

Imperial College
London



World Health
Organization



RADS Workshop

Nathia Gali, Pakistan

Imperial College London

Nathan Green, David Jorgesen

Introductions

Our standing

- Times Higher Education World University Rankings 2019: 9th overall, 3rd in UK
- Times Higher Education World's Most International Universities 2019: 9th in the world
- QS World University Rankings 2019: 8th in the world
- Research Excellence Framework (REF): 1st for high impact research of any UK university
- Reuters Europe's Most innovative universities 2019: 1st in UK, 3rd in Europe
- The Guardian University Guide 2019: 1st for Career Prospects



Our people

Students

17,054 full-time (2017–18)

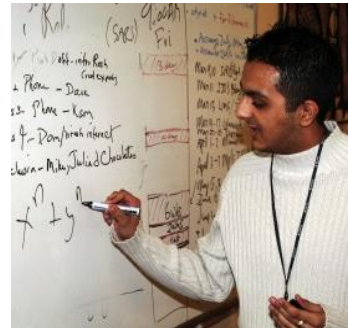
- 9,767 – undergraduate
- 3,812 – taught postgraduate
- 3,475 – research postgraduate
- Students from 132 countries

Staff

- 3,765 academic and research staff
- 3,940 support staff

Alumni

Over 190,000 alumni



Workshop content

- Comfortably use RStudio (a graphical interface for R)
- Fluently interact with R using Rstudio
- Become familiar with R syntax
- Understand data structures in R
- Inspect and manipulate data structures
- Install packages and use simple functions in R
- Visualize data
 - using ggplot2

Timetable

Day 2: Intro to Risk Assessments and R			
9:00	9:15	Recitation from Holy Quran	Mr. Bilal
9:15	10:00	Introduction to risk assessment & R training overview	Dr. Nathan Green Mr. David Jorgensen
10:00	10:15	Tea/Coffee Break	
10:15	12:30	Introduction to R <ul style="list-style-type: none">• history and motivation• R for data analysis• RStudio GUI• Console, scripts	Dr. Nathan Green Mr. David Jorgensen
12:30	13:30	Lunch and Prayer Break	
13:30	15:00	Basic types <ul style="list-style-type: none">• base• dates and times	Dr. Nathan Green Mr. David Jorgensen
15:00	15:30	Tea/Coffee Break	
15:30	17:00	Data transformation <ul style="list-style-type: none">• Missing values• Indexing, sorting, filtering	Dr. Nathan Green Mr. David Jorgensen

Day 3: Handling Data			
9:00	9:15	Recitation from Holy Quran	Mr. Bilal
9:15	10:00	Recap of Tuesday	Dr. Nathan Green Mr. David Jorgensen
10:00	10:15	Tea/Coffee Break	
10:15	12:15	Pre-processing/munging <ul style="list-style-type: none"> • base: merge, aggregate • tidy data: dplyr • regular expression 	Dr. Nathan Green Mr. David Jorgensen
12:15	13:15	Lunch and Prayer Break	
13:15	15:30	Exploring data <ul style="list-style-type: none"> • summary statistics • tables and basic plots 	Dr. Nathan Green Mr. David Jorgensen
15:30	15:45	Tea/Coffee Break	
15:45	17:00	Writing data	Dr. Nathan Green Mr. David Jorgensen

Day 4: Outputs			
9:00	9:15	Recitation from Holy Quran	Mr. Bilal
9:15	10:00	Recap of Wednesday	Dr. Nathan Green Mr. David Jorgensen
10:00	10:15	Tea/Coffee Break	
10:15	12:30	Plotting <ul style="list-style-type: none"> • ggplot2 • colour themes 	Dr. Nathan Green Mr. David Jorgensen
12:30	13:30	Lunch and Prayer Break	
13:30	14:45	Maps	Dr. Nathan Green Mr. David Jorgensen
14:45	15:00	Tea/Coffee Break	
15:00	17:00	Putting it all together <ul style="list-style-type: none"> • plots for presentations • maps for presentations 	Dr. Nathan Green Mr. David Jorgensen
17:00	17:30	Q&A from participants on Tues-Thurs sessions	All

Course website

<https://n8thangreen.github.io/Pakistan-workshop-site/>



You can find all of our workshop information on this site.

When & Where

Date: 16th - 20th September 2019, 08:00-17:30

Location: Pakistan

Set up & Pre-work

To participate in this workshop, you will need to make sure you:

Download R and RStudio

Download the latest versions

- R <https://cran.r-project.org/>
- RStudio <https://www.rstudio.com/products/rstudio/#Desktop>

Once R and Rstudio are both installed, if you open RStudio and things have gone according to plan then in the console you will see something like the following:

```
R version 3.6.1 (2019-07-05) -- "Action of the Toes"
Copyright (C) 2019 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
```

Install Necessary Packages

Open RStudio and paste the following code into your console, then press Enter to run it:

```
# Download packages from CRAN

install.packages(c("devtools", "knitr", "magrittr", "%F%", "op", "rmarkdown", "usethis", "ggplot2", "dplyr", "zoo", "e
```

Code of conduct

- Please ask questions
- Be curious
- Make mistakes
- Practices makes perfect
- Have fun!

How to actually learn any new programming concept



Essential

Changing Stuff and
Seeing What Happens