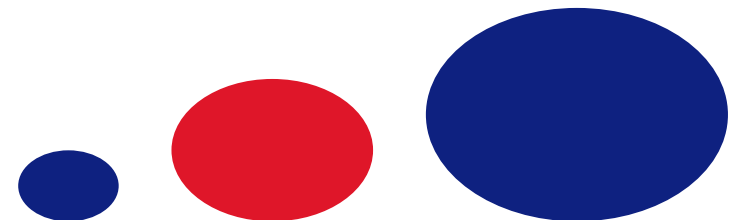




GOVERNMENT **O**PERATIONAL **R**ESearch **S**ERVICE

Government Operational Research

Charlie Stewart and Lee Ainscough
BEIS and Scottish Government



Contents

What is the civil service?

How Government works.

What does the Civil Service do?

Why you might want to be a civil servant.

What is 'GORS'?

What is OR?

Where are we?

Day in the life of an OR analyst.

L&D, experiences, benefits.

Experiences & L&D

Career profiles

Pay and benefits

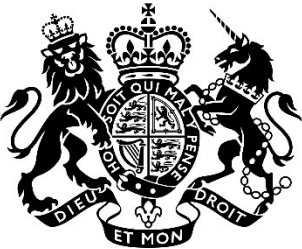




WHAT IS THE CIVIL SERVICE?



How does Government work?



What does the Civil Service do?



- The Civil Service delivers public services and supports the government of the day to develop and implement its policies.
- The work civil servants do touches all aspects of life in the UK, from education and the environment, to transport and defence.
- Civil servants are politically impartial. Together, we ensure the effective running of government and provide the best possible services to the public.



Why *you* might want to be a civil servant?



- Working on solutions to problems that will have very real outcomes for people.
- A wide diversity of work and opportunities.
- Locations across the UK.
- Great pension...
- Interact with some of the most impactful people in the country, Ministers, senior officials etc

‘Analysis that Matters’





WHAT IS 'GORS'?



What is 'Operational Research'?

Best to explain with some examples:

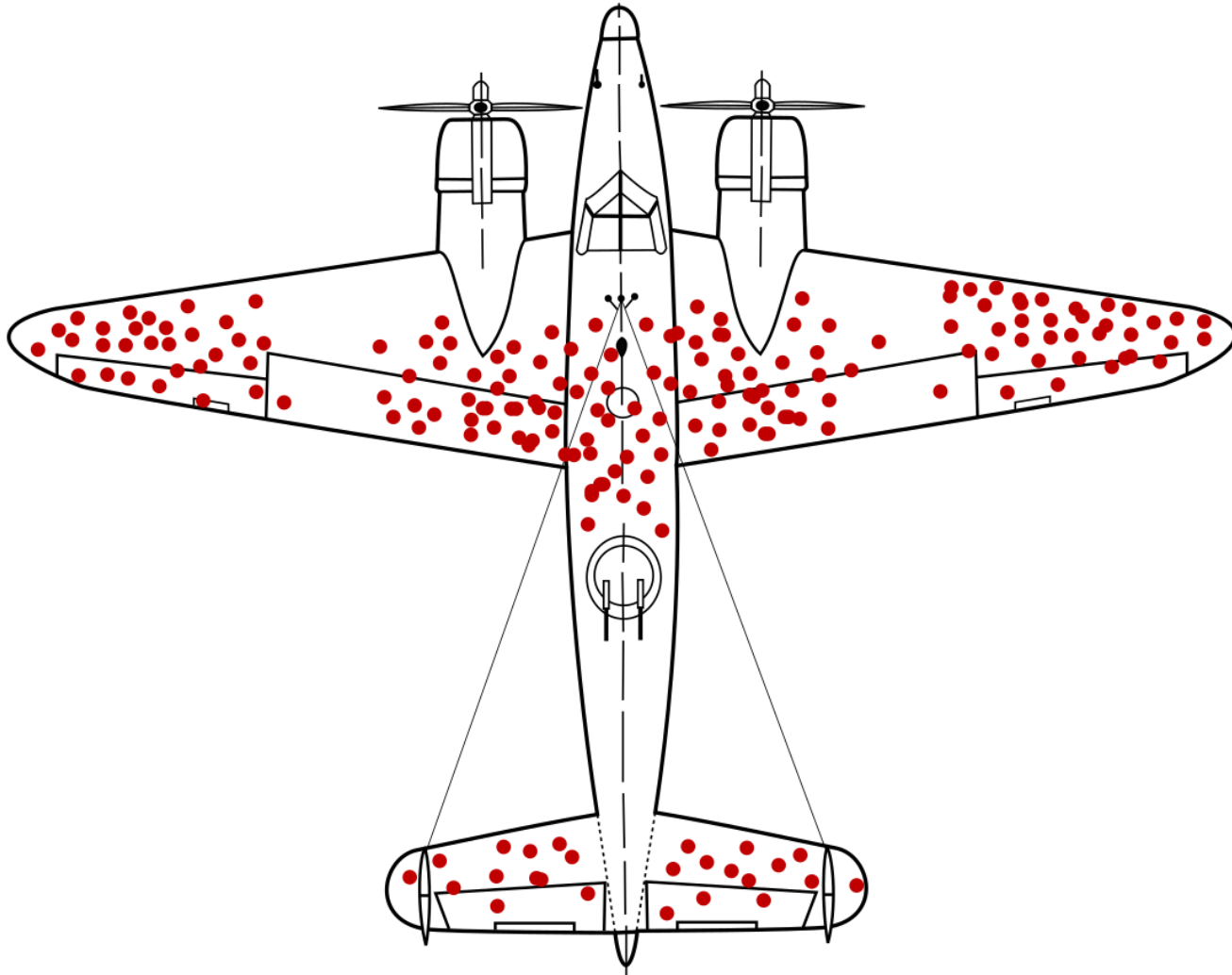
- How can we invest effectively in off shore wind energy?
- How do we manage blood supplies around NHS providers?
- How do we know which prisons to re-furbish first?

