

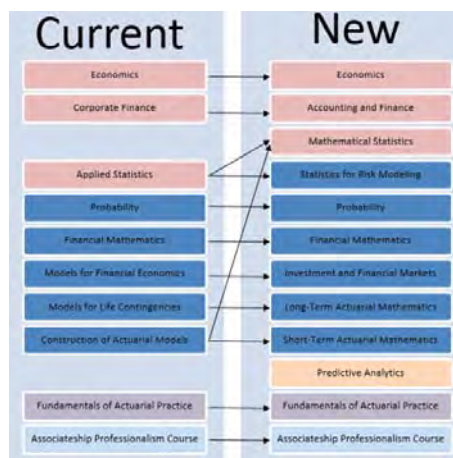
Incorporating predictive analytics in an actuarial curriculum: some preliminary experience at the Chinese University of Hong Kong

Wai-Sum Chan, PhD, FSA, CERA, FRSS
Professor of Finance
The Chinese University of Hong Kong



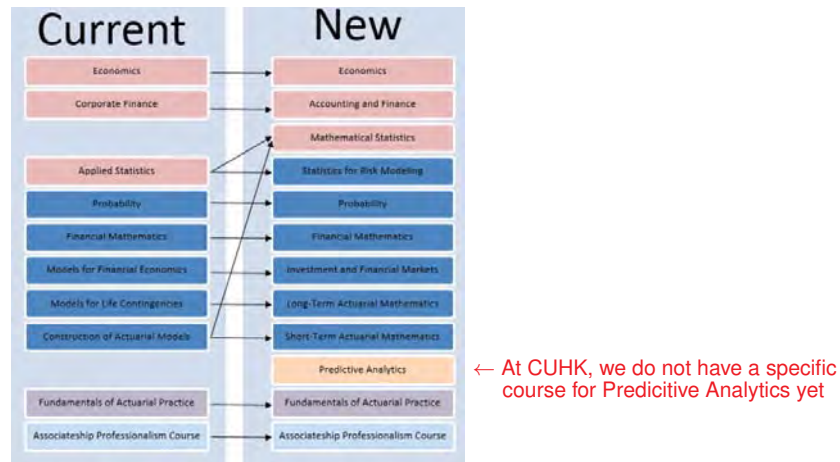
1 of 25

SOA's 2018 ASA Curriculum Changes



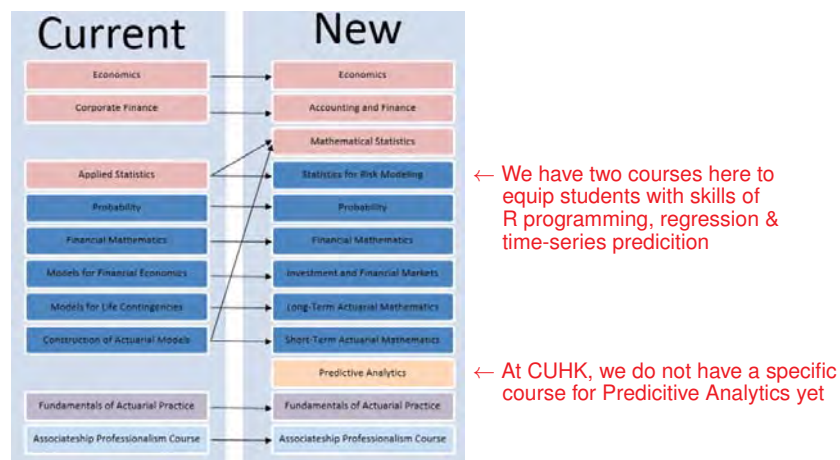
2 of 25

SOA's 2018 ASA Curriculum Changes



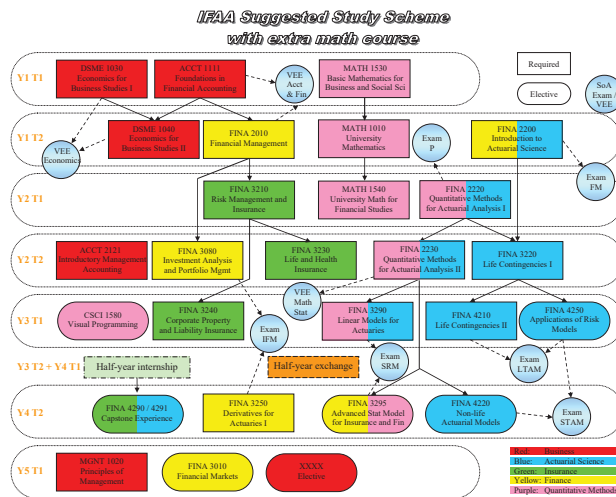
2 of 25

SOA's 2018 ASA Curriculum Changes



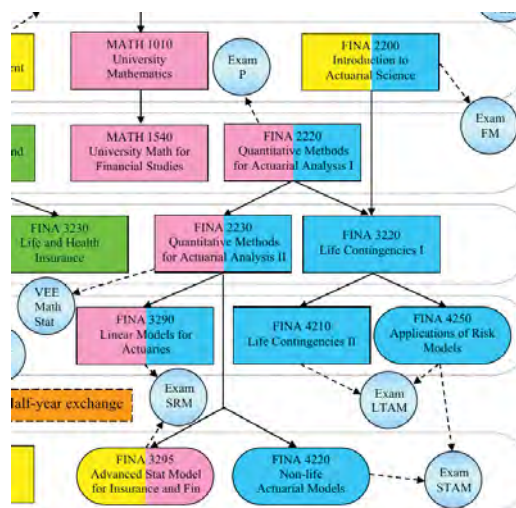
2 of 25

CUHK Students' 2017 Study Plan



3 of 25

CUHK Students' 2017 Study Plan



4 of 25

A Pilot Case Study for FINA3290

- The National Data Buoy Center (NDBC) is a part of the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) of the US government.

5 of 25

A Pilot Case Study for FINA3290

- The National Data Buoy Center (NDBC) is a part of the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) of the US government.
- NDBC deploys weather **buoys** which are instruments which **collect weather and ocean data** within the world's oceans.



