CARLETON UNIVERSITY
SPROTT SCHOOL OF BUSINESS
BUSI3402A
WINTER 2018
SYSTEM ANALYSIS AND DESIGN
8:35AM – 11:25AM, ST. PATRICK'S BUILDING 303

Instructor: Satyendra Singh, Ph.D.
Office: 919-2
Office Hours: By appointment
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TA: TBD
Office Hours: TBA

Course Calendar description from 2017/2018 University Calendar:

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.

Pre-requisites

One of BUSI 2400,COMP 2404, or SYSC 2004 (with a grade of C or higher)**o**

Course Description

The course emphasizes systems analysis and design as a discipline and attempts to identify the role of the systems analyst and end user in the analysis and design of computer based business information systems. The course covers the concepts, skills, methodologies, techniques, and tools essential for the systems analyst to successfully develop information systems. The student is introduced to various business system application areas and different techniques.

Course Approach

This is a lecture style course and you are expected to come fully prepared in each class. On an average, each class will require about 7-8 hours of good preparation time.

Reference Material

The content covered in this course is inspired by various books. I would recommend any of the following books:

- System Analysis and Design, Kendall and Kendal

- System Analysis and Design, Dennis, Wixom and Roth
- System Analysis and Design in the Changing World, Satzinger, Jackson and Burd
- System Analysis and Design, Hoffer, George and Valacich

In addition, numerous academic articles are also included. These articles will help you prepare for the classes. This course syllabus, all lecture notes, and any additional information will be posted on Carleton LMS.

Evaluation and Grading

Class Participation	20%
Mid Term	25%
Group Project	30%
Final Exam	25%
Total	**100%**

Assignment Submission

All written assignments should be submitted to the Instructor by 6:00 p.m., CuLearn, on the day they are due. It is the student's responsibility to ensure that all assignments are received in an accessible format on or before the due date. Assignments are due at the time indicated. Late assignments will be marked down by 10% for every calendar day late (only when late submissions are allowed). All documents should have the student's name, number, and course section.

Class News and Updates

Please check the class webpage at http://culearn.carleton.ca for regular news and updates.

List of topics covered in this course

- Information Systems (IS) development
- Requirements analysis
- Object-oriented system analysis
- Structured system analysis
- Data modeling
- Moving to Design
- Architectural Design
- UI Design
- Program and Data Design
- System Interfaces, Controls and Security Design
- Implementation and Maintenance

Course Schedule

Week (Date)	Topic (Chapter)	Group Assignment	Readings
Week 1 (Jan 8)	Introduction and Information Systems development		Refer to the right chapter in a reference book that you are following.
Week 2 (Jan 15)	Requirements Collection		
Week 3 (Jan 22)	Modeling System Requirements		
Week 4 (Jan 29)	Structured Methodology		
Week 5 (Feb 5)	Object Methodology		
Week 6 (Feb 12)	Moving to Design		
	Winter Break		
Week 7 (Feb 26)	midterm exam		
Week 8 (Mar 5)	Architecture Design and UI Design		
Week 9 (Mar 12)	Program and Data Design		
Week 10 (Mar 19)	System Interfaces, Control and Security Design		
Week 11 (Mar 26)	Implementation		
Week 12 (April 2)	Maintenance	Project report due in-class	
TBD	Final exam		

Class	Topic	Articles for Supplementary Reading
1	Introduction and Information Systems Development	• Where now for development methodologies, Avison and Fitzgerald, Communications of the ACM, 2003, 46:1, p.78-82 • Prototyping for systems development: A critical appraisal, Changing the paradigm of software engineering, Vaclav, Communications of the ACM, 2006, 49:8, p.67-70 • The metropolis model: A new logic for development of crowdsourced systems, Kazman and Chen, 2009, 52:7, p.76-84

2	Requirements Collection	• A unified model of requirements elicitation, Hickey and Davis, Journal of Management of Information Systems, 2004, 20:4, p.65-84 • Behavioral programming, Harel et. al., Communications of the ACM, 2012, 55:7, p.90-100 • Software developers' views of end-users and project success, Procaccino and Verner, Communications of the ACM, 2009, 52:5, p.113-116
3	Modeling System Requirements	• Supporting reuse in system analysis, Sugumaran et. al., Communication of the ACM, 2000, 43:11, p.312-322 • Supporting systems analysis and design through fisheye views, Turetken et. al., Communications of the ACM, 2004, 47:9, p.72-77 • Conceptual modeling and system architecting, Dori, Communications of the ACM, 2003, 46:10, p.63-65
4	Structured Methodology	• What storytelling can do for information visualization, Gershon and Page, Communications of the ACM, 2001, 44:8, p.31-37 • Metaphors and methodologies: Living beyond the systems machine, Kendall and Kendall, MIS Quarterly, 1993, 17:2, p.149-171 • Use-Case 2.0, Jacobson et. al., Communications of the ACM, 2016, 59:5, p. 61-69
5	Object Methodology	• Dilemma between the structured and object-oriented approaches to system analysis and design, Rob, The Journal of Computer Information Systems, 2006, 46:3, p.32-42 • Revolution or evolution? A comparison or object-oriented and structured systems development methods, Sircar et. al., MIS Quarterly, 2001, 25-4, p. 457-471 • Object oriented analysis – Is it just theory?, Gelbard et. al., IEEE Software, January/February, 2010, p. 64-71 • How intuitive is object oriented design? Hadar and Leron, Communication of the ACM, 2008, 51:5, p. 41-46
6	Moving to Design	• Making a game of system design, Swartout and Lent, Communications of the ACM, 2003, 46:7, p. 32-39 • The disappearing computer, Streitz and Nixon, 2005, Communications of the ACM, 48:3, p. 33-35 • Building disappearing computers, Russell et. al., Communications of the ACM, 2005, 48:3, p. 42-48 • The washing machine that ate my sari – Mistakes in cross-cultural design, Chavan et. al., Interactions, January/February 2009, p. 26-31

