



BUSI 3402A
Information Systems Analysis and Design
Winter 2015

INSTRUCTOR:	Dr. Shaobo Ji (shaobo.ji@carleton.ca)
CLASS TIME/ROOM:	6:05 – 8:55pm (Mondays) TBD
LAB TIME/ROOM:	Mondays, 3:35–4:25pm; 4:35 – 5:25pm TBD
OFFICE:	1721 Dunton Tower
TELEPHONE:	613-520-2600 x. 5751
OFFICE HOUR:	by appointment
COURSE WEB PAGE:	cuLearn
TA:	TBD
EXAMINATION:	Final – to be scheduled

COURSE DESCRIPTION, LEARNING OBJECTIVES AND TOPIC¹

Description

This course focuses on the processes, methods, techniques and tools that organizations use to determine how they should conduct their business, with a particular focus on how computer-based technologies can most effectively contribute to the way business is organized. The course covers a systematic methodology for analyzing a business problem or opportunity, determining what role, if any, computer-based technologies can play in addressing the business need, articulating business requirements for the technology solution, specifying alternative approaches to acquiring the technology capabilities needed to address the business requirements, and specifying the requirements for the information systems solution in particular, in-house development, development from third-party providers, or purchased commercial-off-the-shelf (COTS) packages.

¹ IS 2010 Curriculum Guidelines for Undergraduate Degree Programs in Information Systems, Association for Computing Machinery (ACM) and Association for Information Systems (AIS).

Learning objectives

1. Understand the types of business needs that can be addressed using information technology-based solutions.
2. Initiate, specify, and prioritize information systems projects and to determine various aspects of feasibility of these projects.
3. Clearly define problems, opportunities, or mandates that initiate projects.
4. Use at least one specific methodology for analyzing a business situation (a problem or opportunity), modeling it using a formal technique, and specifying requirements for a system that enables a productive change in a way the business is conducted.
5. Within the context of the methodologies they learn, write clear and concise business requirements documents and convert them into technical specifications.
6. Communicate effectively with various organizational stakeholders to collect information using a variety of techniques and to convey proposed solution characteristics to them.
7. Manage information systems projects using formal project management methods.
8. Articulate various systems acquisition alternatives, including the use of packaged systems (such as ERP, CRM, SCM, etc.) and outsourced design and development resources.
9. Use contemporary CASE tools for the use in process and data modeling.
10. Compare the acquisition alternatives systematically.
11. Incorporate principles leading to high levels of security and user experience from the beginning of the systems development process.
12. Design high-level logical system characteristics (user interface design, design of data and information requirements).
13. Analyze and articulate ethical, cultural, and legal issues and their feasibilities among alternative solutions.

Topics

1. Identification of opportunities for IT-enabled organizational change
2. Business process management
3. Analysis of business requirements
 - a. Business process modeling
 - b. Information requirements
4. Structuring of IT-based opportunities into projects
5. Project specification
6. Project prioritization
7. Analysis of project feasibility
 - a. Operational
 - b. Tangible costs and benefits (financial and other measures such as time savings)
 - c. Intangible costs and benefits such as good will, company image
 - d. Technical
 - e. Schedule
 - f. Legal
 - g. Cultural (organizational and ethnic)
8. Fundamentals of IS project management in the global context
9. Using globally distributed communication and collaboration platforms
10. Analysis and specification of system requirements
 - a. Data collection methods
 - b. Methods for structuring and communicating requirements
 - c. Factors affecting user experience
 - d. User interface design
 - e. System data requirements
 - f. Factors affecting security
 - g. Ethical considerations in requirements specification
11. Different approaches to implementing information systems to support business requirements
 - a. Packaged systems; enterprise systems
 - b. Outsourced development
 - c. In-house development
12. Specifying implementation alternatives for a specific system
13. Impact of implementation alternatives on system requirements specification
14. Methods for comparing systems implementation approaches
15. Organizational implementation of a new information system
16. Different approaches to systems analysis & design: structured SDLC, unified process/UML, agile methods

COURSE REQUIREMENT AND SCOPE

Calendar description and prerequisites

BUSI 3402 [0.5 credit] Systems Analysis and Design

Methods of analysis of computer-based information systems. The systems development life cycle, planning, analysis, design, implementation and maintenance. Structured and object-oriented methods will be used. Use of a CASE tool.