5 of 25

A Pilot Case Study for FINA3290

- The time-series weather data for each buoy are publicly available from the NDBC website (www.ndbc.noaa.gov).



6 of 25

A Pilot Case Study for FINA3290

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- These data have been used for research (e.g., Chen, Ruf and Cleason, *Journal of Geophysical Research: Oceans*, April 2016) and teaching purposes.

6 of 25

Part (A) - constructing the dataset

- Students are asked to locate the data webpage of the Weather Station buoy 46035 at 57.026 N 177.738 W from NDBC.

7 of 25

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- Examine the data format for each yearly data file.

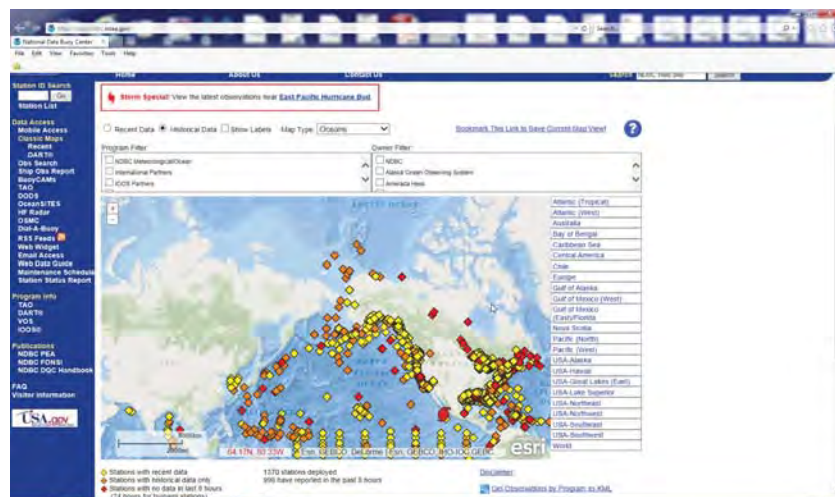
7 of 25

Part (A) - constructing the dataset

- Students are asked to locate the data webpage of the Weather Station buoy 46035 at 57.026 N 177.738 W from NDBC.
- Examine the data format for each yearly data file.
- Write an R program to extract and patch the data into two time-series of daily **Air Temperature** and **Sea Temperature** readings recorded at [noon](#).

