

NATURAL SCIENCES TRIPOS, PART IA

MICHAELMAS 2007

LENT 2008

EASTER 2008

BIOLOGY OF CELLS

Course Organiser: Dr F. Hollfelder (email: iacells@mole.bio.cam.ac.uk) (Secretary: Mrs Christine Thulborn, tel. 766025)
 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 S. H. P. MADDRELL
The Living Cell. (Four lectures, beginning 5 Oct.)
 DR H. R. MOTT
Macromolecules in the Cell. (Five lectures, beginning 15 Oct.)
 DR J. M. DAVIES
Membranes: Molecular Superstructures. (Five lectures, beginning 26 Oct.)
 DR A. SMITH AND DR J. GRIFFIN
The Chemistry of Life. (Ten lectures, beginning 7 Nov.)

DR D. K. SUMMERS
Hunting the Gene. (Seven lectures, beginning 18 Jan.)
 DR M. WELCH
Genes in Action. (Six lectures, beginning 4 Feb.)
 DR S. RUSSELL
The Genetic Revolution. (Six lectures, beginning 18 Feb.)
 PROF. R. A. LASKEY
Cell Proliferation. (Five lectures, beginning 3 Mar.)

DR A. WEBB
Cell Signalling. (Six lectures, beginning 25 Apr.)
 PROF. J. SMITH
Development. (Six lectures, beginning 9 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. Students will be registered electronically for all practical courses.

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)
 DR S. CLARKE
Kinetics of Reactions. (Six lectures)

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

Practical Chemistry: M. W. F. 1000–1200 or 1100–1300 and 1400–1700; Tu. Th. 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. 4 Oct.) or even weeks (beginning Th. 11 Oct.) of the Michaelmas Term. Students should come to the *Department of Chemistry, Lensfield Road*, between 0830 and 1630 on Tu. 2 Oct. to collect course materials (handouts, practical class manuals etc).

ELEMENTARY MATHEMATICS FOR BIOLOGISTS

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

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 *Rayleigh Lecture Theatre, New Museums Site*

DR J. KOENIG
Introduction. (One lecture, 5 Oct.) F.
 DR J. KOENIG
Algebra, Units and Graphs. (Three lectures, 10–24 Oct.) W.
 DR J. ROGERS
Trigonometry, Oscillations and Waves. (Three lectures, 26 Oct. – 2 Nov.) M. F.
 PROF. P. A. MCNAUGHTON
Logarithms and Raising to Powers. (Two lectures, 5–9 Nov.) M. F.
 DR R. W. BROADHURST
Calculus I. (Five lectures, 12–26 Nov.) M. F.
 DR F. H. KING
Introduction to Computing and Excel. (Five sessions 8–22 Oct.) M. F. 8.30–10 *Titan Rooms 1 and 2, New Museums Site*
 THE LECTURERS
Examples classes (Five classes, 30 Oct.–28 Nov.) W. 9 *Large Classroom, Department of Pharmacology*

DR R. W. BROADHURST
Calculus II. (Six lectures, 18 Jan.–4 Feb.) M. F.
 DR M. AITKEN
Statistics. (Ten lectures, 8 Feb.–10 Mar.) M. F.

THE LECTURERS
Examples classes (Eight classes, 23 Jan.–12 Mar.) W. 9 *Large Classroom, Department of Pharmacology*

DR S. HLADKY
Curve Fitting. (Two lectures, 25 Apr.–28 Apr.) M. F.
 PROF. P. A. MCNAUGHTON
Frequency Analysis. (Two lectures, 2–5 May) M. F.
 THE LECTURERS
Revision lectures. (Three lectures, 9–16 May) M. F.

THE LECTURERS
Examples classes (Two classes, 30 Apr, 7 May) W. 8.30–10 *PWF facility, Titan Rooms, (Two classes, 14, 21 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.

Practical work: Students will be registered electronically for all practical courses.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2007

LENT 2008

EASTER 2008

EVOLUTION AND BEHAVIOUR

Course Organiser: Dr B. J. Glover (email: bjg26@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, beginning 4 Oct.)

PROF. M. MAJERUS AND MS R. WARE

Evolutionary Genetics. (Eight lectures, beginning 13 Oct.)

PROF. C. HOWE

Early Events in Evolution. (Three lectures, beginning 1 Nov.)

PROF. J. PARKER

The Origin and Evolution of Plants. (Five lectures, beginning 8 Nov.)

DR B. J. GLOVER

Diversification of Angiosperms. (Four lectures, beginning 20 Nov.)

DR R. S. K. BARNES

Major Changes and Major Constraints in Animal Evolution. (Six lectures, beginning 17 Jan.)

DR A. MAHON

The Organisation of Animal Diversity. (Six lectures, beginning 31 Jan.)

PROF. N. CLAYTON, PROF. E. B. KEVERNE AND PROF. A. DICKINSON

Evolution of Behaviour. (Twelve lectures, beginning 14 Feb.)

DR L. KNAPP, DR M. PETRAGLIA, PROF. A.

