COMP 424 Applied Computing 1: Foundations of Python Programming
Department: Applied Engineering and Sciences Department
Credits: 4 credits
Semester: Fall 2023

INSTRUCTOR INFORMATION

Howard Eglowstein
Email: howard.eglowstein@unh.edu

Ken Gitlitz
Email: ken.gitlitz@unh.edu
Office: P145

How to get in touch with your instructor
1. Course-related communication outside class takes place exclusively on the **Discord** server
2. For one-on-one communication, use the **Canvas Inbox tool** to ask questions or get feedback and guidance, and share any concerns you might have.
3. To schedule in-person or Zoom meetings use the **Canvas Inbox tool**.

COURSE INFORMATION

Modality:
- In-person, scheduled weekly class meetings
    - **Section M1**: Thursday, 9:10 - 12, Room 149
    - **Section M2:** Thursday, 1:10 - 4, Room 132
- In-person and online engaged time and learning activities outside class

Academic Integrity
Individual products of your learning in this class (active reading, problem solution designs, code, answers to questions, etc.) or **individual contributions to collaborative work** (e.g., projects) **must be entirely done by you**. You cannot submit as yours something done by others or obtained from external sources.

Collaborative work has clear requirements regarding the nature of collaboration. Grading is based on your **individual contribution to the collaborative work**. If unclear, you must consult with the course instructor on what is allowed. It is your responsibility to get such clarification.

Whether done individually or in collaboration, **submitted coursework must ALWAYS give clear attribution to the source(s) of content** included or integrated in your work.
- Annotate the content that originates or has been modified and integrated in your work.
- Reference the source(s) you used, whether articles, forum or blog posts, public GitHub repos, tutorial videos, or individual help.
- Give credit to individuals who have helped you, whether peers, tutors, lab/tech assistants, course instructor, or any other person (friend, relative, etc.)

Do not work on behalf of somebody else and **do not provide your work products** to **others**. If you do, you commit an act of academic dishonesty. There is no way to know whether those who get your work products intend to submit them as theirs. Equally important, this is NOT how you help someone to learn.

There are very serious repercussions if you deviate from the course and university academic honesty policy. The penalty for the **first occurrence** of academic misconduct is **no credit for the graded work** in question. The **second occurrence** of academic misconduct results in **failing the course**. You will receive notice of the academic misconduct allegation from the course instructor. The course instructor will meet with you and give you the opportunity to respond. If the violation stands, the course instructor will report it to the Office of Community Standards.

Bottom line, **do not cheat, plagiarize, or facilitate academic dishonesty.** It is very important that you review the University's Academic Integrity policy at https://catalog.unh.edu/srrr/university-policies-regulations/academic-integrity/.

Credit Hour Policy
This syllabus reflects the federal definition of 1 credit hour, that is:
> **1 credit hour** = **3 clock hours** of **engaged time** per week per 1 credit over a 15-week semester.

This means that this course requires **12 clock hours of student academic work each week** (4 credi hours x 3 clock hours).

Student academic work (or engaged time) means **all your work in this class**:
- Attend class meetings and participate in learning activities
- Do weekly assignments and labs
- Take exams
- Participate in course-related experiences (e.g., working with peers on a team project)
- Work collaboratively in study groups
- Seek tutor help
- Consult and get assistance from the course instructor.

GOALS, COMPETENCIES, and INTEGRITY

Catalog Course Description
Integrates three essential computing competencies: problem solving, data analysis, and programming. Problems are chosen from data-driven real-world examples. Emphasis is on formulating problems, thinking creatively about how computations can solve problems, and expressing solutions clearly and accurately. Using Python, students learn design, implementation, testing, and analysis of algorithms and programs.

Course Goals
The purpose of the course is for you to learn how to solve problems computationally with programming concepts and tools. Learning in this course will help you meet this expectation as you will:
1. Explore answers to a variety of key questions about computing and its relationships with you, other people, society at large, and humankind:
   - What is computing?
   - By whom is computing invented and advanced? And for whom?
   - Why do we use and advance computing?
   - What are the impacts of computing on everyone's life, our society at large, and our planet?
2. Develop problem solving skills
3. Experience a broad range of areas in which we apply computing .
4. Express solutions to problems through programming in Python.

