

## CSC 401-920 Introduction to Programming

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This is an online asynchronous course. There are no face-to-face class meetings. This is NOT a self-paced class. There are weekly deadlines for

- Textbook readings
- Viewing video lectures (voice-over PowerPoint presentations)
- Submitting assignments, and
- proctored midterm and final exams.

Sign into D2L, the course management system at <https://d2l.depaul.edu> to access all the course materials.

### INSTRUCTOR INFORMATION

Dolores Kalayta

Office hours: Monday, 4:00 – 5:30 | Online only using email or Zoom

Email: [dkalayta@depaul.edu](mailto:dkalayta@depaul.edu)

The best way to reach me is through email. I check emails every day and try to check emails regularly throughout the day. Send an email to me if you want to collaborate/discuss a coding issue during my office hours. I will send you a session ID so we can connect online.

### COURSE DESCRIPTION

An introduction to programming with a focus on problem solving, structured programming, and algorithm design. Concepts covered include data types, expressions, variables, assignments, conditional and iterative structures, functions, file input/output, exceptions, arrays, and introduction to user-defined classes.

This is a first programming course for students who have never had a term of programming or its equivalent. It is assumed that students have no prior experience with a programming language.

### PREREQUISITES

None

### TEXTBOOK

Introduction to Computing Using Python, 2<sup>nd</sup> edition, Ljubomir Perkovic, Wiley 2015, ISBN (eBook): 978-1-118-89105-6; ISBN (paperback): 978-1-118-89094-3

### REQUIRED SOFTWARE

Install on your laptop/desktop: Python, version **3.10** or higher. Python is available as a free download from, <http://www.python.org/downloads/> and it comes with a simple development environment called IDLE. It is expected that you have the necessary skills to download the software and install it on your computer.

### IMPORTANT DATES:

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**Classes begins on Mon. Apr. 1, 2024**

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<b>First assignment due date</b>	Tue. Apr. 9, 2024
<b>Last day to drop with no penalty</b>	Sun. Apr. 14, 2024
<b>Proctored Midterm Exam</b>	Fri. May 3, 2024 – Mon. May 6, 2024**
<b>Last day to withdraw* from class</b>	Sun. May 19, 2024
<b>Proctored Final Exam</b>	Sat. Jun. 8, 2024 – Wed. Jun. 12, 2024**

\*Students who withdraw from the course do so by using the Campus Connect system.

(<http://campusconnect.depaul.edu>). Withdrawals processed via this system are effective the day on which they are made. Simply ceasing to attend, or notifying the instructor, or nonpayment of tuition, does not constitute an official withdrawal from class and will result in academic as well as financial penalties.

\*\* Exam dates are tentative and subject to change.

#### SCHEDULE AS OF 3/28/2024 (SUBJECT TO CHANGE)

Date	Lecture Material (PowerPoint Videos)	Readings & Assignments
0	<ul style="list-style-type: none"> <li>Syllabus – Course Overview (pdf)</li> <li>Computer Systems and Computational Thinking (pdf)</li> <li>Computer Systems (5 min)</li> <li>Computational Thinking (6 min) (Chapter 1)</li> </ul>	Read: <ul style="list-style-type: none"> <li>Chapter 1</li> </ul>
1 Apr. 1	Python Basics Lecture Notes (pdf) <ul style="list-style-type: none"> <li>Python Development Environment (3 min)</li> <li>Arithmetic Expressions, Data Types, Functions (13 min)</li> <li>Variables (12 min)</li> <li>Python Program (14 min)</li> <li>Boolean Expressions and Operators (10 min)</li> <li>Strings (5 min)</li> <li>First Interactive Python Program (10 min)</li> <li>Assignment One Review and Demo (25 min)</li> </ul>	Read: <ul style="list-style-type: none"> <li>Chapter 2 sections 2.1, 2.2, 2.5 Python interpreter, variables, basic data types: int, float, string</li> <li>Chapter 3 section 3.1 First Python program</li> </ul> Assignment: <ul style="list-style-type: none"> <li>Assignment One posted Due Tuesday, Apr. 9<sup>th</sup></li> </ul>

