NATURAL SCIENCES TRIPOS, PART IA

MICHAELMAS 2009 **LENT 2010** **EASTER 2010**

BIOLOGY OF CELLS

Course Organiser: Dr H. Skaer (email: iacells@mole.bio.cam.ac.uk) (Secretary: Rachel Aucott, tel. 769017)
Course Website: www.bio.cam.ac.uk/teaching/cells

All lectures take place in the *Babbage Lecture Theatre, New Museums Site*, on M. W. F. 10.

DR H. SKAER
The Living Cell. (Four lectures, beginning 9 Oct.)
DR H. R. MOTT
Macromolecules in the Cell. (Five lectures, beginning 19 Oct.)
DR J. M. DAVIES
Membranes: Molecular Superstructures. (Five lectures, beginning 30 Oct.)
DR D. HANKE AND DR J. GRIFFIN
The Chemistry of Life. (Ten lectures, beginning 11 Nov.)

DR D. K. SUMMERS
Hunting the Gene. (Seven lectures, beginning 5 Jan.)
DR M. WELCH
Genes in Action. (Six lectures, beginning 1 Feb.)
DR S. RUSSELL
The Genetic Revolution. (Six lectures, beginning 15 Feb.)
PROF. R. A. LASKEY
Cell Proliferation. (Five lectures, beginning 1 Mar.)

PROF. M. BATE
Development. (Six lectures, beginning 23 Apr.)
DR A. WEBB
Cell Signalling. (Six lectures, beginning 7 May)

Practical work takes place in the *Zoological Laboratory* at 11–1 and 2–4 on M. *or* W. *or* F. For those doing Geology, practical times are 12–1 and 2–5; and for those doing Materials and Mineral Sciences times are 11–12 and 2–5.

CHEMISTRY

Course Organiser: Dr J. H. Keeler (email: jhk10@cam.ac.uk)
Course Website: www-teach.ch.cam.ac.uk

All lectures will be given in *Bristol-Myers Squibb Lecture Theatre, Department of Chemistry, Lensfield Road,* on Tu. Th. S. 10.

DR P. D. WOTHERS
Shapes and Structures of Molecules. (Nineteen lectures)
DR W. P. NOLAN
Reactions and Mechanisms in Organic Chemistry. (Five lectures)

DR W. P. NOLAN
Reactions and Mechanisms in Organic Chemistry. (Nine lectures, continued)
DR J. H. KEELER
Energetics and Equilibria. (Nine lectures)
PROF. J. A. PYLE
Kinetics of Reactions. (Six lectures)

DR N. BAMPOS
Chemistry of the Elements. (Twelve lectures)

Practical Chemistry: Weekdays 1100–1300 and 1400–1700. Students will be assigned (via the on-line system) attendance on the morning and afternoon periods of one particular day in either odd weeks (beginning Th. 8 Oct.) or even weeks (beginning Th. 15 Oct.) of the Michaelmas Term. Students should come to the *Department of Chemistry, Lensfield Road*, between 0830 and 1630 on Tu. 6 Oct. to collect course materials (handouts, practical class manuals etc).

COMPUTER SCIENCE

Course Organiser: Dr F. H. King (email: fhk1@cl.cam.ac.uk)
Course Website: www.cl.cam.ac.uk/teaching

Lectures are held in the *Arts School Room A, Bene't Street,* on M. W. F. 10, unless otherwise stated.

DR F. H. KING AND MISS C. H. NORTHEAST
Registration. Th. 11 (One lecture) *or* Th. 12 (One lecture, for those unable to attend at 11)
PROF. A. HOPPER
Introduction to Computer Science (One lecture)
PROF. L. C. PAULSON
Foundations of Computer Science (Fifteen lectures, beginning 12 Oct.)
DR P. M. SEWELL
Discrete Mathematics (Eight lectures, beginning 16 Nov.)

DR R. K. HARLE AND DR A. F. BLACKWELL
Object-Oriented Programming. M. W. F. 10 (Nine lectures)
DR A. F. BLACKWELL
Software Design. M. W. F. 10 (Seven lectures, beginning 5 Feb.), (One lecture, 24 Feb.)
DR D. R. MCAULEY
Floating-Point Computation. M. F. 10 (Six lectures, beginning 22 Feb.)