Competencies
Achieving the course learning objectives will help you form the following professional competencies:
- Identify and select appropriate programming concepts to solve computational problems

- Analyze and select appropriate data structures to solve computational problems
- Apply programming patterns and techniques for solving computational problems
- Practice debugging and test-driven programming
- Design and implement data and functional abstractions
- Use problem decomposition to cope with complex problems
- Investigate and critique the pros and cons of computing
- Communicate and collaborate with others to achieve a common goal or solution.
- Reflect on your learning experiences.
- Persist in working with difficult problems
- Adapt, adjust, change course, be flexible as needed
- Tolerate uncertainty and ambiguity
- "Walk in another's shoes" to learn more about other perspectives, show empathy, consider various points of view, and recognize and avoid bias
- Have confidence in dealing with complexity

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LEARNING RESOURCES

Runestone Interactive Online Textbook
COMP 424 Foundations of Python Programming available at https://runestone.academy/.
The **Canvas** website for this course has a link to the **Runestone Textbook** site.

Course Materials - Google Drive
Teaching materials and resources reside in a publicly shared Google Drive folder. It includes this syllabus, weekly slides, and other materials. The **Canvas** site for this course has a link to the **Course Materials - Google Drive.**

Communication and Collaboration Tools
Because of the highly collaborative nature of the course, we'll be using a variety of online tools that support collaboration, sharing, and openness.
- **Canvas/MyCourses** for announcements, links to Google Drive Course Repository, Discord, Runestone Interactive Textbook, classmates list, grades, and email communication.
- **Discord** for messaging in and outside class with channels on various subjects.
- **Course materials - Google Drive** for learning resources and other instructional materials
- **Zoom** sessions for the class meetings if campus is closed due to weather or other circumstances
- **GitHub** for coding submissions to the GitHub organization associated with this class (after the midterm)

Development Tools
Your personal laptop is the development platform for all the learning activities in this class. You can use the operating system you are more comfortable with: MacOS, Ubuntu or other Linux distribution, or Windows.

The **development tools** you need to have on your machine installed at the global/system level are:
- **bash shell**
  - **terminal** app for MacOS or any Linux distribution, OR
  - **git-bash** for Windows 10 or **WSL (Windows Subsystem for Linux)** for Windows 11
- **Python 3**
- **git** version control
- **PyCharm** and other Python tools integrated with PyCharm, such as the **debugger** and static analysis tools (e.g., **pycodestyle**, **pylint**).

Use your **UNH account** and proof that you are a UNH student (confirm UNH notification) to:
- Create an account for **JetBrains** (if you don't have one already) and get free access to the **Professional Edition of PyCharm**
- Create an account on GitHub and get free access to the GitHub Student Development Pack.

Use of Other Tools
No phone use is permitted in class, unless directed to do so. For example, you may need to use your phone to get access to the phone camera if your laptop does not have a camera and you are in a Zoom session that requires video on. Unless otherwise specified, the use of automated writing tools, such as chatGPT and similar artificial intelligence (AI) tools, is strictly prohibited in this course, even when properly attributed. The use of automated writing tools is considered plagiarism (as defined by SRRR 9.3) and will be handled in accordance with existing policy.

Student Lab Assistance
The **Computing Program** in the **Department of Applied Engineering and Sciences** has student lab assistants who are available to help with software configuration, troubleshooting, and other technical questions you might have. Their schedule and contact information will be posted on the door of the tech consultancy workroom, Rm 124.

