RISIS Summer School on
Data Science for Studying Science, Technology and Innovation
Strathclyde Business School, Glasgow, UK
24th – 28th June 2019
(Application Deadline: 26/05/2019)

The Hunter Centre for Entrepreneurship, Strathclyde Business School, University of Strathclyde in collaboration with the Research Infrastructure for Science and Innovation Policy Studies (RISIS) Project (EU H2020 Grant Agreement n°824091) is delighted to announce the Summer School on Data Science for Studying Science, Technology and Innovation to be held in Glasgow, UK, 24th – 28th June 2019.

Objectives:

The RISIS project aims to transform the field of Science and Innovation Policy (STI) studies into an advanced research community. As part of this mission, the Summer School on Data Science for Studying Science, Technology and Innovation will bring together leading experts in data science and the next generation of STI scholars. The aim is to develop both the methodological and conceptual knowledge as well as cutting edge data science tools and techniques. The summer school also acts as a platform to develop of a community of emerging scholars and to facilitate future collaborations. The course is open to all career levels including PhD researchers, early career and established scholars.

Expected Outcomes:

At the end of the course, participants will become familiar with:
- The basic workflow of data science
- Critical choices needed to conduct a data science analysis with publication data as well as the assumptions behind metrics and approaches
- Advanced analysis of publication data through descriptive and exploratory modelling, network analysis and text-mining
- R as the rapidly becoming standard data science tool

Target Audience:

The Summer School targets scholars and policy analysts studying STI at all stages from PhD researchers through to established scholars. The target group will have some experience with the basic quantitative methods in the topic, while the Summer School will help them to reach to a more advanced level of understanding.

Teaching Style:

The summer school is designed as interactive learning. All sessions will include hands-on exercises (at least 1/3 of the time) in which participants would address practical questions in groups and present their findings. All sessions will utilise a sub-sample of the KNOWMAK dataset.

Programme:

24/06/2019 Monday	- Open at 09:00 - Opening and tour de table - Keynote [Philippe Laredo (UPEM)] - R as a Data Science Tool [Kate Pyper (University of Strathclyde)] *As well being a statistical package, R is rapidly becoming a standard data science tool. This session will assume that the participants are familiar with*

	the basic statistical functions of R and will introduce users how to use R for more advanced data science tasks. Topics will include data wrangling, programming approaches and advanced visualisation. - Reception
25/06/2019 Tuesday	- Data Science with publication data [Clara Calero Medina, Rodrigo Costas, Martijn Visser (University of Leiden), Abdullah Gök and Bernd Wurth (University of Strathclyde)] *This session will provide an overview of data science with publications, which is arguably the most popular type of data for quantitative data in studying STI. The topics will include a critical overview of assumptions and main approaches, as well as more practical issues such as the data sources, citation analysis and normalisation. Where applicable, the session will provide examples from the state-of-the-art scholarly literature, which applies advanced data science techniques. Participants will be introduced to a number of tools including Vosviewer, R and VantagePoint, which in turn they will find the opportunity to practice in exercises.*
26/06/2019 Wednesday	- Data Science with publication data [Clara Calero Medina, Rodrigo Costas, Martijn Visser (University of Leiden), Abdullah Gök and Bernd Wurth (University of Strathclyde)] *Continued from the previous day.* - Network Data Science for STI [Thomas Scherngell and Martina Neuländtner (AIT)] *This session will introduce the key concepts and tools in analysing network data. Practical approaches will include transforming network data, producing and interpreting network statistics and visualising the data. Moreover, it will introduce basic inferential methods for network data, such as spatial interaction modelling. R network analysis packages will be used, also with introduction to other tools such as gephi.* - Dinner (TBC)
27/06/2019 Thursday	- Network Data Science for STI [Thomas Scherngell and Martina Neuländtner (AIT)] Continued from the previous day. - Social Event (TBC)
27/06/2019 Friday	- Text-Mining for STI [Yashar Moshfeghi, Abdullah Gök and Bernd Wurth (University of Strathclyde)] *This session will provide the basic workflow for text-mining in STI. Topics will include formatting and preparing data for text-mining (e.g. string manipulation, regex, tidy text format, stemming, tokenization, etc.) as well as the tools and techniques for analysis including topic modelling. The session will utilise R text-mining packages.* - Close at 15:30

Selection Criteria:
- Background in STI studies
- Previous experience in basic quantitative methods in STI studies
- Interest in learning data science for STI studies
- Clear articulation of how the course would benefit their personal development as a researcher and current/future research projects

Organisational Details:
- The Summer School is free of charge.
- For researchers based in the EU and H2020 associated countries, we will reimburse the cost of travel (economy class rail or air fare) and/or accommodation upon submission of claim and receipts after the summer school and up to EUR600 per participant.
- Lunch, refreshments and some dinners will be provided.
- Participants who are not predominantly involved in research activities (i.e. participants from intermediaries or policy organisations) can apply to the Summer School but they are not eligible for the reimbursement.
- The Summer School will be held at the Strathclyde Business School, located in Glasgow city centre. The venue is easily accessible by train (Glasgow Central and Glasgow Queen Street stations) and also air (Glasgow Airport (20 minutes) and Edinburgh Airport (60 minutes)).

How to apply:
- Please apply at https://strathbusiness.qualtrics.com/jfe/form/SV_6LPYEC1jCabhaYJ
- Please submit a short letter of motivation (max 500 words) and up-to-date CV.
- Deadline for application: 26/05/2019 (earlier applications are recommended).
- Notification of acceptance will be sent by 01/06/2019.

Organising Committee and Contact Details:
- Abdullah Gök (Chair: abdullah.gok@strath.ac.uk)
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- Thomas Scherngell

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