DICKINSON, DR J. STOCK AND PROF. S. BARON-COHEN

Primate and Human Evolution and

Behaviour. (Twelve lectures, beginning 24 Apr.)

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 (email: nhovius@esc.cam.ac.uk)
 Course Website: <http://www.esc.cam.ac.uk/new/v10/teaching/geology/ia/courses.html>

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)

PROF. S. CONWAY MORRIS

Palaeobiology (Twelve lectures)

DR N. HOVIUS

Earth Surface Processes and Sediments (Eleven lectures)

DR N. H. WOODCOCK

Introduction to Geology of Arran (One Lecture)

Field Course in Arran

Party A. 13 – 21 March

Party B. 3 – 11 April

Party C. 10 – 18 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). Students will be registered electronically for all practical courses.

Long Vacation Course: A course on Geological Field Methods will be given 15 September – 25 September 2008 for students intending to take a geological subject in Part IB.

MATERIALS AND MINERAL SCIENCES

Course organiser: N. D. Mathur (email: ndm12@cam.ac.uk)
 Course Website: <http://www.msm.cam.ac.uk/Teaching/matmin1a/index.html>

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 I. J. FARNAN

Organisation of Atoms in Crystals. (Eight lectures)

DR R. J. HARRISON

Dynamics of Disordered Materials. (Eight lectures)

DR J. L. DRISCOLL

Materials Devices. (Eight lectures)

DR N. A. RUTTER

Microstructure. (Twelve lectures)

PROF. T. W. CLYNE

Mechanical Behaviour of Solids. (Twelve lectures)

PROF. A. L. GREER

Biomaterials. (Six lectures)

PROF. S. A. T. REDFERN

Materials under Extreme Conditions. (Six lectures)

Practical Work: Students will be assigned attendance for two two-hour periods each week, one 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 4 Oct. at 11 a.m. Students will be registered electronically for all practical courses.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2007

LENT 2008

EASTER 2008

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 6 Nov.) or Th. S. 11 (Six lectures, beginning 8 Nov.) *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 6 Nov.) or Th. S. 11 (Six lectures, beginning 8 Nov.) *Chemical Laboratory, Lensfield Road*

PROF. M. J. PERRY

Mathematics II. *Chemical Laboratory, Lensfield Road*

DR F. H. KING

Assessed Exercise Briefing **. W. 4.30–6 (One lecture, 12 Mar.) *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. 4.30–6 (One lecture, 12 Mar.) *Chemical Laboratory, Lensfield Road*

DR L. J. WRIGHT

Mathematics III. (Twelve lectures) *Chemical Laboratory, Lensfield Road*

PROF. R. R. HORGAN

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 4 on Thursday 29 November in *Titan Teaching Room 2, New Museums Site*.

** The assessed computing exercise will be taken into account by the Examiners. Note that the briefing takes place in the afternoon of the last day of normal lectures. The briefing consists of approximately half an hour of exercise administration followed by a regular lecture explaining the detailed requirements of the exercise. The assessments will take place in the afternoons of 5, 6, and 7 May 2008 in the *Foyer of the Babbage Lecture Theatre*. Further details will be issued during the briefing.

Students will be registered electronically for all practical courses.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2007

LENT 2008

EASTER 2008

PHYSICS

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

All lectures are on M. W. F. at 9

All lectures take place in the *Chemical Laboratory, Lensfield Road*

DR P. J. DUFFETT-SMITH Principles of Relativity, Mechanics and Fields. (Nineteen lectures)	DR G. A. C. JONES The same continued. (First sixteen lectures)	PROF. C. G. SMITH The same continued (first ten lectures).
DR G. A. C. JONES Electromagnetism, Oscillations and Waves. (Last three lectures, beginning 23 Nov.)	PROF. C. G. SMITH Quantum Physics and the Physics of Large Systems. (Last eight lectures, beginning 25 Feb.)	DR P. J. DUFFETT-SMITH AND DR G. A. C. JONES Revision Lectures (M. 19 May and W. 21 May)
DR D. A. GREEN Experimental Physics. (Two lectures, W. 17 Oct. and W. 31 Oct.)	DR J. M. RILEY AND OTHERS The same continued.	DR J. M. RILEY AND OTHERS The same continued.
Laboratory Work DR J. M. RILEY AND OTHERS Experimental Physics. M. or Tu. or Th. or F. 2–6 Students attend one afternoon every fortnight.		