Center for Academic Enrichment (CAE) Tutoring Services
The Center for Academic Enrichment (CAE) is a free resource for all students enrolled in UNH Manchester courses, as well as alumni with writing for graduate school applications and career seeking. Students are entitled to 1 hour of free individual tutoring, per course, per week. Make a tutoring appointment and access our services through the CAE myCourses Canvas site, call 603-641-4113 or email **unhm.cae@unh.edu**.
CAE tutors are well-prepared to assist with questions, lab and homework assignments, and Python programming. Please make use of one-on-one tutoring sessions.

Academic alerts to support your success
The University is invested in your academic success. If I am concerned about your academic behavior or performance, I may submit an **academic alert**. Academic alerts are not punitive. The goal is to provide you with support and resources to support your success. They act as an important check-in point and, if you receive an academic alert, you will receive an email to your UNH email address. It is strongly recommended that you meet with a professional advisor and connect with your instructor to discuss the reason for the alert.

LEARNING ACTIVITIES

Outside Class Learning
You are expected to engage in outside class learning **9 hours outside class every week**. Outside class time is dedicated to independent and collaborative study to work on and complete your assignments, reflect on and evaluate your learning experience, and participate in ongoing communication on the Discord server. You will also use outside class time to develop and feature your artifacts using Github repositories in the GitHub org associated with this class (for coding and coding-related artifacts, such as Markdown files).

In-Class Learning
Weekly class meetings are dedicated to discussions, live coding, working in pairs or small groups, and reflections. Therefore, teaching will use minimal lecturing. The expectation for productive in-class learning is that you come prepared to the class meeting by fully engaging in outside class learning..

COURSE REQUIREMENTS

Participation (priceless)

In-class learning supports everyone's participation. Outside class learning benefits from conversations on the ==Discord's== channels.

Active Reading (10%)

Reading assignments are excellent opportunities to actively engage with the course content every week through various activities such as answering multiple-choice questions, writing short answers or filling in the blank, and coding exercises. The reading assignments are auto-graded. Reading assignments are **entirely your own individual work**. They are due the **midnight BEFORE the scheduled class meeting** and are NOT accepted after the deadline.

In-class Projects (10%)

You will engage in collaborative lab and project activities in almost every class. These activities are designed to be started in class. If you don't finish the work in class, you will continue during the week to have the work done before next class. Because of the collaborative nature of the labs and projects, you have to give attribution to peers you've collaborated with as well as to other servicers or persons who helped you.
All labs and projects are due **midnight BEFORE the scheduled class meeting** and are NOT accepted after the deadline.

Reflections (10%)

Reflecting on and evaluating your learning experience and sharing your perspectives is also valued in this course. Opportunities for reflection are through guided reflections at the start and end of the semester and upon completion of three assignments, projects 3 and 4, and homework assignment H3.

Homework Problems (20%)

Solving the homework problems is your own individual work. **No collaboration is allowed** as you prepare the homework artifacts, which include documentation, testing, designs, and implementation of computational solutions. Homework problems are due at the date and time listed in Canvas. If you do not meet the required deadline, **Late Submissions Policy** will apply as explained in the **Course Policies** section.

Examinations (50%)

The examinations are in-person exams that assess your problem solving skills, application of concepts, and demonstration of programming techniques. There is a **midterm exam** (20%, 7th week of the semester) and a comprehensive **final exam** (30%, last week of the semester).
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TENTATIVE COURSE SCHEDULE

This is a **tentative** schedule, subject to change depending on the class pace, student learning needs, and/or unforeseen circumstances, such as power outage because of snow storms. Check the course announcements and emails in **MyCourses** for up-to-date information. See next page.

