

Course Number: IST-120 Programming Essentials in Python
Credits - 3.0
Prerequisite(s): None
Term Spring 2026
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Course Description

Programming Essentials in Python course covers all the basics of programming in Python, as well as general computer programming concepts and techniques. The course also familiarizes the student with the object-oriented approach. The course is broken down into five modules. Each student has access to hands-on practice materials, quizzes, and assessments to learn how to utilize the skills and knowledge gained on the course and interact with some real-life programming tasks and situations.

The aim of the course is to familiarize the student with general computer programming concepts like conditional execution, loops, Python programming language syntax, semantics, and the runtime environment, as well as with general coding techniques and object-oriented programming. This course is aligned towards the PCAP industry certification and once students complete this course, they will be ready to take the PCAP – Certified Associate in Python programming.

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Learning Outcomes

[Educated Person Statement of Philosophy](#)

Upon completion of this course, students will be:

1. Familiar with the basic methods offered by Python of formatting and outputting data, together with the primary kinds of data and numerical operators, their mutual relationships and binding. Introduce the concept of variables and variable naming conventions. Present the assignment operator, along with the rules governing the building of expressions. Introduce the inputting and converting of data.
2. Familiar with the concept of Boolean values, in order to compare difference values and to control the execution paths using the if and if-else instructions. Introduce the utilization of loops (while and for) and how to control their behavior using the break and continue instructions. Present the difference between logical and bitwise operations. Acquaint the student with the concept of lists and list processing, including the iteration provided by the for loop, and slicing. Explain the idea of multi-dimensional arrays.
3. Acquainted with the defining and using of functions – their rationale, purpose, conventions, and traps. Present the concept of passing arguments in different ways and setting their default values, along with the mechanisms of returning the function's results. Explain name scope issues. Introduce new data aggregates – tuples and dictionaries – and show their role in data processing.
4. Familiar with Python modules: their rationale, function, how to import them in different ways, and present the contents of some standard modules provided by Python. Present the way in which modules are coupled together to make packages. Acquaint the student with the concept of an exception and Python's implementation of it, including the try-except instruction, with its applications, and the raise instruction. Introduce strings and their specific methods, together with their similarities and differences compared to lists.
5. Acquainted with the fundamentals of OOP (Object Oriented Programming) and the way they are adopted in Python, showing the difference between OOP and the classical,

procedural approach. Present the standard objective features: inheritance, abstraction, encapsulation, and polymorphism, along with Python-specific issues like instance vs. class variables, and Python's implementation of inheritance. Exceptions are discussed again in a more detailed way, showing their objective nature. Familiarize the student with Python's generators (the yield instruction) and closures (the lambda keyword). Demonstrate the means Python developers can use to process (create, read, and write) files.

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Course Materials and Resources


The core curriculum and labs will be available for free at Cisco Networking Academy (Netacad.com)

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Canvas Orientation

If this is your first-time using Canvas at CCSNH, please complete the Canvas student orientation to familiarize yourself with its navigation and use.

Available Technical Support

Chat and Phone offer helpful information and are always found by clicking on the help button on the bottom-right of every page in Canvas. If you need help navigating  this course, explore the Canvas Student Guide. The Student Guide,

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Instructional Approach

This course will use labs, homework and quizzes to support learning.

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Assessment of Learning

The following areas are graded in this course: *Labs, Quizzes, Module Tests, Summary Exams, and a Final Exam.*

Labs: Labs are the heart of this course, giving you an opportunity to explore course material in a hands-on way. Labs are worth a total of 30% of the overall grade. Final Exam will be an average of Essentials 1 and Essentials 2 Final Exam grades.

Grading Criteria and Grade Calculation

Category	% of Final Course Grade
Labs	20%
Module Tests	20%
Summary Exams	20%
Final Exam	20%
Final Project	20%
Total	100%

Grading Schema	
A	100-93
A-	92-90
B+	89-88
B	87-83
B-	82-80
C+	79-78
C	77-73
C-	72-70
D+	69-68
D	67-63
D-	62-60
F	Below 60

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Course Schedule

This syllabus is to be used as a guide; it contains information about the course, how it will be taught, what will be required of students, and assessment methods that will be used. All information is subject to change at any time.

