

CIS3750 Fall 2021

Systems Analysis & Design in Application - DRAFT

contact

Dr. Daniel Gillis

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community partner

Integrated Youth
Services Network



dear students

After more than a year with COVID-19, many of us are anxious to get back to normal. I am definitely part of that group. However, we need to hang on for at least one more semester. As such, this semester is going to be similar to Fall 2020 in terms of how some things are delivered. This means that it is absolutely necessary that we continue to take care of ourselves, our families and friends, and our community.

Many people, including me, are feeling anxious about the pandemic and the seemingly endless list of awful things we are seeing in the news. Many of us are trying to navigate this reality at the same time as managing other significant challenges, such as caring for children or aging parents, job loss, or financial uncertainty. Mix in news of racism, civil rights violations, residential “school” atrocities, the attempted genocide of Indigenous peoples, ongoing misogyny, homophobia, transphobia, climate change, biodiversity loss, and more - it's not surprising that we're feeling uneasy.

With that in mind, I want you to promise to take care of yourself first. To paraphrase Dr. Max Liboiron, if you are sick, heartbroken, or exhausted - please do whatever you can to get the help you need. Reach out to a friend, or a family member, or a health professional. Your health and wellness are more important than your work. If you are worried how doing what is right for your health and wellness might impact your ability to succeed in CIS3750, please chat with me. You don't need to let me know what the problem is, but I can work with you to figure out a solution that will help you succeed in this course.

If you, your family, or people you live with are showing symptoms of COVID-19, please follow the guidance of our public health professionals. If you can't work or study at this time because you are too sick or because you need to take care of someone else, please let me know as soon as possible. I will work with you to determine the best path through the course.

If you live in a different time zone or have limited internet, please reach out to me as soon as possible. I will work with you to make sure you have the materials you need to complete the course. Finally, the semester may prove to be challenging so let's do our best to practice empathy and patience for ourselves and for others.

Having said all this, I do believe that this semester is going to be amazing. I've done my best to restructure the course for online delivery in a way that is supportive and flexible. And we have a great community partner to work with. Will it be perfect? No. Will I mess something up? Probably. Will we experience some growing pains and bumps along the way? Undoubtedly. But whatever happens, be reassured that I will do my best to make the fall semester as positive and successful as possible.

Sincerely,

Dan Gillis

See the course website for information on code of conduct, academic integrity, accessibility, and our policy on children in the classroom.



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where we learn is important

The Dish With One Spoon Covenant speaks to our collective responsibility to steward and sustain the land and environment in which we live and work, so that all peoples, present and future, may benefit from the sustenance it provides. As we continue to strive to strengthen our relationships with and continue to learn from our Indigenous neighbours, we recognize the partnerships and knowledge that have guided the learning and research conducted in and for this class. We acknowledge that the University of Guelph resides in the ancestral and treaty lands of several Indigenous peoples, including the Attawandaron people and the Mississaugas of the Credit, and we recognize and honour our Anishinaabe, Haudenosaunee, and Métis neighbours. We acknowledge that the work we do here occurs on their traditional lands so that we might work to build lasting partnerships that respect, honour, and value the culture, traditions, and wisdom of those who have lived here since time immemorial.

what is this course about?

CIS3750 is an introduction to the issues and techniques encountered in the design and construction of software systems. In this course, we will discuss the theory and models of software evolution. Topics include requirements and specifications, prototyping, design principles, object-oriented analysis and design, standards, integration, risk analysis, testing, and debugging. Want to know more? Check out the Academic Calendar [here](#).

what are we going to learn?

By the end of this course, you should be able to:

- 1 **Collect and critically evaluate client needs to develop software requirements that are specific, measurable, and categorized.**
- 2 **Estimate a timeline for software development by identifying dependencies in, establishing a prioritized list of, and estimating production time for the software requirements.**
- 3 **Improve system design by collecting and synthesizing client feedback provided during prototyping sessions.**
- 4 **Create design diagrams to succinctly communicate software requirements to teammates and clients.**
- 5 **Test a systems solution that addresses the client needs.**

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when are we getting together?

Due to the ongoing COVID-19 pandemic, we will meet online for our lectures. At this point, I am planning for face-to-face delivery of labs (but am still working through these details - more info soon).

While I want you to attend every class and every lab, I realize that there may be times when this won't be possible. Please discuss any challenges you might have with me, and I'll do my best to help you sort them. To accommodate students who might be in different time zones, our lectures will be recorded and made available to you as soon as possible after each class.

