

Mathematical modelling of self-organisation during embryonic development

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Reproduction of complex life hinges on the reliable translation of the linear information that is contained in our DNA into complex 3D shapes and functions. In this course, I will present chemical and biophysical principles that enable this reliable self-organisation. While there is only a limited number of candidate mechanisms and at times it may be difficult to uncover any candidate mechanism, often more than one mechanism can, in principle, explain the same biological phenomenon. Careful data-based mathematical modelling is therefore important to distinguish between candidate mechanisms. In the last part, I will discuss approaches for data-based modelling and model selection.