NATURAL SCIENCES TRIPOS, PART IA

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

BIOLOGY OF CELLS

Course Organiser: Dr Keith Johnstone E-mail: keith.johnstone@plantsci.cam.ac.uk

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 10 Oct.)
PROF. D. J. ELLAR
Macromolecules in the Cell. (Five lectures, beginning 20 Oct.)
DR M. TESTER
Membranes: Molecular Superstructures. (Five lectures, beginning 31 Oct.)
DR A. SMITH AND DR B. R. MARTIN
The Chemistry of Life. (Ten lectures, beginning 12 Nov.)

DR D. K. SUMMERS
Hunting the Gene. (Seven lectures, beginning 16 Jan.)
DR C. J. HOWE
Genes in Action. (Six lectures, beginning 2 Feb.)
PROF. D. GLOVER
The Genetic Revolution. (Six lectures, beginning 16 Feb.)
PROF. R. A. LASKEY
Cell Proliferation. (Five lectures, beginning 1 Mar.)

DR K. JOHNSTONE
Cell Signalling. (Six lectures, beginning 23 Apr.)
PROF. J. SMITH
Development. (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. Students should register for all biological practical courses on Tuesday, 7 Oct. between 2.00 and 3.45 in the *Senate House*.

CHEMISTRY

Course Organiser: Dr J. H. Keeler E-mail: James.Keeler@ch.cam.ac.uk

All lectures will be given in *Lecture Room 1, 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 P. D. WOTHERS
Chemistry of the Elements. (Twelve lectures)

Practical Chemistry: M. W. F. 10–12 or 11–1 and 2–5; Tu. Th. 11–1 and 2–5. Students should register in the *Department of Chemistry, Lensfield Road*, between 8.30 and 12.30 or 2 and 4.30 on Tuesday, 7 Oct. when they will be assigned attendance on the morning and afternoon periods of one particular day in either odd weeks (beginning Th. 9 Oct.) or even weeks (beginning Th. 16 Oct.) of the Michaelmas term

ELEMENTARY MATHEMATICS FOR BIOLOGISTS

Course Organiser: Dr S. Hladky E-mail: sbh1@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. It is to be noted that this course does not provide a qualification for offering Mathematics together with only one other subject in Part IB of the Natural Sciences Tripos.

Lectures will be given at 9 a.m. in the *Rayleigh Lecture Theatre, New Museums Site*

DR S. B. HLADKY
Introduction. (One lecture, 10 Oct.) F.
DR S. B. HLADKY
Algebra, Units and Graphs. (Three lectures, 15–29 Oct.) W.
PROF. P. A. MCNAUGHTON
Logarithms and Raising to Powers. (Two lectures, 31 Oct., 3 Nov.) M. F.
DR J. ROGERS
Trigonometry and Graphs. (Three lectures, 7–14 Nov.) M. F.
DR R. W. BROADHURST
Calculus I. (Five lectures, 17 Nov.–1 Dec.) M. F.
DR F. H. KING AND DR S. B. HLADKY
Introduction to Computing and Excel. (Five sessions) (13 – 27 Oct.) M. F. 8.30–10 *Titan Rooms 1 and 2, New Museums Site*
THE LECTURERS
Examples classes (Five classes, 5 Nov.–3 Dec.) W. 9 *Large Classroom, Department of Pharmacology*

DR R. W. BROADHURST
Calculus II. (Six lectures, 16 Jan.–2 Feb.) M. F.
DR M. AITKIN
Statistics. (Ten lectures, 6 Feb.–8 Mar.) M. F.

THE LECTURERS
Examples classes (Eight classes, 21 Jan.–10 Mar.) W. 9 *Large Classroom, Department of Pharmacology*

DR S. B. HLADKY
Curve Fitting. (Three lectures, 23, 26 Apr., 7 May) M. F.
PROF. P. A. MCNAUGHTON
Frequency Analysis. (Two lectures, 30 Apr., 3 May) M. F.
THE LECTURERS
Revision lectures. (Two lectures, 10, 14 May) M. F

THE LECTURERS
Examples classes (Two classes, 28 Apr., 12 May) W. 8.30–10 *PWF facility, Titan Rooms*, (Two classes, 5, 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.

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NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

EVOLUTION AND BEHAVIOUR

Course Organiser: Dr R. Preece E-mail: r.c.preece@zoo.cam.ac.uk

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

DR W. A. FOSTER
Introduction to Evolutionary Biology. (Four lectures, beginning 9 Oct.)
DR F. BALLOUX
Evolutionary Genetics. (Eight lectures, beginning 18 Oct.)
DR C. J. HOWE
Early Events in Evolution. (Three lectures, beginning 6 Nov.)
PROF. J. PARKER
The Origin and Evolution of Plants. (Five lectures, beginning 13 Nov.)
DR B. J. GLOVER
Diversification of Plants. (Four lectures, beginning 25 Nov.)

PROF. M. E. AKAM
The Organisation of Animal Diversity. (Six lectures, beginning 15 Jan.)
DR D. BARNES
Major Changes and Major Constraints in Animal Evolution. (Six lectures, beginning 29 Jan.)
DR N. CLAYTON, PROF. E. B. KEVERNE AND PROF. A. DICKINSON
Evolution of Behaviour. (Twelve lectures, beginning 12 Feb.)

PROF. A. DICKINSON, DR N. CLAYTON, DR P. LEE AND DR M. PETRAGLIA
Primate and Human Evolution and Behaviour. (Twelve lectures, beginning 22 Apr.)

Practical work: M. 12–5 (alternate weeks) or Tu. 12–5 (alternate weeks) *Department of Zoology.* Students should register for all biological practical courses on Tuesday, 7 Oct. between 2.00 and 3.45 in *the Senate House*.

GEOLOGY

Course Organiser: Dr N. Hovius E-mail: nhovius@esc.cam.ac.uk

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 AND DR M. HOLNESS
Earth as a Planet and Volcanic Processes. (Twenty-four lectures)

PROF. S. CONWAY-MORRIS
Palaeobiology. (Eleven lectures)
DR N. HOVIUS
Earth Surface Processes and Sediments. (Twelve lectures)
DR A. G. SMITH
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). Students must register for practical classes in the *Department of Earth Sciences* on Tuesday, 7 Oct. between 9.30 and 1 or 2.30 and 5.

Long Vacation Course: A course on Geological Field Methods will be given 20–30 Sept 2004 for students intending to take a geological subject in Part IB.

MATERIALS AND MINERAL SCIENCES

Course Organiser: Dr J. A. Little E-mail: Part IA@msm.cam.ac.uk

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

PROF. M. A. CARPENTER
Organisation of atoms in crystals. (Eight lectures)
DR S. A. T. REDFERN
Order and Disorder. (Eight lectures)
DR P. D. BRISTOWE
Materials and Devices. (Eight lectures)

DR Z. H. BARBER
Microstructure. (Twelve lectures)
PROF. T. W. CLYNE
Mechanical Behaviour of Solids. (Twelve lectures)

PROF. A. L. GREER
Bio-Materials. (Six lectures)
DR M. T. DOVE
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, 9 Oct. at 11 a.m. Students should register for practical work at the *Class Laboratory, Department of Materials Science and Metallurgy* between 9.30 and 12.30 or 2.30 and 4.30 on Tuesday, 7 Oct.

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. 180).

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NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

MATHEMATICS

Course Organiser: E-mail: nst@maths.cam.ac.uk

All students should also attend at least the first lecture of the Computing Course for Physical Scientists given in the Michaelmas Term (see below).

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

Course A

DR I. R. PARRY
Mathematics I. *Physiological Laboratory*
Examples Class W. 4.30–6 (Two classes, 12, 26 Nov.) *Arts School, Room A*

DR J. M. RALLISON
Mathematics II. (Sixteen lectures, ending 19 Feb.) *Physiological Laboratory*
Examples Class W. 4.30–6 (Two classes, 4, 18 Feb.) *Arts School, Room A*

DR F. H. KING
Computing Techniques and Applications. (Six lectures, beginning 21 Feb.) *Chemical Laboratory*
Practical work. see comment below

DR H. E. MASON
Mathematics III. (Twelve lectures) *Physiological Laboratory*

Course B

DR R. ANSORGE
Mathematics I. *Chemical Laboratory*
Examples Class W. 4.30–6 (Four classes, 22 Oct., 5, 19 Nov., 3 Dec.) *Arts School, Room A*

DR M. G. WORSTER
Mathematics II. (Sixteen lectures, ending 19 Feb.) *Chemical Laboratory*
Examples Class W. 4.30–6 (Two classes, 11, 25 Feb.) *Arts School, Room A*

DR F. H. KING
Computing Techniques and Applications. (Six lectures, beginning 21 Feb.) *Chemical Laboratory*
Practical work. see comment below

PROF. J. WILLIS
Mathematics III. (Twelve lectures) *Chemical Laboratory*

Associated with the Computing Techniques and Applications course there will be an assessed computing exercise which will be taken into account by the Examiners. The assessments will take place in the afternoons of 3, 4, and 5 May 2004 in the *Foyer of the Babbage Lecture Theatre*. Further details will be issued during the first lecture of the Computing Course for Physical Scientists (see below).