Wk #	In-class learning:	Outside class learning due Wednesday midnight next week
#1 9/31	Who we are. How to solve problems with computation. Resources tour.	Explore core computational concepts of data, variables, expressions, and statements by doing **Active Reading 1 (AR1)**.
#2 9/7	Feedback to AR1. Practice with data, variables, expressions, statements. Incremental development. Problem solving strategies: input, compute, output. Getting started on **Project 1.**	Explore core computational concepts: more on the assignment statement, **input()** call, and intro to *sequences* and *functions* by doing **Active Reading 2 (AR2)**. Complete **Project 1: Input-Compute-Output (P1).** **Start-of-the semester Reflection (R-Start)**
#3 9/14	Feedback to AR2. Practice with the **string** and **list** sequences, and the **for** loop.	Practice more with core computational concepts of *iteration*, *sequences*, and *functions* by doing **Active Reading 3 (AR3).**
#4 9/21	Feedback to AR3. Apply **str** and **list** method calls, function definition, and the **accumulation pattern** to generate various passwords. Getting started on **Project 2**. Discuss **H1** requirements.	Complete **Project 2: Generating Password.** Explore modules and conditionals by doing **Active Reading 4 (AR4)**. Do **Homework Problems 1 (H1)**.
#5 9/28	Feedback to H1 and AR4. More problem solving practice with conditionals, iteration, function definition and calls, and sequences. Getting started on **Project 3:** computing stats with Kiva data project.	Complete **Project 3: Computing Stats with Kiva Data (P3)**. Explore transforming sequences, and more on iteration and conditionals by doing **Active Reading 5 (AR5)** Write **Reflection 1 (R1)**.
#6 10/5	Midterm practice. Discuss **H2** requirements.	Do **Homework Problems 2 (H2).** Practice debugging by reading Ch 3 Debugging. No graded AR for next week. *Review and prepare for the midterm.*
#7 10/12	**Midterm Exam**	
#8 10/19	Dictionary data structures. Introduction to programming tools.	Complete **Active Reading 6 (AR6).**
#9 10/26	Practice with programming tools. More practice with dictionaries and functions. Getting started on **Project 4**.	Complete **Project 4: Programming Tools Project (**including **reflection questionnaire).** Write **Reflection 2 (R2)** Do **Active Reading 7 (AR7)**.
#10 11/2	Text file data structure. More practice with transforming collections and programming tools. Getting started on **Project 5**.	Complete **Project 5: Generating a Password Project Revisited. Active Reading 8 (AR8).**
#11 11/9	More practice with classes, reading to and writing from files; applying test-driven incremental development.	Do **Active Reading 9 (AR9)**. Do **Homework Problems H3**. Write **Reflection 3 (R3)**
#12 11/16	Review nested iterations, classes, files.	Do **Homework Problems 4**
	Thanksgiving Holiday	
#13 11/30	More practice with data structures and programming patterns.	Building programs. More OOP practice.
#14 12/7	Review for the final exam. In-class **Student Experience of Learning (SEL) survey**.	*Review and prepare for the final exam.* **End-of-the-semester Reflection(R-Final)**
#15 12/14	**Final Exam**	

ASSESSMENT OVERVIEW

Final assessment of your work in this course takes into account the following learning activities:
- **Active Reading** (10%)
- **In-class projects** (10%)

- **Reflections** (10%)
- **Homework problems** (20%)
- **Midterm** and **final exams** (50%, midterm 20% and final 30%)

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COURSE POLICIES

Attendance

Class meeting attendance is important for your learning. Attendance is taken every class. **You are responsible for attending all class meetings**. See the *UNH Attendance* policy at
https://catalog.unh.edu/undergraduate/academic-policies-procedures/attendance/ for more information.

In the event that you need accommodation for a religious or cultural holiday/observance, you need to request an excuse for absence by **emailing me using the Canvas Inbox tool as early in the semester as possible.**

If you miss a class meeting, you take the responsibility to do the following **three** steps:
1. **Email course instructor** using **Canvas Inbox** tool about the circumstances for missing the class either BEFORE your absence OR no later than within 3 days AFTER your absence.
2. **Contact your peers** to find out what you've missed.
3. **Make up the absence** by doing the work assigned that week.

By NOT taking this responsibility, your final grade will be lowered by **5%** for each missed class.

If your absence is because you are dealing with unexpected and extenuating circumstances, please see the policy on **Temporary Academic Supports for Extended Absences with Letter**.

