Northeastern
College of Engineering

Course Information

Course Number (INFO 5002): Introduction to Python for Information Systems
Term: Fall Semester 2025
Semester Hours: 4

Instructor Information

Name: Andy King
Email Address: an.king – at – northeastern.edu
Office Hours: See Teams Calendar

Instructor Biography
See LinkedIn Profile: https://www.linkedin.com/in/aking/

Teaching Assistant Information
Full Name: See the course LMS (Canvas) for details.

Course Prerequisites: Please review the academic catalog to see course prerequisites.

Course Corequisites: Please review the academic catalog to see course corequisites.

Course Description: Studies the Python programming language for application engineering. This hands-on course offers students an opportunity to obtain proficiency in the core concepts of Python and the skills and knowledge for building applications using any of the hundreds of thousands of task-specific Python libraries. Covers the important concepts such as reading and writing to standard IO, using operators, controlling the flow of execution, using functions, reading and writing files, and basic object-oriented programming concepts. Applies tools and techniques to classical software engineering and Python-specific facilities such as code introspection, reuse, built-in sequence types, and iteration.

Course Overview: The Intro to Python programming course is centered on learning Python as a programming language to solve real-world information systems problems. As such, it involves substantial software development using Python, Git source code management, and Linux shell scripting.

Intro to Python assignments are a bit different than what you might normally see in a course. While each assignment is generally standalone, subsequent assignments build upon learnings from previous assignments, so it's VERY IMPORTANT that you start working on each as soon as possible, as they get progressively more difficult and can take many days to implement.

No specialized device hardware is required for the course; however, you will need a modern computing workstation or laptop for software development and application execution. All required lab modules can technically be developed and run on a single system running Windows 11 (WSL 2), macOS, or Linux; I'll mostly be teaching and demonstrating code using either Windows 11 / WSL 2 or macOS.

We'll meet for lectures, discussions, and labs as per the schedule indicated for this semester (see Registrar's site for details). After the Semester begins, we will focus our sessions on context (lecture) and lab module design and implementation details. As we progress through the semester, and lab modules become increasingly more challenging, labs will often occupy each session.

We'll use Teams and / or Zoom to collaborate – we'll make this determination during the first full week of class. It's very important that you join the Teams site to stay up-to-date and connect into our meetings. For more information and the link to join, please see the course LMS for details.

Course LMS site (Canvas): https://northeastern.instructure.com/courses/228905

Required Textbook(s)

Reading:

- Learning Python (6th edition), by Mark Lutz. ISBN-13: 978-1-098-17130-8
    - URL (see instructions): Northeastern Library - Computer Science: Connect to O'Reilly
    - Direct URL (O'Reilly): Learning Python, 6th Edition (oreilly.com)
- Other required and recommended reading can be found on the Course's Teams site, and in the bibliography listed in the course textbook above.

Labs:

- A software development workstation capable of running Windows 11 (with WSL v2), macOS, and / or Linux (e.g., Ubuntu – latest LTS) and Python 3.10+, git, and other open-source tools (covered during in-class discussions).
    - Main URL: https://github.com/programming-in-python
    - Exercises Kanban Board URL: https://github.com/orgs/programming-in-python/projects/1

Course Topics

The course is comprised of the following four 'parts', as follows:

- **Foundations:** System Setup; DevOps; Python syntax, functions and flow
- **Structures, Classes & Concurrency:** Data Types; Objects and Classes; Concurrency
- **Data Handling & Presentation:** I/O; Data Processing; Data Visualization
- **Problem Solving with Python:** Use Case Discussion; Project selection and semester project work

Student Learning Outcomes

Upon successful completion of this course, students are expected to understand the Python programming language, how to setup their system to develop Python applications, and how to use Python to solve Information Systems problems. Topics will include the following:

- Setting up a local development environment using Python
- Configuring local and remote git repositories
- Using Python-specific IDEs'
- Application development in Python
- Python syntax, data structures, functions, classes and modules, concurrency (basic), data processing and I/O
- Visualization of data sets using open-source libraries
- Solving information systems problems using Python as a programming language

Course Activities

Grade Breakdown:

Labs: 25%
Quizzes: 50%
Final Project: 20%
Final Presentation: 5%

Graduate Grading Scale: Adjust as needed

95-100% A	**87-89.9% B+**	**77-79.9% C+**	
	84-86.9% B	**74-76.9% C**	**70% or below F**
90-94.9% A-	**80-83.9%B-**	**70-73.9% C-**	

Policy on Late Work:

Students must submit assignments by the deadline in the time zone noted in LMS. Students must communicate with the faculty prior to the deadline if they anticipate work will be submitted late. Work submitted late without prior communication with faculty will not be graded, resulting in a '0' for that assignment.