<p>2 Apr, 8</p>	<p>Lists, Memory Allocation, Decision Structures (pdf)</p> <ul style="list-style-type: none"> <li>• Review (4 min)</li> <li>• Lists (5 min)</li> <li>• Operators (20 min)</li> <li>• Variables and Assignments (14 min)</li> <li>• Decision Structures (19 min)</li> <li>• Practice Examples (26 min)</li> <li>• Practice Examples (34 min)</li> <li>• Assignment One Solution (17 min)</li> <li>• Assignment Two Review and Demo (30 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>• Chapter 2 sections 2.2, 2.3, 2.4 List data type operations and functions</li> <li>• Chapter 3 sections 3.2, 3.4 Object conversion, variable representation in memory, decision statements</li> </ul> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Assignment Two posted Due Tuesday, Apr. 16th</li> <li>• Assignment One Due Tuesday, Apr. 9<sup>th</sup></li> </ul>
<p>3 Apr. 15</p>	<p>UDF, Iteration, Formatting, Reading Files (pdf)</p> <ul style="list-style-type: none"> <li>• User Defined Functions (20 min)</li> <li>• UDF Practice (26 min)</li> <li>• Iteration Structures (6 min)</li> <li>• Iterations Structures Practice (38 min)</li> <li>• List Methods (6 min)</li> <li>• List Methods Practice (20 min)</li> <li>• String Formatting (18 min)</li> <li>• Files (6 min)</li> <li>• Reading Files (20 min)</li> <li>• Assignment Two Solution (35 min)</li> <li>• Assignment Three Review and Demo (45 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>• Chapter 3 sections 3.2, 3.3, 3.5 Iteration statements, user-defined functions, parameter passing</li> <li>• Chapter 4 sections 4.1, 4.2 4.3 Formatted output, file I/O, reading files</li> </ul> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Assignment Three posted Due Tuesday, Apr. 23<sup>rd</sup></li> <li>• Assignment Two Due Tuesday, Apr. 16<sup>th</sup></li> </ul>
<p>4 Apr.22</p>	<p>Decisions, Iterations, Reading &amp; Writing Files (pdf)</p> <ul style="list-style-type: none"> <li>• More Decision Structures (13 min)</li> <li>• More Iteration Structure - Accumulator (28 min)</li> <li>• More Iteration Structures – Lists &amp;</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>• Chapter 4 section 4.3 More on reading and writing files</li> <li>• Chapter 5 sections 5.1, 5.2 More on control flow: multi-way conditions and loop patterns</li> </ul>

	<p>Strings (16 min)</p> <ul style="list-style-type: none"> <li>• More Reading Files (14 min)</li> <li>• Examples: <ul style="list-style-type: none"> <li>• One (22 min)</li> <li>• One Version 2 (4 min)</li> <li>• Two (13 min)</li> </ul> </li> <li>• Writing Files (7 min)</li> <li>• Writing Examples (9 min)</li> <li>• Assignment Three Solution (54 min)</li> <li>• Assignment Four Review and Demo (62 min)</li> </ul>	<p>Assignment:</p> <ul style="list-style-type: none"> <li>• Assignment Four posted Due Tuesday, Apr. 30<sup>th</sup></li> <li>• Assignment Three Due Tuesday, Apr. 23<sup>rd</sup></li> </ul>
<p>5 Apr. 29</p>	<ul style="list-style-type: none"> <li>• Assignment Four Solution (42 min)</li> </ul> <p>Nested Loop, 2D Lists, WHILE loops (pdf)</p> <ul style="list-style-type: none"> <li>• Figurative Patterns (13 min)</li> <li>• List of Lists (6 min)</li> <li>• 2D Lists (23 min)</li> <li>• While Loops (7 min)</li> <li>• Sequential Loop Pattern (23 min)</li> <li>• Loop and a Half Infinite (10 min)</li> <li>• Interactive Loop (16 min)</li> <li>• Guessing Game (16 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>• Chapter 5 sections 5.2, 5.3, 5.4 While Loops, Nested Loops, 2-Dimensional Lists</li> </ul> <p>Assignments:</p> <ul style="list-style-type: none"> <li>• Assignment Four Due Tuesday, Apr. 30<sup>th</sup></li> </ul>
	<p>Proctored Midterm Exam (Material covered in weeks 1 through 4) Available through Examity, Friday May 3<sup>rd</sup> through Monday May 6<sup>th</sup></p>	
<p>6 May 6</p>	<p>Dictionary (pdf)</p> <ul style="list-style-type: none"> <li>• Dictionary (18 min)</li> <li>• Properties of Dictionaries (14 min)</li> <li>• Dictionary Methods and Iteration (20 min)</li> <li>• Example (30 min)</li> <li>• Assignment Five Review and Demo (40 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>• Chapter 6 section 6.1 Dictionary class properties, operators, methods.</li> </ul> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Assignment Five posted Due Tuesday, May 14<sup>th</sup> Note: this assignment covers material from week 5</li> </ul>
<p>7 May 13</p>	<p>Dictionary, Tuple, Sets, Random, Encoding (pdf)</p>	<p>Read:</p> <ul style="list-style-type: none"> <li>• Chapter 2 section 2.3</li> </ul>

