

Introduction to Applied Mathematics and Informatics in Drug Discovery **(Autumn Semester 2019-2020)**

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Time and place

The lecture takes place on Fridays between 12:15 and 14:00 in Seminarraum 5.002, Department of Mathematics and Informatics, Spiegelgasse 1, 4051 Basel.

All course materials, unless otherwise specified, are shared via course's website, <http://amidd.ch>.

Syllabus

1. Drug discovery: an overview (20.09.2019)
2. Biological sequence analysis (27.09)
3. Protein structure and function (4.10.)
4. Chemical structure representation and search (11.10)
5. Molecular interaction and modelling (18.10.)
6. Omics: genomics, transcriptomics, and proteomics (25.10.)
7. PK/PD and PBPK modelling (1.11.)
8. Bayesian modelling, machine learning, and causal inference (8.11.)
9. Multiscale modelling of drug mechanism and safety (15.11)
10. Guest speakers: Dr. Nicolas Frey and Dr. Lucy Hutchinson (titles to be announced) (22.11.)
11. *Dies academicus - no lecture* (29.11.)
12. Guest speakers: Dr. Kaspar Rufibach and Dr. Benjamin Ribba (titles to be announced) (6.12.)
13. Student presentation (I) (13.12.)
14. Student presentation (II) (20.12.)

Changes, if necessary, be communicated during the course.

Assessment

The final note is given by participation (20%), presentation (30%), and an oral examination (50%). The oral examination will be about concepts that we learned together, and about

explaining mathematical concepts (or concepts in your domain of experts) to a layman - that is, your lecturer.

Further information

We focus on interdisciplinary research with mathematics as the language and informatics as the tool.

I do not offer exercise hour yet. Pre-reading and post-reading articles, as well as videos, are shared and recommended.

Both slides and board are used for the course. Slides and notes are shared.

Further questions?

Please contact David, the lecturer, by following ways:

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