All lab module, project and presentation work is graded via rubric. Late submissions will negatively affect your grade. Be sure to review the grading rubric for the assignment in question for details.

Weekly Schedule

The following represents the typical Connected Devices schedule, although some modifications should be expected depending upon the classes progression through both content and lab modules. All assignment due dates are listed in the course LMS (see above for link).

Week	In Class Topic*	Assignment Due*
1	Introduction to Python and Dev Environment Setup	See LMS for details
2	Python Syntax: Scripting and App Dev	See LMS for details
3	Python Functions and Program Flow	See LMS for details
4	Quiz No. 1 (Part 01)	See LMS for details
5	Python Data Types	See LMS for details
6	Classes and Objects – OO in Python	See LMS for details
7	Basic Concurrency and Asynchronous Processing	See LMS for details
8	Quiz No. 2 (Part 02)	See LMS for details
9	Basic I/O	See LMS for details
10	Data Processing	See LMS for details
11	Data Visualization	See LMS for details
12	Quiz No. 3 (Part 03)	See LMS for details
13	Use Cases and Project Selection	See LMS for details
14	Project Work	See LMS for details
15	Final Project and Presentations	See LMS for details

*** Dates and topics SUBJECT TO CHANGE! See course LMS for details.**

Attendance Policy

Students registered in MGEN courses (INFO, CSYE, and DAMG) are allowed **a maximum of 2 absences per course, with 3 or more absences resulting in an automatic 'F' for that course.** Students are expected to inform their instructors of any absences in advance of the class; if a student is sick long-term or experiences a medical issue that prevents class attendance, it is strongly encouraged that they speak with their Academic Advisor (coe-mgen-gradadvising@northeastern.edu) to learn more about the Medical Leave of Absence. Should a student anticipate being unable to attend 3 or more classes, they should discuss their situation with their Academic Advisor to explore other types of leave in accordance with the University's academic and global entry expectations. International students should review the Office of Global Services webpage to understand their visa compliance requirements.

Teaching Assistants (TAs) or Instructional Assistants (IAs) will be present at each class to collect student attendance.

Recording of Classes

In general, classes will NOT be recorded. You can review YouTube videos representing a majority of the course content via links provided to the class via our LMS.

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to https://catalog.northeastern.edu/handbook/policies-regulations/academic-integrity/ to access the full academic integrity policy.

Student Accommodations

Northeastern University and Disability Access Services (DAS) are committed to providing disability services that enable students who qualify under Section 504 of the REHABILITATION ACT and THE AMERICANS WITH DISABILITIES ACT AMENDMENTS ACT (ADAAA) to participate fully in the activities of the university. To receive accommodations through DAS, students must provide documentation of a disability that demonstrates a current substantial limitation. Accommodations are approved based on a review of the information that is submitted and reviews are done on a case-by-case basis.

For more information, visit https://disabilityaccessservices.sites.northeastern.edu/.

Outreach, Engagement, Belonging

Northeastern University is committed to fostering a community of belonging, which is essential to the advancement of Northeastern University's mission of teaching and research. Our university is stronger as a result of the varied backgrounds, experiences, and perspectives that all members of our global community bring to the pursuit of knowledge. Embracing this pluralism is not the work of one office, department, or academic unit. It is a shared responsibility that spans disciplines and boundaries. By harnessing the power of our differences, we will continue to light the path to bold new ideas and life-changing discoveries.

It is my intention that students from all backgrounds and perspectives will be well served by this course, and that the diverse experiences that students bring to this class will be viewed as an asset. I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, socioeconomic background, family education level, ability – and other visible and nonvisible differences. All members of this

class are expected to contribute to a respectful, welcoming and belonging environment for every other member of the class. Your suggestions are encouraged and appreciated.

Please visit Belonging at Northeastern for more information.

Policy on Sexual and Gender-Based Harassment and Title IX

The Northeastern University Policy on Sexual and Gender-Based Harassment and Title IX articulates how the University will respond to reported allegations of Sexual Harassment, Quid Pro Quo Harassment, Sexual Assault, Domestic Violence, Intimate Partner Violence, Dating Violence, Stalking, Gender-Based Harassment and Retaliation, and provides a consolidated statement of the rights and responsibilities under University policies and Title IX, as amended by the Violence Against Women Reauthorization Act of 2013 and the U.S. Department of Education and Office for Civil Rights' revised regulations in 2020 to the Title IX of the Education Amendments of 1972 (Title IX), 20 U.S.C. § 1681. The policy describes how areas within the University will coordinate the provision of interim remedies and the prompt and effective investigation of allegations of Prohibited Offenses. This policy applies to all members of the University community, including students and prospective students, employees and prospective employees, faculty, staff and volunteers in connection with university activities. It further applies to on- or off-campus behavior involving students. Please visit http://www.northeastern.edu/ouec for a complete list of reporting options and further information.