	<ul style="list-style-type: none"> <li>Dictionary Counter (16 min)</li> <li>Dictionary Counter (continued) (20 min)</li> <li>Tuples (12 min)</li> <li>Sets (15 min)</li> <li>Random Module (8 min)</li> <li>Encoding (12 min)</li> <li>Assignment Five Solution (42 min)</li> <li>Assignment Six Review and Demo (47 min)</li> </ul>	<p>Tuples</p> <ul style="list-style-type: none"> <li>Chapter 6 sections 6.1, 6.2, 6.3, 6.4 Dictionaries, tuples, sets, random modules, string, and character encoding</li> </ul> <p>Assignment:</p> <ul style="list-style-type: none"> <li>Assignment Six posted Due Tuesday, May 21<sup>th</sup> Note: this assignment covers material from weeks 6 and 7</li> <li>Assignment Five Due Tuesday, May 14<sup>th</sup></li> </ul>
8 May 20	<p>Functions, Namespaces, Errors, and Exceptions.</p> <ul style="list-style-type: none"> <li>Functions (30 min)</li> <li>Examples 1 (10 min)</li> <li>Examples 2 (7 min)</li> <li>Encapsulation (6 min)</li> <li>Errors and Exceptions (27 min)</li> <li>Exercises (27 min)</li> <li>Assignment Six Solution (54 min)</li> <li>Assignment Seven Review and Demo (54 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>Chapter 7 sections 7.1, 7.2, 7.3 Scope for global and local namespaces, encapsulation in functions, exception modules</li> <li>Chapter 4 section 4.4 Errors and exceptions</li> </ul> <p>Assignment:</p> <ul style="list-style-type: none"> <li>Assignment Seven posted Due Tuesday, May 28<sup>th</sup></li> <li>Assignment Six Due Tuesday, May 21<sup>th</sup></li> </ul>
9 May 27	<p>Object-Oriented Programming (pdf)</p> <ul style="list-style-type: none"> <li>User-Defined Classes (21 min)</li> <li>Namespace (10 min)</li> <li>Constructor (18 min)</li> <li>Example Part One (16 min)</li> <li>Example Part Two (31 min)</li> <li>Assignment Seven Solution (50 min)</li> <li>Assignment Eight Review and Demo (47 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>Chapter 8 sections 8.1, 8.2, 8.4, 8.6 Object-Oriented Programming: user-defined classes, overloaded operators, constructors, user-defined exceptions, and testing classes</li> </ul> <p>Assignment:</p> <ul style="list-style-type: none"> <li>Assignment Eight posted Due Tuesday, Jun. 4<sup>th</sup></li> <li>Assignment Seven Due Tuesday, May 28<sup>th</sup></li> </ul>
10 Jun. 3	<p>Container Class and Inheritance (pdf)</p> <ul style="list-style-type: none"> <li>Container Class (32 min)</li> <li>Inheritance (25 min)</li> </ul>	<p>Read:</p> <ul style="list-style-type: none"> <li>Chapter 8 sections 8.3, 8.5 Designing a new container class and using inheritance to extend class</li> </ul>