DR R. K. HARLE
Algorithms.
DR F. H. KING
Examination Briefing. W. 11 (One lecture, 19 May) *Hopkinson Lecture Room*

Practical work and afternoon classes

MR R. J. STIBBS, DR F. H. KING AND MISS C. H. NORTHEAST
Practical ML under Windows. Th. 2–5 (Two classes) *Lecture Theatre 1, William Gates Building*
PROF. L. C. PAULSON AND DR F. H. KING
Programming Practical Class. Th. 2–4 (Three fortnightly classes, beginning 22 Oct. *or* 29 Oct.) *Cockcroft Building, Floor 4*
PROF. L. C. PAULSON
How to Study Computer Science. Th. 5 (One lecture, 22 Oct.)
DR F. H. KING
Tick-Four Briefing. Th. 5 (One lecture, 29 Oct.) *Hopkinson Lecture Room*
DR T. TUERK
Help Sessions. Th. 5 (Three classes, beginning 5 Nov.) *Hopkinson Lecture Room*
DR R. J. DOWLING
How to Install Linux. Th. 5 (One lecture, 26 Nov.) *Hopkinson Lecture Room*

DR A. R. BERESFORD AND DR A. C. RICE
Programming in Java. Th. 2–4 *or* 4–6. *Intel Laboratory, William Gates Building*

DR F. H. KING AND OTHERS
Practical Class. Th. 1–4. *Intel Laboratory, William Gates Building*

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Practical work: students will be registered for practical classes during the afternoon of 8 October.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2009 **LENT 2010** **EASTER 2010**

ELEMENTARY MATHEMATICS FOR BIOLOGISTS

Course Organiser: Dr R. W. Broadhurst (email: rwb1002@cam.ac.uk)
Course Website: http://www.phar.cam.ac.uk/teaching/emb/index.html

Elementary Mathematics for Biologists is intended for students who do not have A-level Mathematics.

Lectures will be given at 9 a.m. in the *Lecture Room A, Arts School, Bene't Street*

DR J. KOENIG
Introduction. (One lecture, 9 Oct.) F.
DR J. KOENIG
Algebra, Units and Graphs. (Three lectures, 14–28 Oct.) W.
DR J. ROGERS
Trigonometry, Oscillations and Waves. (Three lectures, 30 Oct. – 6 Nov.) M. F.
PROF. P. A. MCNAUGHTON
Logarithms and Raising to Powers. (Two lectures, 9–13 Nov.) M. F.
DR R. W. BROADHURST
Calculus I. (Five lectures, 16–30 Nov.) M. F.
DR B. BECKLES
Introduction to Computing and Excel. (Five sessions) (12 – 26 Oct.) M. F. 8.30–10 *Titan Rooms 1 and 2, New Museums Site*

THE LECTURERS
Examples classes (Five classes, 4 Nov.–2 Dec.) W. 9 *Large Classroom, Department of Pharmacology*

DR R. W. BROADHURST
Calculus II. (Six lectures, 15 Jan.–1 Feb.) M. F.
DR J. W. DALLEY
Statistics. (Ten lectures, 5 Feb.–8 Mar.) M. F.

THE LECTURERS
Examples classes (Eight classes, 20 Jan.–10 Mar.) W. 9 *Large Classroom, Department of Pharmacology*

DR S. HLADKY
Curve Fitting. (Two lectures, 23 Apr.–26 Apr.) M. F.
PROF. P. A. MCNAUGHTON
Frequency Analysis. (Two lectures, 30 Apr.–3 May) M. F.
THE LECTURERS
Revision lectures. (Three lectures, 7–14 May) M. F.

THE LECTURERS
Examples classes (Two classes, 28 Apr., 5 May) W. 8.30–10 *PWF facility, Titan Rooms*; (Two classes, 12, 19 May) W. 9 *Large Classroom, Department of Pharmacology*

Examples classes: Two of the exercises in each of the Michaelmas and Lent terms and one from the Easter term will be assessed with marks counting towards the examination.

EVOLUTION AND BEHAVIOUR

Course Organiser: Dr K. M. V. Bennett (email: kmvb2@cam.ac.uk)
Course Website: www.zoo.cam.ac.uk/degree/1aevol/

All lectures are held on *Tu. Th. S. at 11 in the Main Lecture Theatre, Department of Zoology.*

DR W. A. FOSTER
Introduction to Evolutionary Biology. (Four lectures, 8 – 15 Oct.)
DR R. WARE
Evolutionary Genetics. (Eight lectures, 17 Oct. – 3 Nov.)
PROF. C. HOWE
Early Events in Evolution. (Three lectures, 5 – 10 Nov.)
PROF. J. PARKER
The Origin and Evolution of Plants. (Five lectures, 13 – 21 Nov.)
Diversification of Angiosperms. (Four lectures, 24 Nov. – 1 Dec.)