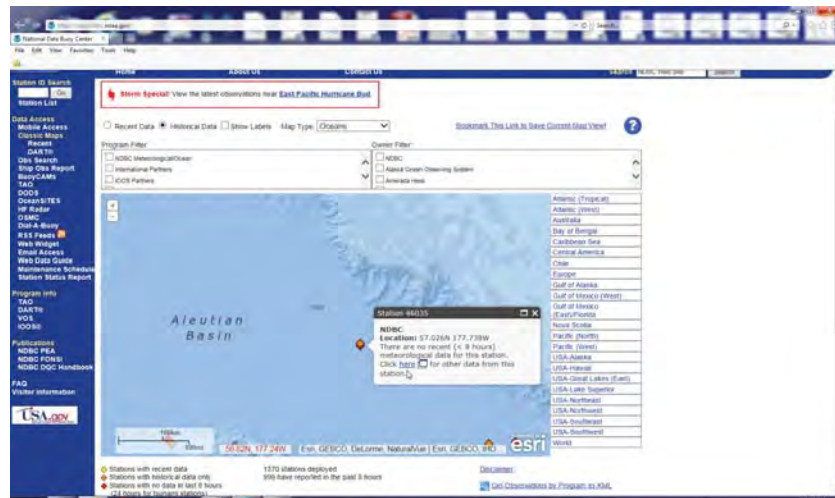
7 of 25

Part (A) - constructing the dataset



8 of 25

Part (A) - constructing the dataset



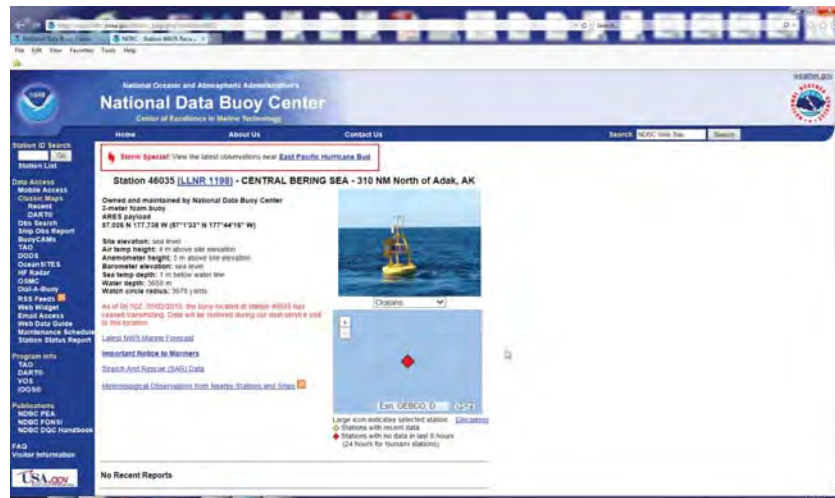
9 of 25

Part (A) - constructing the dataset



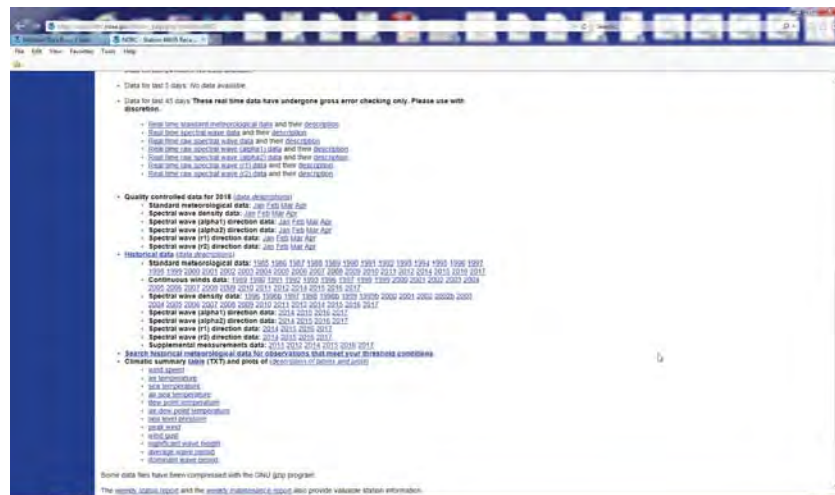
10 of 25

Part (A) - constructing the dataset



11 of 25

Part (A) - constructing the dataset



12 of 25

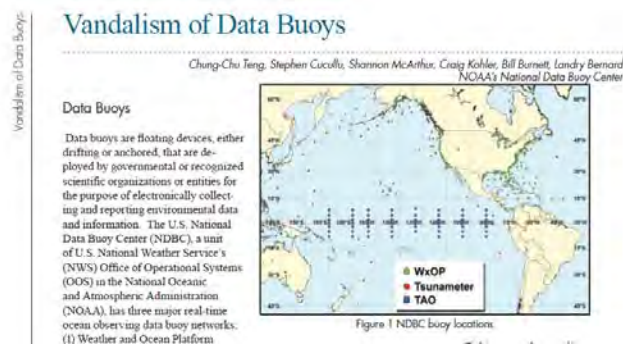
Part (B) - data cleaning

