

# SYSTEMS AND SYNTETIC BIO WEEK GABBA April 2017

## Monday 03.04.2017

9:00-09:30	Introduction to Systems and Synthetic Biology Week (PB, SS)
09:30-10:30	Introduction to Systems Biology (PB)
10:30-11:00	Break
11:00-12:00	Introduction to bioinformatics and machine learning 1 (PB)
12:00-13:00	Lunch break
13:00-14:00	Introduction to bioinformatics and machine learning 1 (PB)
14:00-14:15	Break
14:15-17:00	Hands on: Programming part 1 (PA)

## Tuesday 04.04.2017

9:30-12:30	Omics. High Throughput methods and their applications (PB)
12:30-13:30	Lunch break
13:30-17:00	Hands on: Programming part 2 (PA)

## Wednesday 05.04.2017

9:30-12:30	Design principles in biological systems (SS)
12:30-13:30	Lunch break
13:30-15:30	Public speaking part 1 (SS)

## Thursday 06.04.2017

9:00-10:30	Synthetic Biology - engineering biological circuits (PB)
10:30-11:00	Break
11:00-12:00	Public speaking part 2 (SS)
12:30-13:30	Lunch break
13:30-17:00	Hands on: Write a paper (SS)

## Friday 07.04.2017

10:00-10:30	Systems Biology - an editor's historical perspective (MP)
10:30-11:00	Omics - Studying protein post-translational regulation in cancer (PB)

11:00-11:30	Modelling - Can dendritic spines' locations be explained by random placement? – A computational analysis using detailed neuronal reconstructions (PA)
11:30-12:00	Break
12:00-13:00	Friday noon seminar: TBA (Tiago Gonçaves)
13:00-14:30	Lunch break with speakers (PB, SS, PA, HY and MP)
14:30-15:00	Design Principles – Decoding cellular signals: lessons from hES cells (SS)
15:00-15:45	Synthetic Biology - Building multicellular life (HY)
15:45-16:00	Break
16:00-16:45	Meet an editor: Publishing in MSB (EMBO publishing) + Q&A (MP)
16:45-17:30	The academic track + Q&A (PB, SS, HY, PA, MP)

## Lecturers

**Pedro Beltrao** (PB) EMBL-EBI - [www.ebi.ac.uk/beltrao](http://www.ebi.ac.uk/beltrao)

**Silvia Santos** (SS) MRC-Imperial College London - <http://csc.mrc.ac.uk/research-group/quantitative-cell-biology/>

**Paulo Aguiar** (PA) University of Porto

**Hyun Youk** (HY) TU Delft - <http://www.youklab.org/>

**Maria Polychronidou** (MP) - Editor Molecular Systems Biology [msb.embopress.org](http://msb.embopress.org)

## Preparing for the week

### Reading Material

References for the different sub-sections will be given during the week. Please read the following short commentary papers before Monday:

1. Can a biologist fix a radio?--Or, what I learned while studying apoptosis. Lazebnik Y. Cancer Cell. 2002 Sep;2(3):179-82.
2. Q&A: Systems biology. James E. F. Jr. Journal of Biology. 2009.
3. The meaning of Systems Biology. Marc Kirschner. Cell 2005

### Laptops and matlab

For the "Hands on: Programming" please bring your laptop. We will focus on an introduction to scientific programming with MATLAB – if you don't have MATLAB already installed on your laptop, please download a "Free Product Trial" (30 days) from [https://uk.mathworks.com/programs/trials/trial\\_request.html](https://uk.mathworks.com/programs/trials/trial_request.html). Fill in the small register form and after pressing the button "Get packaged trial", select to download and install (at least) the "Computational Biology" package. Please bring your laptop to the course with MATLAB already installed.