PROF. M. AKAM
The Organisation of Animal Diversity. (Six lectures, 14 – 26 Jan.)
DR R. S. K. BARNES
Major Changes and Major Constraints in Animal Evolution. (Six lectures, 28 Jan. – 9 Feb.)
PROF. N. CLAYTON AND PROF. E. B. KEVERNE
Evolution of Behaviour. (Twelve lectures, 11 Feb. – 9 Mar.)

PROF. W. MCGREW, PROF. N. CLAYTON, DR M. OKUMURA, DR J. STOCK AND PROF. S. BARON-COHEN
Primate and Human Evolution and Behaviour. (Twelve lectures, 22 Apr. – 18 May)

Practical work: M. 12–5 (alternate weeks) or Tu. 12–5 (alternate weeks) *Department of Zoology.* Students will be registered electronically for all practical courses.

GEOLOGY

Course Co-ordinator: Dr N. Hovius (e-mail: nhovius@esc.cam.ac.uk)
Course Website: https://camtools.caret.cam.ac.uk/ and http://www.esc.cam.ac.uk/teaching/geological-sciences

All lectures are given in the *Physiology Lecture Room, adjacent to the Department of Earth Sciences*, on M. W. F. 11.

PROF. J. A. JACKSON, DR M. HOLNESS
Earth as a Planet and Volcanic Processes (Twenty-four lectures)

DR N. HOVIUS AND PROF. D. HODELL
Climate and Earth Surface Processes (Eleven lectures)
PROF. S. CONWAY MORRIS
Palaeobiology (Twelve lectures)
DR N. H. WOODCOCK
Introduction to Geology of Arran (One Lecture)
Field Course in Arran
Party A. 11 – 19 March
Party B. 18 – 26 March
Party C. 25 March – 2 April

DR N. H. WOODCOCK
Britain's Geology: solving the jigsaw (Five lectures)
PROF. J. A. JACKSON AND PROF. S. CONWAY MORRIS
Planet Earth: The bigger picture (Seven lectures)

Practical work: There are three one-hour practicals to be taken per week: students choose one from each set (Set 1: F. 12, S. 10, M. 9, M. 10; Set 2: M. 12, Tu. 10, W. 9, W. 10; Set 3: W. 12, Th. 10, F. 9, F. 10), starting Friday 9th. at 12 noon.
Long Vacation Course: A course on Geological Field Methods will be given 20 – 30 September 2010 for students intending to take a geological subject in Part IB.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2009 **LENT 2010** **EASTER 2010**

MATERIALS AND MINERAL SCIENCES

Course Organiser: Prof. T. W. Clyne (email: Part IA@msm.cam.ac.uk)
Course Website: https://camtools.caret.cam.ac.uk/ and http://www.esc.cam.ac.uk/teaching/mineral-sciences

This course is offered jointly by the Department of Materials Science and Metallurgy and the Department of Earth Sciences.

All lectures are held in the *Physiology Lecture Theatre,* on M. W. F. 12.

DR R. J. HARRISON
Structure and Dynamics. (Twelve lectures)
DR Z. BARBER
Materials and Devices. (Twelve lectures)

DR N. A. RUTTER
Microstructure. (Twelve lectures)
PROF. S. A. T. REDFERN
Mechanical Behaviour of Solids. (Twelve lectures)

DR R. E. CAMERON
Biomaterials. (Six lectures)
PROF. E. ARTACHO
Materials under Extreme Conditions. (Six lectures)

Practical work: Two two-hour periods each week, one to be taken on M. 2–4, Tu. 11–1, W. 10–12 *or* W. 2–4; and the other on Th. 11–1, F. 10–12, F. 2–4 *or* M. 10–12, starting Thursday, 8 Oct. at 11 a.m.

Note: Students are advised to leave one or other of the periods Tu. 11–1 and Th. 11–1 available for the Computing Course for Physical Scientists (see p. 0000).

MATHEMATICS

Course Organiser: (email: nst@maths.cam.ac.uk)
Course Website: www.maths.cam.ac.uk/undergrad/NST

All lectures are held on Tu. Th. S. and will start at 9 a.m. promptly unless otherwise stated.

