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| **JOB DESCRIPTION** |
| **SPECIFIC JOB TITLE** | Senior Bioinformatics Scientist |
| **GENERIC ROLE TITLE** | SENIOR SCIENTIFIC SPECIALIST |
| **LEVEL/GRADE** | E |
| **JOB FAMILY** | SCIENCE CAPABILITIES  |
| **CONTRACT TYPE** | Fixed term – 3 years |
| **HOURS** | Full time |
| **REPORTS TO** | Head of Bioinformatics |
| **DEPARTMENT** | IDE |
| **LOCATION** | Harpenden |
| **DATE**  | 31/5/2024 |
| **OVERVIEW OF ROLE/JOB PURPOSE** |
| Working as part of the Bioinformatics Group, this position offers the opportunity to work in a dynamic, interdisciplinary environment and for the creative application of both existing and novel bioinformatics methods. The post-holder will be a Bioinformatician who contributes to collaborative research, consultancy and teaching interactions with staff and students at Rothamsted Research. The post-holder will be expected to collaborate with scientists across various disciplines to support externally funded research projects and identify collaborative research opportunities and assist with the development of funding proposals. The post-holder will also provide advice to their designated research groups on the design of genomic/transcriptomics sequencing experiments, the application of Bioinformatics data analysis and data management. They will contribute to Bioinformatics training and knowledge transfer to improve understanding and interpretation of Bioinformatics approaches. The post-holder is expected to carry out the duties listed below, and any other duties reasonably required by the line manager or Institute, commensurate with the grade and level of responsibility for this post. |
| **MAIN DUTIES OF ROLE** |
| **Generic Outputs** | **Weighting** | **Description of Outputs**  | **Description of Job Specific Duties** |
| **SCIENTIFIC SUPPORT TO PROJECTS/ RESEARCH GROUPS OR SERVICE USERS** | 35% | Design of methods/software/ models/ experiments, the collation and testing of data, and both analysis and written contributions to scientific reports and research papers | * Liaise with designated research leaders to establish bioinformatics requirements and priorities for their groups.
* **Provision of Bioinformatics consultancy** to ISPG research groups (for all research staff and PhD students): advising on the design of sequencing experiments, choice of technologies, the analysis methods, and the interpretation and presentation of the results obtained from these analyses.
* **Contributing to collaborative research projects,** delivering the Bioinformatics elements of the research project, and developing or adapting Bioinformatics approaches to address existing and new 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.
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| **FINANCE AND RESOURCE MANAGEMENT** | 10% | Monitoring of allocated budgets, purchasing of equipment, maintenance of stock, and input into funding and grant applications | * Monitor and efficiently manage own time across multiple research areas/projects, and operate effectively within any budgetary constraints, with guidance from the Head of Bioinformatics.
* Provide a high level of technical expertise for the purposes of grant applications/ obtaining research funding and advising on Bioinformatics costings for projects.
* Collaborate with research leaders to develop and win support for innovative research proposals and funding bids from major competitive sources, e.g. UKRI, identifying opportunities where Bioinformatics contributions could be made, and contribute as a Co-Investigator.
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| **WORKING WITH OTHERS** | 25% | Provision of specialist/technical advice and assistance to employees/PhD students and key stakeholders | * Act as primary point of contact **for provision of Bioinformatics consultancy** for a dedicated ISPG, providing guidance on the design of Next Generation Sequencing (NGS) experiments, sampling and data management strategies, the analysis of NGS data, and the interpretation and written/oral presentation of the results obtained from these analyses.
* Develop concept notes for **potential collaborative research projects** with a significant Bioinformatics 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 Bioinformatics methodology to solve novel biological problems.
* Act as main point of contact for enquiries related to in-house supported Bioinformatics software.  If there are problems, liaise with the ITS team and software authors/vendors to resolve them.
* Collaborate and share work with Bioinformatics colleagues to make best use the institutes Bioinformatics resources.
* Collaborate with colleagues in academic and other external organisation to develop novel Bioinformatics tools to resolve research challenges as required.
* Conduct scientific evaluations/reviews nationally or internationally by invitation.
* Serve on international genome sequencing consortiums as a representative of Rothamsted.
* When requested by research groups use bioinformatics expertise to help with the peer reviewing of manuscripts or UKRI grant applications written by others.
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| **LEADERSHIP AND MANAGEMENT OF STAFF AND/OR OF A SCIENTIFIC SERVICE OR FACILITY** | 10% | Accountability for the management and development of staff and/or quality of work within work unit/team/department | * Manage own time to deliver an efficient Bioinformatics consultancy and research input.