- Students are asked to plot and clean the data.

13 of 25

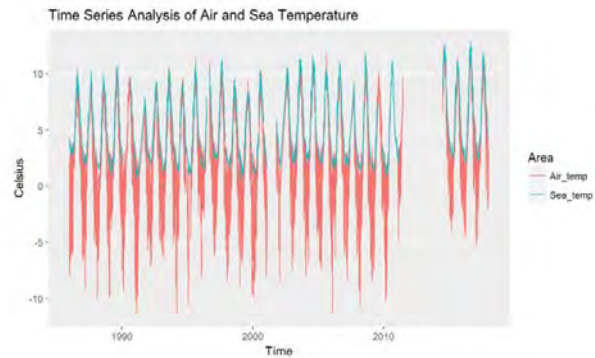
Part (B) - data cleaning

- Students are asked to plot and clean the data.
- Messy data: **outliers, missing values, lost of data** – due to vandalism/stolen of data buoys



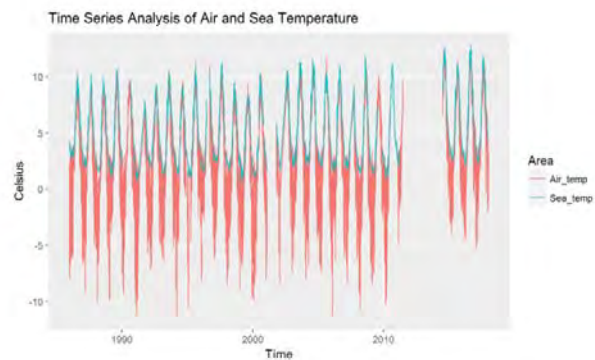
13 of 25

Part (B) - data cleaning



14 of 25

Part (B) - data cleaning



- Students have to research and decide on how to clean the data.

