

Course Analysis DD2435 HT21

biomod21, 9.0 hp

Overview

The course DD2435 (KTH) Mathematical Modelling of Biological Systems focuses on mathematical modelling and computer simulation of nerve cells, neuronal networks and other physiological and biochemical structures and processes. The course consists of three parts:

- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F
- PRO2 - Project, 3.0 credits, grading scale: P, F
- TEN2 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F

The final grade is the grade of the written exam provided all parts of the course are completed. At the postgraduate level (FDD3435) an extra exercise is suggested to students after completion of the main course content. Three lecturers from CST EECS KTH are involved in the teaching, Dr. Alexander Kozlov (course responsible), Prof. Erik Fransén (examiner) and Prof. Arvind Kumar (examiner).

All course events in HT21 were digital on zoom including examination and lab reviews. The lab reports are organized as short presentations in groups of 2-3 students with results and answers on the prepared slides. Teacher decides the order of presentation and a general flow. Written examination (TEN2) is set as the open book test with online identification and remote submission of the hand-written answers. Exam is not proctored but the students are supposed to be available for checking at any time during the examination.

The course is gradually moving on-campus in HT22 with the lectures to be delivered in-person and all examinations to be digital.

Summary of completion and result of the course

The number of registered students is relatively small, 24 in 2021, 22 in 2020 and 29 in 2019. Graduation rate is 75% in 2021. Students performance used to be very high, 77%, as most of the students complete all assignments in time and find the written examination and allocated time adequate.

Summary of course evaluation

Estimated workload. Students spend 10-20 hours a week. Most of the time is needed for the laboratory works.

Course content. Some students need to read up about the topics after lectures. Students taking Neuroscience DD2401 course are more comfortable with the material. Some lectures are overloaded with details which is felt unnecessary at times.

Laboratory exercises. Labs are generally considered very interesting although their programming implementation could be outdated.

Course description. Description is not very clear and possibly LO need better alignment with content.

Course activities. Structure of the course is considered to be strict and hard to be influenced by students.

Analysis

An effort is applied to make the course material more clear. Detailed reading directions for each lecture are listed on the course page, specifically subdivided to Recommended and Optional reading. All lectures are recorded and the media made available for all participants of the current course round. Also lecture slides as well as the recorded lectures from the previous course round are available from the beginning. They are updated duly as the course progresses. This should help students follow the course remotely and also adapt to the transition back to on-campus teaching after COVID-19 pandemic restrictions.

Mandatory laboratory works are supplemented with voluntary exercises in Jupyter notebooks using the latest software which should expand and complement the lecture material and some aspects of the labs. Teachers agree that the content is still adequate for an introductory course but also could be updated with respect to contemporary trends and discoveries in Neuroscience and biological sciences.