Precludes additional credit for SYSC 3100, BUSI 3403 (no longer offered) and BUSI 3404 (no longer offered).

Prerequisite: one of BUSI 2400, COMP 2004, COMP 2404, or SYSC 2004 (with a grade of C or higher).

Lectures three hours and tutorials one hour a week.

Required Textbook

Title: Modern Systems Analysis and Design (2014, 7th Edition)

Authors: Jeffrey A. Hoffer, Joey F. George, Joseph S. Valacich

Publisher: Prentice Hall

ISBN: 0132991306 / 9780132991308

Textbook Website: <http://catalogue.pearsoned.ca/educator/product/Modern-Systems-Analysis-and-Design/9780132991308.page>

Additional cases (to be provided by the instructor through cuLearn)

1. Ji, S. - Online Electronic Thesis Support System at Maritime University (case) (a.k.a., e-thesis submission system)
2. Ji, S. - Physical Plant IS requirements and asset management systems (case) (a.k.a., Physical Plant asset management systems)

Lab and software

Objective and tool: Use system development tools, i.e., IBM's Rational® Requirements Management, WebSphere Business Modeler, Rational System Architect, Rational Software Modeler, IBM DB2, and MS SQL Server, MS Visio and MS Project, to support the information systems analysis and design process.

Lab: Once a week for 1 hr., Mondays, 3:35 pm – 4:25 pm; 4:35 – 5:25,
Location: TBD

Note: Access to Rational software will be available to students registered in the course. Each student will be given access to the software. For MS Office Visio and Project software, please download (free to students registered in the course) from <http://msdnaa.carleton.ca/>.

Evaluation

1) Class participation and weekly quiz	10%
2) Individual assignments (3 @ 5%)	15%
3) Group term project and presentation	30%
4) Midterm examination	15%
5) Final examination	30%
Total	100%

Class participation

The key to learn information systems analysis and design is to link classroom knowledge to practical application. Active participation in the classroom is very important in this course. You will be measured by your involvement in the class (quantity and quality of your participation). Be prepared to respond to issues raised in class and bring questions and issues you encounter into the classroom. There will be guest speakers scheduled throughout the term and you are encouraged to actively participate in these sessions as well.

Assignment and submission

There will be 3 assignments. Individual assignments are due at the date and time indicated. Each assignment's file should be named properly and in the following format: busi3402_w15_assignment#_ LastName_CUID (e.g., busi3402_w15_assignment#1_Ji_100123456). Assignments must be submitted through either cuLearn or RSA.

Group Term Project and Presentation

At the beginning of the term, students will form group of (max.) 4 for a term project. Bi-weekly project status report is expected of the teams. A final project report is due at the end of the term. Each team will be given 10-15 minutes to engage classmates about their projects. Presentations will be held in the last week of the course. At the end of the term, each student will be asked to complete a peer-review form for self and other team members. A numerical grade (out of 100) will be assigned to team's term project. Each team member's term project grade will be determined by the grade for the team and team member's peer reviews and evaluations.

Examination

Midterm examination will take place in week 6.

Final examination will be scheduled by the university and to be held in April 2015.

Course Grade

Students must meet the in-term performance criteria as specified in this course outline in order to pass the course. The course grade is determined by the evaluation criteria and is subject to Dean's approval.

OUTLINE OF SCOPE AND CHARACTERISTICS OF THE COURSE

Although the course will cover all topics identified in the 2010 ACM/AIS Curriculum Guidelines different level of detailed discussions will be given among the topics to reflect the changing world, the materials included in the textbook, and other IS courses included in the IS concentration at the Sprott School of Business, with the following characteristics.

