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PhD student in molecular evolution

Uppsala University is a comprehensive research-intensive university with a strong international standing. Our mission is to pursue top-quality research and education and to interact constructively with society. Our most important assets are all the individuals whose curiosity and dedication make Uppsala University one of Sweden's most exciting workplaces. Uppsala University has 44.000 students, 7.100 employees and a turnover of SEK 7 billion.

A PhD student position in molecular evolution is available at the Department of Ecology and Genetics, program of Evolutionary Biology.

The Department of Ecology and Genetics is an international environment with staff and students from all over the world. Our research spans from evolutionary ecology and genetics to studies of ecosystems. For more information, see www.ieg.uu.se.

Project description: One of the major objectives in evolutionary genetics is to understand the molecular basis and mechanisms of phenotypic variation and differentiation between species. Two classical candidates underlying phenotypic change are protein coding sequences and functional sequences that regulate gene expression. Here, changes of the DNA sequence itself or epigenetic modifications can influence the phenotype. However, the relative importance of these two sequence classes and the role of epigenetic modifications is still unclear. Flycatchers provide a good model system to study this question. Collared flycatcher (*Ficedula albicollis*) and pied flycatcher (*Ficedula hypoleuca*) have been a model of speciation research for decades, and a rich source of genomic, transcriptomic and epigenomic data have become available. In particular, data on naturally occurring hybrids provides the opportunity to study the molecular basis and mechanisms of reproductive isolation in an ecologically relevant setting. Moreover, genomic data of the more distantly related Taiga flycatcher (*Ficedula albicilla*) permits studying molecular evolution also at larger time-scales.

Duties: The project will start by the identification and characterization of gene regulatory elements in the collared flycatcher genome. In addition, you will establish associations between regulatory elements and their target genes. For this purpose, you will use bioinformatic software and machine learning approaches to analyse a rich source of genomic, transcriptomic and epigenomic data. This exploration will form the background for all subsequent analysis. You will then perform comparative analysis between flycatcher populations, in the context of speciation research as well as on larger evolutionary time-scales. The ultimate goal of the project is to gain a conceptual understanding of the role of molecular evolution and adaptation at different evolutionary time-scales and levels. This applies to genetic and epigenetic changes in protein coding sequences, regulatory elements and transposable elements. You will acquire cutting-edge skills in bioinformatics and statistical analysis, which are essential for modern biology research. In addition, the project will involve mathematical modelling.

Qualifications required: To be eligible for a PhD-student position the applicant must hold a master degree (or equivalent) in mathematics, bioinformatics or biology, at the time of appointment. The applicant with a mathematics background must have an interest in molecular evolution and population genetics, and a readiness to acquire relevant skills in bioinformatics. The applicant with a bioinformatics or biology background must have a readiness to acquire relevant skills in computer science, statistics and mathematics. Candidates must be able to express themselves fluently in spoken as well as written English. In addition, the applicant must be able to work independently, have good collaborative skills and be able to communicate (both spoken as well as written). The applicant must have integrity and personal maturity, be able to take initiative and handle setbacks.

Qualifications desired: Skills in computer science, statistics and mathematics prior to the PhD studies are desired. Creativity is a plus.

Position: The graduate program covers four years of full-time study. The position can be combined with teaching or other duties at the department (maximum 20%), which prolongs the employment with the corresponding time. The salary will be set according to local agreements. Rules governing PhD candidates are set out in the Higher Education Ordinance Chapter 5, §§ 1-7 and in Uppsala university's rules and guidelines <http://regler.uu.se/search/?hits=30&languageId=1&search->

[language_en=English](#). More information about postgraduate studies at Uppsala University is available at <http://www.teknat.uu.se/education/postgraduate/>.

Application: The application should include 1) a letter of intent describing yourself, your research interests and motivation of why you want to do a PhD, and why you are suitable for the position, 2) your CV, 3) a short description of your education, 4) a copy of your master degree, your course grades and a copy of your master thesis (or if ongoing, specify the date of completion), 5) the names and contact information to at least two reference persons (e-mail address and phone no.), and 6) publications produced. The application should be written in English.

Uppsala University aims for gender balance and diversity in all activities in order to achieve a higher quality at all levels of the organization. We therefore welcome applicants of any gender and with different birth background, functionality and life experience.

Salary: Individually negotiated salary.

Access: As agreed, no earlier than October 2019.

Type of position: Temporary full-time position

For further information about the position please contact: Carina Farah Mugal, carina.mugal@ebc.uu.se, +46 18 471 46 17.

You are welcome to submit your application no later than 2019-05-13. UFV-PA 2019/1206.

Are you considering moving to Sweden to work at Uppsala University? If so, you will find much information about working and living in Sweden at www.uu.se/joinus. You are also welcome to contact the International Faculty and Staff Services at ifss@uadm.uu.se.

Please do not send offers of recruitment or advertising services. Applications must be submitted as described in this advertisement.

Placement: Department of Ecology and Genetics

Type of employment: Full time , Temporary position longer than 6 months

Pay: Fixed salary

Number of positions: 1

Working hours: 100 %

Town: Uppsala

County: Uppsala län

Country: Sweden

Union representative: Seko Universitetsklubben seko@uadm.uu.se

ST/TCO tco@fackorg.uu.se

Saco-rådet sacco@uadm.uu.se

Number of reference: UFV-PA 2019/1206

Last application date: 2019-05-13

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