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| **JOB DESCRIPTION** |

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| **SPECIFIC JOB TITLE** | Senior Scientific Specialist – Senior Research Statistician |
| **LEVEL/BAND** | E |
| **JOB FAMILY** | SCIENCE CAPABILITIES |
| **GENERIC ROLE TITLE** | SENIOR SCIENTIFIC SPECIALIST |
| **CONTRACT TYPE** | Fixed Term to end of March 2028 |
| **HOURS** | Full time |
| **REPORTS TO** | Head of Statistics and Data Science |
| **DEPARTMENT** | Statistics and Data Science, Intelligent Data Ecosystems |
| **LOCATION** | Harpenden |
| **DATE** | 2 August 2024 |

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| **OVERVIEW OF ROLE/JOB PURPOSE** |
| Joining the Statistics and Data Science (SDS) Section, this position offers the opportunity to work in a dynamic interdisciplinary environment and for the creative application of both existing and novel statistical and data science methods to address research challenges across agricultural and environmental sciences. The post-holder will be an experienced statistician, with training and experience in both traditional and new statistical methods, and a good knowledge of modern data science approaches. They will be expected to collaborate with Rothamsted Research scientists across various disciplines to support externally funded research programmes and projects, with a particular focus on contributing to research across two of the Institute Strategic Programmes – Growing Health and Green Engineering. To support these two programmes they will need experience and expertise in model integration approaches, Bayesian belief networks and elicitation methods, and the design and analysis of multi-omics studies, including multivariate analysis methods. The post-holder will also be expected to work with the Head of SDS and research leaders associated with these programmes to identify collaborative research opportunities and assist with the development of these as funding proposals. To a lesser extent, the post-holder will also provide advice to designated research groups on the design of experiments and application of statistical analysis and modelling methods, and contribute to statistical training and knowledge transfer to improve understanding and interpretation of statistical approaches within the institute. The post-holder is expected to carry out the duties listed below, and other duties reasonably required by the line manager or Institute, commensurate with the grade and level of responsibility of this post. |
| **MAIN DUTIES OF ROLE** |

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| **Generic Outputs** | **Weighting** | **Description of Outputs** | **Description of Job Specific Outputs** |
| **SCIENTIFIC SUPPORT TO PROJECTS/ RESEARCH GROUPS OR SERVICE USERS** | 40% | Design of methods/software/models/experiments, the collation and testing of data, and contribution to publications and research papers | * **Developing and contributing to collaborative research projects,** including the Growing Health and Green Engineering ISPs, taking responsibility for the delivery of the statistical elements of the research project / programme, and developing or adapting statistical approaches to address research challenges and provide innovative solutions * Provide input as ‘contributing author’ to publications in leading peer reviewed journals of at least national quality and, where appropriate, as ‘first author’ for publications regarding statistical methodology development. * Liaise with designated research leaders to establish statistical requirements and priorities for their groups * **Provision of statistical consultancy** to identified research groups (for all research staff and PhD students) and to external organisations under agreed contracts; advising on the design of experiments, sampling and data collection strategies, the analysis and modelling of experimental and survey data, and the interpretation and presentation of the results obtained from these analyses |
| **FINANCE AND RESOURCE MANAGEMENT** | 10% | Monitoring of allocated budgets, purchasing of equipment, maintenance of stock, and input into funding and grant | * Monitor and efficiently manage own time across multiple research areas/projects, and operate effectively within any budgetary constraints * Collaborate with research leaders to develop and win support for innovative research proposals and funding bids from major competitive sources, identifying opportunities where substantial statistical contributions could be made, and contributing as a Co-I * Provide a high level of technical expertise for the purposes of grant applications/ obtaining research funding and advising on statistical costings for projects |
| **WORKING WITH OTHERS** | 30% | Customer relations, interactions with colleagues and provision of advice on all aspects of technical support provision within work area | * Develop concept notes for **potential collaborative research projects** with a significant statistical component, developing collaborative research proposals or PhD proposals based on these concept notes, and collaborate on interdisciplinary projects involving the modification and application of existing or new statistical methodology to solve novel biological problems * Collaborate and share work with statistical colleagues to make best use of the institute statistical resources * Collaborate with statistical colleagues in academic and other external organisations to develop novel statistical tools where needed to provide innovative solutions to research challenges * Act as primary point of contact **for provision of statistical consultancy** for identified research groups, providing guidance on the design of experiments, sampling and data collection strategies, the analysis and modelling of experimental and survey data, and the interpretation and presentation of the results obtained from these analyses * Serve on the editorial board of at least one international journal and conduct other scientific evaluations/reviews nationally or internationally by invitation |
| **LEADERSHIP AND MANAGEMENT OF STAFF AND/OR OF A SCIENTIFIC SERVICE OR FACILITY** | 5% | Managing a technical team and/or ensuring performance and quality standards in terms of service provided | * Manage own time to deliver an efficient statistical consultancy and research input * Where requested, act as Co-Supervisor to PhD students working on collaborative projects. * Participate in recruitment and selection decisions relating to the Statistics and Data Science Section |
| **KNOWLEDGE EXCHANGE, COMMERCIALISATION AND OUTREACH ACTIVITIES** | 10% | Building links with user community, public engagement activities and/or delivery of professional training and consultancy services | * Participate in activities which promote the activities of the Statistics and Data Science Section within the institute, e.g. seminars, department meetings and research days * Present and promote own work/research at appropriate applied statistics and agricultural/biological science conferences, and receive invitations to chair sessions/ speak at national/international meetings as a result * Proactively look for opportunities to engage in the external academic community, sharing specialist knowledge and network with relevant professionals * Contribute to statistics and data science training activities within Rothamsted. |
| **CONTINUING PROFESSIONAL DEVELOPMENT** | 5% | Expanding knowledge base/skillset via both planned and ad hoc learning opportunities, encouraging self-reflection through activities such as mentoring/coaching/critical career reviews and promoting knowledge sharing among others | * Has a track record of continuous personal development and regularly undertakes appropriate development/training activities to maintain existing skills and acquire new skills * Is in a process of establishing a career pathway, and uses networking, coaching and monitoring opportunities to manage own career, including adapting career development plans where necessary * Keeps informed of developments in appropriate agricultural/environmental/biological sciences and of the statistical approaches appropriate for these developments * Maintaining professional accreditation with the Royal Statistical Society or other appropriate qualifications relating to statistical consultancy, research and training |

