Doctoral student in Biology

Lund University, Faculty of Science, Department of Biology

Lund University was founded in 1666 and is repeatedly ranked among the world’s top 100 universities. The University has around 44 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

The Faculty of Science conducts research and education within Biology, Astronomy, Physics, Geosciences, Chemistry, Mathematics and Environmental Science. The Faculty is organized into nine departments, gathered in the northern campus area. The Faculty has approximately 1500 students, 330 PhD students and 700 employees.

Doctoral student in Computational Biology

Subject description

Ancient DNA (aDNA) has changed history studies, enabling us to analyze early genetic variation directly. In recent years, there has been a sharp increase in the amount of collected aDNA and high-profile investigations. Still, insufficient information about the timing and geographical origin has limited the usefulness of the collected data and resulted in many erroneous reports. The project aims to develop machine learning tools to date aDNA and predict the geographical origin of the DNA material. The methods will be used to reconstruct the origin of domestic horses and their contribution to the success of Scandinavian Vikings.

Work duties

Candidates are expected to be interested in biology and history alongside solid computational skills with a background in statistics, physics, computer science, and/or a related field. Candidates are also expected to have fundamental knowledge and experience with Machine Learning methods. The candidate will work jointly with Dr. Eran Elhaik, Dr. Patrik Eden, and Prof. Eske Willerslev (at the University of Copenhagen) to develop statistical methods for a project in population genetics.

This is a multi-disciplinary project involving programming and modeling. In addition, the project will involve collaborations with researchers in other disciplines, including biomathematics, biostatistics, and molecular biology. The candidate is expected to have a strong grounding in programming in R and math/statistics.

The main duties of doctoral students are to devote themselves to their research studies which include participating in research projects and third cycle courses. The work duties can also include teaching and other departmental duties (no more than 20%).

Admission requirements

A person meets the general admission requirements for third-cycle courses and study programs in biology if he or she:

- has been awarded a graduate degree (second-cycle), or
- has satisfied the requirements for courses comprising at least 240 credits, of which at least 60 credits were awarded at an advanced level, with content that is relevant to the doctoral program, or
A person meets the specific admission requirements for third-cycle courses and study programs in biology if he or she:

- passed an independent project (e.g., degree project) of at least 30 credits in a relevant subject and have good oral and written proficiency in English.
- Equivalent knowledge acquired through corresponding programs will be assessed individually.
- To enable interdisciplinary initiatives and important specializations in certain areas, students with qualifications in subjects other than Biology may be considered for admission.

**Additional requirements:**

- Candidates must have a Master's degree in computational biology, physics, computer science, statistics, or a similar field.
- Candidates must have strong computer skills in R, Python, or a similar language.
- Candidate should have practical experience with genetics, evolution, big data, or machine learning methods.
- Candidate must be driven with a good ability to work both independently and as part of a group.
- Candidate should have good teaching skills.
- Candidate must have excellent oral and written proficiency in English.

**Assessment criteria**

Selection for third-cycle studies is based on the student’s potential to profit from such studies. The assessment of potential is made primarily based on academic results from the first and second cycles. Special attention is paid to the following:

1. Knowledge and skills relevant to the thesis project and the subject of study.
2. An assessment of ability to work independently and to formulate and tackle research problems.
3. Written and oral communication skills
4. Other experience relevant to the third-cycle studies, e.g., professional experience.

Other assessment criteria:

Consideration will also be given to good collaborative skills, drive, and independence, and how the applicant, through his or her experience and skills, is deemed to have the abilities necessary for successfully completing the third cycle program.

**Terms of employment**

Limit of tenure, four years according to HF 5 kap 7§. Only those admitted to third-cycle studies may be appointed to a doctoral studentship. Third cycle studies consist of full-time studies for four years. A doctoral studentship is a fixed-term employment of a maximum of 5 years (including 20% departmental duties). Doctoral studentships are regulated in the Higher Education Ordinance (1993:100), chapter 5, 1-7 §§.

**Instructions on how to apply**

Applications should be written in English and be compiled into a single PDF file containing:

1. Cover letter (your background, why are you interested in the position, and in what way the research project corresponds to your interests and educational background, your goals, and start date)
2. Résumé/CV, including a list of publications.
3. A general description of past research and future research interests (no more than three pages).
4. Your scientific publication (if relevant to the research topic)
5. Contact information of at least three references.
6. Copy of the degree/certificate and grades for the MSc and BA studies.

Lund University welcomes applicants with diverse backgrounds and experiences. We regard gender equality and diversity as a strength and an asset. We kindly decline all sales and marketing contacts.

To apply, please click the button "Login and apply"

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Reference number: PA2021/2923

- Eran Elhaik, Senior lecturer, +46 46 222 94 19, eran.elhaik@biol.lu.se

Contact

Union representative:
- OFR/ST: Fackförbundet ST:s kansli, 046-222 93 62
- SACO: Saco-s-rådet vid Lunds universitet, 046-222 93 64
- SEKO: Seko Civil, 046-222 93 66

Published: 17. Sep. 2021
Last application date: 15. Oct. 2021 11:59 PM CEST

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