Please see the Syllabus Link in Canvas for the latest schedule.

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Course Notices

Faculty Email Response Time

From Monday to Friday, I will get back to you within 24 hours.

Use your CCSNH email account for all college email communication. I depend on being able to communicate with the class via email and my emails will go only to your CCSNH account. I will NOT accept the excuse that you did not get the email or you forgot to check your email.

Posting of Grades

All individual grades will be updated in Canvas. Canvas also reports your current aggregate grade based on the grading metric above. I will do everything in my power to grade your work within 7 days of your submission.

Late Assignment Policy

Assignments are for you. Assignments and labs enhance your understanding and prepare you for future coursework. Students who get behind usually don't do well. If you are having difficulty, ask for help immediately and you will get help.

Academic Honesty

Copy/pasting (or blindly hand-copying) from external sources or other students is a violation of the Student Code of Conduct. If you submit assignments as your own that was written by someone else (including the Internet), you may be removed from the course with an AF.

Changes, Updates & Corrections

This syllabus is subject to change. I will communicate changes through Canvas and/or your CCSNH email.

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NHTI ACADEMIC AFFAIRS NOTICES

NHTI Academic Affairs Notices – Spring 2026 [[Academic Affairs notices](#)]

This notice must be included in all course syllabi.

Students must meet all academic policy requirements and are expected to acquaint themselves with these policies by visiting the college's website. Full details are available on the [NHTI website](#).

Course Drop/Withdrawal and Refund

A full-semester course must be dropped by notifying the Registrar's Office or the Academic Advising Center prior to the end of the 14th calendar day of the semester to receive a 100% refund of tuition, less non-refundable fees. After that time, the student may submit an Add/Drop Form to the Registrar's Office or Advising Center, but no refund will be granted. Ceasing to attend a class does not constitute an official drop or withdrawal and may result in a failing grade. Officially dropping a course prior to the completion of 60% of its scheduled duration will result in a grade of W. After that time, a grade of WP or WF will be issued depending on the student's standing at the time of the drop. Dates are prorated for courses offered in an alternative format; contact the Registrar's Office or Advising Center for details. Classes that run for less than the full semester have 7 calendar days from the start of the alternative semester to drop with a full refund. See the [NHTI Dropping Classes/Withdrawing Policy](#).

Dates for the Spring 2026 full semester are:

Full Semester Courses (1/20/2026–5/9/2026)

- Last day to drop with full refund: February 2, 2026
- Last day to withdraw with grade of W: March 26, 2026

First-Half Semester Courses (1/20/2026–3/14/2026)

- Last day to drop with full refund: January 26, 2026
- Last day to withdraw with grade of W: February 20, 2026

Second-Half Semester Courses (3/23/2026–5/9/2026)

- Last day to drop with full refund: March 30, 2026
- Last day to withdraw with grade of W: April 20, 2026

Classroom Etiquette

Academic integrity is of primary importance in the classroom, whether the classroom be face-to-face or online. Students and faculty are responsible for creating and maintaining an environment that supports an effective learning community. It is therefore imperative that students and faculty demonstrate mutual respect. Inappropriate behavior may compromise the learning and performance of all students. Such inappropriate behaviors include but are not limited to: late arrivals/early departures; loud or prolonged side conversations; use of cell phones; computers (other than for legitimate academic use); music devices; and use of derogatory or vulgar language. All students are expected to abide by the [Student Code of Conduct](#) as published in the [Student Handbook](#) subject to sanctions as described therein for any violations.