8	Architecture Design and UI Design	• Banavar, G., and Bernstein, A., "Software infrastructure and design challenges for ubiquitous computing applications", Communication of the ACM, 2002, 45, 12, pp. 92-96 • Vogels, W., "Beyond server consolidation," ACM Queue, January/February, 2008, pp. 20-26 • , R., and Poupyrev, I., "Organic user interfaces", Communication of the ACM, 2008, 51, 6, pp. 26-30 • Vertegaal, R., "Attentive user interfaces", Communication of the ACM, 2003, 46, 3, pp. 31-33
9	Program and Data Design	• Giguette, R., "Building objects out of Plato: Applying philosophy, symbolism, and analogy to software design", Communication of the ACM, 2006, 49, 10, pp. 66-71 • Sugumaran, V., Park, S., and Kang, K.C., "Software product line engineering", Communication of the ACM, 2006, 49, 12, pp. 28-32 • Scott, K.M., "Is usability obsolete", Interactions, 2009, May/June, pp. 6-11 • Seltzer, M., "Beyond relational databases", Communication of the ACM, 2008, 51, 7, pp. 52-58
10	System Interface Controls and Security Design	• Loo, A., "The myths and truths of wireless security", Communication of the ACM, 2008, 51, 2, pp. 66-71 • West, R., "The psychology of security", Communications of the ACM, 2008, 51, 4, pp. 34-41 • Oppliger, R., "IT security: In search of the holy grail", Communication of the ACM, 2007, 50, 2, pp. 96-98 • Thompson, R., "Why spyware poses multiple threats to security", Communication of the ACM, 2005, 48, 8, pp. 41-43
11	Implementation	• Armour, P.G., "The unconscious art of software testing", Communication of the ACM, 2005, 48, 1, pp. 15-18 • Jackson, D., "A direct path to dependable software", Communication of the ACM, 2009, 52, 4, pp. 78-88 • Cohen, C.F., Birkin, S.J., Garfield, M.J., and Webb, H.W., "Managing conflict in software testing", 2004, 47, 1, pp. 76-81
12	Maintenance	• Mookerjee, R., "Maintaining enterprise software application", Communication of the ACM, 2005, 48, 11, pp. 75-79 • Gerace, T, and Cavusoglu, H., "The critical elements of the patch management process", Communication of the ACM, 2009, 52, 8, pp. 117-121 • Biehl, M., Prater, E., and McIntyre, J.R., "Remote repairs, diagnostics, and maintenance", Communication of the ACM, 2004, 47, 11, pp. 101-106

Additional Information

Course Sharing Websites
Materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

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			

Grades entered by Registrar:
WDN = Withdrawn from the course
DEF = Deferred

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

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*). **Requests made within two weeks will be reviewed on a case-by-case basis.** After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC

website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (*if applicable*).

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 and instructors can confirm accommodation eligibility of a religious event or practice by referring to the Equity Services website (http://carleton.ca/equity/accommodation/religious-observances/) for a list of holy days and Carleton's Academic Accommodation policies. If there are any questions on the part of the student or instructor, they can be directed to 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; a grade of Failure on the submitted work and/or course; academic probation; a refusal of permission to continue or to register in a specific degree program; suspension from full-time studies; suspension from all studies at Carleton; expulsion from Carleton, 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: https://carleton.ca/registrar/academic-integrity/.

Sprott Student Services

The Sprott student services office, located in 710 Dunton Tower, offers academic advising, study skills advising, and overall academic success support. If you are having a difficult time with this course or others, or just need some guidance on how to successfully complete your Sprott degree, please drop in any weekday between 8:30am and 4:30pm. Our advisors are happy to discuss grades, course selection, tutoring, concentrations, and will ensure that you get connected with the resources you need to succeed! http://sprott.carleton.ca/students/undergraduate/learning-support/

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

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.
- 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 CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting http://carleton.ca/ccs/students/