14 of 25

Part (C) - the research question

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15 of 25

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15 of 25

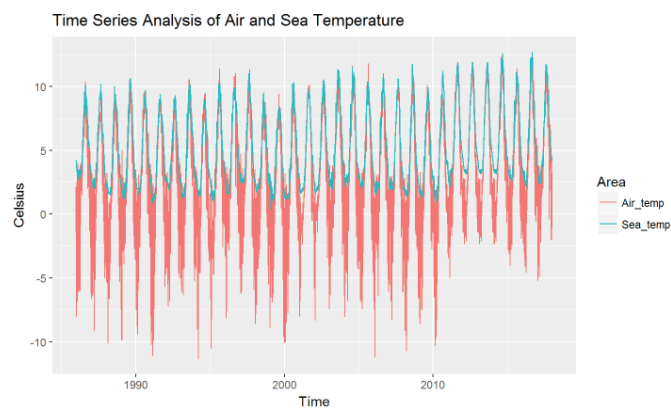
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- Students can use any statistical methods learned in this course.
- All computations have to be carried out in R.
- Two students form a team.
- Each team has to make a presentation and hand-in a final report (professionally written with proper conclusions and justifications).

15 of 25

Report-1

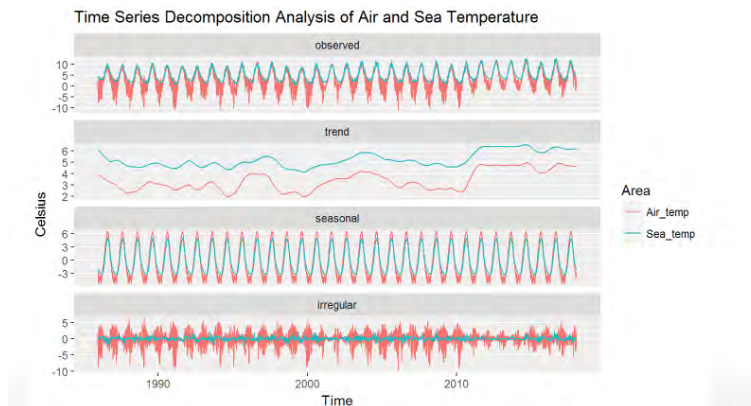
Cleaned Data



16 of 25

Report-2

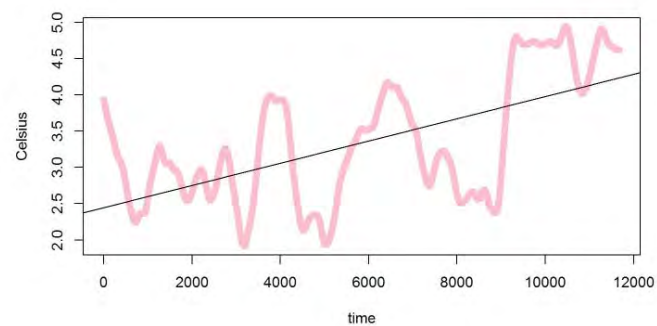
Seasonal Decomposition



17 of 25

Report-3

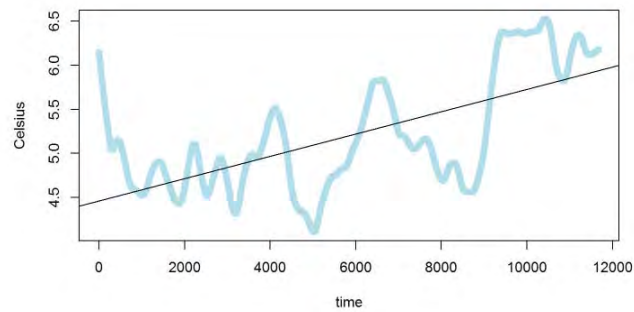
Trend: Air temperature



18 of 25

Report-4

Trend: Sea temperature



19 of 25

Report-5

Robustness Check

To check whether sampling affected our evaluation of temperature change, lets conduct simple robustness check when temperature = 0:00, 6:00,18:00 and compare with 12:00.

```
##           tau      sl S      D      varS
## Air.Time_0 0.3382657 0 23083382 68240392 177205149696
## Air.Time_6 0.3505084 0 23918828 68240392 177205149696
## Air.Time_12 0.3590287 0 24500260 68240392 177205149696
## Air.Time_18 0.3716339 0 25360442 68240392 177205149696

##           tau      sl S      D      varS
## Sea.Time_0 0.3823255 0 26090036 68240384 177205149696
## Sea.Time_6 0.3794484 0 25893702 68240384 177205149696
## Sea.Time_12 0.3917121 0 26730586 68240384 177205149696
## Sea.Time_18 0.393612 0 26860232 68240384 177205149696
```

20 of 25

Remarks

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21 of 25

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21 of 25

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Remarks

- Students are forced to get familiar with R programming.
- Students generally like the case study, but complained the heavy workload and unclear instructions.
- Most students **indulged** too much in the R coding part of the project, without a good understanding of the statistical methods they used.
- Students need more training in report writing.