Classroom Safety and Emergency Protocols

NHTI values the safety of its community members and guests. The [NHTI Campus Safety Department](#) encourages the reporting of all crimes, conduct concerns, or suspicious activity to the NHTI Campus Safety Department Monday-Friday from 8 a.m.-4 p.m. at 603-230-4042, and after hours and on weekends on the Emergency Line at 603-224-3287. You may [report non-emergency information online](#). If an emergency requires police, fire, or medical response, students are encouraged to contact 911 first and then contact the NHTI Campus Safety Department. Emergency information will be provided to the college community via email, phone, and text through the NHTI Alerts program RAVE. Ensure your information is current in [RAVE](#) by logging on. NHTI's Campus Safety Department provides its [Annual Security and Fire Safety Reports and information on Campus Policies, Emergency Response, and Crime Prevention](#). To aid in emergency response situations, all NHTI classrooms and offices have fire evacuation plans posted by the door and emergency cards at teacher stations. Emergency cards contain emergency response information along with first aid box/AED locations on campus. Students are asked to familiarize themselves with these items; questions or concerns can be directed to the [NHTI Campus Safety Department](#).

Process to Address a Classroom Concern

NHTI is committed to creating and maintaining a positive and productive learning environment for all students. Students who have concerns about any aspect of the classroom experience should first discuss the concern with the course instructor. Discussions may be held in person, via telephone, or through the CCSNH email system. In the event that discussion with the course

instructor does not resolve the issue, the concern should then be brought to the appropriate [department chair](#). Only after a student has been unable to resolve the issue through discussion with their course instructor and department chair should a student bring concerns to the vice president of Academic and Workforce Education.

Where the concern about the classroom experience involves discrimination on the basis of unlawful criteria including race, color, religion, national or ethnic origin, age, sex, sexual orientation, marital status, disability, gender identity or expression, genetic information, or veteran status, as defined under applicable law, the student should also report the conduct as follows:

Report harassment based on sex, sexual orientation, marital status, or gender identity or expression to the college's Title IX coordinator and/or the [NHTI Campus Safety Department](#) and follow the process in [Student Affairs Policy 730.04](#).

Report harassment based on race, color, religion, national or ethnic origin, age, disability, genetic information, or veteran status to the [NHTI Campus Safety Department](#), NHTI Student conduct coordinator, or, if an employee is involved, the NHTI Human Resource office.

Where the concern involves a grade appeal, the student must follow the process and timeline outlined in the following [Academic Affairs policy](#).

Civil Rights and Equity Issues (Discrimination and Harassment)

NHTI is committed to creating a professional setting for its students and employees and a community atmosphere grounded in mutual respect, dignity, and integrity. In light of these objectives, NHTI prohibits all manner of discrimination on the basis of unlawful criteria including race, color, religion, national or ethnic origin, age, sex, sexual orientation, marital status, disability, gender identity or expression, genetic information, and veteran status, as defined under applicable law.

The college is sensitive to the concerns an individual may have in coming forward with a complaint regarding discrimination. The grievance-reporting procedures outlined in the Student and Employee Handbooks are designed to provide a safe, confidential, and supportive environment in which an individual may discuss concerns. Retaliation of any kind against anyone making an allegation of discrimination, anyone involved in the investigation, or anyone involved in the decision regarding corrective and/or disciplinary action is prohibited and will result in disciplinary action against the retaliator. Any NHTI student, employee, or visitor who has observed, is aware of, or has been a victim of discriminatory or harassing behavior while engaged in an NHTI-sponsored activity should report such behavior to the correlating contact:

- Report discrimination or harassment based on sex, sexual orientation, marital status, or gender identity or expression to the college's Title IX coordinator or the [NHTI Campus Safety Department](#) by email or by phone: 603-230-4042, and follow the process in [Student Affairs Policy 730.04](#).
- Report discrimination or harassment based on race, color, religion, national or ethnic origin, age, disability, genetic information, or veteran status using the grievance process outlined in the [Civil Rights/Equity Grievance Procedures](#) page on NHTI's website.

