

# Syllabus for CISC 846: Software Design Methodologies (Fall 2019)

DRAFT Version – may change up to the Tuesday of Week 3 of term (day of 4<sup>th</sup> lecture)

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**Course website:** <http://cs.queensu.ca/home/dalamb/cisc846/>

**Sessions:** Tuesdays 10:00-11:30; Thursdays 12:00-13:30 starting Thursday Sep 5, in Goodwin 521

**Overview:** Software design is the software development activity that occurs between requirements analysis and implementation. Object-oriented methods for software design may be dominant today, but a wide variety of alternative paradigms have been proposed over the last 30 years. This course exposes you to these varied possibilities. It overlaps somewhat with requirements analysis and software implementation, but only to establish the context for software design. This is in part a reading course, meaning you will learn much of the material from readings instead of lectures. Lectures will typically expand on the readings rather than explain basic material.

**OnQ:** Most course material will only be available on OnQ, which requires enrolling in the class and waiting overnight for SOLUS to synchronize with OnQ. **Warning:** Computing students should enroll before the School's deadline for opening up the class to non-Computing students, which is September 16. Since work is due in the course earlier than that, please decide ASAP whether to take this course.

**Readings:** The Campus Bookstore has a collection of core readings for which all students are responsible. If it is sold out, use the Campus Bookstore's "rain check" mechanism to order a copy. Much of the cost of the reader is fees for the legally-required copyright permissions. See

<https://www.campusbookstore.com/textbooks/search-engine>

to find the listing for CISC 846, which will give you the page from which you can request a rain check.

The first reading will also be available via the library's "get it @Queen's" mechanism from the library's database of journals. There will also be several articles on Ares.

**Evaluation** is based entirely on term work.

## Weight Item

10% Participation, based on contributing to discussions and in-class exercises.

10% *Brief* answers to questions on the weekly reading assignments

5% 2-page retrospective on what you learned from the course.

15% Assignments

60% Term Paper

10% 2-page Proposal

10% Presentation

40% Final Report

Some work will have short grace periods, though using them will incur a grade penalty. Deadlines and grace periods will be on the OnQ site. *A deadline is a deadline*; I do not give extensions except as required by the Academic Considerations policy. Set your personal deadlines a few days earlier. Since the questionnaires are used to create lectures, no extensions are possible, though you may skip two without penalty. Similarly there can be no extensions for in-class exercises, but the Academic Considerations policy applies for missing up to two of them; if you miss more, an alternative grading scheme will be used that requires make-up work to be determined..

**Skills Development:** You will practice several skills important in graduate-level research, including:

1. Mastering a topic by reading technical material instead of sitting through lectures.
2. Use of library search techniques to find material relevant to your interests.
3. Thesis-style writing in on a much smaller scale than required in actual graduate-level research.

**Readings:** The schedule for required readings is posted on the OnQ site. Each reading will have a survey with 2-3 questions about it. There will also be a standard question: “On what one specific sub-topic would you like to see more discussion?” This could be the part of the reading that gave you the most difficulty or, if none were difficult, which topic you found most interesting. Requests interpretable as asking to go over the entire reading will be ignored.

These questions are meant partly to encourage you to do the readings but primarily to tell me which topics need further explanation. Answers should be short – a paragraph or perhaps two in most cases. Any reasonable attempt to answer each question will get full marks. Class sessions will be a combination of lectures expanding on the readings, discussions exploring the interesting topics and tutorials on the difficult ones.

**Term Paper:** The term paper is an essay where in most cases you review a small segment of the literature and do some limited analysis of it, to be submitted as a .PDF on OnQ.

- The document should consist of an introduction, a summary of some of the literature, and a brief analysis. It need not (and for most students *should* not) include *original* research.
- Conceptually the analysis must be nontrivial but need not be especially deep. It will typically consist of explaining some common aspects of the reading plus suggestions for future work, some of which can be paraphrased (not copied) from the references.
- Physically the whole thing should be about 20 pages, double-spaced, 12-point font, default margins for a writing tool such as LibreOffice.org Writer (about 1 inch).

I will post a list of possible topics on the OnQ site; you are free (and encouraged) to suggest others. You may propose alternative styles of term paper; please discuss with me well before the deadline. All essay topics must have some clear relationship to design methodologies, particularly architecture.

**Proposal:** The term paper proposal should in most cases

- State the topic of the term paper, and explain its meaning and significance in 2-4 paragraphs.
- List at least four references, at least three of which must be to the academic literature relevant to the topic. Academic literature means journal articles, conference papers, book chapters, and technical reports from academic institutions (universities and research institutes). Non-academic literature means textbooks and websites (including Wikipedia) not directly associated with an academic source, or professional magazines that are not journals. Your final term paper will have more references; these initial ones are meant to assure both of us that the scope of your paper is appropriate and that you have sufficient material to analyze.
- Physically the whole thing should be no more than 2 pages, double-spaced, 12-point font, default margins for a writing tool such as OpenOffice.org Writer (about 1 inch). You may add a third page for additional references beyond the primary four.

Submit it as a .PDF on OnQ.

**Presentation:** In the middle of the term you will present a summary of *one* of the papers you are reading as preparation for your term paper. Time allowed will be in the range of 10-15 minutes, plus 5 minutes for questions, depending on how many students take the course.

**Plagiarism:** Never copy phrases from other work without citation *and* clear indication that the material is copied. The majority of your prose should be original or paraphrase; an essay with excessive quotation is of lower quality than one with good summarization or paraphrasing. The University requires that the following statement be included in the syllabus of any course using Turnitin.

This course makes use of Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely for the purpose of detecting plagiarism.

Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. Turnitin compares submitted files against its extensive database of content, and produces a similarity report and a similarity score for each assignment. A similarity score is the percentage of a document that is similar to content held within the database. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to determine the authenticity of work as a part of a larger process.

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You may opt out of Turnitin, but will be required to take additional steps to make it feasible for the instructor to detect plagiarism manually.

**Other Aspects:** Consult <http://www.cs.queensu.ca/students/undergraduate/syllabus/year2019-20.php> for further elements that should be considered part of this syllabus, especially academic integrity, accommodations, and academic considerations.