

Common Tools for Data Science

The world is one big data problem.

By Andrew McAffee.

Date & Time: Tuesday 2:30–5:10 PM (160 mins in total)

Credit: 3

Number of students: 36

Instructor: Min Ding

Office: A506a

Phone: (853)6555-8375

Grading: 3 x 20% Assignments + 40 % Final Project

GitHub Repository: <https://github.com/tools-for-data-science-master>

Wechat Group QR Code:



Intended Learning Outcomes

This course is to introduce commonly used programming languages and data analysis methods.

At the end of this course, you will be able to:

1. Code using Matlab, python or other programming language;
2. Implement most of the data analysis methods covered in the class;
3. Choose and apply a proper method to address real-world problem based on real data.

Tentative Course Schedule*

Module	Date	Contents	Assignment/Project	Lecturer
1	1/18	Introduction Statistical Analysis & Hypothesis Tests		
2	1/25	Regression Analysis		
3	2/15	Introduction to Programming Languages		
4	2/22	Transformation (Fourier & Wavelet) & Filters	Assignment 1 (20%)	
5	3/1	Spherical Harmonics & Time-Domain Analysis		
6	3/8	Geostatistics		
7	3/15	Inverse Theory, Bayesian & Monte Carlo		
8	3/22	Optimization	Assignment 2 (20%)	
9	3/29	Causal Inference		
10	4/12	Deep Learning		
11	4/19	Introduction to Numerical Simulation		Guest
12	4/26	Model-Data Fusion	Assignment 3 (20%)	
13	5/3	Student Presentations	Term Project (40%)	

* Adaptive to actual progress and arrangement