1. **Perspective: Business and IT Enabled Business Processes**
The course covers processes, methods, techniques and tools that organizations use to determine how they should conduct their business, with a particular focus on how computer-based technologies can most effectively contribute to the way business is organized.
2. **Methods: Structured vs. OO**
The course will provide some exposure to both structured SDLC, object-oriented analysis and design (some Unified Process variant using UML as a grammar) and agile methods. Although both structured and OO modeling methods will be covered in this course, emphasis will be more on the OO using UML.
3. **Scope: Analysis and Design**
The focus of the course is on analyzing and documenting business requirements as well as converting these requirements into detailed systems requirements and high-level design specifications. (e.g., mock-ups of forms, reports, HCI, and so other user interface components), not on internal design or system implementation design.
4. **Data and Database: Data Modeling and Database Design**
The focus will be on 1) business information and data requirement and its relationship with conceptual data modeling, and 2) resource (data) management perspective of IS architecture. Although we will discuss database modeling, the presentation and discussion will be brief and the focus will be on conceptual and logical level. Database modeling is better covered in another IS course, BUSI 3400, which is offered concurrently as this course.
5. **Theory and Practice: Group Term Project and IS Analysis and Design Body of Knowledge (BOK)**
IS project management topics, understanding the business needs, and finding IT based solutions to business problems will be covered through in-class discussions and practiced through group term project. As an important and integral part of the course design, term project will serve as an important learning tool for students to relate the materials covered in the textbook and lectures with solving real world business problems with information technologies. The goal of the term project is to perform analysis and specification of system requirements and to investigate and identify different approaches to implementing information systems to support business requirements. Unlike another IS course, BUSI 4402 (Information Systems Practicum), actual development and implementation of the system is NOT required.
6. **Organization and IT Solutions: Multiple Capabilities Acquisitions**
The course is based on the assumption that most organizational systems are built based on various types of packaged systems, system components, or implemented by using outsourced development capabilities (whether on- or off-shore).
7. **The Role of BA/SA: A Communicator**

The course will cover methods that allow you to specify requirements precisely and communicate effectively with both business stakeholders and developers, but it will not include material related to the design or implementation of the technical structure of the system.

8. Traditional and Modern: Security, User Experience and Operational Issues

The course emphasizes the importance of incorporating security issues, non-functional design, and user experience from the earliest stages of the IS Analysis and Design processes.

COURSE AGENDA AND SCHEDULE*

Week / Date	Topic	Assignment/Lab Reading/Guest
1. Jan 5	<ul style="list-style-type: none"> • Course administration (lab, grouping and evaluation) • Business needs and IT <ul style="list-style-type: none"> • Introduction to Systems Analysis and Design • The real world – being a business analyst / systems analyst • Identification of opportunities for IT-enabled organizational change • IS analysis and design: a system's designer's perspective • Guest speakers (TBD) 	<ul style="list-style-type: none"> • Textbook (Part One – Foundations for Systems Development, Chapter 1 & 2) • Case – Ji, Physical Plant asset management systems
2. Jan. 12	<ul style="list-style-type: none"> • Systems, information and information systems development <ul style="list-style-type: none"> • ICT and system concept • Business process and process modeling • Business and information requirements • System development methodologies • Stakeholders and system framework • Fundamentals of IS project management <ul style="list-style-type: none"> • Sources of IS project • IS project management body of knowledge 	<ul style="list-style-type: none"> • Textbook (Part One – Foundations for Systems Development, Chapter 3) • Case – Ji, E-thesis submission system • Lab 1: Assignment #1 (1)
3. Jan. 19	<ul style="list-style-type: none"> • Project management and planning <ul style="list-style-type: none"> • System Analyst as a project manager • Identifying and selecting systems development projects • Initiating and planning systems development project • Project specification and prioritization • Analysis of project feasibility • IS project development methodologies • Analysis: systems requirement determination and structuring <ul style="list-style-type: none"> • Methods, processes, and techniques 	<ul style="list-style-type: none"> • Textbook (Part Two – Planning, Chapter 4 & 5) • Lab 2: IS Project Planning (MS Project continued) • Assignment #1 (2) – assignment 1 is due on Mon. January 19 @11:59pm

