

Solving biological questions requires new education

June 23 2016, by Mia Malmstedt

The field of Systems biology is of great importance for a deeper understanding of the processes of life. But adequate education is missing, or differ too much in different places. A new strategy for interdisciplinary education is now suggested by researchers from Chalmers and GU.

Systems biology is a relatively new field of research, with great future significance. Within Systems biology, scientists are trying to understand complex biological systems by combining tools from various disciplines – such as physics, chemistry, mathematics and computer science – with experimental biology.

"There will be a relatively large need for this expertise in the future. But our problem is that Systems biology-programmes in Europe have very different profiles, and the expectations on [students](#) are unclear. It is also unclear what employers can expect when hiring people who have such training," explains Stefan Hohmann, Professor and Head of the Department of Biology and Biological Engineering at Chalmers.

In a large study – headed by Marija Cvijovic, senior lecturer at the Department of Mathematical Sciences at the University of Gothenburg, and Stefan Hohmann – researchers from some 25 European universities tried to discern strategies for training and improvement of knowledge exchange in the field. The study was recently published in the scientific journal *Nature Systems Biology and Applications*.

The group of experts, along with Cvijovic and Hohmann, established basic content for a master's level degree in Systems biology.

"We have also developed methods to improve recruitment of students, as well as their own development towards becoming more effective researchers in the future," says Marija Cvijovic. "We have to train students to enhanced problem-solving capabilities, by combining interdisciplinary tools and evaluating issues from various fields of research.

The group also discussed employability of the Systems biology students, and the opportunities to propose career paths for students in both academia and industry."

Chalmers currently has no Master's programme in Systems biology, although the topic is presented to some degree in the Biotechnology programme. The University of Gothenburg today has a programme named Genomics, Bioinformatics and Systems Biology.

"We would like to cooperate with the University of Gothenburg and create a joint programme in Bioinformatics and Systems biology, or a clear track in the Biotechnology program," says Stefan Hohmann.

"In the long term, I would like that Chalmers runs a programme of world-class education according to the model described in our study."

More information: Marija Cvijovic et al. Strategies for structuring interdisciplinary education in Systems Biology: an European perspective, *npj Systems Biology and Applications* (2016). [DOI: 10.1038/npjbsa.2016.11](https://doi.org/10.1038/npjbsa.2016.11)

Provided by Chalmers University of Technology

Citation: Solving biological questions requires new education (2016, June 23) retrieved 29 June 2024 from <https://phys.org/news/2016-06-biological-requires.html>

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