	<ul style="list-style-type: none"> <li>Container Class Practice Exercise</li> <li>Lists and Arrays (15 min)</li> <li>Assignment Eight Solution (28 min)</li> </ul>	functionality  Assignment: <ul style="list-style-type: none"> <li>Assignment Eight Due Tuesday, Jun. 4<sup>th</sup></li> </ul>
	Proctored Final Exam (Cumulative with emphasis on material covered in weeks 5 through 10). Available through Examity Saturday, Jun. 8 <sup>th</sup> through Wednesday, Jun. 12 <sup>th</sup>	

Note: Minutes on Assignment Reviews and Assignment Solutions are estimates from previous quarters. The actual time of those videos will be updated in D2L.

### ASSIGNMENTS

- There will be 8 assignments.
- All assignment descriptions and requirements will be posted in D2L only.
- Each assignment will have a specific due date and time
- All assignments must be submitted via D2L Submissions.
- Late submission of assignments will **not** be accepted. If you wish to receive partial credit for an assignment, you must submit the completed work (with no syntax errors and executable code) by the due date deadline.
- The lowest assignment grade will be dropped.

### GRADING (WEIGHTS)

Assignments (Homework): 35%

Proctored Midterm Exam: 30%

Proctored Final Exam: 35%

Grading rubric:

Grade	Percentage
A	100 – 93
A-	92 – 90
B+	89 – 87
B	86 – 83
B-	82 – 80

Grade	Percentage
C+	79 – 77
C	76 – 73
C-	72 – 70
D+	69 – 67
D	66 – 60
F	59 – 0

**GRADING NOTE:** A score below 50% on the final exam cannot result in a course letter grade above C-.

### EXAMS

Exams will be administered on D2L and proctored using Examity. Examity is an online proctoring service that uses your webcam and microphone on your computer to proctor the online exam.

Students must register for online proctoring at least one week before the exam date using the link available in D2L. Note the following requirements for using Examity:

- You must take the exam on a desktop computer or a laptop (but, NOT a tablet, NOR a smartphone).
- Your Internet speed must be at least 3Mbps download and 3Mbps uploads to be able to take the online exam on D2L and be proctored by Examity. Find your Internet speed by running a test at <http://www.speedtest.net>.
- The recommended web browsers to use for the online exams on D2L are Firefox and Chrome.
- You must have a working built-in or external webcam, a microphone, and working built-in or external speakers for the Examity proctor to proctor your exam online (they will communicate with you and watch you during the exam).
- The Examity proctored exam cannot be taken in public spaces, such as a library.
- Examity will record the whole exam session (voice and video), including your computer screen during the exam. All the recordings will be reviewed by a second person after the exam and flagged for suspicious activities. All the recordings and the flags will be shared with the professor for review and grading considerations.
- Internet searches are not allowed during the exams.
- Interacting with anyone other than the Examity proctor is not allowed during the exam.

Make-up exams will not be given. If exceptional circumstances arise, please contact your instructor as soon as possible before the exam to discuss alternative scheduling arrangements.

#### SCHOOL POLICIES:

- **Changes to Syllabus**  
This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.
- **Online Course Evaluations**  
Evaluations are a way for students to supply valuable feedback about their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the course's learning goals and the students' academic needs. They are a requirement of the course and are key to continuing 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 it is 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 complete the evaluation online in [CampusConnect](https://campusconnect.depaul.edu) (<https://campusconnect.depaul.edu>).

- Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/> If you have any questions be sure to consult with your professor.

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 unauthorized assistance prohibited by the policy. Students who share/post and access or use such materials are considered cheating under the Policy and will be subject to sanctions for violations of Academic Integrity.

- 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](https://academics.depaul.edu/calendar/Pages/default.aspx). (<https://academics.depaul.edu/calendar/Pages/default.aspx>). Information on enrollment, withdrawal, grading, and incompletes can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>.

- Students with Disabilities

Students who feel they may need accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: Lewis Center 1420, 25 East Jackson Blvd. Phone number: (312)362-8002 Fax: (312)362-6544 TTY: (773)325.7296