Wikipedia (what would a presentation be without it?)

'Operational research: A discipline that deals with the development and application of advanced analytical methods to improve decision-making.'

'Science of Better'

The origins of OR



Q) Where would you reinforce the planes?

It's said that OR began in WW2, tackling problems such as this.

A) Where the bullet holes *aren't*.



What is GORS?

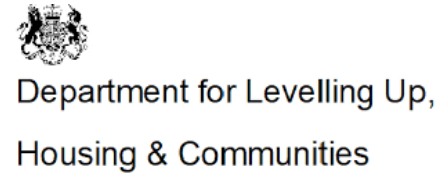
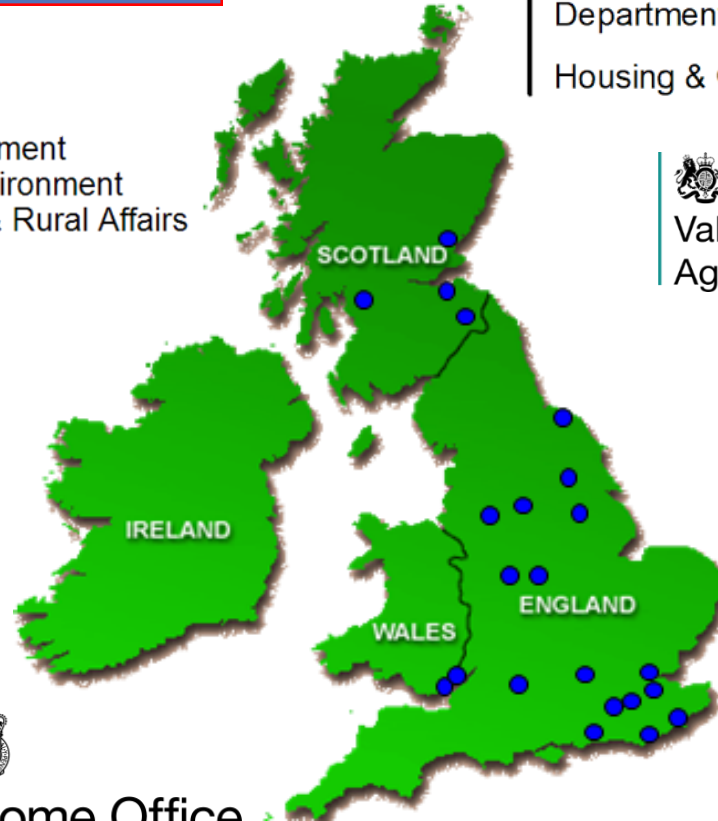


