



# Department of Health Administration and Policy

College of Public Health  
Spring 2026

## SYLLABUS

Course Information:

### **HAP 455: Introduction to Computer Programming in Health Applications**

Instructor: Dr. Sindhu Mallala, MBBS, MS HIT, CHSE

Email: [smallala@gmu.edu](mailto:smallala@gmu.edu)

Office Hours: By appointment

Course Description:

This course introduces concepts of computer programming of health applications with a focus on open-source software. Students are provided with an introduction to open-source software and introduced to open-source EHR systems. Practical exercises in programming to customize and extend the capability of health information systems are explored, implemented and tested.

Course Outcomes:

Upon completion of the course, students will be able to:

- 1. Describe needs for open-source systems in healthcare**
2. Build simple applications in LAMP environment
3. Create forms, other customizations and database structure in open-source EHR systems
4. Program modifications to EHR systems

Required Textbook(s) and/or Materials:

No textbook is required; online resources (articles, websites) will be used in the class.

Teaching Methods:

- Online weekly lectures
- Assignments/Quizzes
- Mid-term
- Course Project
- Final

## Grading

Assignments	% of the final grade	Description
Assignments	40	Most weekly modules have a homework assignment associated with the module. Assignments will cover material from the class and directly support the development of the course project. Students are required to complete all assignments one week after lecture day, i.e., NLT Monday @ 11:59 pm.
Midterm	20	The midterm will cover the material from the first part of the semester. The exam is untimed, open book, with full access to internet, Google, and to the course web page.
Project	25	Each student is expected to not only learn the concepts in the course, and do the assignments, but also demonstrate and understanding of the course content through implementation of a class project.
Final	15	
<b>Total</b>	100	

## Grading Scale

Grade	Percentage
A	100-93
A-	92-90
B+	89-87
B	86-83
B-	82-80
C+	79-77
C	76-73
C-	72-70

D	69-60
F	59-0

## Turnaround time for grading

All activities/assignments completed and received by the due date will have grades posted in this course's Canvas Grade Center within 14 days of the due date. Late submission penalty is 20% of the grade.

## Mason Honor Code:

The complete Honor Code is as follows:

*To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code: **Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.***

*(From the 2018-2019 Catalog – catalog.gmu.edu)*

## Individuals with Disabilities:

The university is committed to providing equal access to employment and educational opportunities for people with disabilities.

Mason recognizes that individuals with disabilities may need reasonable accommodations to have equally effective opportunities to participate in or benefit from the university educational programs, services, and activities, and have equal employment opportunities. The university will adhere to all applicable federal and state laws, regulations, and guidelines with respect to providing reasonable accommodations as necessary to afford equal employment opportunity and equal access to programs for qualified people with disabilities.

Applicants for admission and students requesting reasonable accommodations for a disability should call the Office of Disability Services at 703-993-2474. Employees and applicants for employment should call the Office of Equity and Diversity Services at 703-993-8730. Questions regarding reasonable accommodations and discrimination on the basis of disability should be directed to the Americans with Disabilities Act (ADA) coordinator in the Office of Equity and Diversity Services.

*(From the 2018-2019 Catalog – catalog.gmu.edu)*

## Diversity and Inclusion:

The College of Health and Human Services, Department of Health Administration and Policy, an intentionally inclusive community, promotes and maintains an equitable and just work and learning environment. We welcome and value individuals and their

differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and ability status.

- We value our diverse student body and desire to increase the diversity of our faculty and staff.
- We commit to supporting students, faculty and staff who have been the victims of bias and discrimination.
- We promote continuous learning and improvement to create an environment that values diverse points of view and life experiences.
- We believe that faculty, staff and students play a role in creating an environment that engages diverse points of view.
- We believe that by fostering their willingness to hear and learn from a variety of sources and viewpoints, our students will gain competence in communication, critical thinking and global understanding, and become aware of their biases and how they affect their interactions with others and the world.

*[This statement was created by the School of Integrative Studies faculty]*

## Course Logistics:

In a typical week, you will:

- Read assigned articles and videos.
- Take comprehension quizzes/exams.
- Submit all assignments through Canvas according to the assignment schedule.

Though the delivery method is different, it should take you the same amount of time as a typical undergraduate course. You should **expect to spend an average of 9 hours** each week (this includes the time you would have spent in a classroom).

