

GLIS 617-005: Information System Design (3 credits)
Course outline

General information

Instructor: Jesse David Dinneen
Email: jesse.dinneen@mail.mcgill.ca
Office: 3661 Peel St, Room 306
Office hours: drop-in or by appointment

Teaching Assistant: Afroza Sultana
Email: afroza.sultana@mail.mcgill.ca

Always use your McGill email address and be sure to include [617] in the subject line.

Class Meeting

Lecture: Fridays, 11:35–1:25 in Education 627

Labs: Fridays, in Education 329, at 1:35–2:25 (sec 007) **OR** 2:35–3:25 (sec 008)

Email & Discussion Group

All questions on content or class pragmatics should be posted to the discussion group to ensure that the whole class can benefit from the response. Please use Email only for correspondence of a personal nature, and include [617] in the subject line. If you send your email from mycourses the subject line will be correctly annotated for you.

Note that we the instructor and TA are unlikely to read course-related email or the discussion group over the weekend. Please consider this when preparing for assignments and exams.

Course Description

The orientation of this course is to help prepare information professionals to participate in the design of information systems through hands-on experience with the foundational concepts of the field. Topics will include computer terminology and the syntax and semantics of programming languages. Our emphasis will be on the use of these techniques for text parsing, searching, and database design, which are fundamental to the field of information science.

Learning outcomes

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

- Understand and use ICT terminology, relevant to data representation and storage
- Implement a simple computer program for text parsing and searching
- Understand fundamental concepts of digital data representation
- Understand basic concepts of database models

Instructional method

The instructional methods used in this course are somewhat different from those used in other courses in the MIST program. The first 110 minutes of each week will consist of interactive demonstration-based lectures and group activities to provide an overview of that week's content. For the remaining 50 minutes, the class will be divided into sections, to complete hands-on activities in the computer lab that apply the concepts learned in class.

Textbook

There is one optional textbook for this course:

- Meyers, M. (2014). *A Smarter Way to Learn JavaScript*. Createspace. (ISBN 978-1497408180)

This book is available in paperback and Kindle format. Both versions are available from Amazon.ca.

The textbook complements the material covered in class, reinforcing concepts and providing numerous exercises to help you master JavaScript syntax. As our emphasis in class is not on the syntax, this is an important resource, especially for students without prior experience with computer programming. You are not strictly required to read the book or complete the exercises, but it is expected that if you find yourself struggling in the course, your first line of action will be to make sure you are following this book and its exercises (a list of chapters / week will be provided on mycourses).

Class Materials

Although programming activities are ultimately done on a computer, planning and working out solutions is often best done on paper. **You are strongly advised to bring paper and a writing instrument with you to ALL lectures and labs!**

Tentative Course Outline

Please note that the exact ordering of topics may change.

Week 1	Computational Thinking & Introduction to JavaScript Syntax	
Week 2	Introduction to Algorithms: Indexing for Search	
Week 3	Structured vs Unstructured Data	
Week 4	Data Representation	<i>Reflecting on IT Assignment due</i>
Week 5	Conditionals	
Oct 10–14	<i>Study Break – No Class</i>	
Week 6	Iteration	<i>Indexing Assignment due</i>
Week 7	Putting it All Together	
Week 8	Searching and Sorting	<i>Parser Assignment due</i>
Week 9	Human-Computer Interaction	
Week 10	Databases	<i>Search Engine Assignment due</i>
Week 11	Cloud Computing	
Week 12	Interactive Web Design	
Dec 9	<i>Final Exam (Dec 8, 9am-12pm)</i>	

Assignments and Evaluation

Your final course grade will be based on four individual assignments, weekly quizzes (completed online and auto-graded), and a final exam.

Assignment	Weight
Reflecting on IT Assignment (due Sep 30)	10%
Indexing Assignment (due Oct 21)	15%
Parser Assignment (due Nov 4)	15%
Keyword Search Assignment (due Nov 18)	20%
Final Exam (Dec 8, 9am-12pm) OR Project	30%
Quizzes (10 in total)	10%
Total	100%

You are expected to prepare for class discussions and participate in class.

No extensions, delays, or late assignments will be accepted unless a physician's certificate is provided.