COMPUTING COURSE FOR PHYSICAL SCIENTISTS

Course A is intended to be that which is normally taken. **Course B** takes place outside lecture term and is intended for undergraduates reading Evolution and Behaviour. The two courses will be identical in content.

Course A

DR F. H. KING
Scientific Computing. Tu. S. 11 (Six lectures, beginning 11 Nov.) *or* Th. S. 11 (Six lectures, beginning 13 Nov.) *Chemical Laboratory, Lensfield Road*

Practical work: Registration for a total of one hour of formal practical work will take place in the first lecture. The computing facilities used for the practical work will be available for informal use throughout the year.

Course B

DR F. H. KING
Scientific Computing. Th. F. 9 (Two days, beginning 4 Dec.) *Titan Teaching Room, New Museums Site*

Practical work: Formal practical work will be included in the two-day period. The computing facilities used for the practical work will be available for informal use throughout the year.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004

PHYSICS

Course Organiser: Dr G. A. C. Jones E-mail: IA-physics@phy.cam.ac.uk

Courses A and B are alternatives which cover the same syllabus. Those intending to continue with physics in later years can attend either course without disadvantage. **Course A** may be more suitable for students who took single-subject mathematics at A-level. Students are recommended to attend **course PC** 'Computing Course for Physical Scientists' (see p. 180) unless they are familiar with spreadsheets and computer-aided algebra.

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

Course A is given in the *Cockcroft Lecture Theatre, New Museums Site;*

Course B is given in the *Chemical Laboratory, Lensfield Road.*

MICHAELMAS 2003	LENT 2004	EASTER 2004
Course A		
DR D. A. GREEN Mechanics and Relativity. (First twenty lectures)	DR G. A. C. JONES Fields, Oscillations and Waves. (First sixteen lectures)	
DR G. A. C. JONES Fields, Oscillations and Waves. (Last four lectures)	PROF. M. S. LONGAIR Statistical and Quantum Physics. (Last eight lectures)	PROF. M. S. LONGAIR The same continued.
Course B		
DR S. R. JULIAN Mechanics and Relativity. (First twenty lectures)	DR J. RILEY Fields, Oscillations and Waves. (First sixteen lectures)	
DR J. RILEY Fields, Oscillations and Waves. (Last four lectures)	DR P. ALEXANDER Statistical and Quantum Physics. (Last eight lectures)	DR P. ALEXANDER The same continued.
Laboratory Work		
DR C. A. HANIFF AND OTHERS Experimental Physics. M. *or* Tu. *or* Th. *or* F. 2–6 Students attend one afternoon every fortnight.	DR G. A. C. JONES AND OTHERS The same continued.	DR C. J. B. FORD 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 11.30 a.m. on Wednesday, 8 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: Prof. A. C. Crawford E-mail: ac151@cam.ac.uk
Course website: www.physiol.cam.ac.uk/

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

MICHAELMAS 2003	LENT 2004	EASTER 2004
DR C. J. SCHWIENING Cells in Water. (Three lectures, 9–14 Oct.)	DR D. J. TOLHURST Homeostatic Control. (Five lectures, 15–24 Jan.)	DR D. J. TOLHURST Food Intake and Energy Balance. (Three lectures, 22–27 Apr.)
PROF. A. C. CRAWFORD Nerve, Synapse, and Sense Organs. (Five lectures, 16–25 Oct.)	DR J. M. HIBBERD Plant Physiology: an Introduction. (Four lectures, 27 Jan.–3 Feb.)	DR B. BOUTILIER Integrative Animal Physiology. (Six lectures, 29 Apr.–11 May)
DR H. P. C. ROBINSON The Structure and Function of Muscle. (Three lectures, 28 Oct.–1 Nov.)	DR D. E. HANKE Plant Hormones. (Four lectures, 5–12 Feb.)	DR C. J. SCWIENING AND OTHERS Comparing the Physiology of Plants and Animals. (Two seminars, 13, 15 May)
DR C. J. SCHWIENING Cardiac Physiology. (Three lectures, 4–8 Nov.)	PROF. H. GRIFFITHS Plant Adaptations and Interactions. (Five lectures, 14–24 Feb.)	
DR MICHAEL J. MASON Animal O2 Acquisition and Respiration. (Three lectures, 11–15 Nov.)	DR K. JOHNSTONE AND DR J. DAVIES Physiology of Plant-Microbe Interactions. (Six lectures, 26 Feb.–9 Mar.)	
DR S. O. SAGE Osmo- and Ionic Regulation in Animals. (Four lectures, 18–25 Nov.)		
DR D. J. TOLHURST Animal Nutrient Acquisition. (Three lectures, 27 Nov.–2 Dec.)		
Practical Work W. or F. 12–1 and 2–5	The same continued.	The same continued.

Practical Work: Students should register for all biological practical courses on Tuesday, 7 Oct. between 2.00 and 3.45 in *the Senate House*.

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

MICHAELMAS 2003 LENT 2004 EASTER 2004

QUANTITATIVE BIOLOGY

Course Organiser for Michaelmas 2003 – Prof. C. P. Ellington E-mail: c.ellington@zoo.cam.ac.uk,
from Lent 2004 – Prof. C. A. Gilligan E-mail: chris.gilligan@plantsci.cam.ac.uk

Quantitative Biology is intended for those students who have studied Mathematics at 'A' level. It is to be noted that Quantitative Biology 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 '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** in *the Old Music School*, **Examples classes** in the *Arts School, Room B, unless otherwise stated*

Lectures. Tu. Th. 9

DR S. TARASKIN
Introduction to the Growth and Decline of Populations. (Ten lectures, 9 Oct.–11 Nov.)

PROF. C. P. ELLINGTON
Physiological Modelling. (Six lectures, 13 Nov.–2 Dec.)

MR J. J. TRAPP
Introduction to Modelling of Interacting Populations. (Seven lectures, 15 Jan.–5 Feb.)

DR T. N. COULSON
Interacting Populations: Ecological Applications. (Four lectures, 10–19 Feb.)

DR W. AMOS
Introduction to Statistical Methods. (Five lectures, 24 Feb.–10 Mar.)

DR F. BALLOUX
Bioinformatics and Population Genetics. (Four lectures, 22 Apr. – 4 May)

DR W. AMOS
Introduction to Statistical Methods. (Four lectures, 6–18 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; examples classes on 5, 12 Feb. will be held in *Mill Lane, Tecture Room 9.*

DR S. TARASKIN, PROF. C. P. ELLINGTON AND DR R. JOHNSTONE

MR J. J. TRAPP. DR T. N. COULSON, DR W. AMOS, AND DR R. JOHNSTONE

DR F. BALLOUX AND DR R. JOHNSTONE

Examples Classes: Students should register for all biological practical courses on Tuesday, 7 Oct. between 2.00 and 3.45 in *the Senate House*.

PART IB

ADVANCED PHYSICS

Course Organiser: Dr C. J. B. Ford E-mail IB-advanced-physics@phy.cam.ac.uk

Lectures are given in the *Cockcroft Lecture Theatre, New Museums Site*, unless otherwise stated.

DR C. J. FORD
Electromagnetism. Tu. Th. Sa. 9 (Not last two Sa.)

DR J. ELLIS
Classical Dynamics. (First ten lectures) Tu. Th. Sa. 9

DR W. ALLISON
Statistical Physics. (Last nine lectures) Tu. Th. 9

DR W. ALLISON
The same continued. (First seven lectures)

Those taking NST IB Mathematics:

PROF. M. WARNER AND DR C. G. SMITH
Theoretical Physics. Tu. 10 (Last two lectures) *Room A, Arts School, Bene't Street*
Theoretical Physics Examples. Tu. or Th. 2–4 (Last two weeks) *Room A, Arts School, Bene't Street*

PROF. M. WARNER AND DR C. G. SMITH
The same continued.

The same continued.

PROF. M. WARNER AND DR C. G. SMITH
The same continued. (First two lectures)

The same continued. (First two weeks)

Those not taking NST IB Mathematics:

DR S. WITHINGTON
Mathematics and Theoretical Physics. M. F. 12 *Room A, Arts School, Bene't Street*

DR S. WITHINGTON
The same continued. (First eight lectures)

Laboratory Work

DR R. D. E. SAUNDERS, DR M. M. CHAUDRI AND OTHERS
Systems and Measurement.

DR R. J. BUTCHER, DR M. M. CHAUDRI AND OTHERS
Waves and Optics.

Laboratory Work takes place at the *Cavendish Laboratory (West Cambridge)*. The experimental laboratories are open M. 2–6, Tu. 10–6, Th. 10–6 and F. 2–6. Students will be allocated periods within these times. All students must attend an introductory talk and register for **Laboratory Work** at 2.30 p.m. on Wednesday 8 Oct. at the *Cavendish Laboratory*. **Laboratory work is continuously assessed**.

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

ANIMAL BIOLOGY

Course Organiser: Dr B. J. McCabe E-mail: bjm1@cam.ac.uk

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 *Elementary Lecture Theatre Department of Zoology* M. W. F. 11

PROF. N. B. DAVIES AND PROF. P. P. G. BATESON
Behaviour and Ecology. (Twelve lectures, beginning 10 Oct.)

PROF. S. B. LAUGHLIN AND PROF. M. BURROWS
Brains and Behaviour. (Twelve lectures, beginning 7 Nov.)

DR S. H. P. MADDRELL AND DR W. A. FOSTER
Adaptation and Evolution: Insect Biology. (Twelve lectures, beginning 16 Jan.)

DR J. A. CLACK AND DR A. E. FRIDAY
Adaptation and Evolution: Vertebrate Evolutionary Biology. (Twelve lectures, beginning 13 Feb.)

PROF. C. P. ELLINGTON AND DR R. BOUTILIER
Physiology and the Environment. (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 week between 12 and 5 on Wednesdays *or* 11 and 5 on Thursdays. Students should register for all biological practical courses on Wednesday, 8 Oct. between 11.00 and 12.15 in *the Senate House*.

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Course Organiser: Dr T. R. Hesketh E-mail: trh12@mole.bio.cam.ac.uk

Note that some lectures begin earlier in Term, and end later in Term, than is usual. This is to allow more time between the end of the course and the examinations. Dr Hesketh will introduce the course as part of the first lecture on Friday 10 Oct.

Lectures are given in the *lecture theatre of the Sanger Building, Department of Biochemistry, Old Addenbrooke's Site* M. W. F. 10

Genes and proteins; macromolecules in action

DR C. J. HOWE
Gene Cloning and Manipulation. (Five lectures, beginning 10 Oct.)

PROF. J. O. THOMAS
Control of Gene Expression: DNA Structure and DNA–Protein Interactions. (Five lectures, beginning 22 Oct.)

DR C. W. J. SMITH
Control of Gene Expression: Transcription, RNA Processing and Translation. (Five lectures, beginning 3 Nov.)

PROF. SIR TOM BLUNDELL
Protein Structure, Flexibility and Function. (Five lectures, beginning 14 Nov.)

DR F. HOLLFELDER
Enzyme Catalysis and Protein Engineering. (Five lectures, beginning 26 Nov.)

Energy transduction, cell signalling and cell proliferation

DR G. C. BROWN
Energy Transduction in Bacteria, Mitochondria and Chloroplasts. (Six lectures, beginning 14 Jan.) *Note the early start of this course*

DR K. M. BRINDLE
Control of Metabolism. (Six lectures, beginning 28 Jan.)

DR R. W. FARNDALE
Transmembrane Signalling; Molecules and Mechanisms. (Six lectures, beginning 11 Feb.)

DR T. R. HESKETH
Control of Eukaryotic Cell Growth. (Four lectures, beginning 25 Feb.)

DR T. R. HESKETH
Oncogenes, Tumour Suppressor Genes and Cancer. (Four lectures, beginning 5 Mar.)

Biochemistry of microorganisms

DR H. WEBB
Biochemistry of Protozoa. (Four lectures, beginning 21 Apr.)
Note the early start of this course

DR M. WELCH AND PROF. G. P. C. SALMOND
Bacterial Chemotaxis, Signalling and Secretion Systems. (Five lectures, beginning 30 Apr.)

Practical work: Practicals are given at the *Hopkins Building, Department of Biochemistry, Downing Site* four hours from 11 a.m. on M. Tu. W. Th. or F. Students should register for all biological practical courses on Wednesday, 8 Oct. between 11.00 and 12.15 in *the Senate House*.

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NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004

CHEMISTRY A

Course Organiser: Dr J. H. Keeler E-mail: James.Keeler@ch.cam.ac.uk

All lectures will be given in *Lecture Room 2, Department of Chemistry, Lensfield Road*, on Tu. Th. S. 12 unless indicated

DR A. J. STONE AND DR P. D. WOTHERS
Quantum Mechanics and Spectroscopy. (Seventeen lectures)
DR D. J. WALES
Symmetry and Bonding. (Six lectures)

DR D. J. WALES
Symmetry and Bonding, continued. (Six lectures)
DR J. H. KEELER
Molecular Energy Levels and Thermodynamics. (Fourteen lectures)
DR T. RAYMENT
Electrons in Solids. (Four lectures)

DR T. RAYMENT
Electrons in Solids, continued. (Eleven lectures)

Practical Chemistry. Michaelmas and Lent Terms M. Tu. W. Th. F. 1.45–5 Students must register in the *Department of Chemistry, Lensfield Road*, between 9 and 1 or 2 and 4 on Tuesday, 7 Oct., when they will be assigned attendance in the afternoon of a particular day of the week for Chemistry A. All students must attend an introductory talk concerning the Chemistry A practical course on Wednesday, 8 Oct. at 10.45 a.m. in *Lecture Theatre 1*.

CHEMISTRY B

Course Organiser: Dr J. H. Keeler E-mail: James.Keeler@ch.cam.ac.uk

All lectures will be given in *Lecture Room 2, Department of Chemistry, Lensfield Road*, on Tu. Th. S. 9 unless indicated

DR S. G. WARREN AND DR J. W. BURTON
Key Organic Reactions. (Twelve lectures)
DR N. BAMPOS
Structure Determination. (Six lectures)
DR A. E. H. WHEATLEY
Electron Deficient Compounds. (Six lectures)

DR R. A. LAYFIELD
Coordination Chemistry. (Eight lectures)
PROF. B. F. G. JOHNSON
Organometallic Chemistry. (Six lectures)
DR J. M. GOODMAN AND DR W. T. S. HUCK
Shape and Organic Reactivity. (Ten lectures)

DR S. E. JACKSON AND PROF. C. ABELL
Introduction to Chemical Biology. (Eleven lectures)

Practical Chemistry. Michaelmas and Lent Terms M. Tu. W. Th. F. 1.45–6 Students must register in the *Department of Chemistry, Lensfield Road* between 9 and 1 or 2 and 4 on Tuesday, 7 Oct., when they will be assigned attendance in the afternoon of a particular day of the week for Chemistry B. All students must attend an introductory talk concerning the Chemistry B practical course on Wednesday, 8 Oct. at 10 a.m. in *Lecture Theatre 1*.

ECOLOGY

Course Organiser: Dr M. E. N. Majerus E-mail: m.majerus@gen.cam.ac.uk
Course Website: www.plantsci.cam.ac.uk/plantsci/teaching/ec1b/index.html

All lectures take place in *the Elementary Lecture Theatre, Department of Zoology* at M. W. F. 9

DR E. V. J. TANNER, PROF. H. GRIFFITHS AND DR D. A. COOMES
The Ecology of Change. (Eighteen lectures, 10 Oct.–19 Nov.)
DR D. K. A. BARNES
The Global Marine Ecosystem. (Six lectures, 12 Nov.–3 Dec.)

Workshops/Meetings
M. 12 (Two sessions, 13, 27 Oct.) *Nobby Clarke Laboratory (13 Oct.), Part II Lecture Theatre (27 Oct.), Department of Zoology*

PROF. N. B. DAVIES
Predators and Prey. (Six lectures, 16–28 Jan.)
PROF. T. H. CLUTTON-BROCK
Breeding Systems. (Six lectures, 30 Jan.–11 Feb.)
DR M. E. N. MAJERUS
Ecological Genetics. (Six lectures, 13–25 Feb.)
DR T. N. COULSON
Ecological Dynamics. (Six lectures, 27 Feb.–10 Mar.)

Student Project Presentations
M. 12–4 (Two sessions, 19, 26 Jan.) *Part II Lecture Theatre, Department of Zoology*
All studentd are expected to attend both of these sessions

DR E. V. J. TANNER
Biodiversity. (Six lectures, 21 Apr.–3 May) Note the early start of this course
DR A. P. BALMFORD
Humans and Ecology. (Six lectures, 5–17 May)

Practicle Work: Students are expected to attend a two week Field Course at the end of June BEFORE the start of the lecture course. Provisions will be made for students unable to attend the field course to undertake a project in Cambridge in the Michaelmas Term. Project-related activities that students are required to attend will be scheduled M. 12–4.

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

EXPERIMENTAL PSYCHOLOGY

Course Organiser: Dr K. Plaisted E-mail: kcp1000@cus.cam.ac.uk

Lectures will be held in *Lecture Theatre 3, Department of Physiology* on Tu. Th. S. 11.
Practical work in the *Psychological Laboratory* unless otherwise stated.

PROF. J. D. MOLLON AND OTHERS
Human Experimental Psychology: Perception; Attention; Memory; Action; Psycholinguistics. (Twenty-four lectures, 9 Oct.–2 Dec.)

DR I. P. L. MCLAREN
Human Learning and Memory. (Seven lectures, 15–29 Jan.)
DR C. LONGWORTH
Neuropsychology of Language. (Two lectures, 31 Jan., 3 Feb.)
DR K. C. PLAISTED
Developmental Psychology. (Six lectures, 5–17 Feb.)
Reasoning. (Three lectures, 19–24 Feb.)
Intelligence. (Three lectures, 26 Feb.–2 Mar.)
DR R. N. CARDINAL
Emotion and Motivation. (Three lectures, 4–9 Mar.)

PROF. S. BARON-COHEN
Abnormal Psychology. (Six lectures, 22 Apr.–4 May)

Practical Work. Tu. 9–11 *or* W. 10–12 *or* 2–4 and Th. 2–4 *or* F. 10–12 *or* 2–4. Two 2–hour sessions per week, one chosen from Tu. 9–11 *or* W. 10–12 *or* 2–4, and the other from Th. 2–4 *or* F. 10–12 *or* 2–4. The computing facilities used for the practical work will be available for informal use throughout the year. Students should register for all biological practical courses on Wednesday, 8 Oct. between 11.00 and 12.15 in *the Senate House*.

GEOLOGICAL SCIENCES A

Course Organiser: Dr C. De La Rocha E-mail: christina00@esc.cam.ac.uk

All lectures are in the *Tilley Lecture Room, Department of Earth Sciences* on M. W. F. 10

DR N. H. WOODCOCK
Maps and Structures. (Eight lectures)
PROF. R. S. WHITE
Earth Systems. (Eight lectures)
DR C. DE LA ROCHA
Evolution of the Hydrosphere. (Eight lectures)

DR J. A. D. DICKSON
Biogenic and Chemical Sediments. (Seven lectures)
PROF. I. N. MCCAVE
Mechanics of Sediment Transport and Clastic Sedimentology. (Nine lectures)
DR N. J. BUTTERFIELD
Evolutionary Palaebiology and Micropalaeontology. (Eight lectures)

Introduction to Southwest England field trip. Th. 10 (11 Mar.)

Geological Sciences Field Class. (29 Mar. – 8 Apr.)

DR D. B. NORMAN
Vertebrate Palaeontology. (Five lectures)
DR N. H. WOODCOCK
Sedimentary Basins Reviewed. (Five lectures)

Practical Work. There are three practicals per week of about 1½ hours: students choose one from each set (Set 1: F. 11–1, F. 2–4; Set 2: M. 11–1, M. 2–4, Tu. 10–1; Set 3: W. 11–1, W. 2–4, Th. 10–1). Students should go to the *Department of Earth Sciences* on Wednesday, 8 Oct., between 9.30 and 12.30, or 2.30 and 4.30, to register their choice of times from those available.

GEOLOGICAL SCIENCES B

Course Organiser: Dr T. J. B. Holland E-mail: tjbh@esc.cam.ac.uk

All lectures are held in the *Tilley Lecture Room, Department of Earth Sciences* on M. W. F. 9

DR A. GALY
In the Beginning. (Four lectures)
DR R. J. HARRISON
Crystallography and Optical Petrography. (Five lectures)
DR R. J. HARRISON
Principles of Mineral Behaviour. (Eight lectures)
DR J. M. BUNBURY
Introductory Igneous Petrology. (Four lectures)
DR J. M. BUNBURY
Chemical Differentiation of the Earth. (Three lectures)

PROF. M. J. BICKLE
Magmatic Settings. (Five lectures)
DR M. B. HOLNESS
Metamorphic Mineralogy. (Five lectures)
DR T. J. B. HOLLAND
Introduction to Metamorphism. (Six lectures)
DR M. B. HOLNESS
From Microscopic Structure to Macroscopic Processes. (Eight lectures)

Introduction to South West England field trip. Th. 10 (11 Mar.)

Geological Sciences Field Class (29 Mar. – 8 Apr.)

DR A. GALY
Evolution of the Himalayas. (Five lectures)
DR J. BUNBURY
Igneous Case Studies. (Four lectures)

Practical Work. There are three practicals per week of about 1½ hours, to be taken between successive lectures. Students should go to the *Department of Earth Sciences* on Wednesday, 8 Oct., between 9.30 and 12.30, or 2.30 and 4.30, to register their choices of times from those available, which are M. W. F. 11–1, Tu. Th. S. 9–12.

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

HISTORY AND PHILOSOPHY OF SCIENCE

Course Organiser: Dr S. Schaffer E-mail: sjs16@hermes.cam.ac.uk

All lectures will be delivered in *Mill Lane Lecture Room 1*

DR S. SCHAFFER
Natural Philosophy. M. 5 (weeks 1–8); W. 5 (weeks 1–4)
DR T. LEWENS AND DR M. KUSCH
Philosophy of Science. F. 5 (weeks 1–8); W. 5 (weeks 5–8)

PROF. J. FORRESTER, DR J. AGAR AND DR N. HOPWOOD
History of Science and Medicine. M. 5 (weeks 1–8); W. 5 (weeks 1–4)
PROF. P. LIPTON
Philosophy of Science. F. 5 (weeks 1–8)
DR M. KUSCH
Sociology of Scientific Knowledge. W. 5 (weeks 5–8)

DR J. AGAR, PROF. J. FORRESTER AND DR N. HOPWOOD
History of Science and Medicine. W. 5 (weeks 1–4)
DR J. MCMILLAN
Philosophy of Psychology. M. 5 (weeks 1–4)
DR R. JENNINGS
Ethics in Science and Medicine. F. 5 (weeks 1–4)

MATERIALS SCIENCE AND METALLURGY

Course Organiser: Dr J. A. Elliott E-mail: PartIB@msm.cam.ac.uk

All lectures will be delivered in the *Babbage Lecture Theatre* on Tu. Th. S. 10

DR E. R. WALLACH
Metals and Alloys. (Twelve lectures)
DR J. A. LITTLE
Environmental Behaviour of Materials. (Twelve lectures)

Industrial Visits
Details to be announced.

DR R. E. CAMERON
Polymers. (Nine lectures)
DR P. A. MIDGLEY
Electrical and Magnetic Properties of Materials. (Nine lectures)
DR S. M. BEST
Ceramics and Ionic Solids. (Six lectures)

The same continued.

DR W. J. CLEGG
Mechanical Behaviour of Materials. (Ten lectures)

Practical Work: Either Tu. 2–4 *or* Th. 2–4 *or* F. 9–11 and one further hour each week between 9–12.45 *or* 2–5 on any weekday. Students should register for practical classes in the *Department of Materials Science and Metallurgy* between 9.30 a.m. and 12.30 p.m. or 2.30 and 4.30 p.m. on Tuesday, 7 Oct. or Wednesday, 8 Oct.

MATHEMATICS

Course Organiser: E-mail: nst@maths.cam.ac.uk

Students taking this course must also register electronically for the assessed **Computer Practical Course** before 6 Nov. 2003. Details are given in the course booklet distributed at the first lecture of Mathematical Methods I in Oct. 2003 and can also be found on www.maths.cam.ac.uk/undergrad/tripos/nstcomp/index.html.

All lectures will be delivered in the *Chemical Laboratory, Lensfield Road* on M. W. F. 11 unless otherwise stated

DR S. J. COWLEY
Mathematical Methods I.

Examples Class W. 2.15–4.15 (Two classes, 12, 26 Nov.) *Arts School Room A*

DR M. SPIVACK
Mathematical Methods II.

Examples Class W. 2.15–4.15 (Two classes, 18 Feb., 10 Mar.) *Arts School Room A*

DR R. M. WILLIAMS
Mathematical Methods III. (Ten lectures)

Examples Class W. 2.15–4.15 (Two classes, 5, 12 May) *Arts School Room A*

MINERAL SCIENCES

Course Organiser: Dr I. Farnan E-mail: i.farnan@esc.cam.ac.uk

All lectures are in the *New Seminar Room, Department of Earth Sciences* on Tu. Th. S. 11

DR M. WELCH
Degrees of Order in Solids. (Fourteen lectures)
DR I. FARNAN
Transport Properties of Minerals. (Ten lectures)

PROF. M. A. CARPENTER
Symmetry and Physical Properties. (Ten lectures)
DR S. A. T. REDFERN
Phase Transitions. (Eight lectures)
DR S. RIOS BANOS
Bonding and Lattice Dynamics. (Six lectures)

DR E. ARTACHO
Applications of Mineral Sciences. (Nine lectures)

Practical Work. M. F. 10–2 or 2–4. Students should register for practical work in the *Department of Earth Sciences (South Entrance)* between 9.30 a.m. and 1 p.m. or between 2.30 and 5 p.m. on Wednesday, 8 Oct.

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

MOLECULAR CELL BIOLOGY

Course Organiser: Prof. J. C. Gray E-mail: john.gray@plantsci.cam.ac.uk
Course Website: www.bio.cam.ac.uk/teaching/MCB/

All lectures take place in the *Biffen Lecture Theatre, Department of Genetics* on Th. S. Tu. 10, unless otherwise stated

DR T. KRUDE AND PROF. S. P. JACKSON
Molecular Biology of the Cell Nucleus. (Nine lectures, beginning 9 Oct.)
DR D. SUMMERS AND DR P. OLIVER
Genetic Systems of Prokaryotes. (Six lectures, beginning 30 Oct.)
DR B. SANSON
Genome Structure and Evolution. (Five lectures beginning 13 Nov.)
DR D. MACDONALD
Molecular Genetics of Yeast Cells. (Four lectures beginning 25 Nov.)

PROF. J. C. GRAY
Organelle Biogenesis. (Six lectures, beginning 13 Jan.)
Note the early start of this course
DR D. BRAY
Cytoskeleton. (Four lectures, beginning 27 Jan.)
DR P. DUPREE
Membrane Traffic. (Four lectures, beginning 5 Feb.)
DR K. JOHNSTONE AND DR H. SKAER
Intercellular Communication. (Four lectures, beginning 14 Feb.)
DR H. SKAER
Development I. (Four lectures, beginning 24 Feb.)
PROF. J. SMITH
Development II. (Four lectures, beginning 4 Mar.)

PROF. M. AKAM
Development III. (Four lectures, beginning 20 Apr.) *Note the early start of this course*
DR D. HANKE AND DR J. HASELOFF
Development IV. (Six lectures, beginning 29 Apr.)

Practical work will take place in the *Department of Zoology*. Students are expected to do up to four hours practical work per week between 11 a.m. and 5 p.m. on Tuesday or Fridays. Practical classes start at several different times to allow students to attend lectures in other subjects. Students should register for all biological practical courses on Wednesday 8 Oct. between 11.00 and 12.15 in *the Senate House*.

NEUROBIOLOGY

Course Organiser: Dr H. P. C. Robinson E-mail: hpcr@cam.ac.uk
Course Website: www.physiol.cam.ac.uk/

All lectures take place in *Physiology Lecture Theatre 3* at Tu. Th. S. 12

PROF. P. A. MCNAUGHTON
Introduction to the Brain. (One lecture, 9 Oct.)
DR M. EDWARDSON
G-Protein Coupled Receptors. (One lecture, 11 Oct.)
DR H. P. C. ROBINSON
Electrical Properties of Neurons. (Four lectures, 14–21 Oct.)
DR R. LIVESEY
Neural Determination. (Four lectures, 28–30 Oct.)
DR M. EDWARDSON
Chemical Properties of Neurons. (Four lectures, 1–8 Nov.)
DR R. H. S. CARPENTER
Vision. (Six lectures, 11–22 Nov.)
DR H. R. MATTHEWS
Olfaction and Taste. (Two lectures, 25, 27 Nov.)
DR I. M. WINTER
Hearing. (Three lectures, 29 Nov.–4 Dec.)

PROF. P. A. MCNAUGHTON
Somatosensation and Pain. (Four lectures, 13–20 Jan.)
Note the early start of this course
DR D. PRKER
Motor System. (Seven lectures, 22 Jan.–5 Feb.)
DR H. G. KRAPP
Sensorimotor Integration. (Three lectures, 7–12 Feb.)
DR M. LANDGRAF
Development of Neural Connections. (Four lectures, 14–21 Feb.)
PROF. B. J. EVERITT
Motivation and Emotion. (Four lectures, 24 Feb.–2 Mar.)
DR B. J. MCCABE
Synaptic Efficacy. (Four lectures 4–11 Mar.)

DR T. J. BUSSEY
Learning and Memory. (Four lectures, 20–27 Apr.)
Note the early start of this course
DR T. J. BUSSEY
Higher Functions of the Nervous System. (Three lectures, 29 Apr.–4 May)
PROF. L. K. TYLER
Language and the Brain. (Two lectures, 6, 8 May)

Practical Work: 3 hour practical classes Th. 2–5 *or* Tu. 2–5; 1 hour practical classes M. 12–1 or 2–3. Students should register for all biological practical courses on Wednesday, 8 Oct. between 11.00 and 12.15 in *the Senate House*.

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NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

PATHOLOGY

Course Organiser: Dr I. B. Kingston E-mail: ibk1000@cam.ac.uk

All lectures take place in *Chemical Laboratory Lecture Theatre 1* at M. W. F. 12, unless otherwise stated

PROF. A. H. WYLLIE
Cell Injury. (One lecture, 10 Oct.)
DR A. MOFFETT
Innate Immune System; Acute Inflammation: Defence Mechanisms; Healing and Chronic Inflammation. (Three lectures, beginning 13 Oct.)
DR A. KELLY
The Adaptive Immune System; B Cells and Antibodies; The Major Histocompatability Complex; T Cells. (Four lectures, beginning 20 Oct.)
PROF. J. TROWSDALE
Tolerance; Autoimmunity; Hypersensitivity; Transplantation / Immune Response to Infectious Agents. (Four lectures, beginning 29 Oct.)
PROF. A. C. MINSON
Viral Multiplication in the Host Cell; Nature of Viruses; Responses to Viral Infection; Acute and Chronic Infection; Epidemiology of Viral Infection; Combating Viral Infection; Prion Diseases. (Seven lectures, beginning 7 Nov.)
DR D. DUNNE
Introduction to Parasitic Diseases; Key Examples of Parasitic Diseases: Malaria; Key Examples of Parasitic Diseases: Schistosomiasis. (Three lectures, beginning 24 Nov.)
DR A. CARMICHAEL
Fungi (One lecture, 1 Dec.)

PROF. C. HUGHES
Bacterial Disease – Past, Present and Re-emerging; Bacteria:Prokaryotic Pathogens; Bacteria – Host Interaction: Pathogenicity; Host Damage – Toxins, the Host Response; Bacterial Pathogenicity in the Respiratory Tract; Bacterial Pathogenicity in the Gastrointestinal Tract; Combating Bacterial Disease. (Seven lectures, beginning 14 Jan.)
Note the early start of this course
PROF. M. A. STANLEY
The Regulation of Tissue Growth and Organisation; Clinical Pathology of Tumours; Biology of Tumours; Genetic Basis of Neoplasia; Causes of Cancer. (Five lectures, beginning 30 Jan.)
DR C. PRINT
Blood Vessels and Atherosclerosis; Haemostasis, Thrombosis and Embolism; Ischaemia, Infaction, Heart Failure and Hypertension. (Three lectures, beginning 11 Feb.)

Genetic Pathology
DR N. AFFARA
Mendelian Inheritance; Molecular Analysis of Mendelian Disorders; Genotype / Phenotype Correlations; Chromosomal Abnormalities. (Four lectures, beginning 20 Feb.)
PROF. L. WICKER
Complex Inheritance: Immunogenetics of Autoimmune Disease. (One lecture, 1 Mar.)
DR P. EDWARDS
Hereditary Predisposition to Cancer; Mutations in Human Cancer. (Two lectures, beginning 3 Mar.)
DR N. AFFARA
Complex Inheritance: Imprinting and Multifactorial Disease; The Genome Project and its Impact on Biology and Medicine. (Two lectures, beginning 8 Mar.)

Infection and Immunity
PROF. M. A. STANLEY
Tuberculosis. (One lecture, 23 Apr.)
DR S. EFSTATHIOU
Host Resistance Factors; Mechanisms of Viral Latency; Viral Immune Evasion Mechanisms; H.I.V. (Four lectures, beginning 26 Apr.)
DR A. KELLY
Vaccination. (One lecture, 5 May)

Practical Work. *Department of Pathology* Tu. W. Th. F. am and pm. Students should register for all biological practical courses on Wednesday, 8 October between 11.00 and 12.15 in *the Senate House*, and attend an Introduction to Normal Histology for NST students, 9 and 10 Oct.

PHARMACOLOGY

Course Organiser: Dr T. P. Fan E-mail: tpf1000@cus.cam.ac.uk

All lectures take place in *the Pharmacology Lecture Theatre* at M. W. F. 11.

DR J. M. EDWARDSON
Drugs and Receptors. Diabetes Mellitus. (Seven lectures, 10–24 Oct.)
PROF. R. F. IRVINE
Intracellular Messengers. (Four lectures, 27 Oct.–3 Nov.)
DR H. W. VAN VEEN
Synaptic Pharmacology. (Five lectures, 5–14 Nov.)
DR C. R. HILEY
Drugs, Ion Channels and the Heart. (Six lectures, 17–28 Nov.)
DR P. J. RICHARDSON
Drug Discovery and Pharmacogenomics. (Two lectures 1–3 Dec.)

DR R. MURRELL-LAGNADO
Pharmacokinetics, Drug Metabolism and General Anaesthetics. (Six lectures, 14–26 Jan.)
Note the earlier start of this course
DR C. R. HILEY
Vascular and Renal Pharmacology. (Six lectures, 28 Jan.–9 Feb.)
PROF. M. J. WARING
Chemotherapy and Drug Interactions with DNA. (Seven lectures, 11–25 Feb.)
DR T. P. FAN
Inflammation and Peripheral Control of Pain. (Six lectures, 27 Feb.–11 Mar.)

DR M. A. BARRAND
Toxicology. (Two lectures, 21–23 Apr.)
Note the earlier start of this course
DR A. J. MORTON
Central Nervous System: Neurodegeneration, Psychoses, Affective Disorders, Central Control of Pain and Opiates. (Seven lectures, 26 Apr.–10 May)

Practical Work. Tu. 1–2 *or* W. 1–2 and Tu. 2–5 *or* W. 2–5. A detailed timetable will be posted in the Department. Students should register for all biological practical courses on Wednesday, 8 Oct. between 11.00 and 12.15 in *the Senate House*.

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004

PHYSICS

Course Organiser: Dr R. D. E. Saunders E-mail: IB-single-physics@phy.cam.ac.uk

Lectures are given in the *Cockcroft Lecture Theatre, New Museums Site*, M. W. F. 12

DR N. C. GREENHAM Oscillations, Waves and Optics. M. F. 12 DR R. D. E. SAUNDERS Experimental Methods. W. 12	DR S. MAHAJAN Classical Thermodynamics. M. W. F. 12 (First ten lectures) DR H. P. HUGHES Quantum Physics. M. W. F. 12 (Last fourteen lectures)	DR H. P. HUGHES The same continued. (First ten lectures)
Laboratory Work DR R. D. E. SAUNDERS, MR P. J. WARNER AND OTHERS Systems and Measurement.	DR R. J. BUTCHER, MR P. J. WARNER AND OTHERS Waves and Optics.	

Laboratory Work takes place at the *Cavendish Laboratory (West Cambridge)*. The experimental laboratories are open M. 2–6, Tu. 10–6, Th. 10–6 and F. 2–6. Students will be allocated periods within these times. All students must attend an introductory talk and at 2.00 p.m. on Wednesday 8 Oct. at the *Cavendish Laboratory*. Students taking Part IB Physics but *not* IB Advanced Physics must also register between 2.00 p.m. and 4.00 p.m. on Tuesday 7 Oct. at the *Cavendish Lagoratory*, where they will be allocated practical sessions. **Laboratory work is continuously assessed**.

PHYSIOLOGY

Course Organiser: Dr R. J. Barnes E-mail: rjb4@cam.ac.uk
Course Website: www.physiol.cam.ac.uk

All lectures take place in *the Main Physiology Lecture Theatre* at M. W. F. 9

DR R. J. BARNES Introduction, the Autonomic Nervous System and the Cardiovascular System. (Six lectures, 10–22 Oct.) DR M. MASON Respiration. (Six lectures, 24 Oct.–5 Nov.) A. N. OTHER Endocrinology. (Three lectures, 7–12 Nov.) DR S. O. SAGE Renal Physiology and Body Fluid Homeostasis. (Nine lectures, 14 Nov. – 3 Dec.)	DR MATTHEW J. MASON Digestion and Absorption. (Seven lectures, 16–30 Jan.) DR M. P. MAHAUT-SMITH Weight Regulation and Nutrition. (Two lectures, 2, 4 Feb.) DR A. J. FORHEAD Reproduction. (Six lectures, 6–18 Feb.) DR S. K. L. ELLINGTON Development. (Two lectures, 20, 23 Feb.) DR J. C. D. HICKSON Fetal and Maternal Physiology. (Five lectures, 25 Feb.–5 Mar.) PROF. A. L. FOWDEN Neonatal Physiology. (Two lectures, 8, 10 Mar.)	DR J. JENNER Muscle in Exercise. (One lecture, 23 Apr.) DR R. J. BARNES Cardiovascular and Respiratory Systems in Exercise. (Two lectures, 26, 28 Apr.) A. N. OTHER Training, Muscle and the Circulation. (Two lectures, 30 Apr., 3 May) A. N. OTHER Exercise in Extreme Environments. (One lecture, 5 May) DR R. I. WOODS Man in the Arctic. (One lecture, 7 May) DR S. L. DICKSON Man on a Diet. (One lecture, 10 May) DR MATTHEW J. MASON Man in Space. (One lecture, 12 May)
Practical Work Th. 2–4(5) or Tu. 2–4(5)	The same continued.	The same continued.

Practical Work: Students should register for all biological practical courses on Wednesday, 8 Oct. between 11.00 and 12.15 in *the Senate House*.

PLANT AND MICROBIAL SCIENCES

Course Organiser: Dr B. J. Glover E-mail: bjg26@cam.ac.uk
Course Website: www.plantsci.cam.ac.uk/plantsci/teaching/content.html

All lectures take place in the *Large Lecture Theatre, Department of Plant Sciences* on T. Th. Sa. 11

PROF. R. A. LEIGH Introduction and Overview. (One lecture, 9 Oct.) DR M. A. TESTER AND PROF. R. A. LEIGH Genetic Manipulation of Plants. (Two lectures, 11–14 Oct.) DR J. M. HIBBERD AND DR A. G. SMITH Photosynthesis and Management of Reserves. (Eight lectures, 16 Oct.–1 Nov.) PROF. R. A. LEIGH, PROF. H. GRIFFITHS AND DR E. V. TANNER Plants in the Abiotic Environment: Water, Nutrients and Temperature. (Thirteen lectures, 4 Nov.–2 Dec.)	DR A. G. SMITH Plants and Animals. (Three lectures, 13–17 Jan.) *Please note the early start of this course* DR B. J. GLOVER Plant Development. (Six lectures, 20–31 Jan.) DR K. JOHNSTONE Environmental Microbiology. (Four lectures, 3–10 Feb.) DR J. M. DAVIES Beneficial Plant-Microbe Interactions. (Five lectures, 12–21 Feb.) DR J. P. CARR Plant Pathology. (Seven lectures, 24 Feb.–9 Mar.)	PROF. J. S. PARKER AND PROF. H. GRIFFITHS Plant Variation, Evolution and Conservation. (Eight lectures, 20 Apr.–6 May.) *Please note the early start of this course* PROF. J. C. GRAY Exploitation of Plants. (Three lectures, 8–13 May.)

Practical work: Students will be expected to do four hours practical work between 12 noon and 5 pm on M. *or* Tu. in six of the eight weeks of the Michaelmas and Lent Terms, and in three weeks of the Easter Term. A field course will take place in Portugal in the Easter Vacation 2004; places are limited and are allocated in order of application. Students should register for all biological practical courses on Wednesday, 8 October between 11.00 and 12.15 in *the Senate House*.

NATURAL SCIENCES TRIPOS, PART II (GENERAL)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

A candidate may offer

either (a) one subject from Part IB of the Natural Sciences Tripos (other than Advanced Physics) which he/she has not previously offered and one Special Subject;
or (b) two Special Subjects

Details of the permissible combination of subjects, within the scheme set out above, and also of restrictions on the offering of certain subjects may be found in Regulation 26 for the Natural Sciences Tripos or on the Natural Sciences Tripos website (www.cam.ac.uk/natscitripos).

The timetables of teaching for the Special Subjects are set out below. For the times of teaching for subjects in Part IB please see the relevant entries on the other pages.

SPECIAL SUBJECT CHEMISTRY

Course Organiser: Dr J. H. Keeler E-mail: James.Keeler@ch.cam.ac.uk

The course consists of lectures and practical work selected from the courses available for Part II Option A Chemistry (see p. 194). Further details can be obtained from Dr J. H. Keeler in the *Department of Chemistry*.

SPECIAL SUBJECT HUMAN IMPACT ON THE ENVIRONMENT

Course Organiser: Dr J. R. Flowerdew E-mail: j.r.flowerdew@zoo.cam.ac.uk

The course consists of lectures and candidates will also be required to submit a 5,000 word essay on a subject proposed by the candidates and approved by the Head of Department of Zoology or chosen from a list of approved subjects. The essay to be handed in by the second week of the Easter Term.

All lectures are held in the *Part II Lecture Theatre, Department of Zoology*.

DR T. N. COULSON, DR B. T. GRENFELL, DR T. N. COULSON, DR W. AMOS, DR R. A. JOHNSTONE AND DR S. DALL
Module Organiser: Prof. B. T. Grenfell
Population Biology M. W. F. 5 (Twenty-four lectures, beginning 10 Oct.)

DR M. BROOKE, DR DR I HODGE, DR W. AMOS, DR D. COOMES, DR A. BALMFORD, DR R. GREEN, DR E. TANNER AND DR J. O'SULLIVAN
Module Organiser: Dr A. Balmford
Conservation Biology M. W. F. 4 (Twenty-four lectures, beginning 16 Jan.)

DR J. R. FLOWERDEW AND DR I. LAWSON
Module Organiser: Dr J. R. Flowerdew
Human Impact on the Environment M. W. F. 5 (Twelve lectures, beginning 23 Apr.)

SPECIAL SUBJECT PATHOLOGY

Course Organiser: Dr I. Brierley E-mail: ib103@mole.bio.cam.ac.uk

This course consists of lectures taken from the relevant options chosen from NST II Pathology (see p. 201): Option A-Cellular and Genetic Pathology or Option C-Microbiology and Parasitology. Candidates will also be required to attend some practical classroom work. It is important that all candidates attend the Introduction Lecture to Part II Pathology on Wednesday, 8 Oct. at 3 p.m. in the *Department of Pathology*

SPECIAL SUBJECT PHYSICS

Course Organiser: Prof. M. Warner E-mail: II-physics@phy.cam.ac.uk

This course consists of about half the lectures and classwork of a candidate offering Part II Experimental and Theoretical Physics (see p. 194). Two options, A and B, are available. All candidates should take 32 hours of lectures from course H in the Michaelmas Term and experiment E1. Those offering option A should take 32 hours of lectures from course H in the Lent Term and one of the following units of further work; the Computational Physics course and assessment, pre-approved Vacation Work, experiment E2, course TP1, course TP2, a Literature Review. Neither of the courses TP1 and TP2 may be taken unless Mathematics was offered in Part IB of the Natural Sciences Tripos. Those offering option B take 16 hours of lectures from course H in the Lent Term together with the lectures and classwork of course K. Guidance on suitable combinations of lecture courses will be provided by the Department. A prior knowledge of Physics equivalent to the material covered in Advanced Physics in Part IB will be assumed.

NATURAL SCIENCES TRIPOS, PART II

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

ANATOMY OPTION A: RESEARCH IN DEVELOPMENTAL BIOLOGY AND NEUROSCIENCE

Course Organiser: Dr R. J. Keynes E-mail: rjk10@cam.ac.uk

All teaching will be in the *Anatomy Part II Seminar Room* or *the Experimental Psychology Room, Department of Anatomy*

Course units (Cu): Each unit comprises two 2½ hour and one 3 hour session

DR R. J. KEYNES AND DR R. C. HARDIE
General Introduction. Tu. 10–12 (7 Oct.)
Course Introduction. W. 10–12 (8 Oct.)

Research in Developmental Biology

DR R. PADINJAT AND DR S. JONES (Cu)
Experimental Approaches: Cells and Molecules. (9, 10, 15 Oct.)
MRS P. HENDERSON
Working in Groups. 11–1 (13 Oct.)
DR G. BURTON AND PROF. W. SCHULTZ (Cu)
Experimental Approaches: Systems. (16, 17, 22 Oct.)
PROF. M. H. JOHNSON
Making an Embryo. (24, 29 Oct.)

Study Week (30 Oct.–5 Nov.)

DR R. ADAMS (Cu)
Gastrulation. (6, 7, 11 Nov.)
DR C. BAKER AND DR N. PAPALOPULU (Cu)
Making a Neuron. (13, 14, 19 Nov.)
DR N. J. BROWN AND DR N. PAPALOPULU
Techniques Workshop. 2–4 (18 Nov.)
DR R. J. KEYNES AND DR D. TANNAHILL
Patterning the Nervous System. (20, 21, 26 Nov.)
DR G. M. W. COOK , DR R. KEYNESAND DR C. BAKER
Guiding Axons. (27, 28, Nov., 3 Dec.)
DR G. BURTON
Data Handling. (2 Dec.)

Research into Neuroscience

DR R. PADINJAT AND DR S. JONES (Cu)
Experimental Approaches: Cells and Molecules. (9, 10, 15 Oct.)
MRS P. HENDERSON
Working in Groups. 11–1 (13 Oct.)
DR G. BURTON AND PROF. W. SCHULTZ (Cu)
Experimental Approaches: Systems. (16, 17, 22 Oct.)
DR R.C. HARDIE AND DR R. ADAMS (Cu)
The Neuron. (23, 24, 29 Oct.)

Study Week (30 Oct.– 5 Nov.)

DR A. ROBERTS AND DR R. DYBALL (Cu)
Brain Organisation. (6, 7, 11 Nov.)
DR C. BAKER AND DR N. PAPALOPULU (Cu)
Making a Neuron. (13, 14, 19 Nov.)
DR N. J. BROWN AND DR N. PAPALOPULU
Techniques Workshop. 2 – 4 (18 Nov.)
DR R. J. KEYNES AND DR D. TANNAHILL (Cu)
Patterning the Nervous System. (20, 21, 26 Nov.)
DR G. M. W. COOK, DR R KEYNES AND DR C. BAKER (Cu)
Guiding Axons. (27, 28 Nov., 3 Dec.)
DR R. DYBALL
Data Handling (2 Dec.)

DR C. BAKER (Cu)
Cell Migration and Fate. (15, 16, 21 Jan.)
DR A. PHILPOTT AND DR P. SCHOFIELD
Tissue Diversity. (22, 23, 28 Jan.)
DR N. J. BROWN AND DR A. BRAND (Cu)
Organogenesis and Morphogenesis (29, 30 Jan., 4 Feb.)
DR R. WHITE (Cu)
Stem Cells. (5, 6, 11 Feb.)
DR R. DYBALL AND DR R. ADAMS
Project Write-up. (10 Feb.)

Study Week (12–18 Feb.)

DR A. FERGUSON-SMITH
Epigenetic Control of Development. (19, 20, 25 Feb.)
DR R. J. KEYNES AND DR M. SPILLANTINI (Cu)
The Degenerating and Regenerating Brain. (26, 27 Feb., 3 Mar.)
DR A. WILKINS
Evolution and Development (9, 10 Mar.)

DR R. C. HARDIE (Cu)
Phototransduction. (15, 16, 21 Jan.)
DR R. DYBALL (Cu)
Encoding Information in Neurons. (22, 23, 28 Jan.)
DR A. ROBERTS (Cu)
Emotion. (29, 30 Jan. 4 Feb.)
DR W. SCHULTZ (Cu)
Frontal Lobes. (5, 6, 11 Feb.)
DR R. DYBALL AND DR R. ADAMS
Project Write-up. (10 Feb.)

Study Week (12–18 Feb.)

DR S. JONES (Cu)
Addiction. (19, 20, 25 Feb.)
DR R. J. KEYNES AND DR M. SPILLANTINI (Cu)
The Degenerating and Regenerating Brain. (26, 27 Feb., 3 Mar.)

Seminars As Announced in the Department

DR R. ADAMS
Critique of Papers. (28 Apr.)
DR R. ADAMS
Experimental Design. (5 May)
DR P. SCHOFIELD
Critique of Papers. (12 May)
DR C. BAKER
Experimental Design. (19 May)

DR S. JONES
Critique of Papers. (28 Apr.)
DR A. ROBERTS
Experimental Design. (5 May)
DR R. C. HARDIE
Critique of Papers. (12 May)
DR R. C. HARDIE
Experimental Design. (19 May)

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

ANATOMY OPTION B: HEALTH AND DISEASE: INTEGRATING SCIENCE AND SKILLS

Course Organiser: Dr A. Ferguson-Smith E-mail: afsmith@mole.bio.cam.ac.uk

All teaching will be in the *Anatomy Part II Seminar Room* unless otherwise stated

The course consists of a series of workshops, lectures, seminars and problem-solving skills sessions around a framework of three areas:

HIV and AIDS
Neurobiology of Behaviour and Emotion
Reproduction and Gender Science

Complete course information can be found at the Department of Anatomy's website: http://www.anat.cam.ac.uk/pages/teach.html

Workshops, Seminars and Journal Clubs As announced in the Department, beginning 8 Oct.

ASTROPHYSICS

All lectures will be delivered in *the Raymond and Beverly Sackler Lecture Theatre, Hoyle Building, Institute of Astronomy* unless otherwise stated

DR I. R. PARRY
Introductory Astrophysics Tu. Th. 11.15, F. 10
DR C. J. CLARKE
Statistical Physics Tu. W. 10, F. 11.15
DR R. F. CARSWELL
Astrophysical Fluid Dynamics M. 11.15, Tu. Th. 9
DR N. E. EVANS
Theory of Relativity M. Th. 10, W. 11.15
PROF. N. O. WEISS
Electromagnetism M.W. 9, S. 12 *Centre for Mathematical Sciences, Clarkson Road, MR5*

Computational projects
DR R. E. HUNT AND OTHERS
M. W. F. 2 (Six lectures beginning 10 Oct.) *Mill Lane Lecture Room 9*.

DR M. I. WILKINSON
Stellar Dynamics and Structure of Galaxies M. W. F. 10
DR M. HAEHNELT
Physical Cosmology M. 12.15, Tu. Th. 11.15
DR C. D. MACKAY
Topics in Contemporary Astrophysics Tu. Th. 10, F. 12.15
DR R. G. MCMAHON
Structure and Evolution of Stars M. W. F. 11.15

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

BIOCHEMISTRY

Course Organiser: Prof. D. J. Ellar E-mail: dje1@mole.bio.cam.ac.uk

Lectures are given in the *Department of Biochemistry, Downing Site building*

The course starts with an introductory lecture by PROF. SIR TOM BLUNDELL at 9 a.m. on Monday 6 October.

Core course lectures take place at 9 a.m. and 10.30 a.m. Option course lectures take place throughout the day in Lent Term. Detailed time-tables will be posted in the *Department of Biochemistry*.

Core lectures

PROF. E. D. LAUE
Aspects of Protein Structure: Genome to Proteome. (Five lectures, beginning 6 Oct.)

DR M. WELCH
Thermodynamics for Biochemists (One lecture, 10 Oct.)

DR C. W. J. SMITH
Mechanisms and Control of Transcription in Eukaryotes. (Five lectures, beginning 13 Oct.)

DR T. R. HESKETH
Intracellular Signalling in Mammalian Cells. (Four lectures, beginning 13 Oct.)

PROF. R. J. JACKSON
Protein Synthesis and Translational Control. (Five lectures, beginning 20 Oct.)

DR C. J. HOWE
Gene Expression in Plants. (Four lectures, beginning 21 Oct.)

DR K. MIZUGUCHI
Bioinformatics: Polypeptide Similarity, Families and Superfamilies. (Two lectures, beginning 27 Oct.)

DR T. HUBBARD
Bioinformatics: Large Scale Sequencing Projects. (Two lectures, beginning 29 Oct.)

DR P. DUPREE
Protein Targeting to the ER. (Three lectures, beginning 27 Oct.)

DR F. HOLLFELDER
Chemistry for Biochemists. (One lecture, 30 Oct.)

DR D. OWEN
G Protein-Based Signalling. (Three lectures, beginning 31 Oct.)

DR A. A. GRACE
Disease Genes: Function and Manipulation. (Three lectures, beginning 3 Nov.)

DR K. M. BRINDLE
Molecular Imaging. (Three lectures, beginning 5 Nov.)

DR F. HOLLFELDER
Enzyme Structure and Function. (Five lectures, beginning 10 Nov.)

PROF. J. O. THOMAS
Protein-DNA Interactions and Gene Expression. (Five lectures, beginning 10 Nov.)

PROF. G. P. C. SALMOND
Bacterial Signalling Systems. (Four lectures, beginning 17 Nov.)

DR A. P. JACKSON
Protein Sorting. (Six lectures, beginning 21 Nov.)

DR A. M. TOLKOVSKY
Transcriptional Control of Apoptosis in Mammalian Development. (Three lectures, beginning 24 Nov.)

DR S. MCLAUGHLIN
Protein Folding *in vivo.* (Three lectures, beginning 25 Nov.)

DR J. A. H. MURRAY
Eukaryotic Chromosome Replication. (Three lectures, beginning 27 Nov.)

DR G. C. BROWN
Bioenergetics of the Cell. (Five lectures, beginning 1 Dec.)

DR S. BELL
DNA Recombination in Genetic Exchange and Gene Expression. (Four lectures, beginning 2 Dec.)

Data handling classes W. 2.30–4.30, 30 Oct., 5 Nov.

Option Lectures

1. PROF. G. P. C. SALMOND AND OTHERS
Option Organiser: Prof. G. P. C. Salmond
Bacterial Virulence and Antimicrobial Chemotherapy. (Fifteen lectures)

2. PROF. J. O. THOMAS AND OTHERS
Option Organiser: Prof. J. O. Thomas
Proteins, Nucleic Acids and Their Interactions. (Fifteen lectures)

3. DR M. D. BRAND AND OTHERS
Option Organiser: Dr M. D. Brand
Mitochondria and Bioenergetics. (Fifteen lectures)

4. DR P. DUPREE AND OTHERS
Option Organiser: Dr P. Dupree
Plant Cell and Molecular Biology. (Fifteen lectures)

5. PROF. R. J. JACKSON AND OTHERS
Option Organisers: Prof. R. J. Jackson and Dr T. Krude
Control of Gene Expression in Eukaryotes. (Fifteen lectures in part joint with Part II Zoology)

6. PROF. K. SIDDLE AND OTHERS
Option Organiser: Prof. K. Siddle
Medical Biochemistry. (Fifteen lectures)

7. DR F. HOLLFELDER AND OTHERS
Option Organiser: Dr F. Hollfelder
Enzyme Mechanisms and the Evolution of Enzyme Function. (Fifteen lectures)

8. PROF. J. C. METCALFE AND OTHERS
Option Organisers: Prof. J. C. Metcalfe and Dr A. A. Grace
Cardiovascular Molecular and Cellular Biology. (Fifteen lectures)

9. DR T. R. HESKETH AND OTHERS
Option Organisers: Dr T. R. