I'm teaching the following courses in fall 2022:

Contact me if you want details on any of these - the descriptions are also on GitHub.

- Summer '22 - **Introduction to programming in C** (CSC 100). This course introduces you to programming using C. We cover C++ as an extension. C is a system programming language of pure power: it enables you to converse with the computer at a level unknown to users other high level languages many of which come from C. You also learn about: compilers, working on the command line, text editors Emacs, using C for Internet of Things (IoT) devices, cybersecurity, using pseudocode and process modeling. You get a foundation in critical thinking in concert with one of the three currently most popular languages (the other two are Python and Java). The course is for anyone who is interested in learning computational thinking and basic programming skills. You get: short lectures and practice sessions with interactive notebooks, weekly quizzes and program assignments. You'll learn some great tools: we use the "hacker's editor" Emacs, the world's foremost software engineering platform, GitHub, and SAP Signavio for process modeling. This course also prepares you for "Data structures with C++" (CSC 240) and "Algorithms" (CSC 265). Prerequisites: none.
- Fall'22 - **Snap! Programming Playground**. (COR 100) Create exciting games, animation and media computation, and learn computer and data science principles by playing with data. **What this is about.** In this course, you will complete a series of game and animation projects using the visual, drag-and-drop programming language Snap! You will learn basic computer and data science principles, and understand how computers help us control the world around us. You will graduate from mere consumer and user to powerful programmer while playing around with blocks on the screen. Acquiring programming skills will help you develop your critical thinking. **What we will do.** We will meet weekly for practical problem solving and interactive exercises. In between classes, you will work on small assignments like this Time Machine, and you will read short textbook chapters or watch short instructional videos. You'll get to present your own work and (optionally) publish your finished projects for the whole world to see, and if things go well, perhaps we'll go to Snap! Con in California next year! **Why you should do it.** This course is for you if you're curious about visual programming, if you don't know if working with computers is for you, or if you're interested in media, the arts, data, or in developing games. Snap! is also a great stepping stone to move on to higher languages like Python, R, C or C++. If you already have some knowledge of computing, programming or media computation, you'll be right at home and can add visual languages to your skillset. The course also serves as an easy entry into computer or data science degree programs.
- Fall'22 - **Introduction to data science (DSC 105):** Data science is about how to get data to work for us, to give us its hidden treasures. Data science has been called "the sexiest job of the 21st century". Even if you don't want to become a professional data scientist, it’s helpful to master the basic concepts if you want to succeed in today's highly data-driven business environment. This courses focuses on: data science basics, visualization and productivity tools. The course is for everyone who is

interested in becoming more data literate and growing their skill stack. You get short lectures and practice sessions with interactive notebooks, weekly quizzes and assignments. You'll get a free subscription to the DataCamp learning platform. You'll learn some great tools: we use the "hacker's editor" Emacs, the world's foremost software engineering platform, GitHub, and the statistical programming language R, which is perfect for easy visualization of complex data stories. You show your skills as part of a capstone group project. Prerequisites: none. This course will be offered again in fall 2023.

- Fall'22 - **Data visualization (DSC 302):** There are many tools and platforms out there to visualize patterns found in data and tell engaging, convincing stories. As a data scientist, you have to know what's out there, understand the principles of good visual presentation, and be able to customize plots quickly. In this course, we look at popular platforms like Tableau, PowerBi and even Excel, at languages like Snap! and Processing, and the R Shiny package that makes it easy to build interactive web apps straight from R. The course is for everyone who is interested in becoming more data literate and growing their skill stack. You will get lectures, practice sessions with interactive notebooks and weekly quizzes. You'll get a free subscription to the DataCamp learning platform for assignments. We'll use Emacs, R, and other languages as needed. You will create and present your own visualizations as part of a capstone project. Prerequisites: introduction to programming (CSC 100 or CSC 115), or consent of the instructor. This course will be offered again in fall 2024.
- Fall'22 - **Applied math for data science (DSC 482):** Data science is known to be math and stats heavy, but most of the math power is under the hood - you don't see much of it. This course will help you bridge the gap between what you already know and what is required to do exploratory data analysis. In this class, real datasets are used extensively, and all work is supported by R coding. We cover applications like PCA, mixture distributions, random graph models, Hidden Markov models, linear and logistic regression, Monte Carlo simulations, and neural networks. The course leads the student to think critically about the how and why of probability and statistics, and to see the big picture. The course is not theorem/proof oriented. picture." You will get lectures, practice sessions with interactive notebooks (in Emacs) and weekly quizzes. You will work on a term project alone or in a group that you will present. Prerequisites are calculus, some matrix algebra, and some experience in programming (it doesn't need to be R). This course is cross-referenced as a math special topics course (MTH 445). This course will be offered again in fall 2024.
- Fall'22 - **Internship course:** An internship can be an important "rite of passage", allowing you to test your skills in a real work environment. It can help you to find out who you are, what you want (or don't want) to do with your life and your education, it tests your assertiveness and networking skills, professional attitude,punctuality, stamina leadership issues, and much more. This course was designed to support you during your internship and help you make the most of the experience. We will meet weekly for one hour of discussion, you will write a weekly short (150 words) blog on GitHub, and briefly present your internship. Prerequisites: none. This course is offered every term.