

IT 123 - Introduction to Computational Reasoning

Syllabus

Winter Quarter 2022-2023

Course Description

IT 123 – Introduction to Computational Reasoning will introduce computational reasoning, a problem solving process that includes problem decomposition, pattern recognition, abstraction, and algorithmic thinking. Students will learn to formulate a problem statement, then plan and implement a solution.

The course will include a high-level introduction to the Internet, the World Wide Web, and Web application development. Students will create interactive web pages by writing HTML and CSS and by programming in JavaScript. Topics will include the origins and evolution of computers and of the Internet/World Wide Web, the roles and operations of web browsers and web servers, design principles for web sites, creating content for distribution on the Web, and development of interactive Web applications.

IT 123 will also include an introduction to computational tools in a second technological environment (Python). Students will learn the basics of that technological environment and will demonstrate the ability to create original artifacts in that environment.

Students will demonstrate an enhanced knowledge of computational reasoning by comparing and contrasting the work they have done in both technological environments.

Students will demonstrate the ability to discuss the potential harms and benefits of computing in a number of contexts.

Instructor Information

Instructor: Miles Jackson

Instructor E-Mail Address: mjackson@cdm.depaul.edu

Office Hours:

TH – 3:30 – 5:00 PM

Office Hours can be conducted on Zoom (Zoom link for regular office hours will be posted on D2L course website) or in-person. I'm located in the CDM Building, 243 S. Wabash, in the Tutoring Center.

Important Dates

Consult the DePaul Academic Calendar to find:

- January 8 the last date to “add” sections of this class
- January 15 is the last date to drop this class (or any class) with tuition refund
- February 19 is the last date to withdraw from this class (or any class)

<https://academics.depaul.edu/calendar/Pages/default.aspx>

Liberal Studies Program - Math and Computing Domain – Computational Reasoning

Students who successfully complete IT 123, will have fulfilled the Liberal Studies Program – Math and Computing Domain – Computational Reasoning category requirement.

Learning Outcomes and Writing Expectations of the Math and Computing Domain and How They Will Be Met by IT 123

As a part of successful completion of IT 123, students will achieve the following Learning Outcomes of the Math and Computing Domain -Computational Reasoning category:

1. *Apply computational thinking skills to analyze and design solutions to problems or to express a creative concept.*
Students will complete a series of projects of increasing complexity that rely on computational reasoning skills (Modules 2). Students will complete a final project that demonstrates their improved ability to apply computational reasoning.
2. *Develop, express, trace, and analyze algorithms.*
Students will apply computational thinking techniques, including algorithm creation, to solve a problem humans might encounter (Module 2). Students will develop algorithms that are intended to guide program implementation (Modules 7-9)
3. *Apply fundamental concepts of programming in implementing algorithms. Students will complete programs based on algorithms (Modules 7-9)*
4. *Create original artifacts using computational tools and techniques.*
Students will complete projects that result in original artifacts(i.e. Web pages, Python programs) created using computational tools and techniques (Modules 4-9.) Students will complete a final project that results in an original artifact created using computational tool and techniques.
5. *Apply computational tools to transform and manipulate data.*
Students will complete projects that require application of computational tools(i.e. Web pages, Python programs) to transform and manipulate data (Modules 4-9)
6. *Explain the potential harms and benefits of computing in a number of contexts.*

Students will complete discussion postings that answer forum questions about assigned readings in the required textbook, Blown To Bits, and related articles. Blown To Bits focuses on the history of computing as well as the benefits and harms of computing.

As a part of successful completion of IT 123, students will achieve the following Writing Expectations of the Math and Computing Domain:

IT 123 will require both formal writing (e.g. critical analyses, reaction papers to readings, essays answering questions posed by the instructor, or technical reports) and supplemental written elements that are appropriate for the subject of the course, such as problem-sets, computer code, charts, and diagrams.

1. Students will demonstrate skills in writing at an appropriate level of detail (including the ability to summarize effectively), choosing an effective format, paraphrasing and citation of sources as required, technical accuracy, and quality of expression, including grammar, spelling and word usage. *Students will document the computational reasoning techniques they use to solve a problem humans might face. Students will complete seven journal entries to describe their use of computational reasoning. Students will complete ten discussion postings that answer questions about assigned readings in the required textbook, Blown To Bits, and related articles.*
2. Students will be required to write the equivalent of a minimum of five to ten pages, distributed across a series of assignments. Specific types of writing required will be a part of the description of assignments appropriate to the topics covered. *In addition to the above-noted writing assignments, students will complete a final project that will require that they describe their progress in computational reasoning and relating it to an artifacts they have created.*

