

## Project open for master-student interns in

### Phylogenetic comparative analysis of blood thyroid hormones and life histories

Thyroid hormones (THs) are crucial hormones that regulate cell migration, tissue differentiation at early embryonic development, and therefore are indispensable for healthy development and growth. Moreover, THs are also important mediators in life-stage transition, such as metamorphosis in fish and frogs, smoltification in salmon, hatching in precocial birds, and also play important roles in migration and seasonal reproduction in both birds and mammals. Despite such broad importance, the eco-evolutionary significance of the variation in TH physiology in free-living animals is poorly understood. **We are seeking two or more highly self-motivated master students to join our project that aims to advance our understanding on the relationship between thyroid hormones and life history variation across vertebrates.**

By joining us, the students will conduct systematic literature search, including literature screening and extracting data from the included studies under guidance. The students may choose one of the major vertebrate groups of interest (mammals, birds, reptiles, amphibians, or teleosts), refine the research question to relevant age groups and life-history traits pertinent to the chosen taxon, and use phylogenetic comparative methods to analyze the data compiled from the literature.

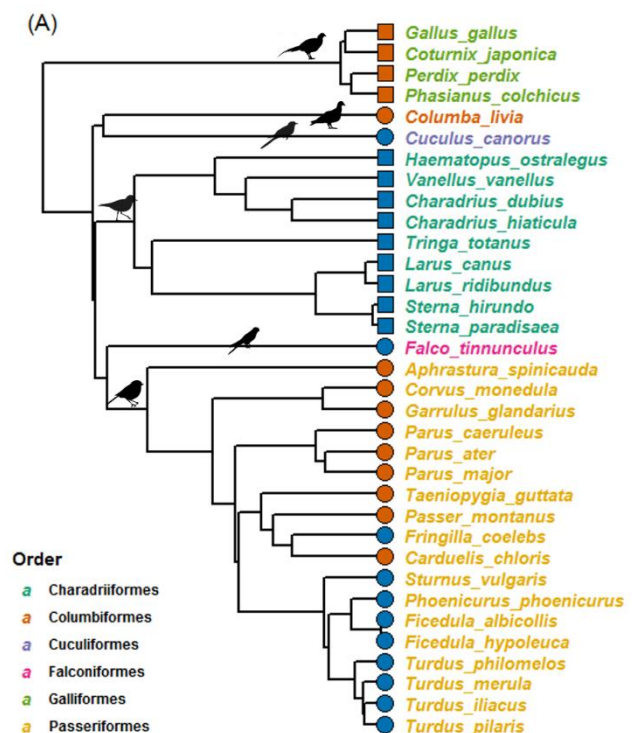
The students will be jointly supervised by Dr. Bin-Yan Hsu and Dr. Suvi Ruuskanen at the University of Turku (UTU), Finland, and work and communicate with Dr. Hsu on a regular basis. Due to the on-going coronavirus pandemic that is not expected to subside anytime soon, the possibility of remote work will be discussed upon mutual agreement.

#### We offer training including but not limited to:

1. Guided full process on systematic literature search
2. Statistical guidance on how to learn and use phylogenetic comparative methods in R
3. Help on scientific writing and presentation
4. Vivid and pleasant international working environment

#### For a successful candidate, we expect:

1. Sufficient English skills to ease the communication with supervisors and colleagues
2. Basic understanding in statistical analyses and practice with R, preferably with some understanding and experience in linear mixed models. Eventually, the student is expected to analyze the data using Bayesian phylogenetic mixed models (e.g. by the package *MCMCglmm* or *brms*).



Eligibility to apply:

First and most importantly, **the interested student must have been enrolled in a master program in a university.** If you are, students of any nationality are welcome to apply and come to work with us. However, **practical requirements will differ between EU and non-EU based students and affect your eligibility:**

For students based in EU universities who are seeking an opportunity to gain more research experience: this would be a perfect opportunity for you and we strongly encourage you to contact us ASAP and **prepare to apply for a personal grant, such as an Erasmus+ internship.**

For students from non-EU universities who are seeking an opportunity to gain research experience abroad, we also welcome you to contact us to discuss the possibility in a case-by-case manner. However, please notice that **we will expect you to explain how you may legally come to work with us (e.g. as an exchange student or a visiting scholar, or else) and how you will financially support your own living in Finland (e.g. any kind of grant or scholarship you might get from your home or study country/university).**

**In case you are not yet a master student but wish to pursue a master degree in Europe or in Finland, we unfortunately will not be able to accept you.** Nevertheless you are welcome to apply for the *Master's Degree Program in Biosciences: Evolutionary Biology* at the University of Turku (<https://www.utu.fi/en/study-at-utu/masters-degree-programme-in-biosciences-evolutionary-biology>) in January, 2021. Please realize that we have completely no influence on the admission decision process and will be unable to do you any favor.

Time frame and application procedure:

We expect the students to start in late 2020 or early 2021, but the actual time frame is flexible and can be discussed and tailored to the specific situation of the applicants.

To apply, please prepare a **brief personal statement that describes your motivation and summarizes your past research experience (course project included)** and a **CV that includes the contact methods of 2-3 references.** However, we strongly encourage you to first contact Dr. Bin-Yan Hsu ([biyahs@utu.fi](mailto:biyahs@utu.fi)) to express your interest and discuss about your eligibility.

For any questions, please feel free to contact Dr. Bin-Yan Hsu ([biyahs@utu.fi](mailto:biyahs@utu.fi)) at any time.

Dr. Bin-Yan Hsu: [https://www.researchgate.net/profile/Bin\\_Yan\\_Hsu](https://www.researchgate.net/profile/Bin_Yan_Hsu);

Ruuskanen group website: <https://sites.utu.fi/ruuskanengroup/>