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| **PERSON SPECIFICATION AND SHORTLISTING CRITERIA\*** |

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| **EDUCATION/QUALIFICATIONS** | Essential | Desirable | How Tested?\*\* |

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| 1. | PhD in applied statistics/data science plus a minimum of 5 years’ appropriate working experience (could include work undertake during PhD), or MSc in applied statistics/data science and 7-10 years of vocational experience demonstrating development through the acquisition of appropriate technical expertise and involvement in a series of more demanding work roles. Preferably a focus on biological sciences. Candidates with an appropriate MSc and more limited experience may be considered for appointment at a lower grade. | ü |  | AF |

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| **EXPERIENCE/KNOWLEDGE/SKILLS** | Essential | Desirable | How Tested?\*\* |

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| 1. | Experience of applying statistical and data science methods to real biological data in a research context, including an appreciation of how these skills may be of benefit to the Institute from a commercial / external perspective | ü |  | AF |
| 2. | Broad knowledge of a range of relevant statistical methods: design of experiments, analysis of designed experiments, regression modelling, linear mixed models, generalised linear models, multivariate analysis methods. | ü |  | AF/IV |
| 3. | Knowledge of biologically relevant modern statistical data science methods (e.g. Bayesian modelling approaches, “big data” and AI methods, statistical genetics/genomics/bioinformatics). | ü |  | AF/IV |
| 4. | Experience of providing statistical / data science consultancy in plant or animal sciences. |  | ü | AF |
| 5. | Experience of teaching statistical / data science methods to biological scientists. |  | ü | AF |
| 6. | Ability to communicate statistical / data science concepts to non-statisticians in both one-to-one consultancy and small-class training courses, and to mentor more junior colleagues and coordinate work of other team members | ü |  | AF/IV |
| 7. | Good general computing skills (in a Windows or Linux environment) including good knowledge of one or more statistical software packages (preferably to include GenStat or R). | ü |  | AF/IV |
| 8. | Expertise in the use of one or more of GenStat, R and Python for statistical analysis and modelling. |  | ü | AF |
| 9. | Logical approach and pragmatic attitude to solving problems and developing models. | ü |  | IV |

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| **BEHAVIOURS/COMPETENCIES** | How Tested?\*\* |

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| 1. | **Drive for Quality**: Works to and sets stretching goals | IV |
| 2. | **Strategic Thinking**: Anticipates emerging organisational needs and manages current situations accordingly | IV |
| 3. | **Creativity and Innovation**: Seeks to generate a range of innovative ideas when addressing problems or new issues | IV |
| 4. | **Developing Self and Others**: Promotes sharing of knowledge and expertise among others | AF/IV |
| 5. | **Professional Conduct**: Adopts a transparent and open approach | IV |
| 6. | **Productive Relationships**: Solicits input from others when tackling problems or generating new ideas | AF/IV |
| 7. | **Effective Communication**: Communicates in an engaging and proactive manner | IV |

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| **GENUINE OCCUPATIONAL REQUIREMENTS** | Essential | Desirable | How Tested?\* |

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