* Where requested, act as Co-Supervisor/associate supervisor to PhD students working on collaborative projects.
* Participate in recruitment and selection decisions relating to the Bioinformatics Group.
* Contribute to the development of the Bioinformatics infrastructure and workflows for the HPC and the Rothamsted implementation of Galaxy.
* Responsible for the coordination and planning of the institute Bioinformatics Training Programme.
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| **KNOWLEDGE EXCHANGE, COMMERCIALISATION AND OUTREACH ACTIVITIES** | 15% | Building links with user community, and/or delivery of professional training and consultancy services | * Participate in activities which promote the activities of the Bioinformatics Group within the institute, e.g., seminars, department meetings and research days.
* Proactively look for opportunities to engage in the external academic community, sharing specialist. knowledge and network with relevant professionals.
* Develop and review training materials (including eLearning resources) and contribute to training activities within Rothamsted and externally.
* Present and promote own work/research at appropriate Bioinformatics and biological science conferences/ workshops and receive invitations to chair sessions/ speak at national/international meetings as a result.
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| **CONTINUING PROFESSIONAL DEVELOPMENT** | 5% | Proactive planning of development opportunities which serve to broaden existing knowledge base and lead to acquisition of new skills | * Regularly undertake appropriate development/training activities to maintain existing skills and acquire new skills.
* Use self-reflective skills analysis, networking, coaching and mentoring opportunities to manage own career, including adapting/formulating career development plans where necessary.
* Keep informed of developments in appropriate agricultural/environmental/biological sciences and of the bioinformatics approaches appropriate for these developments.
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| **PERSON SPECIFICATION AND SHORTLISTING CRITERIA\*** |

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| **EDUCATION/QUALIFICATIONS** | Essential | Desirable | How Tested?\*\* |
| 1. | PhD in Bioinformatics, Computational Biology, Genetics, or a related discipline. | X |  | AF |
| 2. | Master’s degree in Bioinformatics, computational biology or related subject | X |  | AF |
| **EXPERIENCE/KNOWLEDGE/SKILLS** | Essential | Desirable | How Tested?\*\* |
| 1. | High degree of proficiency in the processing and analysis of long and short read sequence data (Illumina, PacBio, Nanopore) | X |  | AF/IV |
| 2. | Experience in conducting advanced genomic analyses (genome assembly, annotation, haplotype analyses, pan-genome construction, comparative analysis, variant calling) | X |  | AF/IV |
| 3. | Demonstrated expertise in transcriptome analyses (differential gene expression, co-expression, gene regulatory network analysis) | X |  | AF/IV |
| 4. | Proficient in statistical analysis and scripting, with strong skills in R, Python, and Bash. | X |  | AF/IV |
| 5. | Experience in developing or managing a bioinformatics infrastructure (e.g. Galaxy, Nextflow) to support scalable and robust research applications. | X |  | AF/IV |
| 6. | Proven publication record in genomics or a closely related field | X |  | AF/IV |
| 7. | Demonstrated expertise in data management, data submission, and adherence to the FAIR principles. |  | X | AF/IV |
| 8. | Experience in leadership or grant writing, coupled with outstanding communication skills. |  | X | AF/IV |
| 9. | Experienced in providing expert training and supervision to junior bioinformaticians, PhD students and early career scientists |  | X | AF/IV |
| 10. | Knowledge of crop/plant/pathogen genetics/genomics/biology |  | X | AF/IV |
| **BEHAVIOURS/COMPETENCIES** | How Tested?\*\* |
| 1. | **Drive for Quality**:  Seeks continuous improvement | IV |
| 2. | **Strategic Thinking**: Shapes long term direction and vision and cuts through complexity to identify key issues | IV |
| 3. | **Creativity and Innovation**: Responds positively to change; identifies and tries out different approaches  | IV |
| 4. | **Developing Self and Others**: Formalises development needs for self and participates in learning activities to enhance performance; interested in providing training  | IV |
| 5. | **Professional Conduct**: Champions Institute’s values and goals | IV |
| 6. | **Productive Relationships**: Is an excellent team player  | IV |
| 7. | **Effective Communication**: Communicates to a wide audience, in an accurate and timely manner  | IV |
| **GENUINE OCCUPATIONAL REQUIREMENTS** | Essential | Desirable | How Tested?\* |
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