Prerequisites

None

Course Modality: Online Asynchronous Learning

This course is an asynchronous online learning course, meaning we won't all be online at the same time. All online learning courses are generally independent in nature, but this is particularly true of asynchronous courses. There are no set meeting times and you are primarily responsible for your own learning. My job as an instructor is to provide you with the tools and vehicles for your learning. I cannot replicate a classroom experience online and I cannot coax you to do the necessary work for the course. ***You must be motivated to complete this course and do the work independently.***

Online courses also require you to schedule your learning time without the structure of attending a class at specific days and times- you will need to manage your time to be successful in the course! ***Please realize this online course is designed to be the equivalent of an on campus course that has 30 classroom hours and also includes all of the outside preparation and learning time that should go on with such a course (which are many additional hours).*** As such, the amount of time you will need to put into this class is extensive and ***I would recommend strongly that you pace yourself over each week and not leave everything until the very end of a module.*** Students who pace themselves tend to do very well. Students who do not, tend to do quite poorly. There is a relationship between time management and performance in this course! D2L is available to you 24 hours a day 7 days a week- so when

you do your work is certainly up to you! Do also be vigilant for maintenance and outages that affect D2L access. This course has a series of weekly modules that include combinations of readings, lecture and power point, web based resources, and discussion boards. Many modules will require that you complete a project using computer software products. Some modules include quizzes to test your understanding of the module topics. There will be assigned readings in our required textbook, Blown To Bits and other related articles. You will need to post to discussion forums pertaining to those readings. You will need to complete a final project that summarizes your work during the quarter.

Each module begins with a brief descriptive overview and a checklist that is a step-by-step guide of everything you need to do to complete the module and when those things are due. The checklist has several links embedded so you can access online resources directly. You can complete this classwork in a way that suits your schedule within the time frame of each module.

In order to keep everyone on track, we will have due dates throughout the quarter much as you would have regular course meetings and due dates in a face-to-face course. In D2L, content is organized into modules. These modules are sequential. Each module has a checklist with items ***that should be completed during the time frame of the module***. Each module begins and ends at 11:59 PM CT on a Monday. See the course schedule included in this syllabus for more details.)

Work Required - Assignments

You will complete:

- **a series of projects that result in Computational Artifacts (e.g. Web pages, Python programs, algorithms). You will submit these artifacts for evaluation.**
- **project journals. These journals will be brief reflections on how you have used computational reasoning in the course of completing assigned projects and outside IT 123.**
- **quizzes that demonstrate your knowledge of course topics.**
- **assigned readings in the required textbook, Blown to Bits. You will also read related articles as assigned.**
- **postings to course discussion forums to reflect your understanding of assigned readings on benefits and harms of computing.**
- **a final project that will summarize your work throughout the quarter.**

You must complete all of these assignments by yourself alone. If you have questions about assignments, you should consult your instructor or the CDM tutor. While you may discuss these assignments with others, you may not use the work of others nor share your own work with others. You may not communicate with other individuals during quizzes. When you submit assignments to your instructor for evaluation (whether submitted via D2L or posted to the student web server) you are guaranteeing that you have completed the products yourself, individually. Any

evidence of collaboration or sharing of work or other violations of the rules stated above will be treated as an Academic Integrity violation.

Grade Computation

55% Projects, including, projects that result in computational artifacts, computational reasoning/project journals, final project

25% Quizzes

20% Discussion Forum postings - commentary on assigned readings on the potential harms and benefits Of computing in a number of contexts.

Due Dates and Late Work

All Project and Quiz assignments for a module will be due before 11:59 PM on the last day of the Module/Week. For example, the project and quiz for Module/Week 1 will be due before 11:59 PM (CT) of Monday, June 19, 2022. All due dates will be posted on D2L and are stated on the assignment schedule included in this syllabus.

Discussion threads (first post to forum) must be made before 11:59 PM on the last day (Sunday) of the Module/Week. For example, the discussion thread for Module/Week 1 will be due before 11:59 PM (CT) of Sunday, January 9, 2022.

A thread must be posted to a forum before a response can be posted to a thread. A calendar of Discussion posting due dates is included in this syllabus and will be posted to D2L.

Discussion responses and the first post must be made before 11:59 PM Thursday.

More detailed information on how Discussion postings will be evaluated and scored (rubrics), is included in this syllabus and will be posted to D2L.

The final project for the course must be submitted during Winter Quarter 2022 Finals Week, before 11:59 PM (CT) on Sunday, March 17, 2023. No final projects will be accepted after that date/time.

Late Work

Late project submissions will be assessed a 20% penalty per day (or portion of a day) late (after the due date/time). No project will be accepted more than five days after the due date/time.

No late quizzes will be accepted.

No late discussion postings will be accepted.

No late final projects will be accepted.

