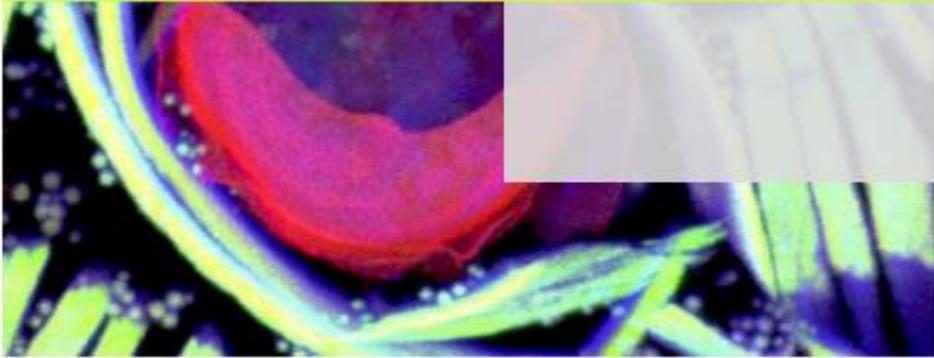




Cell & Developmental Biology

NATURAL SCIENCES TRIPOS PART IB

DEPARTMENTS OF BIOCHEMISTRY, GENETICS, PLANT SCIENCES, AND ZOOLOGY



The **Cell & Developmental Biology** course is taught by the Departments of Biochemistry, Genetics, Plant Sciences and Zoology. It is a **natural follow up to IA Biology of Cells**.

CDB provides a framework for further specialised study of molecular, cellular and developmental biology in the third year, including **Part II Genetics, Plant Sciences, Zoology, Biochemistry (for which it is a qualifying course as an alternative to IB BMB), and Physiology Neuroscience & Behaviour (PNB)**. It is also an excellent foundation for the majority of Part II biological subjects.

BOOKLIST

1. Books that cover most areas of the course:

Molecular Biology of the Cell **Alberts, B.**, et al. 6th Rev ed. Taylor & Francis; 2014 ISBN 978-0-8153-4432-2 (hard), 978-0-8153-4524-4

Essential Cell Biology **Alberts, B.**, et al. 4th Rev ed. Garland; 2013 ISBN 9780815344544

Lewin's Genes XII **Krebs, J.E.** et al. Jones & Bartlett; 2018 ISBN 9781284104493

Molecular Cell Biology **Lodish H.** et al. 8th ed. W.H. Freeman and Company; 2016 ISBN 9781464183393

2. Books recommended for specific areas of the course and for further reading:

A Genetic Switch **Ptashne, M.** 3rd ed. Cold Spring Harbor Lab Press; 2004 ISBN 0879697164

Molecular and Genome Evolution **Graur, D.** MacMillan Palgrave; 2015 ISBN 9781605354699

The Art of Genes **Coen, E.** Oxford: Oxford University Press; 2000 ISBN 0192862081

Principles of Development **Lewis Wolpert, Cheryl Tickell, Alfonso Martinez Arias**, et al. 5th edn., Oxford University Press 2015; ISBN 0199678146

Developmental Biology **Gilbert, S. F.** 11th ed. Sunderland, MA: Sinauer Associates Inc.; 2016 ISBN 9781605354705

Essential Developmental Biology **Slack, J.** 3rd ed. Oxford: Wiley-Blackwell; 2012; ISBN 0470923512

The Making of a Fly **Lawrence, P. A.** Oxford: Blackwell Science; 1992 ISBN 0632030488, pbk. Out of print, available second hand.

DETAILED COURSE INFORMATION IS PROVIDED AT THE CELL & DEVELOPMENTAL BIOLOGY WEBSITE:

WWW.BIO.CAM.AC.UK/UNDERGRADUATE/COURSES/CDB

Lectures are **Tue, Thu, Sat at 10am**, Biffen Lecture Theatre, Department of Genetics
If more than 160 register for the course, lectures will be held in Zoology Lecture Theatre

Practicals are **Fri or Tues**, CDB wing, Elementary laboratory, Department of Zoology
There will be staggered start times for all practicals to allow for clashes with lectures

Natural Sciences Tripos Part IB: Cell & Developmental Biology

COURSE CONTENT

CDB will introduce you to the major ideas and current experimental approaches to cell and developmental biology, and in the process will illustrate how molecular approaches complement classical cell biology in finding out the details of how cells carry out their basic processes. The course aims to consolidate and extend your basic knowledge of how cells work, interact and differentiate. Cell and developmental biology is a rapidly advancing field, and the course will illustrate the excitement of these advances.