For complaints against another student, contact:

- The NHTI Campus Safety Department by email at nhticampussafety@ccsnh.edu or 603-230-4042
- The NHTI student conduct coordinator by email at nhtistudentconduct@ccsnh.edu or

603-271-6484 x4292

For complaints against an employee or college vendor, contact:

- The NHTI Campus Safety Department by email at nhticampussafety@ccsnh.edu or 603-230-4042
- The NHTI Human Resource Office, located in Sweeney Hall, at 603-230-4002

Reporting Sexual Misconduct, Violence, or Exploitation

At NHTI, every attempt is made to create and maintain a safe learning environment in which students feel able to share opinions and related life experiences in classroom discussions, in written work, and in meetings with professors. To the greatest extent possible, this information will be kept private. However, staff and faculty have a legal obligation to report information concerning sexual misconduct, violence, and exploitation of individuals, per federal statutes, New Hampshire State laws including NHRSA 188:H, and in compliance with established policies and procedures at NHTI. If a student has been subjected to sexual misconduct, violence, or exploitation, we encourage them to contact:

- NHTI Title IX coordinator Shawna Bateman by email at sbateman@ccsnh.edu or 603-230-3595
- The NHTI Campus Safety by email at nhticampussafety@ccsnh.edu or 603-230-4042
- Crisis Center of Central New Hampshire at 866-841-6229, a confidential resource

Additional information including resources, can be found online at:

- NHTI: [Title IX resources](#)]
- [New Hampshire Coalition Against Domestic and Sexual Violence](#)
- uSafeUS safety application [<https://usafeus.org>]

Academic Center for Excellence

The Academic Center for Excellence (ACE), located in the Learning Commons Library, provides free academic assistance to all NHTI students. ACE offers peer and professional tutoring in accounting, A&P, biological sciences, math, chemistry, and physics, among many additional subjects. The Writing Center and Study Solutions Lab, located within ACE, offer assistance with writing, reading, and study skills. For more information, call 603-230-4027 or the [NHTI ACE](#) page on NHT's website.

Accessibility Services (<https://www.nhti.edu/accessibility-services>)

In compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1991, students with disabilities are eligible to receive accommodations and services to ensure equal access to classes and programs. Students with disabilities are encouraged to contact the coordinator of Accessibility Services as soon as possible for a confidential discussion regarding their learning needs and the process for requesting reasonable accommodations in the classroom. Once Accessibility Services has approved services, the student must show the Letter of Accommodation to their instructor. Accommodations are not provided retroactively. Accessibility Services is located in ACE or by email at nhtiaccessibilityservices@ccsnh.edu.

CCSNH Classroom Recording Policy

As per CCSNH policy: “Students are not permitted to record any class lectures, activities, or discussion using electronic video, still photo, or audio recording unless the student first obtains permission from the instructor. If the recording is made as a recommended, reasonable accommodation or modification for a student with a disability, permission shall not be unreasonably withheld.” To view the entire policy, visit the [System Policies webpage](#) and select the System Policies for Academic Affairs (section 600).

Cross-Cultural Education and ESOL

[Cross-cultural education services and English for Speakers of Other Languages \(ESOL\)](#) provide tools, strategies, and materials necessary for multilingual students and their instructors. Services include advising and support in settling into college and community life. Prospective students may test to allow for appropriate academic recommendations and course placement and registration. ESOL courses are offered for college credit throughout the year. An academic transition process allows students to take ESOL courses and required courses in their chosen program simultaneously. One-on-one and open-group tutoring is offered through ACE. Programs that assist members of the international, immigrant, and host communities are offered to better support cross-cultural communication. Call 603-230-4055 for more information.

Plagiarism/Cheating Policy

As stated in the [NHTI Student Handbook](#), honesty is expected of all NHTI students. In academic matters, this includes the submission of work that clearly indicates its source. Dishonest acts include cheating and plagiarism. Cheating includes, but is not limited to, the use of any unauthorized assistance from other persons or technologies in taking quizzes, tests, or exams or in the preparation and completion of class assignments; dependence upon the aid of resources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; the acquisition, without permission, of tests or other academic material belonging to a member of the CCSNH colleges’ faculty, staff, or students; or knowingly providing unauthorized assistance to another for the purpose of providing unfair advantage to the recipient in the completion of course assessments/assignments. Plagiarism includes, but is not limited to, the use (intentional or unintentional) by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment; and the unacknowledged use of materials prepared by another person or agency engaged in providing term papers or other academic materials via direct sale, barter, or other means. Cheating and plagiarism are serious disciplinary matters subject to the same penalties and procedures as other NHTI disciplinary matters. Penalties levied in proven cases of cheating or plagiarism may include the issuance of a grade of AF (which may lead to delay of graduation), suspension or dismissal from a program/the college, or other sanctions as deemed appropriate.