Grading Scale

Based on 1000 Possible Points Grades Mapped to
Points Earned:

- A 930 and above
- A- 929-900
-
- B+ 899-870
- B 869-830
- B- 829-800
-
- C+ 799-770
- C 769-730
- C- 729-700
-
- D+ 699-670
- D 669-600
-
- F 599 and below

Technology Requirements

Windows PC or Apple Mac

Students will need to have access to a personal computer that can communicate with the Internet/World Wide Web.

Students will need to use a personal computer (Windows or Mac) for this class.

Software

Software recommendations will be listed on the D2L course website

Text Editor - Students will need text editor software.

File Transfer Program - Students will also need to have a program to upload and download files to and from the World Wide Web.

Image Manipulation – Students will need software that can reduce the file size of images and perform basic image editing tasks.

Web Browser(s) – Students should have at least two browsers available to test their work. Students should have at least Google Chrome and Mozilla Firefox browsers on their computer. Mac users will have the Safari browser, in addition to Chrome and Firefox.

Python desktop software – available for Windows PCs and Macs.

Textbook

Abelson, H., Ledeen, K., & Lewis, H. R. (2008). *Blown to bits: Your life, liberty, and happiness after the digital explosion*. Upper Saddle River, NJ: Addison-Wesley.

Assigned readings (in pdf format) are posted to D2L in each module.

The full text of the book (third printing, corrected) is available for download under a Creative Commons license



Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 3.0 United States License](https://creativecommons.org/licenses/by-nc-sa/3.0/).

Download available at <http://www.bitsbook.com>

You **do not** need to purchase a copy of this book

Recommended References

The following recommended references will be available as ebook reserves at the DePaul Library.

Links to the reserves will be posted on the D2L course website.

How Computers Work, The Evolution of Technology, Ron White

HTML and CSS: Visual Quickstart Guide , Joe Casabona

Python Crash Course , Eric Matthes

Course Management – D2L

We will use a wide variety of materials from many sources.

All course materials will be available via links on the course pages on D2L <https://d2l.depaul.edu>

All assignments must be submitted via D2L (Submissions, Discussions, Quizzes) or posted to the course Web server. The assignment description will specify how the assignment must be submitted.

All grades will be posted to D2L.

Course Communication

Email is the primary means of communication between faculty and students enrolled in this course

Make sure to regularly log into and check your student email through any of the various Microsoft Outlook apps and/or URLs listed below.

DePaul students can get the Outlook App for personal computers or mobile devices. Ways to check email (use your DePaul login credentials):

- **Outlook web app:** Go to office365.depaul.edu and select the Outlook icon
- **Outlook desktop app:** Go to office365.depaul.edu, log in with your DePaul BlueKey account credentials and [download Office 365 including Outlook](#). Instructions for configuring Outlook for use with BlueM@il can be found [here](#)
- **Outlook mobile app:** Download the Outlook mobile app on [iPhone](#) or [Android](#) Instructions for configuring Outlook for use with BlueM@il can be found [here](#)

E-Mail to your Instructor

When sending e-mail to me, please include your name, the topic/question, and the class ID (IT 123) in the subject of the email.

My goal for e-mail response to student questions sent via e-mail is 24 hours. In many cases, a response will be sent much more quickly. If you send e-mail off-hours (6 pm → 9 am M-F or Saturday or Sunday) you will receive a response during the next weekday.

Tutoring

Tutoring for this course will be provided by the College of Computing and Digital Media (CDM). Students can schedule tutoring at <https://www.cdm.depaul.edu/Student-Resources/Pages/Student-Tutoring.aspx>

Help Desk

The DePaul Help Desk is up and running for all student, faculty, and staff issues during the Summer quarter. They can be reached by email at helpdesk@depaul.edu, by phone at 312-362-8765

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <https://offices.depaul.edu/academic-affairs/faculty-resources/academic-integrity/Pages/resources.aspx>

All students are expected to abide by the University's Academic Integrity Policy which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is considered to be providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity.

Responsible Use of University Resources

As a part of this class, students will post materials to a DePaul University-owned Web server. All students must use these University resources in a way that will represent the University community in a responsible way, representative of the University mission and goals.

The University's statement of Acceptable Use Policy/Network Security governs use of University Computer Resources. It describes acceptable and unacceptable uses of University Computer Resources. If you have any concerns that your actions may violate the policy or have a question about acceptable use, send your inquiry to security@depaul.edu.

The Acceptable Use policy can be found at <https://offices.depaul.edu/secretary/policiesprocedures/policies/Documents/Acceptable%20Use%20Policy.pdf>

Diversity, Equity, and Inclusion

DePaul/CDM recognizes the rich diversity of our campus community and seeks to offer all members an equitable, inclusive, welcoming, secure, responsive, and affirming environment that fosters mutual respect, empathy and trust.