GORS is the UK Government's community of OR analysts

- We are 1000+ strong and cover around 25 departments across government.
- Some people are doing 'classic' OR problems
 - Queuing at borders
 - Forecasting of benefit applications
- Some people are doing more general 'analytical' roles:
 - Producing statistics for ministers/briefing
 - Working on impact assessments and cost benefit analyses
- We have a network of OR analysts in each department, as well as a central unit that brings everyone in GORS together – this is lead by the Chief Analyst at the Ministry of Defence: Tony O'Connor.



Where are we?



These are some of the departments employing GORS members, including those with the largest analytical groups. OR analysts are also employed in other departments and agencies.



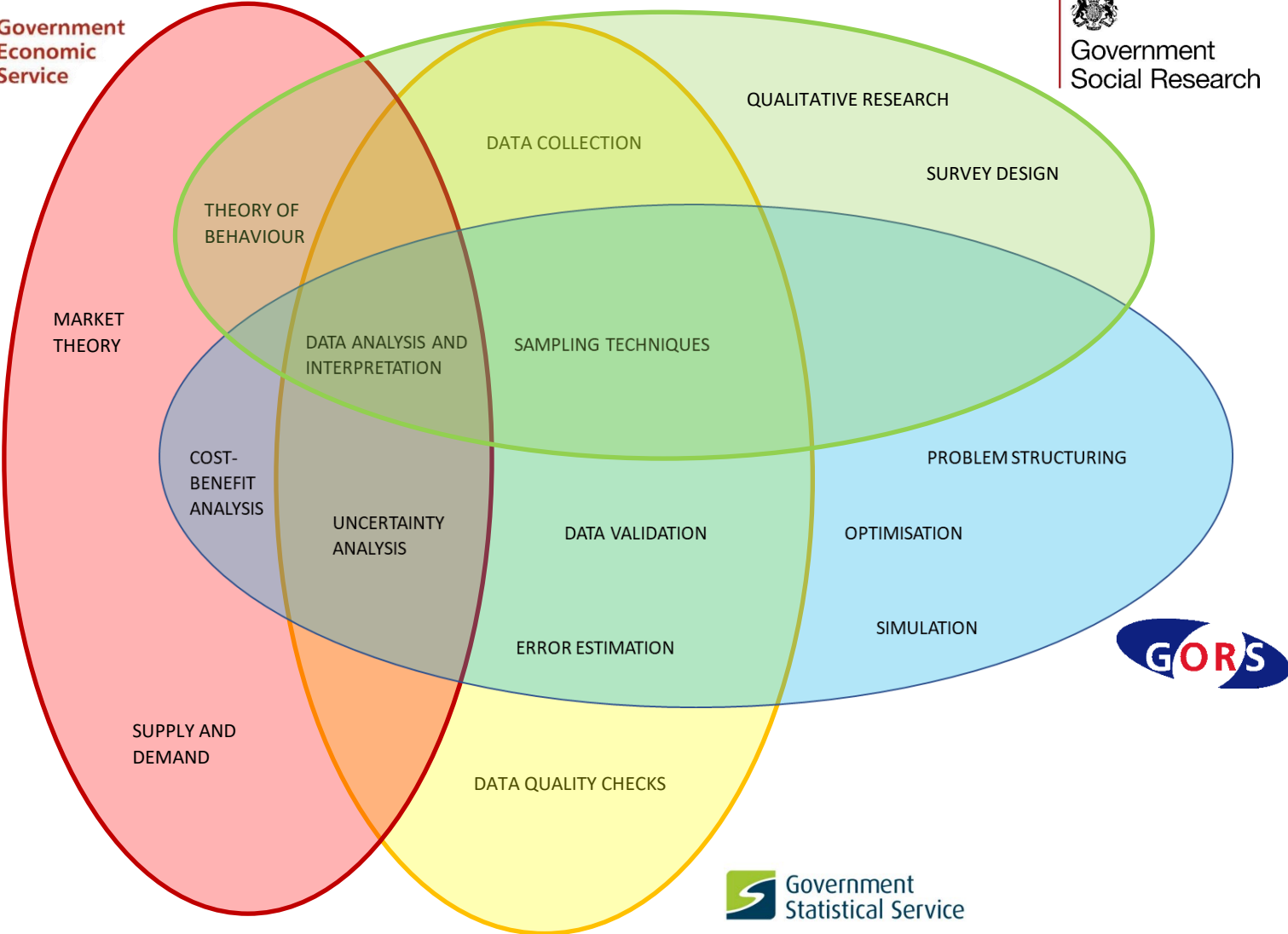
The analytical professions in Government