Week / Date	Topic	Assignment/Lab Reading/Guest
4. Jan. 26	<ul style="list-style-type: none"> • Analysis: system requirements determination <ul style="list-style-type: none"> • Analysis and specification of system requirements • Data collection methods (story board) • Factors affecting user experience • System data requirements • Factors affecting security • Ethical considerations in requirements specification • Analysis: system requirement structuring <ul style="list-style-type: none"> • Methods for structuring and communicating requirements (traditional vs. OO): an introduction 	<ul style="list-style-type: none"> • Textbook (Part Three – Analysis, Chapter 6 & 7) • Lab 3: Assignment #2 (1)
5. Feb. 2	<ul style="list-style-type: none"> • Analysis: system requirements structuring <ul style="list-style-type: none"> • Business process modeling • Requirements structuring modeling and documentation 	<ul style="list-style-type: none"> • Textbook (Part Three – Analysis, Chapter 7, 7A, 7B, 7C, 7D) • Lab 4: Assignment #2 (2)
6. Feb. 9	<ul style="list-style-type: none"> • Analysis: system requirements structuring (continue) • Midterm examination 	<ul style="list-style-type: none"> • No lab
Feb. 16	<ul style="list-style-type: none"> • Winter reading break – no class 	<ul style="list-style-type: none"> • NA
7. Feb. 23	<ul style="list-style-type: none"> • Analysis: structuring system data requirement: data modeling <ul style="list-style-type: none"> • ERD and class diagram • Design: moving from analysis to design <ul style="list-style-type: none"> • System design: an introduction 	<ul style="list-style-type: none"> • Textbook (Part Three – Analysis, Chapter 8 + Appedix) • Lab 5: completing Assignment #2 (3) – Assignment 2 is due on Mon. Feb. 23 @11:59pm
8. March 2	<ul style="list-style-type: none"> • Design: IS architecture, database, forms and reports <ul style="list-style-type: none"> • IS architecture (presentation, application logic, resource management) • Databases and database design • Forms and reports 	<ul style="list-style-type: none"> • Textbook (Part Four – Design, Chapter 9 & 10) • Lab 6: Assignment #3 (1)
9. March 9	<ul style="list-style-type: none"> • Design: interfaces and dialogues <ul style="list-style-type: none"> • System design and user experience • Designing system interfaces (machine to machine, human computer interfaces) 	<ul style="list-style-type: none"> • Textbook (Part Four – Design, Chapter 11) • Lab 7: Assignment #3 (2)

Week / Date	Topic	Assignment/Lab Reading/Guest
10. March 16	<ul style="list-style-type: none"> • Design: testing and quality assurance, distributed system, design for system's security <ul style="list-style-type: none"> • Testing (types, processes, methods) • Designing distributed and internet systems • Designing for security 	<ul style="list-style-type: none"> • Textbook (Part Four – Design, Chapter 12) • Lab 8: completing Assignment #3 – Assignment 3 is due on Mon. March 16 @11:59pm
11. March 23	<ul style="list-style-type: none"> • System implementation and maintenance <ul style="list-style-type: none"> • Approaches to implementing IS solutions • Functional vs. non-functional design and implementation issues (operational, security, performance, cultural/political) • Final examination review 	<ul style="list-style-type: none"> • Textbook (Part Five – Implementation and maintenance, Chapter 13 & 14) • No lab
12. March 30	<ul style="list-style-type: none"> • Term project presentation 	<ul style="list-style-type: none"> • All project documents are due. • No lab

*Subject to revision.

IMPORTANT ADDITIONAL INFORMATION

Satisfactory In-term Performance

1. Unless otherwise stated below in item #2, the requirement for Satisfactory In-term Performance is set at 50% of all, not each, pre-final term work (i.e. assignments, participation marks, tests etc.).
2. The criterion/criteria and the standard(s) for Satisfactory In-term Performance are as follow(s):
 - a. >=50% assignments and midterm examination
 - b. >=50% class attendance and team project meeting
3. Unsatisfactory In-term Performance in this course will lead to failure in this course (regardless of the performance at the Final exam or final project) **Yes** **No**
 FND grade in this course (in case of missed Final exam or project) **Yes** **No**

Required calculator in BUSI course examinations

If you are purchasing a calculator, we recommend any one of the following options: Texas Instruments BA II Plus (including Pro Model), Hewlett Packard HP 12C (including Platinum model), Staples Financial Calculator, Sharp EL-738C & Hewlett Packard HP 10bII

Group work

The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, follower-ship and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your professor may assign one or more group tasks/assignments/projects in this course. Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.

