

Genomic methods in breeding and management of aquatic living resources

Subject area: Other subject area

University:	DTU
Level:	MA all years, PhD
Teaching mode:	hybrid: some students participate online, other students attend real-life
Instructor(s):	Francesca Bertolini

Short description

The aim of the course is to provide an array of theoretical and practical competences on genomics and bioinformatics with focus on animal breeding and conservation. Through theoretical, individual and group exercises, students will learn how to handle, analyze and interpret a selected range of high-throughput genomics data in relation with genomic improvement and selection, resource management and traceability strategies of domesticated and wild animals, particularly fish and shellfish species.

Full description

<https://kurser.dtu.dk/course/25334>

Learning outcomes

A student who has met the objectives of the course will be able to:

- Utilize the most important international databases to retrieve information on the genomic resources available for different species Utilize the Unix and R environment to handle genomic and transcriptomic data.
- Apply the most updated bioinformatics tools to analyze and interpret high throughput genomic and transcriptomic data with different available genomic information. Describe methods for DNA-based barcoding
- Describe and apply concepts and tools of genomics related with conservation and biodiversity (e.g. population-based inferences, population splits and mixtures, genome wide differentiation).
- Explain and utilize concepts and tools of genomics related with genetic improvement and sustainable aquaculture production (e.g. signatures of selection, QTL, Genome Wide Association Studies, and genomic selection)
- Adopt critical approaches to evaluate and apply high-throughput genomic tools for problem-solving in practical cases of selection and conservation of animal species.
- Develop large-scale data projects and present results

General information

Contact hours per week:	4
Total workload:	130 (in student hours for the whole course)
ECTS credits:	5
Language:	English
Course start date:	31 August 2022
Course end date:	30 November 2022
Add. info about start date:	
Weekly teaching day/time:	Wednesday 8-12
Time zone:	CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)

Further information:

Prerequisites:	Basic understanding of genetic concepts is encouraged
Activities and methods:	Lectures, Group work, Exercises, Tutorial sessions
Presence on campus:	

Final examination

Form:	poster presentation + oral
Date:	19 December 2022
Location/format:	online
Re-sit possibility:	yes
Transcript available:	end of semester
Add. info/requirements:	

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

Number of places:

Minimum participants:

Internal course code: 25334

Contact: franb@aqua.dtu.dk

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