

Information sheet for the “Bioinspired Systems 2023” course

The lectures are held on **Mondays 12:15-13:45** in room no. **3.74**

	Date	Topic	Lecturer
1	September 15	Collective motion	Anna Zafeiris
2	September 18	Collective motion and leadership hierarchies	Anna Zafeiris
3	September 25	Scaling, Criticality, Phase transitions and Correlations	Máté Nagy
4	October 2	Fractals and Self-Organized Criticality	Máté Nagy
5	October 9	Networks I. - Basic concepts, Small world property, Scale-free networks, Centrality metrics	Máté Nagy
6	October 16	Networks II. - Components, Robustness, Percolation, Epidemic spreading	Máté Nagy
7	October 23	National holiday	
8	October 30	Autumn break	
9	November 6	Hierarchy formation II	Anna Zafeiris
10	November 13	Opinion dynamics & biological synchronization	Anna Zafeiris
11	Between Nov.	Bioinspired robotics I. - Hardware design	Liang Li
12	20 and	Bioinspired robotics II. - Software design	Liang Li
13	December 4	Bioinspired robotics III. - Applications	Liang Li
14	December 11	Student projects	Máté Nagy & Anna Zafeiris

Note: We will have a guest lecturer, **Dr. Liang Li**, an engineer senior scientist specialized on bioinspired robotic design from the Max Planck Institute of Animal Behavior, Konstanz, Germany.

Final mark:

Students will receive their final mark either by

- 1) Taking an **oral exam** at the end of the semester: students draw 1 topic, where each topic covers a lecture. There will be a related short question covering the topic of a different lecture. Or
- 2) There is a possibility to ‘qualify’ for an **easier and shorter exam** (consisting of 4-5 questions that can be answered in a sentence or two). In order **to qualify for this possibility**, students have to do a small stand-alone research project (related to the topics covered in the course). These studies must include a **simple model/simulation** as well, which will be **presented in class** in the form of a ~15 minutes presentation on the last lecture, **11th of December**. We strongly recommend checking the chosen research topic with either of the lecturers before starting the work.

The final mark is a composition of two terms: the mark given for the project work and the evaluation of the performance of the quick exam, which can modify the mark given for the project by plus or minus one.

Contacts:

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