scope of the TD sessions:

Group work to design and perform a computational/analytical project based on models and ideas from a scientific paper

in practice:

- **MON:** hands-on introduction to numerical analysis in python (functions, numpy, pyplot, ODE, root-finding) + group definition
- **TUE:** come with ideas on the project + group work
- **WED - THU:** group work
- **FRI:** final presentation of the work (= grade)

NB: you will **not** be graded on your computational skills, but on the **effort and quality** of the project

=> interrupt and ask questions at any time (especially on coding issues)

TODAY: **numerical methods in python**

part A - Hill function

1. definition of a python function
2. multiple evaluations with *numpy* arrays
3. visualization with *matplotlib*
4. analysis of the dependence of the function from a parameter (Hill coefficient)

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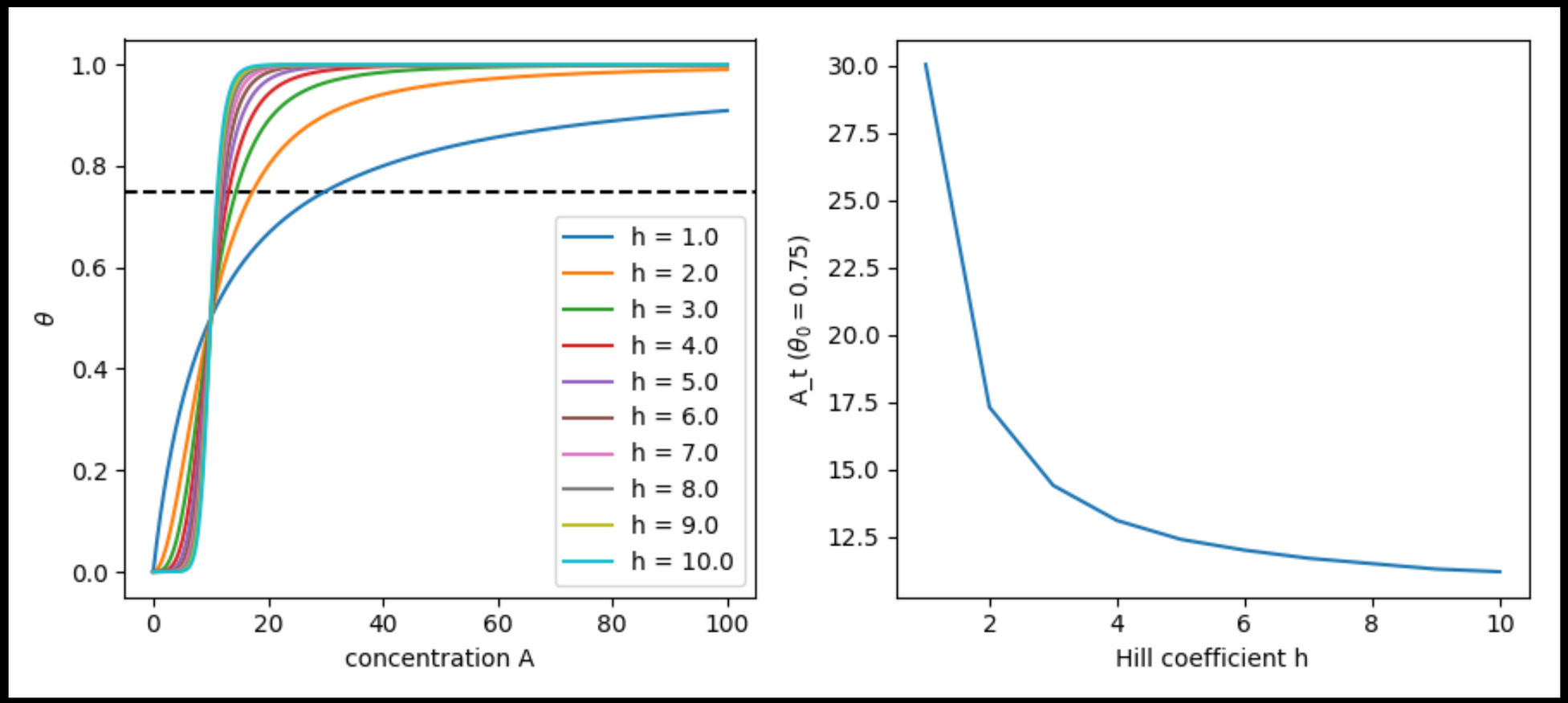

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part B - Autopromoter

1. integration of a simple differential equation with Euler method
2. root-finding of a function to find fixed points of the dynamics
3. analysis on how the fixed point of the dynamic depends on initial conditions
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