To ensure our time is as productive as possible, I'm going to ask that you do some work in advance of class. This typically involves reading, but might involve sketching, watching videos, or creating interpretive dance routines to demonstrate certain computer science topics.

Lec 01/02	Tuesday/Thursday, 4:00pm-5:20pm	Online
Lab 01	Monday, 2:30pm-4:20am	Face-To-Face
Lab 02	Thursday, 11:30am-1:20pm	Face-To-Face
Lab 03	Tuesday, 11:30am-1:20pm	Face-To-Face
Lab 04	Tuesday, 8:30am-10:20am	Face-To-Face
Lab 05	Wednesday, 8:30am-10:20am	Face-To-Face

what skills should we have before we take this course?

Students enrolled in CIS3750 are expected to have the skills and knowledge covered in CIS2520, as well as strong writing skills, the ability to work in teams, and strong communication skills.

Prerequisite **Data Structures** CIS2520

Prerequisite **Object Oriented Programming** CIS2430/ENGG1420

what textbooks will we be reading?

Required	Course Manual: Systems Analysis & Design In Applications Gillis & Durish	2019
Suggested	Head First Software Development Pilone & Miles	2008
Suggested	Head First Object Oriented Analysis and Design McLaughlin, Pollice & West	2007

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where can we find course materials?

There are a lot of things to cover in this course! But never fear - all course material, news, announcements, and grades will be regularly posted on our CIS3750 website. You can find it here. Please be sure to check the website regularly. And while other tools (such as Slack, Discord, Trello, etc.) might be used and are super helpful in their own right, definitely refer to the course website for course information, or ask the teaching team if you are still unsure.

Community Engagement Materials

We are extremely lucky to be working with a fantastic community partner this year. To build a relationship with our community partner, you will find materials describing community-engaged projects and our partner on our website. It's important for all of us to review these materials before we begin working with our community partner. And remember that our community partners are volunteering their time to support us as we learn about software design.

Challenge Materials

In addition to the regular course materials, I will post extra articles or other data about the community partner and their overarching challenge. Please use these materials to bring yourself up to speed with them and their challenge, as this will help you build a better solution as well as a rapport with them.

Lecture Materials

Lectures will be presented synchronously. Lectures will be recorded, however, we as a class will determine which parts of class will be included in those recordings. This is to protect student privacy. Recordings will be made available online as soon as possible. Slides will also be made available.

Labs

Lab meetings will be presented synchronously to allow teams the opportunity to meet with TAs to clarify issues or to receive advice pertaining to their project. Some labs will require that you or your team submit work for grading. While most students will submit these materials by the end of the lab, you will have extra time after the lab to complete and submit the materials should you need it. Lab materials will be made available through the course website.

Assignments

Assignment descriptions and rubrics will be made available on the course website. You should submit all of your assignments through the course website.

Quizzes

Instead of a final exam, the course has several short quizzes. Each quiz will be available on the website until the last day of class (Friday, December 3, 2021). If you have any issues or need extra time to complete a quiz, please let me know as soon as possible.

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what types of assessments are there?

The course has been broken down into several deliverables. Some of these will be submitted during the lab (although, as mentioned, you'll have more time than just the lab to get this work done), while others can be done on your own time or with your team. Each deliverable has a due date range instead of a single due date. If you are having difficulty with an assignment, please chat with the teaching team as soon as possible. Additionally, if you need more time to get something done, please chat with me sooner rather than later.

Assignments

1. Due TBD [%]
2. Due TBD [%]
3. Due TBD [%]

Assignment 1 will be completed individually. All other assignments will include individual and team contributions, as well as team evaluations.

Lab Demos

1. Prototyping Session occurs TBD [%]
Reflections due by TBD [%]
2. Prototyping Session occurs TBD [%]
Reflections due by TBD [%]

Lab Demos will include individual and team contributions, as well as team evaluations.

Quizzes

1. Due between TBD [%]
2. Due between TBD [%]
3. Due between TBD [%]
4. Due between TBD [%]
5. Due between TBD [%]

Quizzes will be open until the last day of class (Friday, December 3, 2021). Quizzes are not to be completed as a team.

Labs

1. Due TBD [%]
2. Due TBD [%]
3. Due TBD [%]
4. Due TBD [%]
5. Due TBD [%]

While there are X labs, you will need to complete modules for only X of them. Some of the modules will be completed by you and your team, others will be completed by you.

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what happens if something is missed or late?

Missed Labs: if you are going to miss a lab, please let your team know (and if possible - me too). Together we should be able to work around your absence.

Missed Assessments: if you can't complete an assignment or quiz or lab due to medical, psychological, or compassionate reasons, please chat with me.

