

SysMIC

eCourse in
interdisciplinary
skills for Bio-Research

SysMIC

A comprehensive
eLearning course on
maths and computing
for biological research

- ▶ Online materials
- ▶ MatLab & R
- ▶ Free to BBSRC scientists
- ▶ Examples from all
biological scales

Enrol for Autumn and
Spring places at
sysmic.ac.uk



SysMIC

AN INTERDISCIPLINARY SKILLS
COURSE FOR **BIOLOGICAL**
RESEARCHERS

[Sysmic.ac.uk](http://sysmic.ac.uk) provides a
comprehensive **online** course
in the **interdisciplinary** skills
for cutting edge quantitative
biological & medical **research**

Jointly developed by:



Course materials are built around **biological examples** from a wide range of research areas. You will train in **maths and computation to model and analyse** biological data. Each topic includes **code** (MATLAB or R), **exercises, interactive apps** and **quizzes**. Support is provided throughout the course by our **online tutors**.

The course contains **3 modules**:

1) Basic skills

Mathematics and Computation
for Bio-Research

2) Biological Modelling

Advanced Topics and Applications

3) Project work

Registration is open to start in
November 2013 or April 2014

For further information and to book a place
Email: enquiries@sysmic.ac.uk

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Module I: **Basic Skills**

Biological networks

Linear Equations

Vectors & Matrices

Equilibria & Stability

Differential Equations

*Introduction to **MatLab** and **R***

and much more...

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Module II: **Advanced Topics & Applications**

Biological Graphs

Discrete-time Models

Cellular Automata

ODEs

Spatio-temporal Models

Markov Chains

Stochastic Models

Parameter estimation

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Module III: **Project**

▶ *Pick your favourite bio-challenge or bring your own data.*

▶ *Pursue a chosen piece of interdisciplinary research using skills from Modules 1 and 2.*

▶ *Get support and advice from the SysMIC Tutors.*

1. *Design a project **plan***
2. *Carry out modelling **work***
3. *Create a research **report***

Reports are expert & peer-reviewed
Duration: six months.



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