If your absence might cause a **late submission**, see policy on **Late Submissions** policy below.
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Curtailed Operations

If the University curtails operations due to weather, we will not hold in-person class meeting for our safety and the safety of others. As soon as possible, the instructor will post an announcement on Canvas about possible remote class meeting, due dates, any make-up work. Please make sure you have access to the UNH Alert RAVE system. If needed, sign up for RAVE Alerts here.

Late submissions

No assignment will be accepted after the deadline and a 0 grade will be entered in the Canvas Grades.

If you are in the situation of missing a deadline **because of time constraints**, you take the responsibility to **request approval for a time extension**. This means that you MUST do the following:
1. **Email course instructor** using **Canvas Inbox BEFORE the deadline**.
2. In your email, include these TWO IMPORTANT things:
   ○ **Explain circumstances** that have prevented you from meeting the submission deadline.
   ○ **Outline plans** for making up the missed requirements, including the EXACT time when you'll submit your work, **no later than six days** after the submission deadline.

You will receive an email confirmation from the course instructor with the approval or denial of your request.

If missing a deadline is because you are dealing with unexpected and extenuating circumstances, please see the policy on **Temporary Academic Supports for Extended Absences with Letter.**

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Student Accessibility Services

According to the Americans with Disabilities Act (as amended, 2008), each student with a disability has the right to request services from UNH to accommodate his/her/their disability. If you are a student with a documented disability or believe you may have a disability that requires accommodations, please contact Student Accessibility Services (SAS) located on the Manchester campus in the Student Services Suite (Office 405A). Accommodation letters are created by SAS with the student. Please follow-up with your instructor as soon as possible to ensure timely implementation of the identified accommodations in the letter. Faculty have an obligation to respond once they receive official notice of accommodations from SAS but are under no obligation to provide retroactive accommodations. For more information refer to www.unh.edu/sas or contact SAS at 603.862.2607, 711 (Relay NH) or sas.office@unh.edu.
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Temporary Academic Supports for Extended Absences

If you are dealing with an unexpected, extenuating circumstance that will keep you out of class or affect your performance for more than a day or two, reach out to **Lisa Enright Assistant Dean of Student Success,** at lisa.enright@unh.edu to request a letter be sent to all your faculty.

If you are required to miss significant class, you will be provided temporary academic support so that you can continue to make satisfactory progress in this course. Please **email me** (using Canvas Inbox email) to schedule a virtual meeting with me, if possible, to catch up on missed content. If not, email communication will help to determine the supports that work for you, such as notes from a peer or one-on-one meeting with a classroom assistant.
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UNIVERSITY POLICIES AND RESOURCES

Basic Needs Support

Food, Housing, Financial. https://www.unh.edu/dean-of-students/getting-help/housing-food-financial-basic-needs-support

Confidentiality and Mandatory Reporting

The University of New Hampshire at Manchester and its community are committed to assuring a safe and productive educational environment for all students. Title IX makes it clear that violence, harassment, and discrimination based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, and ability.

If you or someone you know has experienced sexual or relationship violence, and/or stalking and harassment, you can find the appropriate resources below:

Reporting On Campus:
- Title IX Deputy Intake Coordinator: Lisa Enright 603-641-4336. Lisa's office is located on the fourth floor in Room 439.
- UNH Manchester Security: 603-541-4101 or located in the second-floor foyer

Reporting Off Campus:
- Manchester Police Department - 603-668-8711, 405 Valley St. Manchester, NH
- or your local police department

For emergencies dial 911.

Confidential Support Resources:
- YWCA, NH – 603-668-2299(24hour), 72 Concord St. Manchester, NH
- Sexual Harassment and Rape Prevention Program (SHARPP): 603-862-7233(24hour), 8 Ballard Street, Wolff House, Durham NH 03824
- The Mental Health Center of Greater Manchester: See contact information and hours above
- 24 Hour NH Sexual Violence Hotline: 1-800-277-5570
- 24 Hour NH Domestic Violence Hotline: 1-866-644-3574

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Crisis Assessment and Risk Evaluation (CARE) Team

