

To Code or Not to Code:

For employers there is
no question!

Dr Noel-Ann Bradshaw

Outline

Introduction

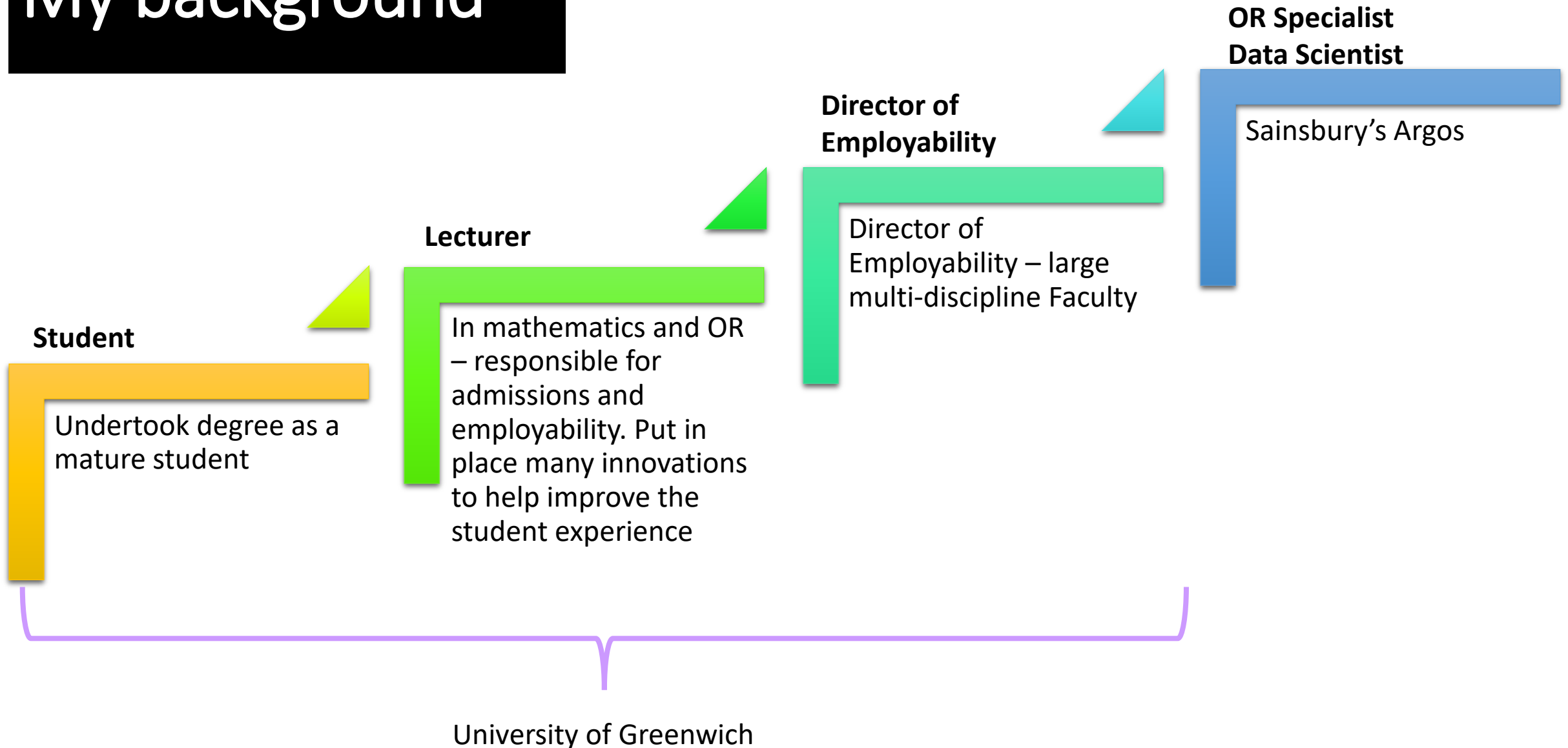
My experience of programming

My students' experience of programming

Importance of programming in industry

How can you incorporate it into your curriculum

My background





My programming journey



Age 16
first program



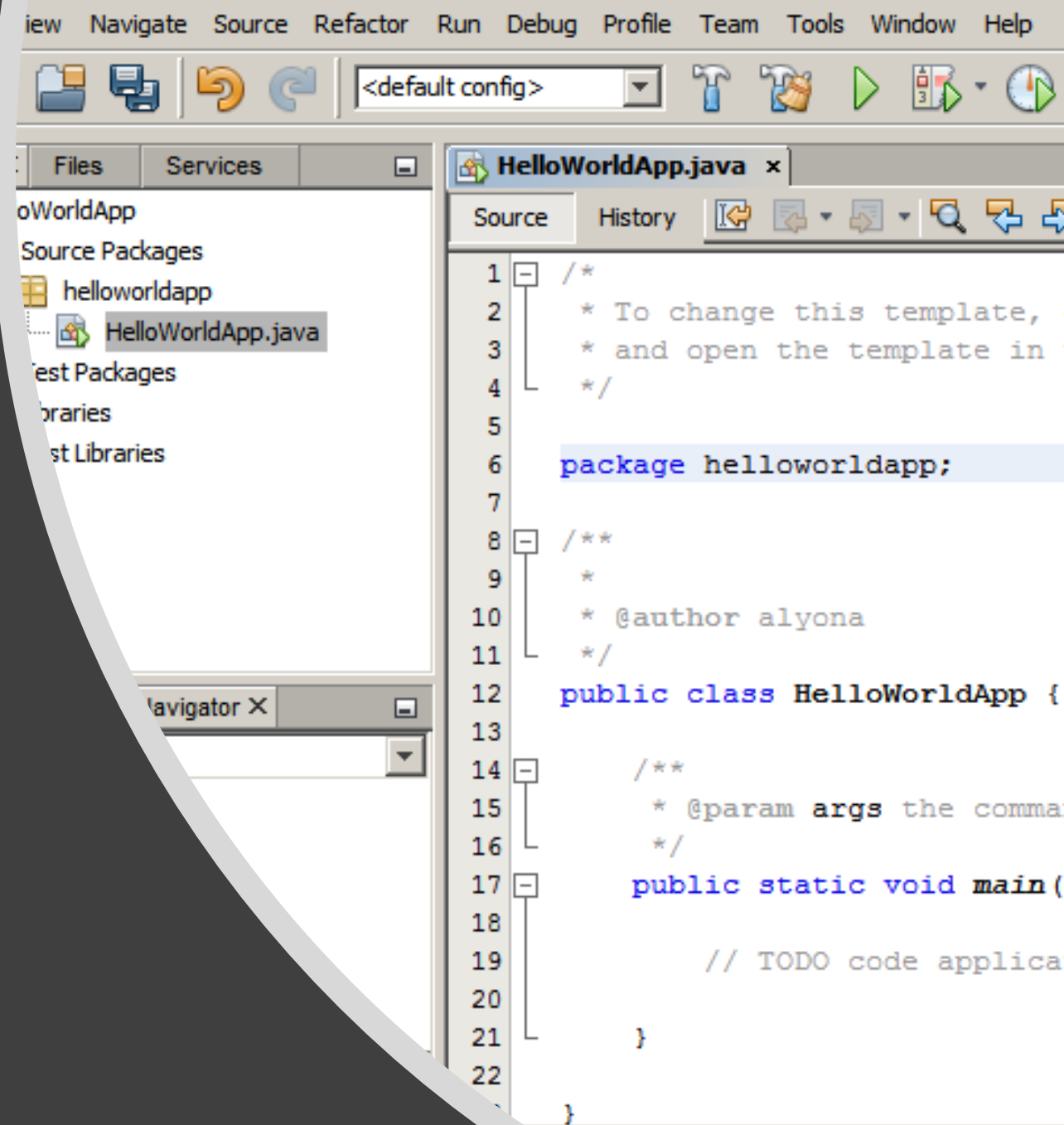
Age 19 HND Catering and Institutional Management



Age nearly 40
BSc Mathematics



Age over 40
PhD Computing &
Mathematics





My students

Teaching programming

Java

Matlab

Excel

VBA, SQL

Python (Jupyter notebooks)

Students

Gurdas – did Matlab and taught himself Python

Emily – not a natural programmer but did the OR modules

Corin – 1st cohort, did Java, nearly left



GSK

- Employed several of our graduates
- Helped to create new module
- Focused on two areas:
 - Coding
 - Self-learning





The world of
work



Importance of AI in the workplace

Mark Cuban an
American
businessman and
investor.



What is
industry
looking for?

Work-ready
graduates

Programming skills

Data skills

Presentation skills

Communication
(written and oral)
skills

Ability to work
with others

Evidence of ability
to think and
problem solve

Knowledge about
company/sector

Initiative

Self-motivation

Resilience

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What is industry generally NOT looking for?

