Computing for Data Sciences

Overview of the Course

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Course Information

Computing for Data Sciences
Code : BAISI-4 for PGDBA

Instructor : Sourav Sen Gupta
R C Bose Centre, ISI Kolkata

Course Website : `http://www.souravsengupta.com/cds2015/`

Lecture hours : Thursday (11:00 - 13:00) and Friday (14:15 - 16:15)

Office hours : By appointment @ Office 404, Deshmukh Building
Email me at `sg.sourav@gmail.com` to fix the appointments.

Grading for the Course

Assignments

Constitute 20% of the total grade
Homework problems : $2 \times 7.5\% = 15\%$
Scribing lecture notes : $2 \times 2.5\% = 5\%$
To be submitted in groups of size 4

Mid-Sem Exam

Constitutes 30% of the total grade
To be held during 7 – 11 September 2015
Format to be decided later

End-Sem Exam

Constitutes 50% of the total grade
To be held during 16 – 30 November 2015
Format to be decided later
May have a substantial *project* component

Structure of the Course

Part A	*Review of basic material* Mathematics and Computation
Part B	*Concept of Computation* Algorithms and Numerical Methods
Part C	*Statistical Computation* Programming in R and Python
Part D	*Foundations of Data Science*

Expected : 28 classes = 48 lecture hours + 8 hours for presentations

Reference Material

1. *"Elementary Numerical Analysis – An Algorithmic Approach"*
   S. Conte and C. Deboor, McGraw Hill Education (India)

2. *"Foundations of Data Science"* – J. Hopcroft and R. Kannan [**link**]

3. *"Software for Data Analysis – Programming with R"*
   J. M. Chambers, Springer

4. *"Learn Python the Hard Way"* – Zed A. Shaw [**link**]

... and of course, the lectures notes!

Assignment 0

Set up the programming environment

- Authenticate your laptop at CSSC, 4th floor, Library Building
- Install **RStudio** from `https://www.rstudio.com/`
- Install **IPython** from `http://ipython.org/`

Catch up on some background stuff

- Refresh your memory on basic topics in Discrete Mathematics
- Refresh your memory on basic topics in Vectors and Matrices
- Learn basic coding from *"Learn Python the Hard Way"* [**link**]

Questions?