COMP 424 Applied Computing 1: Foundations of Python Programming
Applied Engineering and Sciences Department

INSTRUCTOR INFORMATION

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Contact Information
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Student ssistance hours: By appointment

How to get in touch with me
1. Course-related communication outside class takes place exclusively on the **Discord** server
2. For one-on-one communication, make an appointment using mycourses.unh.edu course email tool.

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.

COURSE INFORMATION

Course web site: https://mycourses.unh.edu/courses/99742
Credits: 4
Sections: M1 and M2
Semester: Fall 2022
Modality: In-person
Class meetings
> **Times**: Thursday, 9-11:50 AM (M1) and 1 - 3:50 PM (M2)
> **Location**: P149

Credit Hour Policy
This syllabus reflects the federal definition of **credit hour**, which means 3 hours of **engaged time** per week per credit over a 15-week semester
- 1 cr = 3 clock hours/week
- 4 cr = 12 clock hours/week

Engaged time means **all your work in this class**:
- attend class meetings
- do assignments and labs
- take exams,
- participate in course-related experiences (e.g., working with peers on a team project)
- work collaboratively in group study
- seek tutor help
- consult and get assistance from the course instructor.

Academic honesty

1. **Graded individual products** of your learning in this class (e.g., assignment artifacts) **must be entirely done by you**. You <u>cannot</u> <u>submit as yours something done by others or obtained from external sources.</u>
2. **Graded collaborative work** has clear requirements regarding the nature of collaboration, and grading is based on your individual contribution to the collaborative work.
3. **Collaboration** is always encouraged. However, be very careful when you seek or offer help regarding individual assignments that do not allow collaboration. If you have the smallest doubt about whether something is or is not an instance of academic dishonesty, **contact me immediately.**
4. In cases in which collaboration is allowed or required, **submitted artifacts must include clear attribution to**:
   ○ **Who the collaborators were**, whether from peers, tutors, lab/tech assistants, course instructor (that's me), or any other person (friend, relative, etc.)
   ○ **What sources or source content** you used, whether forums, public GitHub repos, tutorial videos, MOOCs, etc.
5. Giving the product of your work to someone who'll use it as theirs, or doing work on behalf of others is an instance of academic misconduct. Do not do work on behalf of somebody else and do not provide your work products to others who intend to submit them as theirs. .

Not complying with this policy is considered an instance of dishonesty.

There are very serious repercussions if you deviate from the course and university academic honesty policy:

1. The penalty for the **first occurrence** of an instance of academic dishonesty and plagiarism in this course is **no credit for the graded work** in question.
   ○ I will notify the Program Coordinator of your misconduct
   ○ A letter from the Program Coordinator will be sent to you, me, and your academic advisor.
2. The **second instance** of academic dishonesty in this course is penalized with **failing the course**.
   ○ I will notify the Program Coordinator, Department Chair, and Associate Dean of the College (or Associate Dean of Graduate School - depending on your enrollment).
   ○ A letter from the Program Coordinator will be sent to you, me, and your academic advisor. The Dean may decide on dismissal from the University.
3. If the first instance of academic dishonesty in this course is your second one in the program of study, the course action described at #2 above will be followed.

Bottom line, do not plagiarize, do not give your work to others to submit as theirs, and do not collaborate when collaboration is not allowed. When collaboration is allowed, always give proper attribution.

For more information see the *UNH Academic Honesty policy, 90 Academic Honesty*, at
https://catalog.unh.edu/srrr/academic-policies/academic-honesty/.

Go back to the top.

GOALS AND COMPETENCIES

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

Go back to the top.

LEARNING RESOURCES AND STRATEGIES

Learning Resources

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** at https://mycourses.unh.edu/courses/99742 for announcements, links to Google Drive Course Repository, Discord, Runestone Interactive Textbook, classmates list, grades, and email communication.
- **Discord** at https://discord.gg/Xz6Vcg5MnF for the class "chat room" and conversations with channels for different topics
- **Course materials - Google Drive** at **comp424** for learning resources and other instructional materials
- **Zoom** used to hold online class meetings if we switch to remote learning or other unforeseen circumstances
- **GitHub** for coding submissions to the GitHub organization associated with this class (after the midterm)

Runestone Interactive Online Textbook

Foundations of Python Programming available at https://runestone.academy/.

The **Canvas** website for this course has a link to the **Runestone Textbook** site.

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.

Student Tech and Learning Assistant

The **Computing Program** in the **Department of Applied Engineering and Sciences** has student tech assistants who are available to help with software configuration and other technical questions you might have.

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.**

Laptop

In the first half of the semester you will use a browser, Chrome or Firefox, to access Python coding "in the cloud" through the interactive textbook. In the second half, you will do coding on your machine, using a **Python 3** installation, **PyCharm (Recommended)**, Visual Studio Code, or Atom text editor, and a **bash** shell. See **Use of phones** section in the **Course Policies** section.

Learning Strategies

Learning in this class depends heavily on *active participation* and *open collaboration* in and outside class. Because of the interactive nature of the online textbook, a lot of first exposure to and practice with content will happen through a variety of learning activities enabled by the textbook. In-class time will be mostly dedicated to working in pairs or small groups, discussions, presentations, live coding, and reflections. Therefore, my teaching won't be based on lecturing.

Outside Class Learning

You are expected to **study 6-8 hours outside class** every week. Outside class time is dedicated to independent and collaborative study to solve homework problems, finish the in-class projects, reflect on and evaluate your own work, and participate in ongoing communication on the **Discord server**.

In-Class Learning

Weekly class meetings are structured for lab activities and project-based learning. Labs and projects given in class prompt your attention to core concepts, programming patterns, and problem solving strategies. You will work in pairs, teams, or individually, and you will explore, question, and explain how key ideas in programming apply to solving computational problems. Focus will be on developing skills including communication, critical thinking, problem solving, and teamwork. Lab and project-based learning give you ample practice to apply your understanding of core concepts in new contexts.

Autograded Outside Class Learning Activities

Some outside-class assigned work is automatically graded. This means that you will get immediate feedback as you learn through the book's activities and test your answers or solutions. You are encouraged to keep working

and get as many of the automatic tests to pass as you can. You WILL NOT be penalized for trying multiple times to solve a problem. However, you are NOT going to learn if you simply click at random until the answer is correct.
Go back to the top.

COURSE REQUIREMENTS

Class Participation (priceless)
In-class learning should encourage and support everyone's participation. Outside class learning can rely on **Discord**'s channels for general or category-focused discussions.

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. Use the auto-grading feature to keep working and improve your answers and solutions. Reading assignments are **entirely your own individual work**. All reading assignments are due **midnight BEFORE the scheduled class meeting** and are NOT accepted after the deadline.

Labs and 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 and reflection questionnaires.

Homework Problems (20%)
Solving the homework problems is your own individual work. **No collaboration is allowed** as you prepare the homework artifacts, which include designs and implementations. Homework problems are due at the date and time listed in **MyCourses**. 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 oral 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).

Go back to the top.

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: practice, projects, lab activities	Outside class learning: active reading, homework problems, and reflections
#1 9/1	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 9/8	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)**. Write **Reflection 1 (R1).** Complete **Project 1: Input-Compute-Output (P1).**
#3 9/15	Feedback to AR2. Practice with the **string** and **list** sequences, and the **for** loop. Discuss **H1** requirements.	Practice more with core computational concepts of *iteration*, *sequences*, and *functions* by doing **Active Reading 3 (AR3)**. Do **Homework Problems 1 (H1).**
#4 9/22	Feedback to the first reflection and AR3. Apply **str** and **list** method calls, function definition, and the **accumulation pattern** to generate various passwords. Getting started on **Project 2.**	Complete **Project 2: Generating Password (P2**, including **reflection questionnaire).** Explore modules and conditionals by doing **Active Reading 4 (AR4).**
#5 9/29	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 2 (R2).**
#6 10/6	Midterm practice. Discuss **H2** requirements.	Do **Homework Problems 2 (H2**, including **reflection questionnaire).** Practice debugging by reading Ch 3 Debugging. No graded AR for next week. *Review and prepare for the midterm.*
#7 10/13	**Midterm Exam**	Review any topics you're not 100% confident on.
#8 10/20	Dictionary data structures. Introduction to programming tools.	Complete **Active Reading 6 (AR6)**. Write **Reflection 3 (R3).**
#9 10/27	Practice with programming tools. More practice with dictionaries and functions. Getting started on **Project 4.**	Complete **Project 4: Programming Tools Project (P4: first.py**, including **reflection questionnaire).** Do **Active Reading 7 (AR7).**
#10 11/3	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 (P5: genpass.py).** Do **Active Reading 8 (AR8).**
#11 11/10	More practice with design, implementation, and testing. Coding style. Markdown documentation. Discuss **H3** requirements.	Do **Active Reading 9 (AR9)**. Do **Homework Problems (H3, analysis.py**, including **reflection questionnaire).**
#12 11/17	Review nested iterations. Getting started on **Project 6.**	Complete **Project 6: Review Files and Dictionaries Project (P6: review.py).** Write **Reflection 4 (R4).**
	Thanksgiving holiday: Wed. Nov 23 - Sunday, Nov 27	
#13 12/1	More practice with data structures and programming patterns.	Building programs. More OOP practice. Getting started on **Homework Problems 4 (transform.py).**
#14 12/8	Discuss H4 solutions. Review for the final exam. In-class **reflection questionnaire.**	*Review and prepare for the final exam.*
#15 12/15	**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%)
- **Guided reflections** (10%)
- **Homework Problems** (20%)
- **Midterm** and **final exams** (50%, midterm 20% and final 30%)

Go back to the top.

COURSE POLICIES

Covid Protocol

Unfortunately, COVID is still a part of our community. It is your responsibility to pay attention to messaging from the University (**RAVE** and **Canvas** and **Email**) in the event that any COVID protocols change. You can always access current COVID protocols and requirements through the Health and Wellness Website: https://www.unh.edu/health/health-alert-covid-19.

We all value the health and safety of our Wildcat Community and respect everyone's unique health and risk tolerance. You are welcome to wear a mask in this classroom if you choose. It is your responsibility to obtain a mask before coming to class.

If you are required to be in isolation or quarantine, the Dean of Students will send a letter to all of your instructors. See extended absence policies for temporary academic resources to support your continued learning in this course if you must miss significant class time.

A valid Wildcat Pass is required to be on campus and in this classroom. Your Wildcat Pass will be invalid if you are supposed to be in isolation or quarantine.
Go back to the top.

Attendance

Class attendance is important for your learning. Attendance is taken every class. **You are responsible for attending all classes**. See the *UNH Attendance and Class Requirements, 04.1 Attendance* policy at https://catalog.unh.edu/srrr/academic-policies/attendance-class-requirements/ 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 as early in the semester as possible.**

If you miss a class, you take the responsibility to do the following **three** steps:
1. **Email me** about the circumstances for missing the class within a week of the absence using MyCourses email.
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.

Go back to the top.

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 **two** steps:
1. **Email me PRIOR to the deadline** (using MyCourses email) to do TWO things:
   ○ **Explain circumstances** that have prevented you from meeting the submission deadline.
   ○ In your email, **outline plans** for making up the missed requirements.
2. If I approve your time extension request in my email reply
   ○ Make your submission **no later than six days** after the submission deadline.
By NOT taking this responsibility, your your grade for the assignment is 0 ..

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.**
Go back to the top.

Temporary Academic Supports for Extended Absences with Letter
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 **Stephanie Kirylych, Director of Academic Advising**, at **stephanie.kirylych@unh.edu** to request a letter be sent to all your faculty. **Note**: If you are asked to quarantine or isolate due to COVID-19 by Health & Wellness, a letter will automatically be sent to your faculty.

If you are required to miss significant class time (e.g., due to required isolation or quarantine), you will be provided temporary academic support so that you can continue to make satisfactory progress in this course. Please **email me** (using MyCourses email) to schedule a virtual meeting with me, if possible, and catch-up on missed content.
Go back to the top.

Accessibility services
The University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you must register with the **Student Accessibility Services (SAS)** office. The Student Accessibility Coordinator at UNH Manchester is **Jenessa Zurek.** Please reach out to the SAS office via email at **jenessa.zurek@unh.edu** for registration information and disability related questions. Jenessa Zurek is available through phone and email **Mondays** and **Wednesdays** from **9am-2pm**.
Go back to the top.

Expectations of classroom behavior
To ensure a climate of learning for all, disruptive or inappropriate behavior may result in exclusion (removal) from class. As a reminder, use of cell phones/PDAs, and all other electronic devices, to include text messaging, is not permitted in class by Faculty Senate rule unless by instructor permission.
Go back to the top.

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).
Go back to the top.

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 and for the university as a whole. 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

Go back to the top.

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 at https://www.unh.edu/health/financial-wellness.

Go back to the top.