Government Economic Service



Government Social Research



- We are the analytical minds informing Government policies.
- Professions complement each other
- We might work as part of large multi-profession teams, or with operational colleagues



Government Statistical Service



GORS case study



Problem:

If a kidney transplant patient needs a blood transfusion, it can greatly improve the success rate of the transplant if this transfusion is even more accurately matched than considering blood group alone allows.

This requires testing not just the blood group but also the “HLA type” of donated blood.

What GORS analysts did:

This project looked at, among other things, how much blood you would need to identify the HLA type of, in order that almost all kidney patients would have access to closely matched blood – a *massive* combinatorics simulation.

Outcome:

After combining the modelling with a cost-benefit analysis: **Patient outcomes can be improved whilst simultaneously reducing NHS costs through reducing the need for expensive dialysis.**



GORS case study – Power Sector Optimisation



Problem:

Needed to explore options for decarbonising the UK power sector to reach net-zero targets.

What GORs analysts did:

Created simulation model to explore different:

- combinations of technologies (e.g., solar, wind, nuclear and thermal) and
- levels of system flexibility provided by batteries or demand side response.

Calculated total costs and emissions in each simulated scenario.

Outcome:

Identified a range of possible technology combinations (at relatively low cost) that could achieve emissions compatible with our net-zero targets.

This analysis underpinned the decarbonisation strategy set out in the 2020 Energy White Paper.



Day in the life of an OR analyst

09:00	Project 1: Desk based modelling	R Training Session	Corporate role work
10:00			Project 1: Desk Based Modelling
11:00			
12:00	Project 1: Meet with other analysts		Project 2: Meet with other analysts
13:00			
14:00	Project 2: Meet with operational/policy colleagues	Project 2: Meet with other analysts	OR Seminar
15:00	Team meeting	Project 2: Desk based modelling	Project 1: Meet with senior colleagues to present work.
16:00	Project 2: Desk based modelling	Catch up with line manager	Self guided training (professional or technical skills)



**L&D,
EXPERIENCES,
BENEFITS.**



Experiences and L&D

'On the job'

Shadowing

Having a mentor

Being on interviewing panels

Working with experts

Day to day analysis!

Dedicated development time

100 Hours of time allocated per year

Could be external training courses which are funded

Want to work on your own programming project?

Wider Experiences

Social and professional networking within GORS and across government.

Opportunities for volunteering and pro-bono
OR



GORS Apprenticeship

What is it?

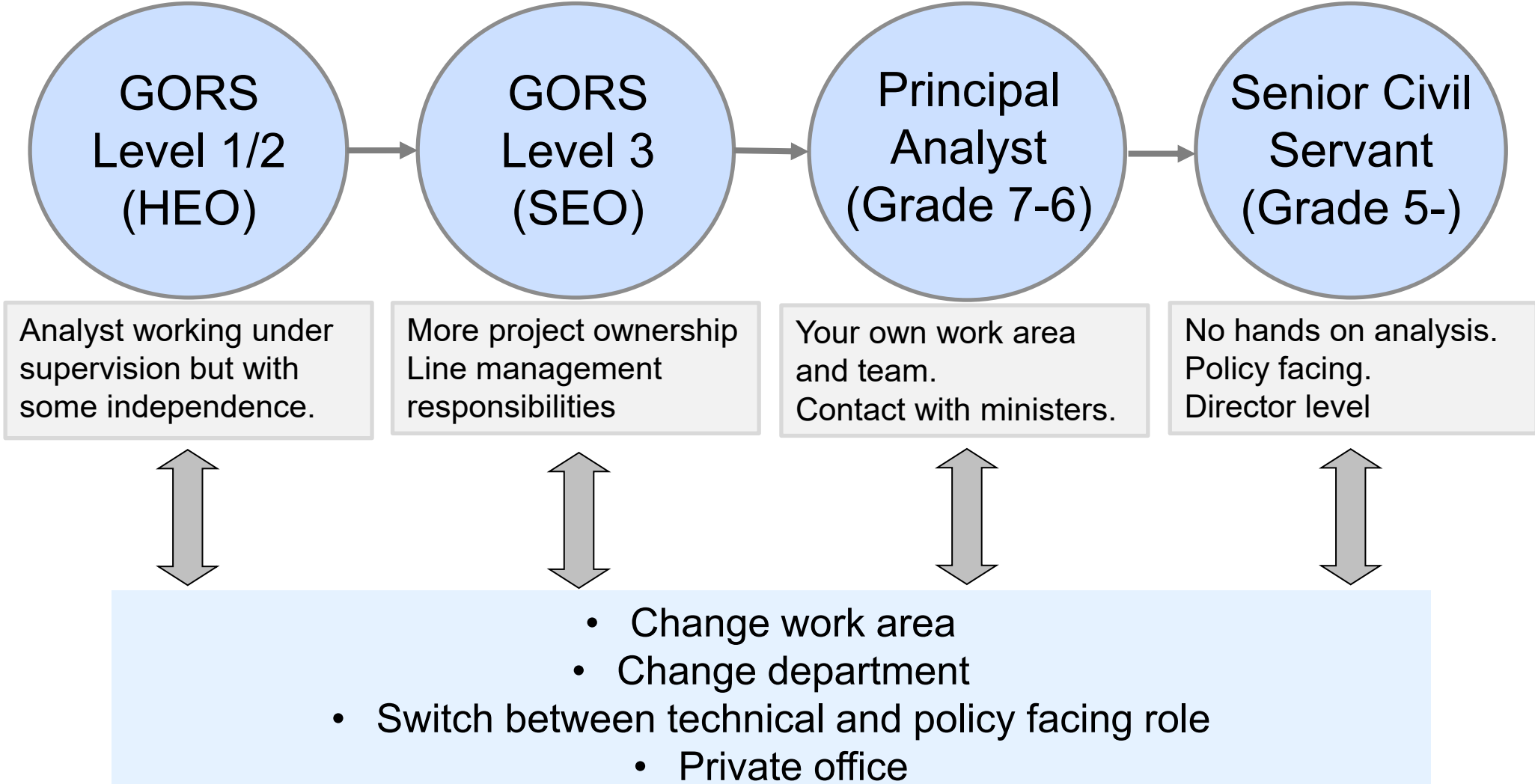
- 2 year OR apprenticeship programme. Modules include: Big data analytics, simulation modelling, Machine Learning and Forecasting
- Spend 20% of your time doing “off the job” training:
i.e. lectures, residential sessions, online learning, guest speakers.
- Open to all GORs analysts – *no matter what level.*

Benefits?

- Gain knowledge, skills and behaviours required to work in OR.
- OR Qualification and the opportunity to obtain MSc Business Analytics degree.
- One-to-one support.
- 100% of training costs covered.
- NOTE: England-based only



Career Path?



GORS Yearlong and Summer placements



What's on offer?

You will join an analytical team within a government department and have the opportunity to gain professional and technical skills whilst working on some of the most interesting and pertinent problems currently facing the country. You will be working at the heart of central government and your conclusions will help shape national policy that will affect millions of people.

You will be paid from £17,500 pro rata and have min 23 days annual holiday (to be confirmed – see job advert)

Eligibility criteria:

You must be studying a highly numerate degree and expecting to achieve at least 2:1. You must be returning to university after completing your placement, and applications aren't open to first year students.

Applications:

2023/24 Yearlong placement applications open in early October 2022 and close end of October 2022.
2023 Summer placement applications will open in Spring 2023.

Assessment:

30-minute Operational Research Exercise & 45-minute behaviour-based interview (likely virtual)

How to apply:

www.civilservicejobs.service.gov.uk/

Contact:

Analytical.studentplacement@dwp.gov.uk

More information:

www.operational-research.gov.uk/recruitment/students/

Scotland information

- OR places in Scotland are not always made explicit in the application process
- There are currently Operational Researchers based in Edinburgh, Glasgow, Dundee and Aberdeen
- If Scotland is your preferred location, state on the application form, usually in the location options box, after the three preferential options, that you wish to work in Scotland
- Places would be either in an UK government hub e.g. BEIS hub in Edinburgh or within Scottish Government which has multiple offices across a wide geography



Benefits - London

Salary (London)

HEO (£31,800 - £43,500)

SEO (£34,000 - £52,300)

Starting salaries will differ depending on entry level, department, location, qualifications and experience. There are substantial bonuses available in some departments for those with postgraduate qualifications.

Benefits

- Flexitime, part-time, compressed hours, job sharing
- Minimum 25 days annual leave plus 8 bank holidays, additional day each year
- Open, multi-discipline environment
- Working for the UK's largest 'business'
 - *high-profile projects*
 - *networking opportunities*



Benefits - Nationally

Salary

HEO (£28,000 - £44,700)

SEO (£34,000 - £52,300)

Starting salaries will differ depending on entry level, department, location, qualifications and experience. There are substantial bonuses available in some departments for those with postgraduate qualifications.

Benefits

- Flexitime, part-time, compressed hours, job sharing
- Minimum 25 days annual leave plus 8 bank holidays, additional day each year
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What are we looking for?

- Are you a technically-minded person interested in tackling the nation's problems using maths, modelling and systems thinking?
- Can you explain your analysis to a non-technical audience?
- Can you demonstrate the key skills and abilities laid out in the **GORS competency framework** (see website)?
- 2:1 undergraduate degree in a numerate discipline
- ...or a 2:2 with relevant work experience and/or a postgraduate qualification in an appropriate discipline.
- Your degree must be at least 50% “highly numerate” i.e. with a strong component of Maths, OR, Physics, Econometrics, Engineering etc.
- Predicted grades are accepted.



Nationality Requirements

This job is broadly open to the following groups:

- UK nationals
- nationals of Commonwealth countries who have the right to work in the UK
- nationals of the Republic of Ireland
- nationals from the EU, EEA or Switzerland with (or eligible for) status under the European Union Settlement Scheme (EUSS)
- relevant EU, EEA, Swiss or Turkish nationals working in the Civil Service
- relevant EU, EEA, Swiss or Turkish nationals who have built up the right to work in the Civil Service
- certain family members of the relevant EU, EEA, Swiss or Turkish nationals
- Further information on nationality requirements is available here:

https://www.gov.uk/government/publications/nationality-rules?_ga=2.63946735.1916499637.1587624669-1079444395.1553686564



How to apply – important websites

GORS website - www.operational-research.gov.uk for general info, info on and links to fast stream, mainstream and student placement opportunities

Civil Service Jobs website - www.civilservicejobs.service.gov.uk – for mainstream and student placement opportunities across government. **GORS job search tips below:**

- *Individual jobs for GORS main-stream (continuously advertised throughout the year):*
 - Find these by selecting ‘Operational Research’ under ‘Job Role’.
- *Collective intakes for GORS main-stream (at specific times each year):*
 - Find these by selecting a specific “GORS” department under ‘Organisation’.

Job Alerts – register for an account on Civil Service Jobs website: [Log in -> Job Alerts tab -> Follow the instructions and set up for ‘OR and Analytical’](#).

Follow us on **Facebook**: <https://www.facebook.com/GovernmentOR> or search for “Government Operational Research Service – GORS”



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Q+A