Accommodation of Religious Obligations: if you are unable to meet an in-course requirement due to religious obligations, please let me know **within two weeks of the start of the semester** to make alternate arrangements.

Late Assignments/Lab Demos/Quizzes: we will begin grading course deliverables shortly after the last moment they are due. If you have not submitted a course deliverable on time, it will be considered late. You may submit any course deliverable late, however, your final grade for that deliverable will be reduced by 10% per day. If there are extenuating circumstances that could explain why you need more than three days extension, let me know before the last due date of the deliverable. We will work to identify a new due date, and the expected penalty for the late submission.

Regrades: if you feel your assignment has been graded incorrectly, please present your case (via email) to the instructor. Be specific about what you believe was graded incorrectly. All regraded material will be *completely* regraded. This could result in your grade being reduced.

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what will we learn during lectures? [DRAFT SCHEDULE]

WEEK	TOPICS (order/content may vary)	Course Manual	HFSD	Learning Outcome
Intro	Introduction to CIS3750	1.1-1.4	1	
Week 1	CES, Good Software Meet the Client	2.1-2.3 3.1-3.2	2	1
Week 2	User Stories & Requirements Categorizing Requirements	3.3-3.6	3,4	1
Week 3	Prioritizing Requirements Logical Flow	3.7-3.8		1
Week 4	Time Estimates Timelines	3.9, 4.1 4.3		2
Week 5	Use Cases	5.2	5,6	3
Week 6	Task & Burn Down Charts Prototypes	4.2, 4.4, 4.5 5.1, 5.3		2,3
Week 7	Paper Prototypes Wireframes	5.4, 5.5	8	3
Week 8	UML Diagrams Lab Demo 1	5.6		4
Week 9 4	Class Diagrams Sequence Diagrams	5.7, 5.8	7,8,11	
Week 10	CRC Session Lab Demo 2	5.9		4
Week 11	Testing User Models			5
Week 12	Gamification Reflection			

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what will we learn during labs? [DRAFT SCHEDULE]

WEEK	TOPICS (order/content may vary)	Course Manual	Graded	Learning Outcome
Intro	No lab			
Week 1	Lab 1: Rubrics & Audience Analysis	6.1	No	
Week 2	Lab 2: Instruction & Requirements	6.2	Yes	1
Week 3	Lab 3: Ethics & Do No Harm	6.3	No	1
Week 4	Lab 4: Accessibility & Privacy	6.4	Yes	1
Week 5	No lab			
Week 6	Lab 5: Use Cases	6.5	Yes	3
Week 7	Lab 6: Storyboarding & Prototyping	6.6-6.8	No	3
Week 8	Lab 7: Lab Demo Prep & Check Ins		No	3
Week 9	Lab 8: PlantUML & Class Diagrams		Yes	4
Week 10	Lab 9: Lab Demo Prep & Check Ins		No	3
Week 11	Lab 10: PlantUML & Sequence Diagrams		Yes	4
Week 12	No lab			

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what if we aren't feeling well?

While health and wellness is always important, it is particularly important this semester. As previously stated, I want you to put yourself first this semester. We need to do whatever we can to support each other, as well as our family, friends, and community. With that in mind, we need to work together, practice patience and empathy, and remain honest about our needs. Only then can we foster and promote a safe, supportive environment, as well as good physical, emotional, spiritual, cultural, and mental health and wellness for everyone.

If you are sick, heartbroken, or exhausted, get rest, reach out to someone, take whatever steps necessary to get well. Work is not more important than your health. -Dr. Max Liboiron

If you are experiencing any challenges, please do not hesitate to contact me, and know that there are resources on campus set up to help you out.

Medical concerns? Student Health Services at x52131

Threats of violence, personal safety? Campus police at x2000

Psychological or emotional concerns? Counselling services at x53244

Accessibility concerns? SAS at x56208

Sexual assault? Campus police at x2000, or counselling services at x53244

Mental Health concerns? Please see the Mental Health Resources page here.

Other sources of help can be found at the following links:

- Student Health Services, Monday to Friday, 8:30am-4:30pm, x52131, J.T. Powell Building
- Counselling Services, Monday to Friday, 8:15am-4:15pm, x53244, Level 3, University Centre
- Wellness Education Centre, Monday to Friday, 8:30am-4:30pm, x53327, J.T. Powell Building
- Student Support Network, Monday to Friday, 12:00pm-10:00pm, Raithby House
- Campus Community Police, 24/7, x2000, Trent Building
- Good2Talk, 1.866.925.5454
- Here 24/7, 1.844.437.3427