Laboratory Work takes place at the *Cavendish Laboratory (West Cambridge)*. All students must attend an introductory talk and register for **Laboratory Work** at 11.30 a.m. on W. 3 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.**

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

PHYSIOLOGY OF ORGANISMS

Course Organiser: Dr. Matthew J. Mason (email: mjm68@cam.ac.uk)
 Course websites: www.pdn.cam.ac.uk/teaching/part1a/1a_poo/
<http://camtools.caret.cam.ac.uk/portal>

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

DR MATTHEW J. MASON Introduction to Physiology. (Three lectures, 4–9 Oct.)	DR MATTHEW J. MASON Homeostasis. (Five lectures, 17–26 Jan.)	DR D. J. TOLHURST Food Intake and Energy Balance. (Four lectures, 24 Apr. – 1 May)
DR D. J. TOLHURST Nerve, Synapse and Sense Organs. (Five lectures, 11–20 Oct.)	DR J. M. HIBBERD Plant Physiology: an Introduction. (Four lectures, 29 Jan.–5 Feb.)	PROF. C. P. ELLINGTON Integrative Animal Physiology. (Six lectures, 3–15 May)
PROF. R. C. THOMAS The Structure and Function of Muscle. (Three lectures, 23–27 Oct)	DR B. J. CLOVER Plant Hormones. (Four lectures, 7–14 Feb.)	DR C. J. SCHWIENING AND DR J. M. HIBBERD Comparing the Physiology of Plants and Animals. (Seminar, 17 May)
DR MICHAEL J. MASON Animal O ₂ Acquisition and Respiration. (Three lectures, 30 Oct.–3 Nov.)	PROF. H. GRIFFITHS Plant Environmental Physiology. (Five lectures, 16–26 Feb.)	
DR S. O. SAGE Osmoregulation in Animals. (Four lectures, 6–13 Nov.)	DR K. JOHNSTONE AND DR J. DAVIES Physiology of Plant – Microbe Interactions. (Six lectures, 28 Feb.–11 Mar.)	
DR T. TIFFERT Animal Nutrient Acquisition. (Three lectures, 15–20 Nov.)		
DR D. A. GIUSSANI Cardiovascular Physiology. (Three lectures, 22–27 Nov.)		
Practical Work W. or F. 12–1 and 2–5	The same continued.	The same continued.

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

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

MICHAELMAS 2007

LENT 2008

EASTER 2008

QUANTITATIVE BIOLOGY

Course Organiser: Dr A. Manica (email: a.manica@zoo.cam.ac.uk)
 Course Website: www.quns.cam.ac.uk/qb/

Quantitative 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. New material comprising the course syllabus will be presented in the Tuesday and Thursday lectures. Additional worked examples, together with revision to aid the transition from GCE A-level, will be presented in the Saturday lectures. There will be no more than six Saturday lectures during the Michaelmas and Lent Terms and three in the Easter Term.

Lectures will be held in the *Large Lecture Theatre, Department of Plant Sciences, Computer practicals and Examples classes in the Titan Teaching Room, New Museum Site*, unless otherwise stated

Lectures. Tu. Th. 9

A. N. OTHER

Introduction to the Growth and Decline of Populations.
 (Ten lectures, 4 Oct. – 6 Nov.)

DR J. LUDLAM

Physiological Modeling. (Six lectures, 8–27 Nov.)

MR J. J. TRAPP

Introduction to Modeling of Interacting
 Populations. (Seven lectures, 17 Jan. – 7
 Feb.)

DR A. MANICA

Introduction to Statistical Methods. (Nine
 lectures, 12 Feb. – 11 Mar.)

DR R. JOHNSTONE

Optimisation and Game Theory. (Four
 lectures, 24 Apr. – 6 May)

DR J. GOG

Interacting Populations: Ecological
 Applications. (Four lectures, 8–20 May)

Supplementary lectures. S. 9

These lectures are to aid the transition from A level, and to present worked examples from the syllabus.

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

Students will be registered electronically for all practical courses.

A. N. OTHER, DR J. LUDLAM AND DR R. JOHNSTONE

MR J. J. TRAPP, DR R. JOHNSTONE AND DR A.
MANICA

DR R. JOHNSTONE, DR J. GOG

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: www.zoo.cam.ac.uk/degree/1banimal/index.html

Candidates who intend to read Part II Zoology and who have not taken Evolution and Behaviour are recommended to attend one of the Easter Vacation Field Courses (if running). Details are posted in the Laboratory.

Lectures will take place at the *Main Lecture Theatre Department of Zoology M. W. F. 11*

PROF. N. B. DAVIES AND DR R. KILNER

Behaviour and Ecology. (Twelve lectures, beginning
 5 Oct.)

PROF. S. B. LAUGHLIN AND PROF. M. BURROWS

Brain and Behaviour. (Twelve lectures, beginning 2 Nov.)

DR W. FEDERLE AND DR W. A. FOSTER

Adaptation and Evolution: Insect Biology.
 (Twelve lectures, beginning 18 Jan.)

PROF. J. A. CLACK AND DR R. ASHER

Adaptation and Evolution: Vertebrate
 Evolutionary Biology. (Twelve lectures,
 beginning 15 Feb.)

DR R. A. JOHNSTONE AND DR N. I. MUNDY

Evolutionary Principles. (Twelve lectures,
 beginning 23 Apr.)

Note the early start of this course.

Practical work. Students will be expected to do four hours practical work per week between 12 and 5 on Wednesdays or 12 and 5 on Thursdays. Students should register for all biological practical courses on W. 3 Oct. between 10.00 and 11.15 in the *Small Examinations Hall, Arts School, New Museums Site*.