Other Issues: (I) Plagiarism



22 of 25

Other Issues: (II) Academic Honesty



23 of 25

Other Issues: (II) Academic Honesty

The screenshot shows a website with a green header bar containing the word '程序' (Program) and a navigation menu with links like '首页' (Home), '编程语言' (Programming Language), '数据库' (Database), '网络开发' (Web Development), 'Algorithm算法', '软件开发' (Software Development), '系统相关' (System Related), '金融统计' (Financial Statistics), '人工智能' (Artificial Intelligence), and '其他' (Other). Below the header, there's a section titled '代做Python程序、代做Data Acquisition, Cleaning, Organizing and Exploring'. The main content area describes 'Assignment 5 - Data Acquisition, Cleaning, Organizing.' and mentions it's the final project for the TidyVerse section. A red box highlights 'Part 1 (50%)' which asks to find NOAA weather station data for buoy 46035 and create a time series plot. A sidebar on the right titled '联系我们' (Contact Us) lists contact information including QQ, WeChat, and email.

程序

首页 编程语言 数据库 网络开发 Algorithm算法 软件开发 系统相关 金融统计 人工智能 其他

首页 >> 详细

代做Python程序、代做Data Acquisition, Cleaning, Organizing and Exploring

Assignment 5 - Data Acquisition, Cleaning, Organizing.

This is the final project for the TidyVerse section of the course. There are two parts to this assignment. In both parts, your job is to obtain data, clean and organize it, and explore it. Then, produce a slide presentation and a Shiny application about what you have learned.

联系我们

1. QQ: 99915881
2. 微信: 99915881@qq.com
3. 工作时间: 8:00-23:00
4. 邮箱: codinghelp

Part 1 (50%)

Find the website for NOAA Weather Station buoy 46035 at 57.026 N 177.738 W in the NOAA National Data Buoy Center.

Read, Clean, and organize the data to produce a time series composed of 30 years of daily Air Temperature and Sea Temperature readings recorded at noon for the time zone of Station 46035.

6-05-15

9 Python代写与马海星 Turtle Graphics Lab 2018-06-10

10 Python代写与数据、数据科学课程作业、Educational Data 2018-06-13

23 of 25

Other Issues: (II) Academic Honesty

The screenshot shows the homepage of the Society of Actuaries (SOA) Homework Help website. The header includes navigation links: 'HOME', 'ASSIGNMENT HELP', 'PROJECT HELP', and 'WRITING SERVICES'. The main banner features a woman writing at a desk and a man looking at a laptop, with the text 'Improve your understanding'. Below the banner, the section 'Society of Actuaries-SOA Homework Help !' is displayed. It includes a brief description of the service and a list of steps to get help. A sidebar on the right titled 'How it works ?' lists three steps: 'Step 1: Submit your homework!', 'Step 2: Get an instant quote on-line (Email, phone or private)', and 'Step 3: Obtain your detailed homework solution!'.

Society of Actuaries-SOA Homework Help !

Have any problem with your Society of Actuaries - SOA homework or you don't have the ample time to complete your Society of Actuaries - SOA assignments?

Get your Society of Actuaries - SOA assignments done in just 2 simple steps:

1. Submit Society of Actuaries SOA assignment below
2. Click on line that to get a quote

How it works ?

- Step 1: Submit your homework!
- Step 2: Get an instant quote on-line (Email, phone or private)
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24 of 25



THANK YOU!

