Doctoral student in Biology with specialization in Evolutionary Genetics

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 40 000 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 Sciences. 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.

Project description
This project focuses on sex chromosome evolution. In species with heteromorphic sex chromosomes, the sex-limited chromosome (e.g. the Y in XY systems) has undergone degeneration and gene loss, which means that the expression of X-linked genes in males will be half that of females (all else being equal). The solution is dosage compensation, in which expression of the X is equalized between the sexes and normalized relative to the autosomes. This project will use experimental evolution to model the evolution of dosage compensation in real time in two different model organisms. One half of the project will track the evolution of de novo dosage compensation in flatworm populations with abnormal karyotypes. The other half of the project will determine which mechanisms underlie fine-scale adjustment of existing dosage compensation effects in D. melanogaster. Evolution of altered patterns of expression will be detected using RNA-seq, and the mechanistic basis of these changes determined using a combination of DNA-seq, ATAC-seq, bisulfite sequencing, and ChIP-seq. Apart from added insights into the evolution of dosage compensation, this project can help us better understand how organisms maintain optimal expression of genes when perturbed, and how large numbers of genes can be co-regulated, both of which have many general implications.

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

This project will require good skills in bioinformatics as well as a willingness to work hands-on with lab stocks of fruit flies and flatworms.

Admission requirements
A person meets the general admission requirements for third-cycle courses and study programmes if he or she:

- has been awarded a second-cycle qualification, or
- has satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second cycle, or
- has acquired substantially equivalent knowledge in some other way in Sweden or abroad.
A person meets the specific admission requirements for third cycle studies in biology if he or she has:

- 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 programmes will be assessed individually.
- In order to enable interdisciplinary initiatives and important specialisations in certain areas, students with qualifications in subjects other than Biology may be considered for admission.

Additional requirements

- Good oral and written proficiency in English.

Masters degree in bioinformatics, genetics, or other relevant discipline Experience with DNA and RNA extractions Experience with analysis of sequence data Ability to work independently and in a group

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 on the basis of academic results from the first and second cycle. Special attention is paid to the following:

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

Other assessment criteria:
Experience with lab work in invertebrates Experience in evolutionary biology Interest in sex chromosome evolution Experience with analysis of ATAC-seq, ChIP-seq, and bisulfite sequencing data Experience with karyotyping Experience with flow cytometry

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 programme.

Terms of employment
Only those admitted to third cycle studies may be appointed to a doctoral studentship. A Doctoral studenship consist of full-time studies for 4 years. In the case of teaching and other departmental work, the employment is extended by a corresponding amount, however limited to a maximum of 5 years.

Doctoral studentships are regulated in the Higher Education Ordinance (1993:100), chapter 5, 1-7 §§.

Instructions on how to apply
Applications shall be written in English and include a cover letter stating the reasons why you are interested in the position and in what way the research project corresponds to your interests and educational background. The application must also contain a CV, degree certificate or equivalent, and other documents you wish to be considered (grade transcripts, contact information for your references, letters of recommendation, etc.).

Certificate of Bachelors and Master’s degrees
Transcripts of Bachelors and Master’s degrees

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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