Information sheet for the “Bioinspired Systems” course

The lectures are held on **Wednesdays 16:15-17:45** in room no. **3.74**

Dates and topics (might slightly modified later):

	Date	Topic	Lecturer
1	September 9	Collective motion	Anna Zafeiris
2	September 15	Hierarchy formation - part 1	Anna Zafeiris
3	September 22	Hierarchy formation - part 2	Anna Zafeiris
4	September 29	Opinion dynamics	Anna Zafeiris
5	October 6	Biol synchronization + student discussion	Anna Zafeiris
6	October 13	Scaling, Criticality, Phase transitions and Correlations	Máté Nagy
7	October 20	Fractals and Self-Organized Criticality	Máté Nagy
	October 27	*Autumn break*	
8	November 3	Networks I. - Basic concepts, Small world property, Scale-free networks, Centrality metrics	Máté Nagy
9	November 10	Networks II. - Components, Robustness, Percolation, Epidemic spreading	Máté Nagy
10	November 17	Bioinspired robotics I. - Hardware design	Liang Li
11	November 24	Bioinspired robotics II. - Software design	Liang Li
12	December 1	Bioinspired robotics III. - Applications	Liang Li
13	December 8	Student projects	M. Nagy, A. Zafeiris

Note: We will have a guest lecturer, **Dr. Liang Li**, an engineer senior scientist specialised 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. In this exam, students draw 1 topic where each topic covers a lecture. There will be a related short question, but from a very 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 accomplish either of the following two tasks (which will be evaluated by a mark):
    (a) they can choose a lecture and write a lecture note based on it. The lecture note has to contain around 15 written page (+ pictures), that is, 7-8,000 words. It is a more detailed version of what was covered by the lecture, and the extra details should be filled in by following literature related to the topic. The purpose of these notes is to create a detailed text related to the given topic which can be distributed among other students later. In order to avoid multiple lecture notes of the same topic, students can choose only of the available topics, which will be registered in an online table.
    (b) students have the opportunity to follow their own interest and 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, and will be presented in class, in the form of a ~15 minutes presentation on the last lecture, 9th of December. We strongly recommend checking the chosen research topic with either of the lecturers before starting the work.

    In the second case, the final mark is a composition of two terms, the mark given for the project work (lecture note or presentation of one's own 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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Exam

1	September 9	Collective motion	Anna Zafeiris
2	September 15	Hierarchy formation - part 1	Anna Zafeiris
3	September 22	Hierarchy formation - part 2	Anna Zafeiris
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11	November 10	Networks II. - Percolation, Epidemic spreading	Máté Nagy
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