The CARE Team provides assistance to the UNH Manchester community when there is a need to activate a systematic, coordinated response to students who may be in crisis or whose mental, emotional or psychological health condition may substantially disrupt or directly threaten the safety of the learning environment. The CARE Team receives reports regarding students of concern, develops and implements appropriate interventions, assists students in accessing appropriate resources and recommends appropriate actions to the Dean of Students when needed. More information regarding the CARE Team can be provided by calling the Assistant Dean of Success at 603-641-4116. To report a student of concern, please go to the following link

Early Alerts Report (for undergraduate students only)

The University is invested in your academic success. If the instructor is concerned about your academic behavior or performance, they may submit an **academic alert**, particularly around Week 5 (Sep 22 – Oct 1). Academic alerts are not punitive. The goal is to provide you with support and resources to support your success. They act as an important check-in point and, if you receive an academic alert, you will receive an email to your UNH email address. It is strongly recommended that you meet with an **undergraduate professional advisor** and connect with your instructor to discuss the reason for the alert.
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Emotional or Mental Health Distress

In partnership with **The Mental Health Center of Greater Manchester**, UNH Manchester offers consultation visits in on a walk-in basis and through telehealth appointment:
- Free confidential screening & consultation with a licensed mental health therapist.
- Referrals to mental health or substance misuse treatment.
- And assistance in understanding how to afford additional treatment (with or without insurance!) or find free services.

You may email unhm.wellness@unh.edu to make an appointment to meet with a counselor by clicking here or by using the QR codes below.

For in person appointments, please scan this code	For remote appointments please scan this code.

If you would like to connect to counseling services directly, you may do so by contacting **The Greater Manchester Mental Health Center** at (603) 668 - 4111.

The National Suicide Prevention Lifeline provides 24/7, free and confidential support via phone or chat for people in distress, resources for you or your loved ones, and best practices for professionals. Call (800) 273-TALK (8255).
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Financial Literacy Resources

All students benefit from understanding their mindset about money, how to build and use a personal budget, as well as understanding interest rates, loans, insurance, investing, and more. UNH has wonderful free resources for students in Library Resource Guides https://libraryguides.unh.edu/finlit, and every student (and faculty!) can access CA$H COURSE at https://www.cashcourse.org/ by creating a free account. Find more information on the Financial Wellness site of Health & Wellness https://www.unh.edu/health/financial-wellness.

Food Pantry

The UNH Manchester Food Pantry, located in room 437 is open Monday through Friday from 8:00am- 9:30pm. Any UNH Manchester community member can take what they need. If you have any questions please email UNHM.Foodpantry@unh.edu

Library

The UNH Manchester librarians are available to assist you with your research. You can contact a librarian by calling 603-641-4173 or by emailing unhm.library@unh.edu.

The following online resources provide information about library resources and services:

- · UNH Manchester Library webpage: https://cps.unh.edu/library
- · Online Research Guides: https://libraryguides.unh.edu/index.php?b=s
- · Access Library Resources Remotely: https://libraryguides.unh.edu/remoteaccess
- · Reserve a study room for Zoom classes: https://libraryguides.unh.edu/remoteaccess/studyrooms

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QPR

QPR is a training program in mental health awareness and suicide prevention training offered by trained facilitators and members of the UNH Manchester community. Please contact Lisa Enright at lisa.enright@unh.edu should your department or program want to schedule a training session.

Sexual Harassment and Rape Prevention Program (SHARPP)

Provides free and confidential advocacy and direct services to survivors. UNH Manchester's SHARPP Office Hours during Fall & Spring Semesters are Mondays 9am-4pm in Room 471.
Zoom Appointment Availability year-round is Mon-Fri 9am-4pm
24/7 Crisis Line: 603-862-SAFE (7233)
Main Office: 603-862-3494
https://www.unh.edu/sharpp/https:/www.unh.edu/sharpp
UNH Manchester students can also contact the YWCA of New Hampshire – 603-668-2299 (24hour), 72 Concord St. Manchester, NH, for crisis or emergency services.