Maths
graduates!

Specific
mathematical
knowledge
(inc Matlab &
LaTeX)

What IS industry generally looking for?

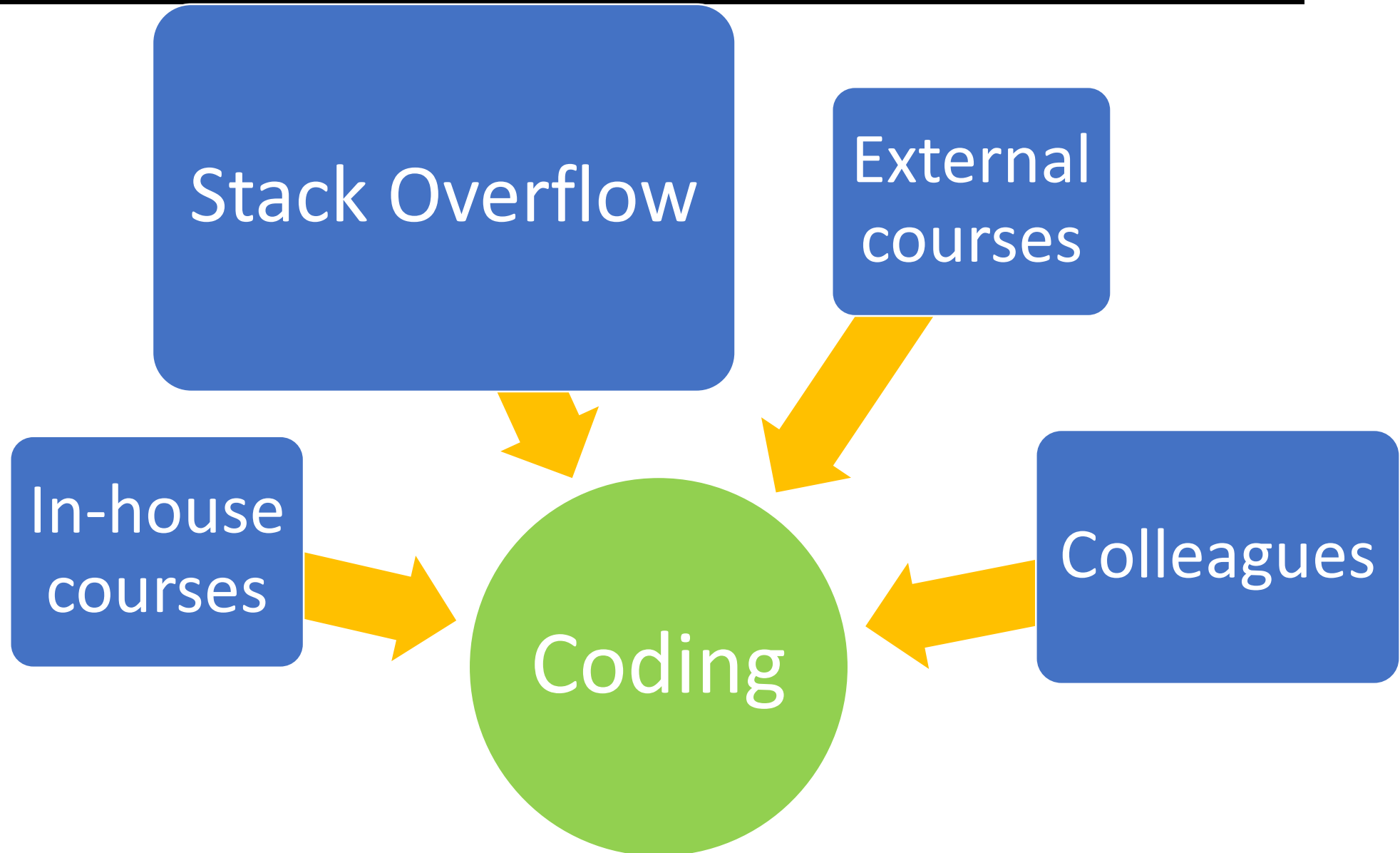


Programming
skills –
Python, SQL



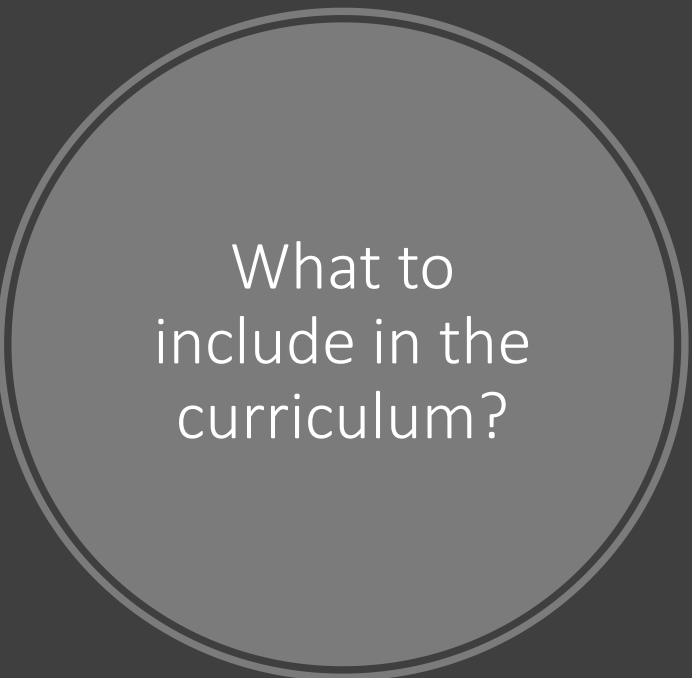
Work ready,
team players

How do you learn to code in industry?





How can we
do this?



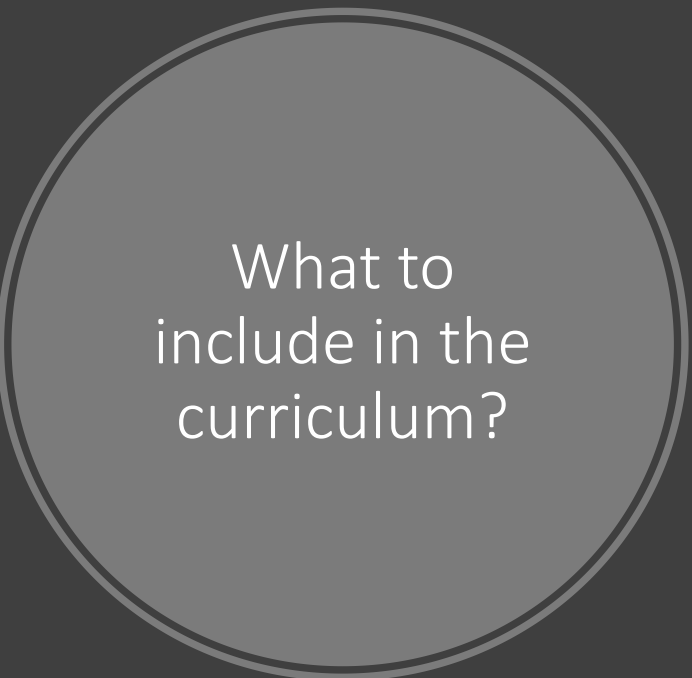
What to
include in the
curriculum?

Minimum

- Advanced Excel including writing Macros
- Programming skills (preferably R or Python)
- Group work
- Opportunities to develop presentation skills
- Report writing based on case study or modelling
- Problem solving
- Information on different careers

Preferred

- Experience of SQL or other relational database tool
- Knowledge of Hadoop or similar
- Knowledge of ML
- Time-limited assessments
- Multi-discipline group projects
- Opportunities for networking
- Help with CVs and job applications



