



Syllabus – HI 318 – Spring 2026

Course Information	HI 318: Introduction to IT Methods for Healthcare Location: Fairfax Campus Peterson Hall Room 2500 Monday 1:30 PM – 4:10 PM ET		
Course Placement	(X) Core () Concentration (X) Elective () Pre-requisite(s) <i>Course(s) recommended before taking this course:</i> IT 103 or IT 104 or equivalent.		
Instructor	Naren Durbha (sdurbha@gmu.edu) Office Hours: By Appointment		
Course Description	Introduces computational tools used in health informatics. Reviews hardware and software needs and uses. Topics covered include operating systems, virtualization and basic programming in a scripting language, basic data analysis and data integration skills, and use of specialized software. All topics are covered in context of specific solutions used in health information systems.		
Course Objectives	<p>Upon completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Describe hardware and software requirements needed for health informatics applications • Select appropriate tools for solving computational problems in health informatics • Understand issues related to processing large data files • Prepare computer scripts for automating simple tasks • Be able to use command-line tools in Windows and Unix based operating systems 		
Course Methodology	The class format will combine reading, lectures, screencasts, discussions, presentations, and other learning tools. The class will be interactive and require every student to be engaged in the classroom discussion and assignments. In addition to the lectures, screencasts and timely completion of assignments, every student will be expected to be an avid consumer of health informatic industry trends, an active participant and a dedicated individual applying what you learn to every element of the course work.		
Required textbook(s) and/or materials	The course uses a variety of materials freely available on the web.		
Course Grading	Grade	Percentage	
	A	93-100	
	A-	90-92	
	B+	87-89	

		B	83-86	
		B-	80-82	
		C+	77-79	
		C	73-76	
		C-	70-72	
		D	60-69	
		F	0-59	
Computer Requirements	<p>This is a computing intensive course, and all students are required to complete assignments and projects using computer software. Health informatics professionals should know their computers well.</p> <p>Minimum computer (laptop or desktop) system requirements: Multicore (preferably Intel VT/AMD-V), 12GB RAM, at least 512 GB storage (and 200 GB+ free), webcam, speakers, good internet connection.</p> <p>Mac computers are allowed, but students need to do additional configuration – some assignments require windows. Mac users should be able to use Windows through virtualization software. Students must be able to install software and configure their computers, configure security settings, firewall, etc.</p> <p>Students are strongly encouraged to backup all contents of their computers on regular basis. Loss of data cannot be used as excuse for late or not submitted assignments/projects.</p> <p>The class does not require students to purchase any specialized software.</p>			
Expectations	<p>Students are responsible for assigned readings, class content and material. Students are also responsible for finding right computer equipment that allows accessing the course materials online, and checking email/canvas on daily basis.</p>			
Mason Honor Code	<p>The complete Honor Code is as follows:</p> <p><i>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:</i></p> <p>Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.</p> <p>Use of AI:</p> <p>It is also normal practice to use AI-based tools to help with answers. However, the submitted work needs to be yours. If any of the code or response is copied or generated, you must clearly indicate which portions of the code and what sources are. When AI tools are used, clearly state what tools and what prompts you use to arrive at answers. Failing to do so is considered honor code violation.</p>			

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Individuals with Disabilities	<p>The university is committed to providing equal access to employment and educational opportunities for people with disabilities.</p> <p>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 accommodation as necessary to afford equal employment opportunity and equal access to programs for qualified people with disabilities.</p> <p>Applicants for admission and students requesting reasonable accommodation 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.</p> <p><i>(catalog.gmu.edu)</i></p>
E-Mail Policy	<p>Web address: https://mail.gmu.edu</p> <p>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.</p> <p>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.</p> <p>Students are also expected to maintain an active and accurate mailing address to receive communications sent through the United States Postal Service.</p> <p><i>(catalog.gmu.edu)</i></p>

Evaluation

Grading Components	Percentage of Course Grade
Assignments	40%
Midterm Exam	20%
Final Exam	30%
Teach-One	10%
Total	100%