MICHAELMAS TERM

Lecture: Molecular Biology of the Cell Nucleus (*Dr Torsten Krude*)

Practical: Analysis of Chromatin Structure in Human Cell Nuclei (*Dr Torsten Krude*)

Lecture: Genome Organisation and Function (*Dr Cahir O'Kane*)

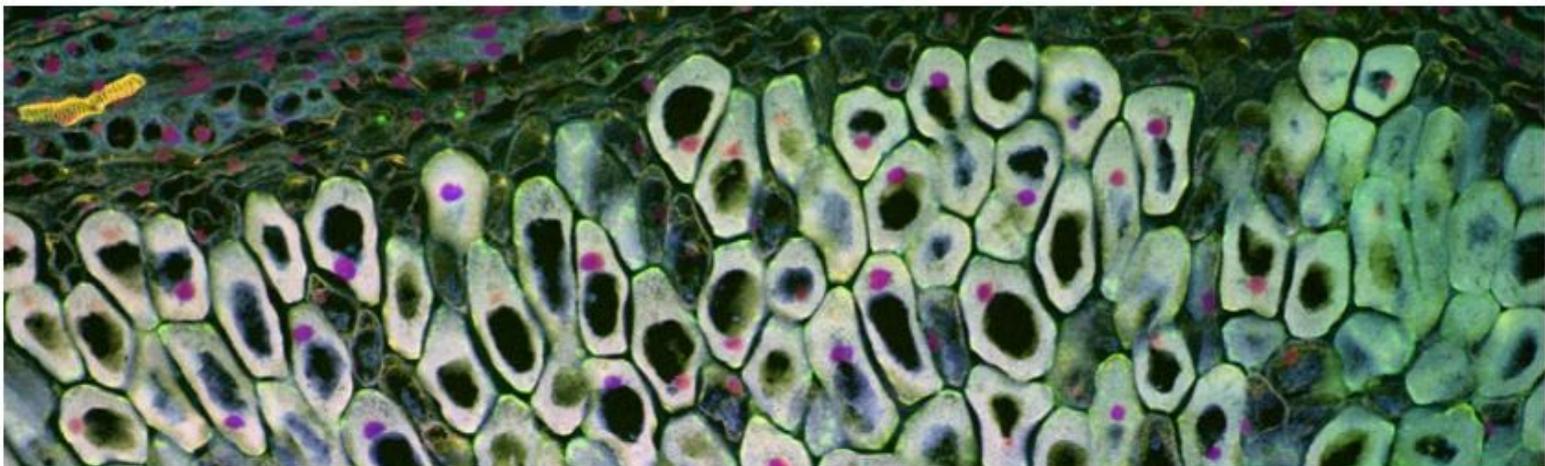
Practical: Insertional Mutagenesis on *Drosophila*, and Visualisation of Targeted GFP Expression using Fluorescence Microscopy (*Dr Cahir O'Kane*)