Emergency Closure, Early Closure, and Delayed Start of Classes

NHTI values the safety and well-being of our students, staff, and faculty. The college notifies students and employees of emergencies through college email accounts using NHTI Alerts through the Rave Mobile Safety system. Students are encouraged to sign up to receive emergency notifications by text or personal email accounts. Sign up at [Get Rave](#). An

announcement will be made on WMUR.com and will be posted NHTI's website and social media accounts.

In the event of an emergency that requires NHTI to close and/or cancel classes for a day or more, instructors will post a message in Canvas and may use additional means to communicate to students what effect this will have on the class, such as a Zoom meeting, completing a discussion board assignment, or changing the due date for an assignment. NHTI instructors understand that students may experience power and/or internet outages and will work with students to ensure class needs are met.

If circumstances require NHTI to have a delayed opening, students should be prepared to begin their school day with whatever required activity would normally be occurring at the announced opening time. For example, if a 2-hour delay is announced, and a student is scheduled for a class that normally meets from 8:00-10:50 a.m., the student should come to that class at 10 a.m. for the remaining 50 minutes of class; classes that are normally completed before 10 a.m. would be cancelled.

If circumstances require NHTI to close early, students should participate in required activities until the closing time. For example, if NHTI closes at 4 p.m. and a student has a class that runs 3-5 p.m., the student should attend the class until 4 p.m.

Grade Reporting

Faculty submit grades electronically to the Registrar's Office at the end of each final exam period. Final grades are not mailed to students. It is the student's responsibility to review their final grades via the Student Information System. Students who receive an I (Incomplete) should coordinate with the instructor to complete the remaining coursework as soon as possible. Unresolved grades will convert to an F automatically at the end of the third week of the following semester. An incomplete will place a student's financial aid status on hold for the subsequent semester.

Student Athletes

NHTI values its student athletes and wants them to be successful both on and off the field/court. Student athletes participating on any NHTI-sponsored team must provide their instructors documentation from the NHTI Athletic Department confirming their participation, as well as a schedule of practices and games, during the first week of the semester or immediately upon joining a team (if joining after the semester begins) to receive consideration for excused absences, make-up testing, or other related accommodations. This documentation must be presented in advance of special requests. Participation on an NHTI athletic team does not excuse any student from compliance with course requirements. Faculty are not required to excuse students from class or lab to attend practice sessions, and there may be circumstances (such as clinical requirements) under which athletes may not be excused for games, though every effort will be made to accommodate the schedules of student athletes who work responsibly with their instructors.

Student Email

Official CCSNH email accounts are created at the time of course registration or program acceptance. This is the only email address that will be recognized by NHTI for any required correspondence in NHTI-controlled courses and serves as the official account for all electronic

communication with the college. This ensures all students are able to comply with the email-based requirements specified by faculty. Students are responsible for checking their official student email regularly and reading all college-related communications. The email system is college property. All messages composed, sent, or received on the email system are and remain the property of CCSNH/NHTI. The CCSNH email system is not to be used to create or forward offensive messages. CCSNH is not responsible for the handling of email by outside vendors.

Academic Credit

NHTI awards academic credit in accordance with the policy of CCSNH, which equates a credit hour to one hour* of lecture per week for 15-16 weeks**; 2-3 hours of lab per week for 15-16 weeks**; 3 hours of practicum per week for 15-16 weeks**; 3-6 internship hours per week for 15-16 weeks**; or 3-5 clinical hours per week for 15-16 weeks**. In awarding academic credit, NHTI faculty create instructional plans, activities, and assessments with the expectation that students will spend a minimum of 2-3 hours outside of class per week per credit (**) in related course activities (completing assignments, studying, etc.).

*One instructional hour equals 50 minutes.

**All per-week hours should be prorated accordingly for alternative-length semesters. For example, a course that meets for 3 hours per week in a 16-week semester and requires 6-9 hours per week of additional work outside the classroom would meet for 6 hours per week and require 12-18 hours per week of additional study time when offered in an 8-week format.