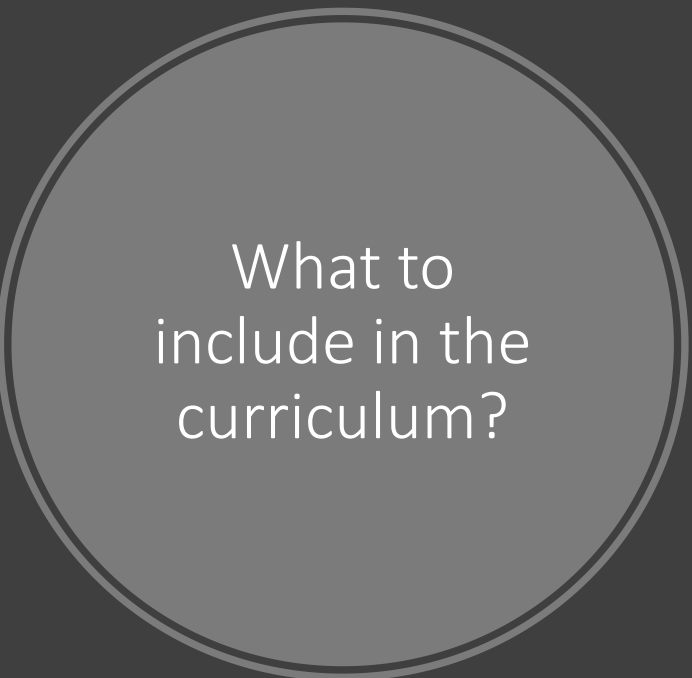
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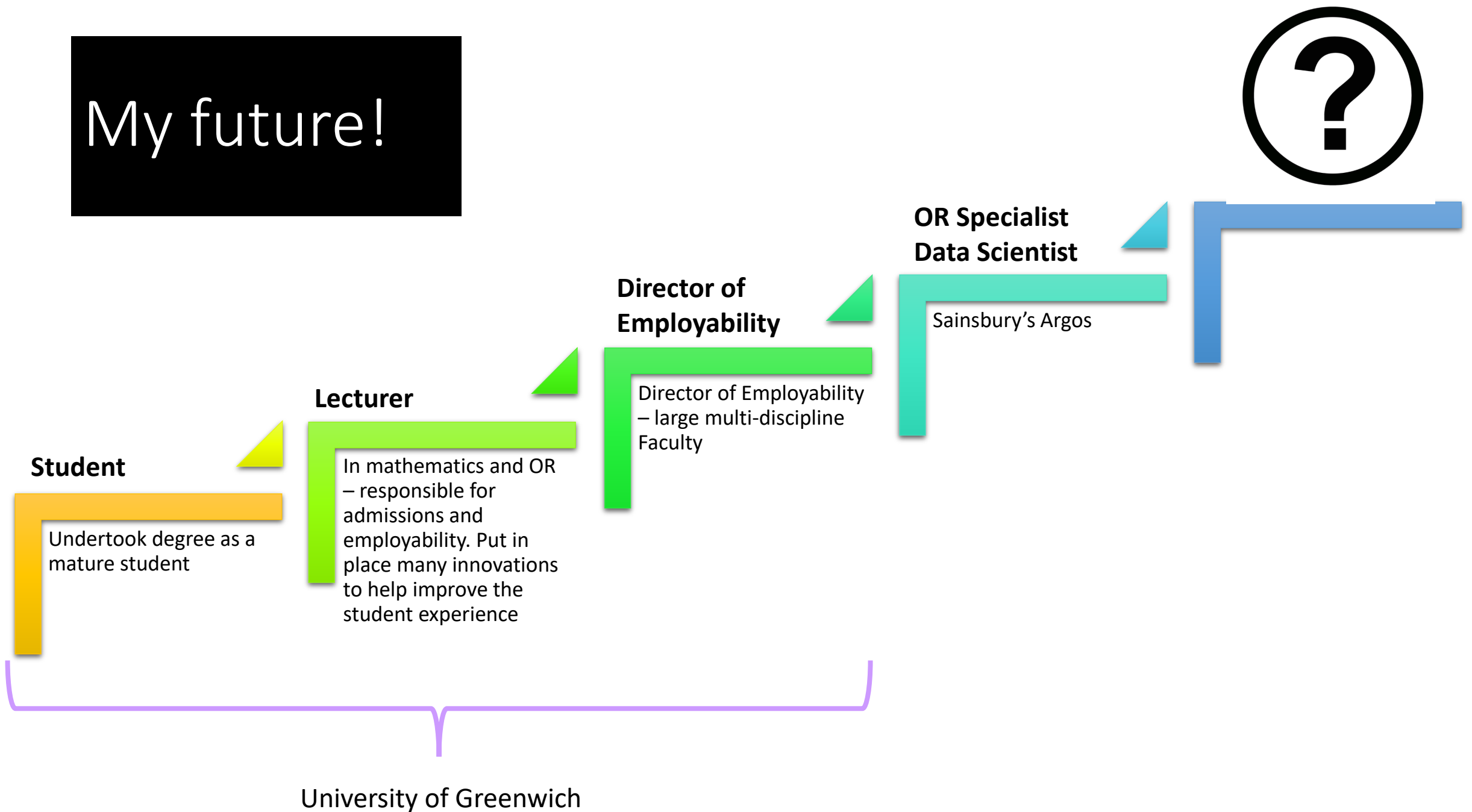
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News flash!

My future!





Questions?