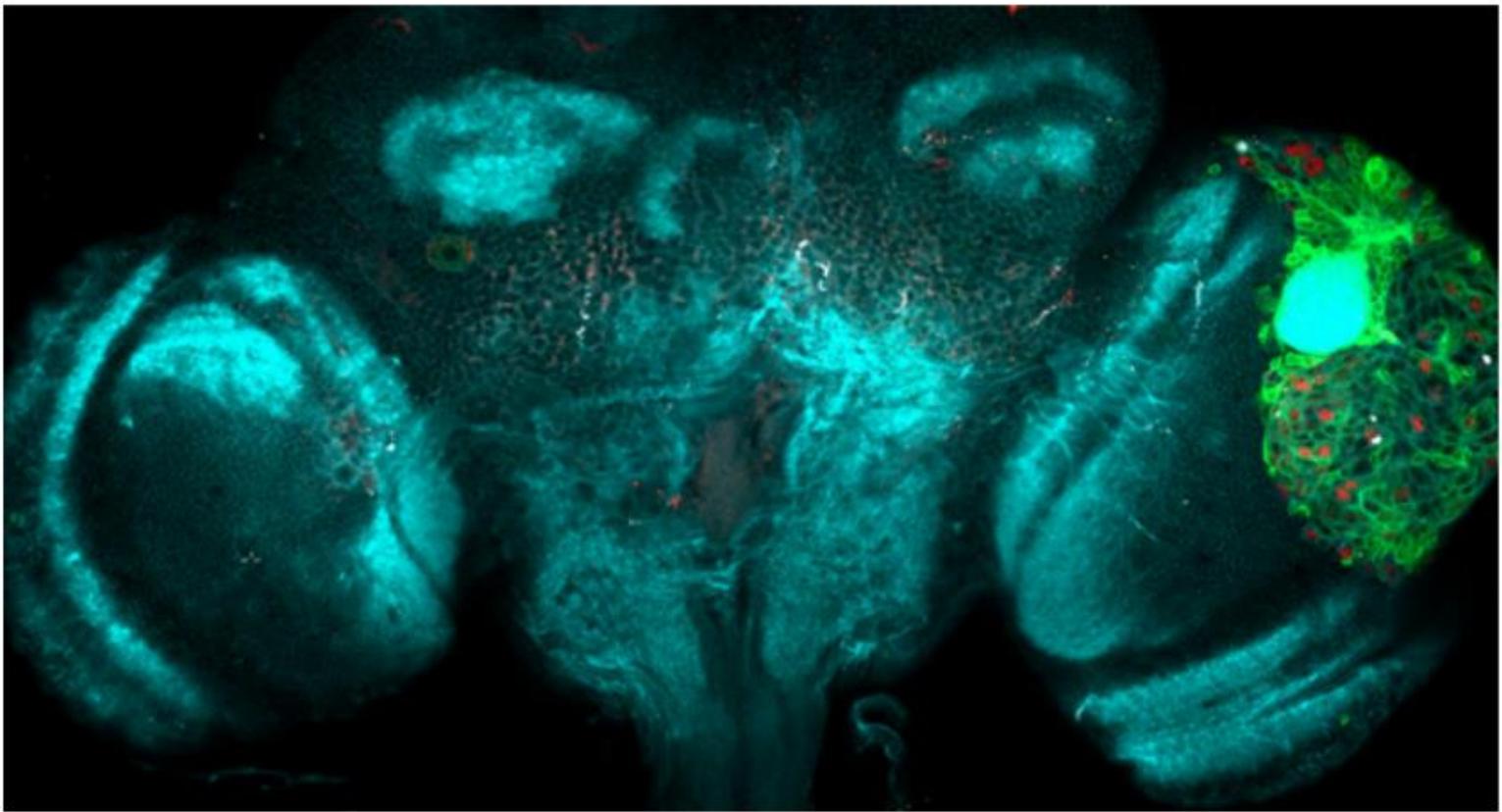
Lecture: Gene Expression and Cell Decisions (*Prof Eric Miska*)

Lecture: Yeast as Model Organism (*Dr Juan Mata*)

Practical: Analysis of Yeast Transformation (*Dr Nianshu Zhang*)

Lecture: Genetic Systems of Prokaryotes (*Dr David Summers*)





LENT TERM

Lecture: Chloroplasts and Mitochondria (*Dr Pawel Mordaka*)

Practical: Organelle Inheritance in *Chlamydomonas* (*Dr Pawel Mordaka*)

Lecture: Cytoskeleton & Mitotic Cell Division (*Dr Marisa Segal*)

Practical: Cytoskeleton Demonstration (*Dr Marisa Segal*)

Lecture: Membrane Trafficking (*Prof Paul Dupree*)

Practical: Membrane Trafficking in Eukaryotic Cells (*Prof Paul Dupree*)

Lecture: Intercellular Communication I (*Prof Alex Webb*)

Practical: Second Messenger Systems & Signalling in Real Time Demonstration (*Dr Howard Baylis*)

Lecture: Intercellular Communication II (*Dr Howard Baylis*)

Practical: Early Patterning in *Drosophila* Embryos I (*Dr Matthias Landgraf, Dr Tim Weil*)

Lecture: Invertebrate Development (*Dr Tim Weil*)

Practical: Early Patterning in *Drosophila* Embryos II (*Dr Matthias Landgraf, Dr Tim Weil*)

Practical: Problem Solving in Genomics (*Prof Jim Haseloff*)

Practical: Approaches to Critical Review (*Dr Cahir O'Kane*)

EASTER TERM

Lecture: Plant Development (*Prof Jim Haseloff*)

Practical: Self organisation of morphogens in plants (*Prof Jim Haseloff*)

Lecture: *Xenopus* and Zebrafish Development (*Dr Ben Steventon*)

Lecture: Mammalian Development (*Dr Naomi Morris*)

(Some alterations in the lecture timetable may be made to improve the course each year. This lecture list is from the current year.)