Lab exercises & Quizzes (10% of final grade, distributed across 10 quizzes)

Each week you will be given a set of exercises to work on in the lab. The goal is for these exercises to be realizable within the lab period. These provide you with the opportunity to apply the material learned in class. You are encouraged to work on your lab exercises with a partner or in small groups. Working with a partner can help enrich the learning process; however, it is your responsibility to ensure you are effectively using your partner to help you learn and are not merely copying someone else's work.

Lab exercises are not handed in. However, each lab will be associated with a take-home quiz available on mycourses. The quizzes are auto-graded and you can attempt them as many times as you wish with your highest score counted. Only quizzes attempted before the final exam on December 8, 2016 will count towards your final grade.

Although there are no grades directly associated with the lab exercises, they have been designed to prepare you for the assignments and exams. It is extremely difficult to do well on the exam and assignments without completing the lab exercises. Solutions will be posted within a few weeks of each lab, but it is extremely important that you attempt each lab to the best of your ability before consulting the solution.

Readings and Exercises (not graded)

Each week a set of readings will be provided. While technically optional, these readings are strongly encouraged, especially for those relatively new to computing. These readings (as well as their associated online exercises) should be completed before the lab (or even better, before the lecture!). Note that while a number of chapters may be assigned each week, they are typically only a page or two. The associated exercises are quite straightforward. Unlike the lab exercises, which are designed to challenge you on core computational concepts (the focus of the course), the textbook exercises will help you to memorize the syntax and rules of JavaScript (which are not the focus of the course, but mastering them will make the rest of the course easier).

Individual Assignments (60% of the final grade, distributed across 4 assignments)

Individual assignments will enable you to bring together the topics of the course. **These**

must be completed independently. Detailed descriptions and instructions will be posted on mycourses once the concepts required for completing the assignment have been taught.

Assignments are due at 11:59pm (on the due date listed previously), and are to be submitted online via mycourses.

Final Exam or Project (30% of the final grade)

A final exam will be given at the end of the semester to reinforce the concepts taught in class and presented in the laboratory exercises. The exam is closed book, but you may bring one 8½ x 11 sheet of handwritten notes (double-sided).

While most students enter this course with no prior background in computing, a small number do and seek a greater challenge. **To address this diversity, this year will offer an optional project in lieu of the final exam.** Note that although course staff will endeavor to provide support, this project is largely self-directed and **should only be undertaken by those looking for a greater challenge.** Students interested in pursuing this option should book an appointment with me no later than reading week. Projects will be due at noon on the day of the final exam: Dec 8, 2016.

Class Participation (not graded)

Active class participation enriches both your learning experience and that of your peers. Though no grade is explicitly given for class participation, extra credit can be awarded for exceptional contributions. There are many ways of contributing to class:

- Carefully and thoughtfully reading all course material **before** each class including reviewing the lab activities before the lab
- Being an active listener. Paying attention to others when they are speaking and limiting your use of distracting technologies during class
- Helping others during the labs, and actively seeking help when you are stuck (Note that this doesn't mean sharing and copying answers, but rather receiving or providing an explanation meant to help the asker to find the answer him/her self).
- Participating in discussions, either by offering your own thoughts, constructively commenting on those of others, or asking thoughtful and challenging questions
- Posting relevant information or questions to the class discussion board and/or acknowledging or building on the postings of others
- Coming to office hours to discuss course content or ask questions

McGill Policy Statements

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism, and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/).

In accord with McGill University's Charter of Students' Rights, students in this course have

the right to submit in English or in French any written work that is to be graded.

Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté.

If you experience an obstacle to your learning environment, please contact the instructor as soon as possible.

If you have a disability please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 514-398-6009 before you do this.

Additional policies governing academic issues, which affect students, can be found in the McGill Charter of Students' Rights (The Handbook on Student Rights and Responsibilities is available at www.mcgill.ca/files/secretariat/Handbook-on-Student-Rights-and-Responsibilities-2010.pdf).

Acknowledgement and Copyright

In this course, we will be using materials (lectures and lab activities) developed and shared by a number of individuals and institutions, including Nick Parlante (Stanford), Computer Science Inside, and CS Unplugged. This section's syllabus is a modified version of the one used in Prof. Karyn Moffat's section (617-001).