necessary information voluntary in order to facilitate the Project Group to perform system analysis. The information that the Client may provide is indicated in the following section of the SCOPE OF THE WORK. The project report will be available for the Client to use upon Client's request.

SCOPE OF THE WORK (* indicates that client may be involved to discuss or to provide some background information)

Requirement Analysis for an e-business project

1. **Project overview ***

   Introduce the background of the company; identify business problems and opportunities; and describe the objective and the scope of the project.

2. **Feasibility study ***

   Analyse economical, technical, and operational feasibility of the project.

3. **System requirement analysis ***

   Identify the requirement of the system. Identify major business events and things that need to be recorded.

4. **System modelling**

   Model the system requirement by using traditional or object-oriented approach.

5. **Development strategy ***

   Make recommendations on outsourcing or in-house development

6. System Architecture

Describe the major client/server setting and communication networks.

7. User interface design*

Illustrate the user interface for major functions

8. Security and Performance Considerations*

Security requirement and performance requirement

FREE AND INFORMED CONSENT

Clients are freely voluntary to participate; are made aware in advance about the nature of the study, what their tasks will be, and what procedures will be followed; are given the opportunity to ask questions and have their questions answered to their satisfaction; and have the right to withdraw consent and discontinue participation at any time without repercussion.

PRIVACY AND CONFIDENTIALITY

The **Project Group** agrees that any confidential information provided by the **Client** for the purposes of the project will be held in strict confidence at all times and will not be disclosed or used for personal benefit or for the benefit of third parties. Client's identity is not revealed in the reporting of the study's results, unless explicit permission of the Client is given. Some organizations may request anonymity in terms of the use of a pseudonym. Students will ask the client to specifically identify information that they want to have regarded as confidential and /or proprietary, and this list will be attached to the Project Proposal.

LIABILITY

It should be noted that members of the Project Group are undergraduate commerce students and are foregoing remuneration. The requirement analysis produced for this project is not in anyway presented as a professional service.

CONTACT FOR ETHICAL CONCERNS

For any ethical concerns, please contact the instructor Dr. Yufei Yuan (905) 525 9140 ext. 23982 or Michael J. Wilson, Research Ethics Officer, McMaster University, 905-525-9140 ext. 23142.

PROJECT GROUP MEMBER PROFILES

(Optional – include short biographies of group members)

AGREEMENT

The following parties agree to the terms outlined in the agreement,

For the **Project Group**:

_____

Name

_____

Signature Date

For the **Client**:

_____

Name

_____

Signature Date