Course A

PROF. N. PEAKE
Mathematics I. *Chemical Laboratory, Lensfield Road*

DR F. H. KING
Computing Techniques and Applications*. Tu. S. 11 (Six lectures, beginning 10 Nov.) *or* Th. S. 11 (Six lectures, beginning 12 Nov.) *Chemical Laboratory, Lensfield Road*

DR S. B. DALZIEL
Mathematics II. *Chemical Laboratory, Lensfield Road*
DR F. H. KING
Assessed Exercise Briefing **. W. 4.45 –6 (One lecture, 3 Mar.) *Chemical Laboratory, Lensfield Road*

DR L. J. JARDINE-WRIGHT
Mathematics III. (Twelve lectures) *Chemical Laboratory, Lensfield Road*

Course B

DR A. D. CHALLINOR
Mathematics I. *Arts School, Room A, Bene't Street*

DR F. H. KING
Computing Techniques and Applications*. Tu. S. 11 (Six lectures, beginning 10 Nov.) *or* Th. S. 11 (Six lectures, beginning 12 Nov.) *Chemical Laboratory, Lensfield Road*

PROF. P. H. HAYNES
Mathematics II. *Arts School, Room A, Bene't Street*

DR F. H. KING
Assessed Exercise Briefing **. W. 4.45 – 6 (One lecture, 3 Mar.) *Chemical Laboratory, Lensfield Road*

PROF. J. C. B. PAPALOIZOU
Mathematics III. (Twelve lectures) *Arts School, Room A, Bene't Street*

* Candidates reading Evolution and Behaviour will be unable to attend the Computing Techniques and Applications course at the times shown. For these candidates, a special run of the course will be held from 9 to 1 on Thursday 3 to Friday 4 December 2009 in *Titan Teaching Room 2, New Museums Site*.

** The assessed computing exercise will be taken into account by the Examiners. The briefing consists of a short period of administration followed by a regular lecture explaining the detailed requirements of the exercise. The assessments will take place in the afternoons of 3, 4 and 5 May 2010 in the *Foyer of the Babbage Lecture Theatre*. Further details will be issued during the briefing.

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NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2009	LENT 2010	EASTER 2010

PHYSICS

Departmental Contact: Dr R. Padman (email: IA-physics@phy.cam.ac.uk)
Course Website: www.phy.cam.ac.uk/teaching/

All lectures take place in the *Bristol Myers Squibb Lecture Theatre, Chemical Laboratory, Lensfield Road* on M. W. F. at 9.

MICHAELMAS 2009	LENT 2010	EASTER 2010
DR J. M. RILEY Mechanics (twelve lectures)	PROF. A. M. DONALD Waves and Quantum Waves (twelve lectures)	DR R. E. ANSORGE Gravitational and Electromagnetic Fields (twelve lectures)
DR G. A. C. JONES Oscillating Systems (twelve lectures, beginning 6 Nov.)	DR P. J. DUFFETT-SMITH Special Relativity and Advanced Mechanics (twelve lectures, beginning 12 Feb.)	
Laboratory Work		
DR J. M. RILEY, DR D. A. GREEN AND OTHERS Experimental Physics. M. *or* Tu. *or* Th. *or* F. 2–5.45 Students attend one afternoon every fortnight.	DR J. M. RILEY, DR D. A. GREEN AND OTHERS The same continued.	DR J. M. RILEY, DR D. A. GREEN AND OTHERS The same continued.

Laboratory Work takes place at the *Cavendish Laboratory (West Cambridge)*. All students must attend an introductory talk and register for **Laboratory Work** at 11.00 a.m. on W. 7 Oct. at the *Cavendish Laboratory*. The Laboratory may be approached by the Madingley Road, or via the Coton cycle and footpath. For cyclists and pedestrians the latter is strongly recommended. **Laboratory work is continuously assessed**.

PHYSIOLOGY OF ORGANISMS

Course Organiser: Dr Matthew J. Mason (email: mjm68@cam.ac.uk)
Course websites: http://www.pdn.cam.ac.uk/teaching/1a-poo.shtml https://camtools.caret.cam.ac.uk/portal

All lectures take place in the *Physiology Main Lecture Theatre* on Tu. Th. S. 12.

