Spring 2024 Syllabus

**HCIP-5376 | Spring 2024**

**Introduction to Programming for Health Informatics**

**Course Overview & Syllabus**

**Instructor**

George Shaw, Jr., PhD

**Contact Method**

**Email:** [gshaw11@charlotte.edu](mailto:gshaw11@charlotte.edu)

**Office Location:** CHHS 356

**Student Support Hours Office:** Tuesday 2- 4 pm or by appointment (phone or Zoom) Additional virtual meetings can be scheduled as needed

**Course Information**

**Semester/Year:** Spring 2024

**Course Number/Section:** HCIP-5376 090

**Course Name:** Introduction to Programming for Health Informatics

**Meeting Days/Times/Location:** In-class on Wednesdays from 5:30 PM – 8:15 PM in CHHS 295

**Website: https://uncc.instructure.com/courses/212365**

**Pre-requisites:** Enrollment in PSM, MPH or Graduate Certificate in Health Informatics and Analytics program.

**Course Description:** An introduction to the fundamentals of computer programming, the course provides students essential programming knowledge and skills to perform commonly encountered computational tasks in the field of health informatics. Prepares students for advanced programming and data science courses.

**Credit Hours**: 3

**This course contributes to MPH PHAN Concentration Competencies:**

Apply best practices in the design of new and/or critique of existing population health data sources.

Write programming code (SAS, R, SPSS, Stata, Python, or similar analytic programming language) to analyze a dataset of any size.

**Course Objectives**

This course is designed as an introduction to programming and programming language Python for students who have no or very little programming knowledge and experience. It could be considered as a preparation for more advanced programming courses as well as a self-contained course for those who want to use Python for their studies or professional work. The course is structured to benefit most students who have information science and informatics orientation, however, it will be equally benefit those who are interested to use Python for text and data processing. Like any other skill, your understanding of the course concepts will develop only through extensive reading, writing, and practice.

Upon completing this course you will be able to:

Read most Python code

Create executable code

Identify/characterize/define a problem

Design a program to solve the problem

Get user-input data and manipulate it using Python.

Implement basic Python structures such as if statements, loops, and functions. Read and write external data files using Python.

Implement functions and call built-in Python functions.

Import and use library function modules from the Python library.

**Topics**

Why we program

Variables, expressions and statements

Logic and Conditions

Functions

Iteration

String

File handling

Lists

Dictionaries and Tuples

Regular Expressions

 Using APIs with Python

**Important Dates**

**First Day of class**: January 10, 2024

**Last day to add, drop a course with no grade\* @ 11:59 pm:** January 17, 2024

**Spring Recess** : March 4, 2024 to March 9, 2024

**Last day to withdraw from course (s);** grade subject to Withdrawal Policy\* [Policy Information](https://provost.charlotte.edu/policies-procedures/academic-policies-and-procedures/withdrawal-and-cancellation-enrollment-policy):March 18, 2024

**Refresh Weekend, No Classes:** March 29-30, 2024

**Last day of class:** April 29, 2024

**Textbook**

We will be referencing a freely available digital textbook - Python for Everybody Exploring Data Using Python 3 by Charles R. Severance

The book content is integrated into the Canvas course modules. Unless you prefer a printed textbook no purchase is necessary.

**Grade Determination**

Cumulative grades will be posted in Canvas. Grades will not be visible to other students. Most assignments will be graded within one week after the due date. Exceptions to this policy will be announced to the class. Meeting all course expectations and task deadlines are your responsibilities. You are responsible for all assigned tasks. Please contact me early if you run into difficulties with the course or submitting material so that I can help you be successful in the course!

**Expectations:**

Work hard

Seek help from peers and instructor when needed

Participate actively

Address issues proactively

**Final letter grades are determined as follows:**

A = 90 – 100%

B = 80 – 89%

C = 70 – 79%

U= < 70%

**Course Activities**

There will be several major types of course activities that contribute to the overall course grade. All activities will be individual work.

1. Knowledge Checkpoints– Every module (starting week 3) will include a quiz that covers the readings, and study material assigned for students to complete. The purpose for these quizzes is to ensure students have acquired the key knowledge points from the knowledge resources assigned to that module.

2. Practice Exercises– Every module will include shorter exercises that will evaluate the level of understanding the student achieved from the materials covered to that point.

3. Milestones - The course will include 3 milestones that result in a final project-like submission. The final assessment for the course will incorporate a final milestone component that utilizes all material covered in the course as well as documenting and packaging programs developed.

4. Article Facilitation – The purposes of this assignment are for you to: (1) guide your own learning about computer programming use in healthcare by finding an article that really excites you; (2) share what you have learned with your peers; and (3) engage your peers in critical thinking about the article. You will be graded on the content, timing, and overall quality of your discussion.

**Evaluation Breakdown**

The expected breakdown of contribution from major course activities to the overall course grade follows here. While it is unlikely to change, please note that it is sometimes necessary to adjust the breakdown, and students would be duly notified in that event.

20% - Knowledge Checkpoints

30% - Practice Exercises

10% - Milestone 1

10% - Milestone 2

20% - Final Milestone

10% - Article Facilitation

**Assignment Due Dates**

Computer and Internet connectivity issues are not acceptable excuses for missing an assignment due date. It is the student's responsibility to ensure that personal computers are functioning and that Internet connectivity is available. Students are also responsible for having a backup plan if something should happen to their computer or Internet connectivity during the semester. Students are encouraged to use UNC Charlotte campus resources should this occur. A listing of the assignments and when they are due will also be provided in. Please review the late policy.

**Late Policy**

Start assignments early to avoid missing deadlines. Personal documentation (i.e., military, death, etc.) should be sent to the **Dean of Students Office (https://dso.uncc.edu/)** (DSO). The DSO office will contact the professor if the documentation has been reviewed and validated and warrants any special circumstances that may cause you to miss several weeks of class.

1. Late assignments will occur the following point reduction:
   1. Less than 24 hours – 5%
   2. 2-3 days late – 10%
   3. 3 or more – 25%
   4. If more than 30 days, the assignment will not be accepted.
   5. Each student will be afforded one grace assignment. The assignment will be graded as submitted on time if received with 7 days of the due date.

**Note: Quizzes must be submitted on or before the posted due date in Canvas and cannot be submitted late**.

**Incomplete Grade**

An incomplete (I) grade will be given only if a substantial amount of the course requirements has been completed and there are mitigating circumstances prohibiting the completion of all requirements prior to the end of this course (review the Exceptions policy). Normally **90%** of the work should be completed. The incomplete should be resolved within **six months** from the end of the term in which the grade was assigned.

**Classroom Environment:**

*Classroom Conduct:*

I will conduct this class in an atmosphere of mutual respect. I encourage your active participation in class discussions. We will exercise oversight and will have the responsibility to manage the discussions so that ideas and arguments can proceed in an orderly fashion.

Emails to the Instructor: I welcome email questions when they are important for you to complete an assignment on time, in cases when there is no class scheduled before the assignment is due, or require privacy. For reminders concerning due dates, assignments changes, or documentation access issues through Canvas, you can contact the GA.

Please use the following format for the “subject” line of any emails you send me:

5376: provide a concise subject line

Emails should be brief and concise, easy to understand. If your question involves more than a few sentences, it is more than likely too complex for email and would be more appropriately asked during office hours or verbal communication. I am willing to speak with you virtually – given enough time – using one of the communication mediums provided through the university (i.e. Zoom, Google Meets).

*Health and Safety*

You are encouraged to work directly with your instructor regarding absence(s) related to health issues. Please adhere to the following:

*CHHS Laptop Policy*

ALL STUDENTS, graduate and undergraduate, taking CHHS courses, are required to possess a laptop with webcam and microphone. Our courses may require a laptop or other compliant device for in-class assignments. Please note that Chromebooks won't satisfy this policy. NinerTech offers compliant models at student discounted pricing that may represent a savings over regular commercial purchase.

Students may avail themselves of loaner equipment such as that provided via Atkins Library, but should not rely on that option for all of their computing needs. This requirement extends to non-majors, pre-majors and postbac students enrolling in any of our CHHS courses and to students enrolling in courses delivered by CHHS faculty under a designation or cross-list not associated with one of our programs.

*Academic Integrity:*

All students are required to read and abide by the Code of Student Academic Integrity.

Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Students are expected to submit their own work, either as individuals or contributors to a group assignment. Definitions and examples of plagiarism and other violations are set forth in the Code. The Code is available from the Dean of Students Office or online at: <https://legal.charlotte.edu/policies/up-407>. Faculty may require students to demonstrate that graded assignments completed outside of class are their own work.

All work you submit needs to be your own. In addition, all material must be properly referenced. You must cite any ideas that are not directly your own. If you are in doubt, cite.

Material taken verbatim (word for word) from a reference must appear in quotes, followed by a citation. References include any material retrieved from the Internet. A rule of thumb is that anytime you take more than three consecutive words verbatim from a reference, the material needs to be in quotes. Minimize your use of direct quotes. Work that is comprised primarily of quotes is not acceptable. Plagiarism, intentional or not, is a serious academic offense. For the purposes of this course, students who submit the work of others as their own or do not give appropriate credit to their sources of information will receive a zero on the assignment. Students will not be able to revise and resubmit their work.

*AI use*

The following materials, equipment, websites, or tools are prohibited for completing course assignments, quizzes or examinations, or other academic exercises unless I explicitly permit such use for legitimate pedagogical purposes: ChatGPT, Bard, CourseHero etc.

*Course Credit Workload:*

Class work for this course may include but is not limited to: required readings, library research,

written assignments, programming assignments, exams, discussion posts, and completing assessments.

**Support Services:**

*Food Security*

Food insecurity is defined by the USDA as “a lack of access to enough food for an active, healthy life.” Food insecure categories include: reduced caloric intake, reduced food quality, lack of variety in diet, disrupted eating patterns, and hunger. Research shows that college students experience food insecurity at higher rates than the American household rate, and that food insecurity can negatively impact academic performance and persistence. In recognition of this problem, UNC Charlotte offers assistance to students facing food insecurity through an on-campus food pantry. The Jamil Niner Student Pantry is located on the east edge of campus at

1224 John Kirk Road. It has regular hours which may change from semester to semester; please see the website at <https://ninerpantry.charlotte.edu/> for schedule and details on its services, as well as resources about hunger and food insecurity among college students.

*Non-Discrimination:*

All students and the instructor are expected to engage with each other respectfully.

Unwelcome conduct directed toward another person based upon that person’s actual or perceived race, actual or perceived gender, color, religion, age, national origin, ethnicity, disability, or veteran status, or for any other reason, may constitute a violation of

University Policy 406, The Code of Student Responsibility. Any student suspected of engaging in such conduct will be referred to the Office of Student Conduct.

*Healthy Relationships and Title IX:*

UNC Charlotte is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with civil protective orders, and more.

Please be aware that all UNC Charlotte employees, including faculty members, are expected to relay any information or reports of sexual misconduct they receive to the Title IX Coordinator. This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I am expected to report the information to the Title IX Coordinator. Although I am expected to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

If you wish to speak to someone confidentially, you can contact the following on-campus resources, who are not required to report the incident to the Title IX Coordinator: (1) University Counseling Center (<https://caps.charlotte.edu/services/make-appointment>, 7-0311); or (2) Student Health Center (<https://studenthealth.charlotte.edu/> 7-7400). Additional information about your options is also available at titleix.uncc.edu under the “Students” tab.

All students are required to abide by the UNC Charlotte Sexual Harassment Policy and the policy on Responsible Use of University Computing and Electronic Communication Resources. Sexual harassment, as defined in the UNC Charlotte Sexual Harassment Policy, is prohibited, even when carried out through computers or other electronic communications systems, including course-based chat rooms or message boards.

*Safety and Security Information*

UNC Charlotte’s Department of Safety and Security offers the following safety tips:

• Ensure your cell phone number is in the Banner Self-Serve system (Emergency Text Phone

Number box) to receive text message NinerAlerts. NinerAlerts are sent via a variety of methods when there is a threat to campus safety or a change in operating conditions.

• For every NinerAlert that is issued, an action directive is also included in the body of the message. Action directives can include run, hide, fight; seek shelter; or evacuate. Visit https://emergency.charlotte.edu/ for more information on what each directive means.

• Download the Livesafe app. This connects you to campus police via phone or text 24/7. 911 dialed from a mobile phone connects to CMPD and can slow down response. Alternatively, you can put the UNC Charlotte Police emergency number in your phone: 704- 687-2200.

*Religious Accommodation:*

Students who, acting in accordance with this Policy, miss classes, examinations or other assignments because of a religious practice or belief must be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a Request for Religious Accommodation Form to their instructor prior to the census date for enrollment for a given semester. The census date for each semester (typically the tenth day of instruction) can be found in UNC Charlotte’s academic calendar.

*Student Grievances:*

Student Grievances Students enrolled in courses at the University of North Carolina at Charlotte who would like to file a complaint regarding their experience may do the following: 1. Refer to the UNC Charlotte Student Grievance Procedure. Students may also contact UNC Charlotte’s regional accrediting agency, the Southern Association of Colleges and Schools Commission on

Colleges. 2. Students residing outside of North Carolina while attending UNC Charlotte may file a complaint in their state of residence. As required by federal regulations, students are directed to the list of resources here, compiled and updated by the State Higher Education

Executive Officers.

*Withdrawals:*

Students are expected to complete all courses for which they are registered at the close of the add/drop period. If you are concerned about your ability to succeed in this course, it is important to make an appointment to speak with me as soon as possible. The University policy on withdrawal allows students only a limited number of opportunities available to withdraw from courses. It is important for you to understand the financial and academic consequences that may result from course withdrawal.

*Disability Support Services:*

Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services and follow the instructions of that office for obtaining accommodations. The Office of Disability Services works with current undergraduate and graduate students along with prospective students to ensure equal access to UNC Charlotte's campus and educational programs.

All services are dependent upon verification of eligibility. Once approved for services, students receive accommodations which are based upon the nature of an individual's disability and documented needs. Students are strongly encouraged to register or check-in for their accommodations with a Disability Services counselor as soon as they have registered for classes. Accommodations are not retro-active and will not begin until the student notifies his or her faculty by providing the Letter of Accommodation.

Please visit the Office of Disability Services at for additional resources, email questions to disability@uncc.edu, or call 704-687-0040 for more information.

Student Support Services:

Be sure to take advantage of the wealth of resources and support available at UNC Charlotte.

Some of the resources available to you include the University Writing Resource Center,

University Counseling Center, and the J. Murrey Atkins Library.

* University Center for Academic Excellent (UCAE) | (704) 687 7837 | unccucae@charlotte.edu
* University Writing Resources Center (WRC) | 704-687-1899 | wrchelp@charlotte.edu
* Veteran Student Services | 704-687-5488 | veteranservice@charlotte.edu
* University Counseling Center | 704-687-0311
* Multicultural Resource Center | 704-687-7121 | mrc@charlotte.edu

Counseling and Psychological Services

The Center for Counseling and Psychological Services <https://caps.charlotte.edu/> offers many supportive services for students. Students can make a virtual appointment.

*Diversity, Equity, & Inclusion:* The College of Health & Human Services (CHHS) values human diversity in all its richly complex and multi-faceted forms, whether expressed through, but not limited to, race and ethnicity, culture, political and social views, religious and spiritual beliefs, language and geographic characteristics, gender, gender identities and sexual orientations, learning and physical abilities, age, and social or economic classes. It is the intent of CHHS that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. For more information on diversity and inclusion please visit diversity.charlotte.edu

All students are required to abide by the UNC Charlotte Sexual Harassment Policy and the policy on Standard for Responsible Use of University Computing and Electronic Communication Resources. Sexual harassment, as defined in the UNC Charlotte Sexual Harassment Policy, is prohibited, even when carried out through computers or other electronic communications systems, including course-based chat rooms or message boards.

*Wellness Statement*

It is common for college students to experience challenges that may interfere with academic success such as academic stress, sleep problems, juggling responsibilities, life events, relationship concerns, or feelings of anxiety, hopelessness, or depression. If you or a friend is struggling, we strongly encourage you to seek support. Helpful, effective resources are available on campus at no additional cost.

If you are struggling academically with this class, please visit me during office hours or contact me by email at gshaw11@charlotte.edu

Meet with your academic advisor if you are struggling academically in multiple classes, unsure whether you are making the most of your time at UNC Charlotte, or unsure what academic resources are available at UNC Charlotte.

Visit the Counseling and Psychological Services website at https://caps.charlotte.edu/ for information about the broad range of confidential on-campus mental health services, online health assessments, hours, and additional information.

Call CAPS at (704) 687-0311 if interested in scheduling an appointment with a counselor. After-hours crisis support is also available through this phone number.

A screenshot of a calendar

Description automatically generated