IC152 Computing and Data Science

Feb 2021

Tentative Course Plan

Week	Topics
1	Intro, history, data science
2	Computers and programming
3-4	Basic data structures: arrays, strings, functions, iteration, control flow Statistics: central tendencies, dispersion, visualizing data
5	File I/O, command line arguments
6-7	Dictionaries Distributions, hypotheses, inference
8	Cleaning and manipulating data
9	Program testing, debugging, efficiency
10	Sorting, searching
11	Regression, interpolation
12	Machine learning
13	Clustering
14	Case studies, review

Teaching Assistants:
- Akansha Tyagi
- Mohana Singh
  and others

Instructors:
- Padmanabhan Rajan (padman@iitmandi.ac.in)
- Jinesh C. Machchhar (jinesh@iitmandi.ac.in)
- Arnav Bhavsar
- Astrid Kiehn

Evaluation:

Theory: 70% (Quiz 1: 20, Quiz 2: 20, EndSem: 30)
Lab: 30% (Weekly labs: 10, Lab exam: 20)

Textbooks:

1. J. Grus, Data Science from Scratch, O'Reilly, 2015.
2. J. Vanderplas, Python Data Science Handbook, O'Reilly, 2016.
3. M. Dawson, Python Programming for the Absolute Beginner, 3rd ed., Course Technology PTR.
4. Allen Downey, (How to think like a computer scientist) Learning with Python, Dreamtech Press 2016. This is a good one for beginners.