



1 Reviews in Computational Biology

This doctoral training course module starts at **14:00 on Wednesday 9th January (Lent Term Week 0)**. The course is unique in Cambridge as it focuses on developing all the skills for publishing: writing a review article, manuscript submission and peer-review. The course is one afternoon per week for ten weeks and includes eight research seminars at the CCBI, DAMTP.

This is an interdisciplinary course that allows PhD students to collaborate with new colleagues. Each week during Full Term (Lent Term Weeks 1 to 8), a guest speaker presents an outline for a new review topic in their field of Computational Biology. Students are allocated a topic area and co-author one mini-review based on the research seminar. All students work in small groups and are supervised throughout the writing process. The course has a strong track record for publishing our students' work. Previous reviews were published in *Briefings in Bioinformatics*, *Drug Discovery Today* and book chapters. We hope the course this Lent Term 2013 will generate a large number of accepted articles.

2 Course Content

Each year, speakers are chosen from very different research disciplines that bridge the life sciences with the physical sciences. Research areas address questions exploring the dynamical and self-organising systems found in biology, involving data analyses at different scales.

The topics will include: evolution of cellular interaction networks (Pedro Beltrao), integration of functional genomics and pathway information (Julio Saez-Rodriguez), ecological niche modelling and infectious diseases (Daniel Henk), machine learning approaches to predicting protein-ligand binding (Pedro Ballester), clonally transmissible cancers (Elizabeth Murchison) and more speakers. Previous topics from 2012 included: an assessment of multiple sequence alignments (Christophe Dessimoz), cofactor control of metabolism (Ben Luisi), drug re-purposing from genomic data (Francesco Iorio), probabilistic frameworks for gene function (Lorenz Wernisch), structural and evolutionary dynamics of proteins (Joseph Marsh), biophysical network descriptions of metabolism and PPIs (James Smith), making sense of ncRNAs (Judith Zaugg) and determining patterns of parasite-host shifting (John Welch).

3 Research Seminar Guest Speakers

The eight seminars introduce diverse topics in Computational Biology, each one presented by a leading researcher at the forefront of their field.

Every year the course organisers look for new guest speakers, from all disciplines, who are enthusiastic communicators willing to engage with PhD students and prepared to encourage them to push boundaries.

4 Scientific Publishing Guest Speakers

In Lent Term 2013, we introduce a Questions and Answers Roundtable Discussion on aspects of scientific publishing with journal editors. The discussion panel will include three guest editors from *PLoS Biology*, *eLife* and *PubMedCentral*. This session is only for students on this course.

5 Course Participation

This is an intensive course designed for a maximum of twenty-four PhD students across the physical and life sciences from the University of Cambridge and its partnering institutions.

There is a ten-week commitment of regular Wednesday afternoon seminars, lectures and supervisions. All students must find extra time for co-authoring their review in teams of twos or threes and then individually write anonymous peer-reviews on the manuscripts submitted by the others on the course.

6 Commitment & Attendance

PhD supervisors must agree to their students taking this course. All the students are required to attend every week on Wednesday afternoons and, because this is a certificate-bearing course, a register of attendance will be taken.

7 Wednesday Afternoon Timetable

13:00 – 14:00	Supervision B for authors
14:00 – 15:00	Research Seminar (in MR4)
15:00 – 15:30	Tea, coffee and biscuits
15:30 – 16:30	Lecture Series (in MR15)
16:30 – 17:30	Supervision A for authors

8 Further Information

Detailed course information is available on our website:

<http://christophe.dessimoz.org/revcompbiol/>
The schedule for Lent 2013 is available from the link: **Schedule, slides, and assignments**

9 Networking Opportunities on the Course

The eight research seminars for this course are advertised widely and are very well attended. The short tea break after each seminar gives an opportunity for networking and discussion.

10 Course Preparation – A Peer-Review

During your career, you will notice that once you publish research articles, the editors of the journals are very likely to ask you to critically peer-review recently submitted manuscripts.

In this short exercise, as homework and in preparation for the third week of the course, we would like you to identify and peer-review a primary research article that has been published from any research journal in your field in 2012 or 2013.

This webpage has the definition of a primary research article:

http://www.library.arizona.edu/tutorials/primary_research_articles/

We are asking you to critically evaluate a published research article of your personal choice, and write a short peer-review of its scientific content.

You might find some of these example questions and comments helpful as a guide:

- Does the work in the research article initially pose a clear research question?
- What are your criticisms of the scientific method employed?
- Has there been a comparison of any previous methods? Remember, a comparison of previous methods is called a methodology.
- What are your criticisms of the results, the discussion and the authors' conclusions?
- Does their work answer the initial research question?
- Although the article is published, do you think the science is reported properly?
- Is the work reproducible easily by others from outside the field or outside the same area of expertise?

Please bring a copy of this short peer-review and a copy of the published research article with you on **Wednesday 23rd January (Week 2 in Lent Term)**.

11 A Writing Competition – Win an iPad!

This is not part of our course and is entirely optional. We would like to draw your attention to this competition, which is very relevant and good experience. Some of you might like to enter and write another 800 words. One of you might even win!

If you are interested, see:

<http://europepmc.org/ScienceWritingCompetition>

The winning entry will be published by *eLife*. The winner will also receive an iPad. The deadline for this is **5pm GMT on Friday 11th January 2013**.