

Expert Mathematical Modelling

Unit: Scientific Methods and Standards

Reference: ECDC/AD5/2023/SMS-EMM

Applications are invited for the above Temporary Agent post at the European Centre for Disease Prevention and Control (ECDC).

Job description

ECDC plans to recruit one person for the above-mentioned vacancy. ECDC also aims to establish a reserve list, which may be used for any future vacancies in the area.

The Jobholder will report to the Head of Scientific Process and Methods (SPM) Section. The jobholder will provide expertise and initiative on mathematical modelling to inform infectious disease prevention and control policy and the understanding and forecasting of trends and impacts of determinants and disease.

The jobholder will be responsible in particular for the following areas of work:

- Identify critical knowledge gaps for infectious disease prevention and control that can be addressed with mathematical modelling;
- Design, develop and apply mathematical models to address public health questions;
- Implement forecasting and long-term scenario modelling methods for infectious diseases and their determinants, presenting scenarios and quantifying uncertainty;
- Coordinate projects with a mathematical modelling scope involving experts across Units and Disease Programmes;
- Work closely with experts across ECDC (e.g. epidemiologists, statisticians, foresight, surveillance, epidemic intelligence, social and behaviour change experts, disease experts) in order to acquire knowledge of available data and evidence streams and capacities that could be used for model building, parameterisation and calibration;
- Contribute to establishing and sustaining partnerships with existing modelling networks and experts within Member States' public health institutes and academic institutions;

- Propose methodological approaches for mathematical modelling, for example using Bayesian methods, and economic evaluations and analyses, which can complement the development of ECDC's outputs;
- Stay up to date with the current literature on disease modelling and assess its value for ECDC's work;
- Plan, draft, and project manage service contracts with external contractors in liaison with the procurement and finance sections at ECDC;
- Contribute to other activities of ECDC, as required, in his/her field of expertise;
- May be asked to contribute to the 24/7 duty system of ECDC.

Qualifications and experiences required

A. Formal requirements

In order to be an eligible candidate you need to fulfil a set of formal requirements. These requirements are:

- A level of education which corresponds to completed university studies of at least 3 years attested by a diploma¹
- Thorough knowledge of one of the official EU languages and a satisfactory knowledge of another official EU language to the extent necessary for the performance of his/her duties²;
- Nationality of one of the EU Member States or of Norway, Iceland or Liechtenstein;
- To be entitled to his or her full rights as a citizen³;
- To have fulfilled any obligations imposed by the applicable laws on military service;
- Meet the character requirements for the duties involved; and
- Be physically fit to perform the duties linked to the post.

B. Selection criteria

To qualify for this post we have identified essential criteria with regard to professional experience and personal characteristics/interpersonal skills. These are:

Professional experience/knowledge:

- At least 5 years professional experience (following the award of the diploma), of which at least 3 years' experience acquired in positions highly relevant to the job description;
- Degree in natural sciences, health economics, mathematics, or related quantitative field;
- Proven use of coding language to solve modelling problems;

¹ Only diplomas and certificates that have been awarded in EU member states or that are the subject of equivalence certificates issued by authorities in the said Member States shall be taken into consideration

² Candidates with a non-official EU language or English as their mother tongue must provide proof of their level of a second language with a certificate (B1 or more).

In addition, in order to be eligible for a promotion through an annual promotion exercise the staff members have to have a working knowledge of a third EU language, as described in the applicable Staff Regulations and Implementing Rules.

³ Prior to the appointment, the successful candidate will be asked to provide a certificate from the police file to the effect of non-existing criminal record.

- Proven experience in managing large scale projects and experience in coordinating the input of experts from across different disciplines;
- Good understanding of infectious disease epidemiology;
- Proficiency in the R statistical language or programming skills in C++, Python or MATLAB, and preferably including experience of the computer code architecture, high-performance computing clusters, and collaborative code development on shared platforms such as GitHub or DevOps;
- Excellent level of English, and proven experience in efficient communication of models and modelling results both in written and in spoken form.

Personal characteristics/interpersonal skills:

- Quality driven and service minded;
- Strong analytical, computational, statistical and problem-solving skills;
- Ability to work collaboratively in a multi-disciplinary and multi-cultural team and build strong working relationships;
- Good oral and written communication skills and ability to communicate effectively with persons from other disciplines and scientific areas;
- Results-oriented with good organisational skills and ability to work under pressure.

Depending on the number of applications received, the selection committee may apply stricter requirements within the aforementioned selection criteria.

Equal Opportunities

ECDC is an equal opportunities employer and encourages applications from all candidates who fulfil the eligibility and selection criteria without any distinction on grounds of age, race, political, philosophical or religious conviction, gender or sexual orientation and regardless of disabilities.

Appointment and conditions of employment

The jobholder will be appointed on the basis of a shortlist proposed by the Selection Committee to the Director. This vacancy notice is the basis for the establishment of the Selection Committee's proposal. Candidates will be requested to undergo written tests. Candidates should note that the proposal may be made public and that inclusion in the shortlist does not guarantee recruitment. The shortlist of candidates will be established following an open selection process.

The successful candidate will be recruited as a Temporary Agent, pursuant to article 2f) of the Conditions of Employment of Other Servants of the European Union, for a period of five years which may be renewed. The appointment will be in grade **AD 5**.

Applicants should note the requirement under the EU staff regulations for all new staff to successfully complete a probationary period of nine months.

For any further information on contractual and working conditions, please refer to the Conditions of Employment of Other Servants of the European Communities, which are available at the following link:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01962R0031-20140501>

The place of employment will be Stockholm, where the Centre has its activities.

Reserve list

A reserve list may be created and used for recruitment, should similar vacancies arise. It will be valid until 31 December of the same year as the application deadline and may be extended.

Application procedure

To apply for this vacancy, please create/ log in to your account via ECDC's e-recruitment system, complete all required sections of the application and submit it. **ECDC does not accept applications submitted by e-mail, mail or any other means.**

The closing date for the submission of applications is on 17 April 2023 at 11:59:59 (midday) Stockholm time. You are advised to submit your application well ahead of the deadline in case you face technical issues and/or if there is heavy traffic on the website. ECDC will not accept any applications after the deadline. Once you have submitted your application, you will receive an automatic e-mail message confirming receipt of your application. Please ensure that the email address you provide for your applicant account is correct and that you check your email regularly.

You can find an e-recruitment user guide and a guide on the ECDC recruitment and selection process on our website:

<https://ecdc.europa.eu/en/about-us/work-us/recruitment-process>

Due to the large volume of applications received, only candidates selected for interviews will be notified.

You can find the translation⁴ of this vacancy notice in all EU languages here:

<https://www.ecdc.europa.eu/en/about-ecdc/work-ecdc/recruitment/vacancies/vacancy-translations>

⁴ While this vacancy notice has been translated into all official EU languages from its English original the language of day-to-day operations in the Agency is generally English. ECDC therefore prefers to receive the application in English.