

CS 432 – Spring 2018

Business Systems Analysis

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Office hours: By appointment at EC1 143 (The Games Institute)
Lectures: Tue. / Thu. 11:30 am – 12:50 pm at STC 0060
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Syllabus

Course Description

The course emphasizes systems analysis as a discipline and attempts to identify the role of the systems analyst and end user in the analysis and synthesis 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 of object-oriented analysis as well as structured and agile analysis.

Course Requirements

Prerequisites: CS 330 and third-year standing. Not open to Computer Science students.
Antirequisites: AFM 341/ACC 442, CS 445/ECE 451, MSCI 444, SE 463.

Course Notes

There is no formal textbook for this course. Posted lesson notes are the main resource for study. This course syllabus and schedule, lesson notes, and any additional information will be posted on the Waterloo Learn system (<https://learn.uwaterloo.ca>) and/or the course website. Students are not required to bring the notes to classes, but can do so if they prefer.

The following books are available at the DC library and can be used as additional readings for interested students, but reading these books is not required to pass this course.

- *Analysis and Design of Information Systems*, 3rd ed., Arthur M. Langer. Springer-Verlag, 2008.
- *Systems, Analysis and Design in a Changing World*, 6th ed., Satzinger, Jackson, and Burd. Boston, 2012.



Course Work

This course will be carried out with a flipped classroom approach. Flipped classroom is an instructional strategy that reverses the traditional learning environment. This means that instead of coming to lectures to hear about the content, then doing the homework on their own, students will study the content (lesson notes) on their own and then come to classes to work on the learning activities and projects with guidance from the instructor and/or TAs.

Therefore, you are expected to study the course notes on your own before the lectures, take note on the points you need clarification on, and bring them to the lectures to ask the instructor about them. Moreover, you will work on the suggested learning activities and group project during the lectures, where you will be able to obtain guidance from the instructor and/or TAs and discuss your work with your colleagues. You are free to study the lesson notes on your own pace. However, you are strongly encouraged to follow the suggested schedule (see below on this document) for several reasons: first, it will prevent you from having to catch up a lot of content just before the exams; also, it will be easier to discuss the topics with the instructor, TAs, and your colleagues if everybody is studying the same topics on the same week.

You are strongly encouraged to attend all the lectures. Although in theory you could also work on the learning activities on your own, you will be losing the opportunity to improve your learning by discussing your work with the instructor, the TAs, and your colleagues. The instructor may also periodically schedule status meetings with your group during the lectures to keep up with your progress and provide feedback. Please also note that while it will be possible to work on the exercises using paper and later transfer them to a digital format for submission, you might wish to bring a digital device to class so you can do the exercises already in digital format; this might save you some time.

Evaluation

Assessment	Due Date	Weight
Exams		50%
Mid-term exam	June/14 th 7:00 – 8:50 pm at MC 2034/2035	20%
Final exam	Date and Place TBA	30%
Group Project		30%
Report 1: Preliminary investigation	May/31 st	10%
Report 2: Conceptual analysis	June/28 th	10%
Report 3: Data model	July/19 th	5%
Report 4: Project Management	July/19 th	5%
Experience		20%
Experience points (XP) (up to 2,000)	July/24 th	20%



The mid-term and final exams will focus on your understanding of the topics covered in the course and your ability to complete simple system analysis tasks.

The group project will allow you to experience how a real systems analysis project looks like. You will work in a group of 4–5 students. Reports are to be uploaded using the course website (<https://www.student.cs.uwaterloo.ca/~cs432/s18/>) by the end of the scheduled day. Late reports will be penalized 1 star (10%), plus an additional star (10%) per week.

Experience points (XP) can be accumulated by completing designated tasks throughout all the term, at your convenience, until the scheduled final date (July/24th). The tasks will be submitted and graded using a digital platform on the course website (<https://www.student.cs.uwaterloo.ca/~cs432/s18/>), which will be available starting on the second week of the term. This course includes both required and optional tasks. Required tasks must be completed for a passing grade, whereas optional tasks might be completed freely by students, with the goal of increasing their experience points' grade.

To pass the course, you need to fulfill all the following requirements:

- The weighted average of your exams must be at least 50%
- All your group project reports must be approved with at least 1 star (see below)
- You must submit all the required XP quests and all of them must be approved with at least 1 star (see below)
- Your final calculated grade (see table of assessments above) must be at least 50%

Grading

Marked mid-term exams will be returned to the students using the digital platform Crowdmark. Marked final exams will not be returned to the students; however, the final exam grades will be published on Waterloo Learn. Therefore, students will need to contact the instructor after the grades are published in case they wish to review their final exam or request a remark.

Marked group project reports and XP quests will be returned to students on the same digital platform where they will be submitted. Reports or tasks that fulfill only 50% or less of the requirements will be returned without a grade and with feedback explaining what needs to be done to improve them. Students can then resubmit their work for a new grading. Accepted work will be graded on a scale of 1 to 5 stars and you will earn the amount of XP according to the table on the right.

Stars	% of total points of the task earned
1	60%
2	70%
3	80%
4	90%
5	100%

Marked work will also be accompanied by feedback and can be resubmitted at most one additional time for a remark, giving students a chance to increase the amount of stars (and experience points) received.