## Course Expectations:

**Log-in Frequency:** Students must actively check the course Canvas site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 2 times per week.

**Participation:** Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.

Under no circumstances may students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.

**Technical Competence:** Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.

**Technical Issues:** Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.

**Workload:** Please be aware that this course is not self-paced. Students are expected to meet specific deadlines and due dates listed in the Course Schedule section of this syllabus. It is the student's responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.

**Instructor Support:** Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Students can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.

Email Policy:

This course will use an **asynchronous, online-learning** format; the meeting place will be on Canvas.

Please use the course email/messages system to communicate with the professor. This will allow me to answer your questions more quickly.

With this said, all students are required to activate and use their GMU email accounts. All correspondence related to the course, with the course faculty, GM advisors and students will utilize GMU email or email of instructor preference. It is the responsibility of the student to maintain their individual email account and check it frequently to read and respond to course and other official university correspondence.

Mason uses electronic mail to provide official information to students. Examples include notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback.

Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly. Students are also expected to maintain an active and accurate mailing address in order to receive communications sent through the United States Postal Service.

Late Assignments/Missed Quizzes:

If a graded assignment is late, it will be marked down 20 %; after one week no points will be earned. If there are unplanned extenuating circumstances (death in family, serious illness, traffic accident) and you are unable to complete the assignment on time, please e-mail the instructor as soon as possible to discuss a new deadline for the project. In some cases, the student will need to provide documentation regarding the circumstances that have prevented the assignment from being turned in on time. If unusual circumstances cause you to miss a quiz, please discuss the situations with the instructor; each case will be resolved in an individual manner.

## Course Materials and Student Privacy:

**Video recordings** of class meetings that are shared only with the instructors and students officially enrolled in a class do not violate FERPA or any other privacy expectation. Video recordings that only include the instructor (no student names, images, voices, or identifiable texts) may be shared without violating FERPA (but see below, University Policies: Privacy, for some qualifications and recommendations). All course materials posted to Canvas or other course site are private to this class; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class.

Video recordings — whether made by instructors or students — of class meetings that include audio, visual, or textual information from other students are private and must not be shared outside the class. Live video conference meetings (e.g. Collaborate or Zoom) that include audio, textual, or visual information from other students must be viewed privately and not shared with others in your household or recorded and shared outside the class.

## Sexual Harassment, Sexual Misconduct, and Interpersonal Violence

George Mason University is committed to providing a learning, living and working environment that is free from discrimination and a campus that is free of sexual misconduct and other acts of interpersonal violence in order to promote community well-being and student success. We encourage students and employees who believe that they have been sexually harassed, sexually assaulted or subjected to sexual or interpersonal misconduct to seek assistance and support. [University Policy 1202: Sexual Harassment and Misconduct](#) speaks to the specifics of Mason's process, the resources, and the options available to students and employees.

## Course Schedule

<b>Week</b>	<b>Lecture Date</b>	<b>Topics</b>
Week 1	1/20/2026	Introduction to the course, the faculty and the students.
Week 2	1/27/2026	Introduction to open-source software, EHR requirements.
Week 3	2/3/2026	Introduction to OpenEMR.
Week 4	2/10/2026	Data capture, export from OpenEMR.
Week 5	2/17/2026	Designing changes to OpenEMR to follow process flow and data requirements (sets the stage for class projects).
Week 6	2/24/2026	Student presentations on planned customization changes.
<b>Week 7</b>	<b>3/3/2026</b>	<b>MIDTERM EXAM</b>
<b>Week 8</b>	<b>NONE (Spring Break)</b>	<b>Spring Break (No class)</b>
Week 9	3/17/2026	Customizing OpenEMR using layout-based forms (LBFs).
Week 10	3/24/2026	Intro to Python and PHP customization options for OpenEMR.
Week 11	3/31/2026	Special considerations for use of an open-source system. Who? What? When? Where? How?
Week 12	4/7/2026	Options for instances of OpenEMR.
Week 13	4/14/2026	Other open-source and automation options.
Week 14	4/21/2026	Project prep (no class)
<b>Week 15</b>	<b>4/28/2026</b>	<b>STUDENT PRESENTATIONS</b>
<b>Final Exam</b>	<b>5/5/2026</b>	<b>FINAL EXAM</b>

\*This syllabus, including and especially the course schedule, is subject to change at any time throughout the semester at the discretion of the instructor.