<p>Assignments – 40%</p>	<p>Instructions</p> <p>Each week assignments are required to be uploaded to Canvas. Assignments are due by Sunday, 11:59 PM, ET unless otherwise stated. Refer to the course schedule and weekly overviews for details.</p> <p>Each week assignments are posted to Canvas.</p> <ul style="list-style-type: none"> - Late assignments will be subject to a 20% deduction. - Correction and one-time resubmission of assignments within a week is allowed. However, to have the resubmission considered for grade update, you must have posted your initial answer by the initial assignment due date. Also, your initial answer should show how you tried to solve the specific assignment, that you make a real attempt at solving it, not just general concept. - Do not copy-and-paste from external sources or each other when submitting your answer. -For programming exercises, you are required to include working python code. Do not copy python code directly into Word but submit as a separate .py (or .txt) file. The Python code needs to run to get credit. No partial credit for non-working code. In addition, you need to submit one MS Word document that shows the question, screenshot of the Python code answering the question and screenshot of the code output/results.
<p>Midterm Exam – 20%</p>	<p>The midterm exam will comprise of questions from all the material covered up to that point. You may use books and online resources, however the work submitted must be your own. To complete this exam, you must include the question prompts as well as your responses. For Python code, include .py files that can be executed without any modifications. No collaboration is allowed. Each student must submit his own work. All answers must be submitted through Canvas. No late submission or resubmission is allowed. Provide appropriate citations. Each student will upload their word document and .py files.</p>
<p>Final Exam – 30%</p>	<p>Final exam questions will reflect ALL course material. You may use books and online resources; however, the work submitted must be your own. To complete this exam, you must include the question prompts as well as your responses. For Python code, include .py files that can be executed without any modifications. No collaboration is allowed. Each student must submit his own work. All answers must be submitted through Canvas to get graded. No late submission or resubmission is allowed. Provide appropriate citations. Each student will upload their word document and .py files.</p>
<p>Teach-One – 10%</p>	<p>As part of this course, each student will complete a “Teach One” presentation. The purpose of this assignment is to give you the opportunity to teach your peers by preparing and sharing a topic in your own way.</p> <p>Instructions:</p> <ul style="list-style-type: none"> • Prepare a 7–10 minute presentation using slides (PowerPoint or PDF). • Choose a topic that is either: <ul style="list-style-type: none"> ○ A concept from the course that you would like to explain in more detail, or ○ A topic related to the course that you believe would be useful or interesting for your classmates. • Upload your slides to Canvas under “Teach One.”

	<ul style="list-style-type: none"> Your presentation should be clear, organized, and designed so that your classmates could learn from it if it were delivered in class. <p>Tips for Success:</p> <ul style="list-style-type: none"> Keep your presentation focused on the main points. Use examples, visuals, or simple explanations to make the material engaging. Think like a teacher. By the end of your slides, your peers should better understand the concept or see its relevance. <p>Length: 7–10 minutes</p> <p>Deliverable: PowerPoint or PDF slides</p>
<p>Need Help? Personal Support Center, call 24/7: 1-703-348-5006, ext. 3 or Mason@personalsupportcenter.com</p>	

Tentative Weekly Schedule		
Week & Date	Computational (C) Topic	Programming (P) Topic
1. 01/26/2026	Introductions	Introductions
2. 02/02/2026	Introduction to Computing: <ul style="list-style-type: none"> - Introduction and History - Basics – Hardware - Basics – Software 	<ul style="list-style-type: none"> - Overview of Programming - Why Python and how Python? - Python Setup - Install Anaconda Integrated Development Environment (IDE) - Python Data Types - Variable Assignment in Python - Your First Python Code: “Hello World”
3. 02/09/2026	Sets, Logic, Rules, Truth tables	Conditions, Lists, Loops
4. 02/16/2026	Microsoft Windows	Data Structures — Basics, Lists, Tuples, Dictionary
5. 02/23/2026	Microsoft Office (Word, PowerPoint, Excel)	Functions, Libraries, Numpy and Pandas
6. 03/02/2026	Programing Exercises	
7. 03/09/2026	Spring Break (NO CLASS)	
8. 03/16/2026	Midterm Exam	
9. 03/23/2026	Unix and Linux Systems	Linux Environment and Commands

10. 03/30/2026	Networks and Internet	Python for Data Analysis, Jupyter Notebooks, Reading files, Data Distributions and Frequencies, Data Visualization
11. 04/06/2026	HTML/CSS & Web	Web Scraping, HTTP/URL
12. 04/13/2026	JavaScript for Web	CGI and Web Development Python on Linux Server
13. 04/20/2026	Virtualization, Cloud Computing, Containers and Microservices.	Databases and SQL Generating Synthetic Data
14. 04/27/2026	Review in Preparation for the Final Exam	
15. 05/04/2026	Teach-One presentation	
16. 05/11/2026	Final Exam	