Mid-term exam “no makeup” policy

There will be no deferred/makeup mid-term exam. Under extenuating circumstances that are pre-approved, where a student is unable to write the mid-term, the instructor will assign a higher weight to the student’s other grades (final exam, group project, and XP).

Policy on collaboration for submitted assignments

In this course, you are encouraged to discuss your strategies and solutions for the learning activities and group project with your colleagues, the TAs, and the course instructor. System analysis is an activity in which you get better the more you do it, and there are often many possible solutions for the same problem. Discussing your ideas will allow you to learn how other people approach the same problems, thus improving your skill as an analyst.

But although you can discuss your work, each student is still supposed to finish their XP quests individually, and each group is supposed to work on their own project. This means that you can discuss potential solutions to specific points of the work, but you should not work together with another student/group and submit work that is completely identical.

In case of doubt regarding any specific situation, please consult the instructor for guidance.

List of Topics Covered in This Course and Suggested Schedule

#	Group	Topic	Suggested completion date
1	System development and Project Management	Basic concepts	May 8
2		Information Systems development life cycle	May 8
3		Project management (traditional)	May 15
4		Project Initiation and Requirements	May 17
5	Object-oriented analysis	Object-oriented analysis (use cases)	May 24
6		Object-oriented analysis (structural)	May 29
7		Object-oriented analysis (behavioural)	June 5
8		Object-oriented analysis (interactions)	June 12
9	Structured analysis	Structured analysis (context diagram)	June 19
10		Structured analysis (data flow diagram)	June 21
11	Data modeling	Data modeling	June 28
12		Data normalization	July 5
13	Agile analysis	Agile analysis	July 10
14		Project management (agile)	July 12
15		User interface mock-ups (optional)	July 17
16	Gamification	Gamification of IS (optional)	July 24



How to succeed in this course

1. Before the lectures
 - a. Download and study the lesson notes for the topic suggested for the week/day
 - b. Take note of the clarifications you need or questions you want to ask
 - c. Take a look at the suggested required and optional activities for the topic, choose which ones you want to do, and devise a strategy to tackle them
2. During the lectures
 - a. Ask the instructor about the clarifications or questions you need on the studied topics
 - b. Participate of the group learning activities organized by the instructor during the lecture (e.g., practical exercises, debates, etc.)
 - c. Work on the learning activities suggested for the topic, discussing your strategies and solutions with your colleagues and seeking guidance and feedback from the instructor or the TAs
 - d. Similarly, work on the activities of your group project together with your teammates, while also seeking guidance and feedback from the instructor and TAs
3. After the lectures
 - a. Finish any activity you didn't finish during the class, and submit them for grading
 - b. Work with your teammates to complete your group project reports and submit them for grading
 - c. Review the feedback received from the instructor or TAs regarding your submitted work and, if necessary, improve your work and submit it again for a remark
4. Preparing for exams
 - a. Review the lesson notes and the clarifications provided by the instructor during the lectures and be prepared to explain the concepts learned
 - b. Review the activities you completed for experience points and be prepared to complete similar activities as part of the exam



University Policies on Academic Integrity

Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. All members of the UW community are expected to hold to the highest standard of academic integrity in their studies, teaching, and research. The Office of Academic Integrity's website (www.uwaterloo.ca/academicintegrity) contains detailed information on UW policy for students and faculty. This site explains why academic integrity is important and how students can avoid academic misconduct. It also identifies resources available on campus for students and faculty to help achieve academic integrity in — and out — of the classroom.

Grievance

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 – Student Petitions and Grievances, Section 4,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>

Discipline

A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about 'rules' for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offences and types of penalties, students should refer to Policy 71 – Student Discipline,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

Avoiding Academic Offences

Most students are unaware of the line between acceptable and unacceptable academic behaviour, especially when discussing assignments with classmates and using the work of other students. For information on commonly misunderstood academic offences and how to avoid them, students should refer to the Faculty of Mathematics Cheating and Student Academic Discipline Policy,

http://www.math.uwaterloo.ca/navigation/Current/cheating_policy.shtml



Appeals

A student may appeal the finding and/or penalty in a decision made under Policy 70 – Student Petitions and Grievances (other than regarding a petition) or Policy 71 – Student Discipline if a ground for an appeal can be established. Read Policy 72 – Student Appeals, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

Note for Students with Disabilities

AccessAbility Services (formerly the Office for Persons with Disabilities), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities, without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Feeling overwhelmed about school? We want to help you.

Many people struggle with the academic aspects of university. If you are facing challenges, please know that you are not alone.

It is a very common experience to struggle with managing your time, to find that your grades drop since high school or to encounter assignments that you can't complete on your own.

Many students feel unsure about whether they can succeed. Some students do well on a few assignments and are shocked to do poorly on a midterm or final exam. Other students struggle with their confidence even if they are managing all right.

Speak to your instructor and/or academic advisor if you are concerned about your undergraduate career.

The mathematics faculty also has a list of services available to you. Please do not suffer alone. We are here to help.

<https://uwaterloo.ca/math/current-undergraduates/feeling-overwhelmed>

