

Advice for new students in the MRes for Systems and Synthetic Biology

Below, you will find some advice that are the result of the feedback provided by alumni of the course you are going to embark on.

1. Mathematicians need to make the effort to **learn about biology**, and biologists need to make the effort to **learn about mathematics**. In that respect, the reference books listed below might be useful if you need to check some concepts or deepen your understanding of the modules.
2. **Reference books** (check the Imperial Library for availability):
 1. **Engineering Mathematics**, [K.A. Stroud](#), [Dexter J. Booth](#)
 2. **Essential Cell Biology**, [Bruce Alberts](#), [Dennis Bray](#), [Karen Hopkin](#), [Alexander Johnson](#), [Julian Lewis](#), [Keith Roberts](#), [Martin Raff](#), [Peter Walter](#)
 3. **Physical Biology of the Cell**, [Rob Phillips](#), [Jane Kondev](#), [Julie Theriot](#)
 4. **Synthetic Biology - A Primer**, [Paul S. Freemont](#), [Richard I Kitney](#), [Geoff Baldwin](#), [Travis Bayer](#), [Robert Dickinson](#), [Tom Ellis](#), [Karen Polizzi](#), [Guy-Bart Stan](#)
 5. **Systems Biology and Synthetic Biology**, Eds. [Pengcheng Fu](#), [Sven Panke](#)
 6. **Systems Theoretic Approach to Systems and Synthetic Biology I: Models and System Characterizations**, Eds. [Vishwesh Kulkarni](#), [Guy-Bart Stan](#), [Karthik Raman](#)
 7. **Systems Theoretic Approach to Systems and Synthetic Biology II: Analysis and Design of Cellular System**, Eds. [Vishwesh Kulkarni](#), [Guy-Bart Stan](#), [Karthik Raman](#)
3. An introduction course on **Modelling in Biology** is taught in the Department of Bioengineering by Dr Guy-Bart Stan (see Section *Lecture Notes* on [Guy-Bart Stan webpage](#) for full information about the first half of the course) and Dr Aldo Faisal (teaching the second half of the course). This course is taught during the Autumn term and is meant to be an introduction to certain mathematical concepts and methods useful for modelling and analysing biological processes and phenomena.
4. Creating a **Facebook group or any other social network group** might be very useful to foster interactions, discussions, and general knowledge sharing.
5. If you want to apply for a **PhD** after your MRes, you need to start thinking about this now (look for funding programs) as the funding opportunities and deadlines are all coming up in the Autumn term. Also, start looking at the web pages and papers of people you may want to do your project with or do a PhD with from the very first week so that you have a good idea of what people you may work with want to get done in their groups.