MICHAELMAS 2009	LENT 2010	EASTER 2010
DR MATTHEW J. MASON An Introduction to Physiology. (Three lectures, 8–13 Oct.)	DR D. J. TOLHURST Animal Nutrient Acquisition. (Three lectures, 14–19 Jan.)	DR A. J. MURRAY Energy and Temperature Balance. (Four lectures, 22–29 Apr.)
PROF. A. C. CRAWFORD Nerves, Synapses and Sense Organs. (Five lectures, 15–24 Oct.)	DR MATTHEW J. MASON Integrative Animal Physiology. (Two lectures, 21–23 Jan.)	DR W. FEDERLE Comparative Physiology: Form and Function. (Six lectures, 1–13 May)
DR J. A. FRASER Structure and Function of Muscle. (Three lectures, 27–31 Oct.)	DR D. HANKE Plant Physiology: an Introduction. (Four lectures, 26 Jan. – 2 Feb.)	DR C. SCHWIENING AND DR J. M. HIBBERD Comparing the Physiology of Plants and Animals. (Seminar, 15 May)
DR D. A. GIUSANI Cardiovascular Physiology. (Three lectures, 3–7 Nov.)	DR B. J. GLOVER Plant Hormones. (Four lectures, 4–11 Feb.)	
DR S. O. SAGE Osmoregulation in Animals. (Four lectures, 10–17 Nov.)	PROF. H. GRIFFITHS Plant Adaptations and Interactions. (Five lectures, 13–23 Feb.)	
DR MICHAEL J. MASON Animal O_2 Acquisition and Respiration. (Three lectures, 19–24 Nov.)	DR K. JOHNSTONE Physiology of Plant – Microbe Interactions. (Six lectures, 25 Feb.–9 Mar.)	
DR MATTHEW J. MASON Homeostasis. (Three lectures, 26 Nov. – 1 Dec.)		
Practical Work W. *or* F. 12–1 and 2–5	The same continued.	The same continued.

Practical Work: Students should register electronically for all biological practical courses.

NATURAL SCIENCES TRIPOS, PART IA (continued) AND PART IB

MICHAELMAS 2009 **LENT 2010** **EASTER 2010**

MATHEMATICAL BIOLOGY

Course Organiser: Dr N. Cunniffe: (email: njc1001@cam.ac.uk)

Mathematical Biology is intended for those students who have studied Mathematics at GCE A-level or its equivalent. It does not provide a qualification for offering Mathematics in Part IB of the Natural Sciences Tripos.

Lectures will be held in the *Main Lecture Theatre, Department of Zoology*, Tu. Th. S. 9

DR N. CUNNIFFE
Introduction to the Growth and Decline of Populations. (Fifteen lectures, 8 Oct.–10 Nov.)
DR J. KOENIG
Physiological Modelling. (Nine lectures, 12–1 Dec.)

MR J. J. TRAPP
Introduction to Modelling of Interacting Populations. (Eleven lectures, 14 Jan.–6 Feb.)
DR R. JOHNSTONE AND DR A. MANICA
Introduction to Statistical Methods. (Thirteen Lectures, 9 Feb.–9 Mar.)

DR L. PALLA
Matrix algebra. (Six lectures, 22 Apr.–4 May)
DR C. RUSSELL
Interacting Populations: Ecological Applications. (Six lectures, 6–18 May)

Computer practicals and Examples classes in the *Titan Teaching Room, New Museum Site*, unless otherwise stated.

Examples classes and Computer Practicals: Th. 2–3.15, 3.30–4.45 *or* 4.45–6

Practical Work. Students will be registered electronically for all practical courses.

PART IB

ANIMAL BIOLOGY

Course Organiser: Dr B. Hedwig (email: bh202@cam.ac.uk)
Course website: http://www.zoo.cam.ac.uk/degree/AB.html

All lectures take place in the *Main Lecture Theatre, Department of Zoology* at M. W. F. 11

All practicals take place in the *Elementary Laboratory, Department of Zoology*

PROF. N. B. DAVIES AND DR R. M. KILNER
Behaviour and Ecology. (Twelve lectures beginning 9 Oct.)
DR B. HEDWIG AND PROF. M. BURROWS
Brains and Behaviour. (Twelve lectures, beginning 6 Nov.)

DR W. FEDERLE, DR E. TURNER AND DR F. ELLWOOD
Adaptation and Evolution: Insect Biology. (Twelve lectures, beginning 15 Jan.)
PROF. J. A. CLACK AND DR R. ASHER
Adaptation and Evolution: Vertebrate Evolutionary Biology. (Twelve lectures, beginning 12 Feb.)

DR R. A. JOHNSTONE AND DR N. I. MUNDY
Evolutionary Principles. (Twelve lectures, beginning 21 Apr.)
Note the early start of this course.

Practical work: Students will be expected to do four hours practical work per fortnight between 12 and 5 on Wednesdays *or* Thursdays. All practicals take place in the *Elementary Laboratory, Department of Zoology.* Students should register for all biological practical courses on W. 7 Oct. between 11.00 and 12.15 in *the Senate House*.

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