



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF COMPUTER SCIENCE  
COURSE OUTLINE

1. **Course:** SENG 301: Software Analysis and Design

**Lecture Sections:**

L01, TR 13:00-15:45, Zahra Shakeri, ICT 642, [zshakeri@ucalgary.ca](mailto:zshakeri@ucalgary.ca)

Office Hours: TR 16:00-16:45

**Course Website:** D2L

**Computer Science Department Office, ICT 602, 220-6015, [cpsc@cpsc.ucalgary.ca](mailto:cpsc@cpsc.ucalgary.ca)**

2. **Prerequisites:** CPSC 319 or 331

(<http://www.ucalgary.ca/pubs/calendar/current/computer-science.html#3620>)

3. **Grading:** The University policy on grading and related matters is described in sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Assignments (3)	20%
Quizzes (3)	15%
Midterm Exam	25%
<i>(In-Class Tuesday June 6<sup>th</sup>, 2017)</i>	
Final Exam	40%

This course **will** have a Registrar's Scheduled Final Exam.

Special Regulations affecting Final grade: each of the above components will be given a percentage grade. The final grade will be calculated weighted by the percentage given above and then reconverted to a final letter grade using the attached cut-offs. In order to obtain a final grade of C- or better, a student must achieve a weighted overall average of C- or better on the midterm and final exam.

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar. Section 3.6. It is the student's responsibility to familiarize themselves with these regulations. See also Section E.6 of the University calendar.
5. **Scheduled Out-of-Class Activities:** REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME ACTIVITY. If you have a clash with this out-of-class activity, please inform your instructor as soon as possible so that alternative arrangements can be made.

6. **Course Materials:**

Object Oriented Software Engineering: Practical Software Development Using UML and Java Second Edition, Lethbridge and Laganière, McGraw Hill (Recommended)

How to Use Objects, Gast, Addison-Wesley (Recommended)

Code Complete Second Edition, McConnell, Microsoft (Recommended)

Clean Code: A handbook for Agile Software Craftsmanship, Martin, Prentice Hall (Recommended)

**Online Course Components:**

See course website.

7. **Examination Policy:** Students may bring a single US letter sized sheet of paper to examinations (the "cheat sheet") as a memory aid.. Students should also read the Calendar, Section G, on examinations.
8. **Approved Mandatory and Optional Course Supplemental Fees:** None.

9. **Writing across the Curriculum Statement:** In this course, the quality of the student's writing in the weighted components of the course will be a factor in the evaluation of these components. See also Section E.2 of the University Calendar.
10. **Human Studies Statement:** Students will be expected to participate as subjects or participants in projects. See also Section E.5 of the University Calendar.
11. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**
- a) **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offense that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K, Student Misconduct to inform yourself of definitions, processes and penalties.
  - b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points which can be found in each classroom and building.
  - c) **Student Accommodations:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at [http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities\\_0.pdf](http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf). Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Computer Science.
  - d) **Safewalk:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 403-220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
  - e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also <http://www.ucalgary.ca/secretariat/privacy>
  - f) **Student Union Information:** VP Academic (403) 220-3911 [suwpaca@ucalgary.ca](mailto:suwpaca@ucalgary.ca) SU Faculty Rep (403) 220-3913 [science1@su.ucalgary.ca](mailto:science1@su.ucalgary.ca), [science2@su.ucalgary.ca](mailto:science2@su.ucalgary.ca) and [science3@su.ucalgary.ca](mailto:science3@su.ucalgary.ca), Student Ombuds Office: (403) 220-6420 [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca), <http://ucalgary.ca/provost/students/ombuds>
  - g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend your cell phone should be turned off unless instructed otherwise. All communications with other individuals via laptop computers, cell phones or other devices connectable to the internet in not allowed during class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
  - h) **U.S.R.I.:** At the University of Calgary feedback provided by students through the Universal Student ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses ([www.ucalgary.ca/usri](http://www.ucalgary.ca/usri)). Your responses make a difference – please participate in USRI surveys.

Department Approval \_\_\_\_\_ Date \_\_\_\_\_

Faculty Approval for  
out of regular class-time activity: \_\_\_\_\_  
Date: \_\_\_\_\_

Faculty Approval for  
Alternate final examination arrangements: \_\_\_\_\_  
Date: \_\_\_\_\_

\*A signed copy of this document is on file in the Computer Science Main Office\*

**SENG 301 Percentage to Letter Grade Conversion Table**

A+	95-100
A	90-94
A-	85-89
B+	80-84
B	75-79
B-	70-74
C+	65-69
C	60-64
C-	55-59
D+	50-54
D	40-49
F	0-39

## **SENG 301 Syllabus**

### **Tentative Topics Covered:**

- \* Software development processes
- \* Requirements analysis
- \* Prototyping
- \* Moving from requirements to design
- \* Testing (Test Driven Development Paradigm)
- \* Test case selection, automation and coverage
- \* Debugging
- \* Review of object-oriented design
- \* Structural and behavioural modeling
- \* Planning for change
- \* Design
- \* Design principles, patterns and analysis
- \* Software Architecture
- \* Moving from design to implementation
- \* Refactoring

### **Learning Outcomes:**

By the end of the course, students will:

- Implement a small to medium-scale software application covering different phases of a software development life-cycle.
- Design a small- to medium-scale software system that conforms to a given description.
- Implement and to execute the Test Driven Development (TDD) Paradigm.
- Design and to justify a test plan.
- Analyze the strengths and weaknesses of the applied software development process.
- Model a small- to medium-scale software system to represent the relevant aspects in a specified context.

**Allowable Sources:**

No Restrictions on source material.

**Cited Sources:**

If you used an article, book, function or algorithm that you did not create for this course you must cite it. (This means you may have to cite yourself!) Use APA for citations in a report, paper or in the header documentation of computer code you submit. If citing a website, make sure you include the date you accessed the website. Don't forget to cite code that you used, even if you modified the code.

**Level of Collaboration between Students:**

You are welcome to work and discuss the assignment with other students enrolled in this course in this Section in Spring 2017. Collaboration with any individual not enrolled in this course is strictly dis-allowed.

**Disclosure Policy**

If you discuss the assignments with others, make sure to cite these discussions.