In accordance with the Carleton University Undergraduate Calendar (p 34), the letter grades assigned in this course will have the following percentage equivalents:

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

F = Below 50 WDN = Withdrawn from the course

ABS = Student absent from final exam

DEF = Deferred (See above)

FND = (Failed, no Deferred) = Student could not pass the course even with 100% on final exam

Academic Regulations, Accommodations, Etc.

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

<http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

Requests for Academic Accommodations

Academic Accommodations for Students with Disabilities

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your **Letter of Accommodation** at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (*if applicable*). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (*if applicable*).

- The deadlines for contacting the Paul Menton Centre regarding accommodation for final exams for the April 2015 exam period is March 6, 2015.

For Religious Obligations:

Students requesting academic accommodation on the basis of religious obligation should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such requests should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory event.

Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Instructors will make accommodations in a way that avoids academic disadvantage to the student.

Students or instructors who have questions or want to confirm accommodation eligibility of a religious event or practice may refer to the Equity Services website for a list of holy days and Carleton's Academic Accommodation policies, or may contact an Equity Services Advisor in the Equity Services Department for assistance.

For Pregnancy:

Pregnant students requiring academic accommodations are encouraged to contact an Equity Advisor in Equity Services to complete a letter of accommodation. The student must then make an appointment to discuss her needs with the instructor at least two weeks prior to the first academic event in which it is anticipated the accommodation will be required.

Academic Integrity

Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated. Penalties may include expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; and a grade of Failure in the course, amongst

others. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at <http://www2.carleton.ca/sasc/advisingcentre/academic-integrity/>.

Assistance for Students:

Student Academic Success Centre (SASC): www.carleton.ca/sasc

Writing Tutorial Services: <http://www1.carleton.ca/sasc/writing-tutorial-service/>

Peer Assisted Study Sessions (PASS): www.carleton.ca/sasc/peer-assisted-study-sessions

Important Information:

- Students must always retain a hard copy of all work that is submitted.
 - All final grades are subject to the Dean's approval.
 - Please note that you will be able to link your CONNECT (MyCarleton) account to other non-CONNECT accounts and receive emails from us. However, for us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CONNECT address. Therefore, it would be easier to respond to your inquiries if you would send all email from your connect account. If you do not have or have yet to activate this account, you may wish to do so by visiting <https://portal.carleton.ca/>
-

IMPORTANT DATES TO REMEMBER – Winter 2015**January 5**

Winter-term classes begin. [Late Charges](#) now apply.

January 16

Last day for registration for winter term courses.

Last day to change courses or sections (including auditing) for winter term courses.

Students who have not deposited (via automated upload) the final copy of their thesis to the office of the Faculty of Graduate and Postdoctoral Affairs must register.

January 31

Last day for a [fee adjustment](#) when withdrawing from Winter term courses or the Winter portion of two-term courses. Withdrawals after this date will create no financial change to Winter term fees (financial withdrawal).

February 13

April examination schedule available online.

February 13-21

Fall-term deferred examinations will be held

February 16

Statutory holiday, University closed.

February 16-20

Winter Break. Classes are suspended.

March 1

Last day for UHIP refund applications for International Students who will be graduating this academic year.

Last day for receipt of applications from potential spring (June) graduates.

March 6

Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for April examinations.

April 3

Statutory holiday, University closed.

April 8

Last day of fall/winter and winter-term classes.

Last day for academic withdrawal from fall/winter and winter-term courses.

Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for fall/winter and winter-term courses.

April 9-10

No classes or examinations take place

April 11-23

Final examinations in winter term and fall/winter courses may be held. Examinations are normally held all 7 days of the week.

June 8-18 (including Saturdays)

Fall/winter and winter term deferred final examinations will be held.