**Computational Workshop for MACNM Alumni**

**Topics:**

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| --- | --- | --- | --- |
| Date | Morning | Afternoon | Evening |
| Jan 5-6 |  |  |  |
| * Saturday | 1. Python Programming I | 1. Python Programming II | Homework |
| * Sunday | 1. Web Scraping | 1. Data Visualization | Homework |
| Jan 12-13 |  |  |  |
| * Saturday | 1. Text Mining | 1. User Profiling | Homework |
| * Sunday | 1. AB Test | 1. Network Analysis | Homework |

The course includes a 2-hour lecture and a 1-hour practice each topic. Web-based tools will be used whenever possible and appropriate to facilitate the distribution of class materials and the interaction among instructors and students.

**To-do list:**

Students are required to install the tools and download the practice data before attending the class.

1. Anaconda Installation (including both Python and Jupyter Notebook)
   1. Anaconda (<https://www.anaconda.com/download/>)
   2. Make sure Anaconda-Jupyter can run (<https://www.zhihu.com/question/58033789/answer/254673663>)
2. Apply Twitter Api
   1. Apply Twitter developer App at <https://developer.twitter.com/en/apps>
   2. Fill the information requirement (user profile, account details, use case details) and finish email verification
3. Python learning on DataCamp
   * 1. Go through the video and exercises (Total 4 hours)

(https://www.datacamp.com/courses/intro-to-python-for-data-science)

1. How to learn computational methods. (JZ’s slide)
2. Optional Python learning
3. Video

Learn Python with Socratica [Youtube(https://www.youtube.com/playlist?list=PLi01XoE8jYohWFPpC17Z-wWhPOSuh8Er-)][Bilibili(https://www.bilibili.com/video/av24525184/)]

* 1. Interactive learning without installation
     1. w3schools (with examples) (<https://www.w3schools.com/python/>)
  2. Book
     1. Python for Everyone: <https://www.py4e.com/>
  3. Jupyter Notebook Documentation (<https://jupyter-notebook.readthedocs.io/en/stable/notebook.html>)
  4. Jupyter Notebook Tutorial: <https://www.dataquest.io/blog/jupyter-notebook-tutorial/>

**Textbook and Readings:**

|  |  |  |
| --- | --- | --- |
| Overall | Reading | * 张伦，王成军，许小可. (2018). 计算传播学导论. 北京师范大学出版社 ([JD.com](https://item.jd.com/37846930267.html)) |
| Python Programming I  [Video] | Reading | * Python learning on DataCamp   (https://www.datacamp.com/courses/intro-to-python-for-data-science)   * Learning python in w3schools (with examples)   (https://www.w3schools.com/python/) |
| Python Programming II  [Video] | Reading | * Pandas Documentation: <https://pandas.pydata.org/pandas-docs/stable/> * Pandas Cookbook: <https://github.com/jvns/pandas-cookbook> * Pandas Lessons: <https://bitbucket.org/hrojas/learn-pandas> * Wes McKinney. (2017). Python for Data Analysis Data Wrangling with Pandas, NumPy, and IPython. O’Reilly Media |
| Web Scraping  [Video] | Reading | * **Liang, H.,** & Zhu, J. J. H. (2017). [Big data, collection of (social media, harvesting)](http://onlinelibrary.wiley.com/doi/10.1002/9781118901731.iecrm0015/full). In J. Matthes, C. S. Davis, & R. F. Potter (Eds.), The International Encyclopedia of Communication Research Methods. NJ: Wiley-Blackwell. |
| Visualization | Tool | * Python package: seaborn |
| Text Mining  [Video] | Reading | * 第二章 文本分析简介. In张伦，王成军，许小可. (2018). 计算传播学导论. 北京师范大学出版社 |
| User Profiling  [Video] | Reading | * 刘鹏. (2015). 计算广告: 互联网商业变现的市场与技术. 人民邮电出版社. * 项亮. (2012). 推荐系统实践. 人民邮电出版社. [Link](https://github.com/singgel/AI_LINE/blob/master/%E6%8E%A8%E8%8D%90%E7%B3%BB%E7%BB%9F%E5%AE%9E%E8%B7%B5.pdf) * Tan, P. N., Steinbach, M., & Kumar, V. (2013). Introduction to data mining. |
| Network Analysis  [Video] | Reading | * Easley & Kleinberg(2010). [Networks, crowds, and markets](http://www.cs.cornell.edu/home/kleinber/networks-book/) * Hanneman & Riddle (2005). [Introduction to social network methods](http://faculty.ucr.edu/~hanneman/nettext/) |
| Tool | * Gephi (<https://gephi.org/users/download/>) * Python package: NetworkX |
| A/B Test |  | To be added |