Syllabus

- Course: IT114 Advanced Programming for Information Technology
- Term: Spring ’25
- Instructor: Dr. Michael Halper
  Office: GITC 3501 (Informatics Department suite)
  Phone: (973) 596-5752 (Office)
  Email: michael.halper@njit.edu
  Web home page: https://web.njit.edu/~halper
  Zoom meeting room: https://njit-edu.zoom.us/my/halper?pwd=SUxBVEJLRE5zeURYS1UyeFlteitoZz09
  Office Hours: M 3:00–5:00 PM (via Zoom)
  W 5:30–6:30 PM
  Th 5:30–6:30 PM (all times subject to change)
- Textbook: None required. Most reading assignments will be posted on Canvas. Additional reading assignments will be on the web.
- Assignments:
  - Reading: It is recommended that you read any assigned material (e.g., supplementary handouts, online references) before it is discussed in class.
  - Programming: There will be Java programming (homework) projects that will be turned in and graded. Most of your Java programming will be in the form of Android apps. You will be using Android Studio as the development environment. You will also on occasion be using the Java compiler available on your AFS account.
    NOTE: It is possible that the instructor will allow programming projects to be solved by teams of two people. However, even in that case, expect individual programming projects as well.
  - General: There may be some non-programming homework assignments that will be handed in and graded.
  - Laboratory: Assignments given during laboratory sessions may be collected and graded. (Most of them will be graded.)
- Exams: There will be a midterm exam and a final exam. (The midterm exam may be divided into parts.) These will be announced in advance.
- Laboratory Sessions: This course does not have a separate laboratory session. However, some class meeting time throughout the semester will be dedicated to hands-on laboratory assignments. This work will be done using your own computers: BYOD. It is not expected that a laboratory assignment will be completed during the lab session in which it is assigned. So, you should expect to work on lab assignments outside the class time. Consider them lab/homework assignments.
  The following factors will contribute to your overall semester lab grade: attendance, participation, and satisfactory completion of the lab/homework assignments. Demonstrations of completed lab assignments will be requested.
- Attendance/Class participation: Attendance will be taken at the beginning of each class. It will contribute to your lab grade. I do not set aside a specific portion of your grade for class participation. However, I do use it as a “benefit-of-the-doubt meter.”
- Grading: The exams, programming projects, and laboratory performance (sessions/assignments) will contribute to your grade according to the following *approximate* percentages:

Exams:	55–60%
Android Apps (in Java)/Programs:	25–35%
Laboratory Performance:	10–20%

  → Any non-programming homeworks, if given, will affect this weighting slightly.

  → Extra credit points may be given for exceptionally good programming projects.

  A curve will be used for assigning the final letter grades for the semester. (All grades throughout the semester will be numerical.) Note: The curve **cannot** lower your final grade; it can only help you. For example, if you achieve 95% of the available points, you can usually expect to get a grade of A for the course no matter how other people perform. Also note that the curve is not guaranteed to help you, either. The instructor’s subjective impression of a student’s total performance in the class may be factored into the determination of the final grade for the course.
- Doubts:

  >>>>>>> When in doubt, ASK!!! <<<<<<<

  If you have questions during the class, feel free to ask them. I also encourage you to see me during my office hours if you need extra help. In addition, I can be conveniently reached at the above email address.

- Late policies: There will be deductions for late submissions of any homework or lab assignments. Ordinarily, I will accept assignments up to two (business) days late. No assignment is accepted after it has been returned and discussed in class.

  If you are going to miss a class (for whatever reason) and cannot hand in an assignment, it is your responsibility to let me know.

  There will be no make-up exams (except, at the discretion of the instructor, in the case of **documented** medical or family emergencies).

- Computers/Accounts: For lab work, you will be using your own laptop. Note that it must have Android Studio installed to allow for your Android app development. If you have an Android phone or tablet, you can use that for app testing. Otherwise, you'll use an Android emulator.

  You will also be using your AFS (Linux) account. That account can be accessed at, for example, afslogin1.njit.edu. Off-campus access requires the use of the VPN. The program "MobaXterm" can be used to establish such a connection from your computer.

- Prerequisite: CS113 or CS115 ("Introduction to Computer Science I").

- Course Description and Objectives: This course is a continuation of CS113 (or CS115). The course will advance your knowledge of problem solving techniques and program design by introducing you to advanced data structures, including classic containers such as lists, stacks, queues, and trees. You will learn about the fundamentals of client/server programming. You will also learn about the powerful problem solving technique called recursion, and topics related to it. Overall, you will further extend your abilities to program in the Java programming language and will learn about tools essential for constructing IT-related applications. Among other things, you will be able to: (1) utilize Java library classes in the solution to data processing problems; (2) carry out interprocess communication using sockets; (3) formulate a recursive solution.

- Policy on Collaboration: You should be certain to read NJIT's "University Code on Academic Integrity" (available online). All violations of the code must be reported to the Dean of Student Services.

  As noted above, it is possible that the instructor will allow programming/app projects to be solved by teams of two people (with each member contributing equally). The following comments apply to an entire team in such cases, or to individual students in the case of "solo projects."

  All of your Android app development (Java programming)—and any non-programming—assignments must constitute original work. These programming assignments may **NOT** be solved in collaboration with anyone else. No credit will be given for any assignment that is copied—in part or in its entirety—from another person. Both people involved will receive no credit. Note, however, that you may "talk" about programming problems with each other, but such discussions must remain at a conceptual level. In summary, keep in mind:

  – You may NOT copy lines of Java program (app) code from anybody else.
  – Do NOT discuss the specific Java programming statements that you're using.
  – Do NOT ask to see another person's app, particularly a finished app.
  – Do NOT pass your apps around to other members of the class.
  – You should NOT use code in your app if you don't understand WHY it works, even if it works and you wrote it yourself.
  – Do NOT submit duplicate assignments. Even partially duplicate assignments will NOT be accepted.
  – If the instructor is at all **uncomfortable about the originality of your work**, no credit will be given.

IMPORTANT NOTE: One unoriginal assignment may result in an automatic grade of F for the entire course.

- Course Topics: The course will cover the following topics, subject to change.

  – Android and apps
  – Arrays, including sorting and searching
  – File I/O
  – Objects
  – Lists
  – Stacks
  – Queues
  – Sockets: Client/Server Fundamentals
  – Recursion
  – Trees
  – Additional topics (time permitting)

- Last day for withdrawal: Monday, April 7, 2025.

- Use of AI and Generative AI.

  AI and Generative AI tools (e.g., ChatGPT) may be used as supplementary learning materials. However, it is important to note that *no* graded assignments (e.g., homeworks, labs, projects) that are created entirely (or to a substantive degree) by an AI agent, such ChatGPT, will be accepted. You will receive no credit for such a submission. This situation will be considered equivalent to submitting work copied from another person (which is expressly prohibited). Also note that you are responsible for understanding all the code that you submit with an assignment. You should know why code statements were used and what they do. You may be asked at any point to explain specific parts of your submission to the TA or the instructor. The use of programming constructs that are well beyond the scope of the course (and possibly generated by AI agents) will be viewed with skepticism. If you happen to use small pieces of AI-generated code in your assignment, the AI agent from which they are derived must be cited as is shown within the “NJIT Library AI citation page” for AI.