Preferred Name & Gender Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and

nationalities. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter so that I may make appropriate changes to my records. Please also note that students may choose to identify within the University community with a preferred first name that differs from their legal name and may also update their gender. The preferred first name will appear in University related systems and documents except where the use of the legal name is necessitated or

required by University business or legal need. For more information and instructions on how to do so, please see the Student Preferred Name and Gender Policy at <http://policies.depaul.edu/policy/policy.aspx?pid=332>

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the [University Academic Calendar](#). Information on enrollment, withdrawal, grading and incompletes can be found at:

<http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>

Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at

<http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

Online Course and Instructor Evaluation

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation.

Students with Disabilities

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success.

There are two office locations:

Loop Campus - Lewis Center #1420 - (312) 362-8002

Lincoln Park Campus - Student Center #370 - (773) 325-1677

Students can also email the office at csd@depaul.edu

Virtual office www.tinyurl.com/CSDVirtualOffices

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gregory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the

of 14

accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible.

Please see <http://go.depaul.edu/csd> for Services and Contact Information.

Changes to this Syllabus

This syllabus is subject to change as necessary during the quarter. If a syllabus change occurs, an announcement will be posted as a News item on D2L and you will be notified via email to your email address. of 14

IT 123 Summer 2021-2022 - Schedule - Topics and Assignments							
Module	Topic	Project Due	Journal Submission	Quiz	Discussion	Reading	Due Dates
1	Start-up		Survey	Start-up	Intro	B-B Ch 1	1/9
2	Computational Reasoning (CR)	CR Problem Solving Case Study	Project Journal	Computational Reasoning Basics	Computational Thinking	Computational Thinking (Wing)	1/17
3	How Computers, the Internet, and the WWW Work			How Computers, the Internet, and the WWW Work	Digital Explosion and Internet	B-B Appdx	1/23
4	Intro to WWW - HTML	Web pages HTML			Privacy	B-B Ch 2	1/30
5	Intro to WWW - HTML	Update/revise an existing HTML web page file	Project Journal	HTML	Digital Presentation	B-B Ch 3	2/6
6	Beyond HTML CSS	Web pages w CSS	Project Journal	CSS	Searches	B-B Ch 4	2/13
7	Beyond HTML - Javascript	Web pages With Javascript	Project Journal		Encryption, Cyber-Security	B-B Ch 5	2/20
8	Java Script and conditional statements	Javascript and if/else statements	Project Journal	JavaScript	Ownership, Intellectual Property	B-B Ch 6	2/27
9	Python	Hello World plus in Python	Project Journal		Regulation	B-B C8	3/13
Finals Week		Final Project					3/17

Discussion Rubric

Module	Discussion Topic	Reading	Pages to Read or Skim B-B = Blown to Bits	Due Dates for 1 st post
1	Intro	B-B Ch1	B-B Read 1-17	1/5
2	Computational Thinking	Computational Thinking (Wing)	Read 33-35 (Posted on D2L)	1/12
3	Digital Explosion and Internet	B-B Appdx	B-B Read 301-316	1/19
4	Privacy	B-B Ch 2	B-B Read 19-42; Skim 43-72	1/26
5	Digital Presentation	B-B Ch 3	B-B Read 73-94; Skim 95-108	2/2
6	Searches	B-B Ch 4	B-B Read 109-138; Skim 139-160	2/9
7	Encryption, Cyber-Security	B-B Ch 5	B-B Read 161-180; Skim 181-194	2/16
8	Ownership, Intellectual Property	B-B Ch 6	B-B Read 195-208; Skim 209-228	2/23
9	Censorship	B-B Ch 7	B-B Read 229-258	3/2
10	Regulation and Wrap-Up	B-B Ch 8	B-B Read 259-274, 295-300; Skim 275- 294	3/9

IT 123 - Discussion Postings

Discussion threads (first postings to a forum/topic) and responses will be evaluated and scored as noted below.

Discussion threads (first postings to forum/topic) must be made before 11:59 PM on (Thursday) of the Module/Week. For example, the discussion thread for Module/Week 1 will be due before 11:59 PM (CT) of Thursday, June 16, 2022. Discussion threads are required for each module. No late threads will be accepted.

A thread must be posted to a forum/topic before a response can be posted to a thread.

How Discussion Postings will be Evaluated (Rubric)

Points	Quantity	Quality / Content/ Notes
Thread (First Posting to Forum/Topic) - Required		
0/20	no thread	posted prior to due date/time;
up to 17/20	one thread	Basic comment relevant to the discussion topic made before the Thursday due date.
up to 19/20	Two threads	Two basic comments relevant to the discussion topic with the first post made on or before the Thursday due date.
up to 20/20	Two threads & URL link	Two basic comments relevant to the discussion topic with the first post made on or before the Thursday due date. One of the posts includes a URL link to support the post.