

## JOB DESCRIPTION

<b>Job Title:</b>	Postdoctoral Fellow
<b>Department / Unit:</b>	Economics
<b>Job type</b>	Research
<b>Grade:</b>	Grade 8
<b>Accountable to:</b>	Dan Anderberg (Head of Department)
<b>Accountable for:</b>	
<b>Purpose of the Post</b>	
<p>The post has dual purposes: 50 percent of the post relates to recently awarded Leverhulme grant "Information Content and Dissemination in High-Frequency Trading" (Leverhulme grant reference number RPG-2021-359) whilst the remaining 50 percent of the post involves working as member of staff in the Economics department, contributing to teaching, curriculum development, research and training the areas of data science and statistics.</p>	
<b>Key Tasks</b>	
<p>The holder of the current post will join a project team, consisting of Prof. Alessio Sancetta (PI, RHUL), Prof. Francesco Feri (Co-I, RHUL), and Prof. Michael Naef (CO-I, Durham), to deliver a Leverhulme-research project using state-of-the-art econometric and machine learning techniques coupled with economic experiments. The research will rely on high frequency data from the Lobster database together with data collected from experiments based on machine algorithms and human participants. Associated tasks include:</p> <ul style="list-style-type: none"> <li>• Serve as team member in the development of the project design and data setup.</li> <li>• Stay updated with the most recent research in the areas of predictive machine learning, causal econometrics and statistics, online economic/financial experiments.</li> <li>• Pilot, refine and optimise mathematical and computational techniques for algorithmic trading.</li> <li>• Establish causal relations in limit order book driven electronic markets.</li> <li>• Develop coding skills in Python for purposes of econometric analysis, training trading algorithms, and programming economic experiments.</li> <li>• Run diagnostic estimations on the data and present the results.</li> <li>• Engage with project members and other stakeholders as required.</li> </ul> <p>The post-holder will further also serve as member of the department, contributing to teaching, curriculum development, research, and training, specifically within the area of data science methods and statistics/econometrics. This will include taking key responsibility</p>	

for the design and development of modules in web-scraping, data visualization, Python/R coding, and machine learning aimed at undergraduate and postgraduate Economics students. Related tasks include:

- Participate in departmental curriculum and module design activity specifically in areas related to data science and quantitative methods.
- Deliver undergraduate and postgraduate modules and support as agreed with the Head of Department within the area of data science and statistics/econometrics.
- Contribute to outreach and student recruitment related activities.
- Organize and deliver training of academic staff and PhD students in data science methods and coding.
- Enhance the departmental research agenda through application of data science expertise and the building of data infrastructure for handling large data sets.
- Develop research funding proposals in collaboration with department academic staff and submit to appropriate funding bodies.
- To develop research objectives and proposals resulting in the publication of research outputs in appropriate field.

#### **Other Duties**

The duties listed are not exhaustive and may be varied from time to time as dictated by the changing needs of the College. The post holder will be expected to undertake other duties as appropriate and as requested by his/her manager.

The post holder may be required to work at any of the locations at which the business of Royal Holloway is conducted.

#### **Internal and external relationships**

The following list is not exhaustive but the post holder will be required to liaise with:

**Internal:** Colleagues within the Leverhulme project team, the department and the College. Such colleagues will include: the Head of Department, Director of Teaching, Director of Research, School Manager, Head of School.

**External:** National and international research colleagues and networks; schools and other educational stakeholders, the media, non-HEIs in the sector, governmental organisations and other possible outreach partners as appropriate, and Research Councils.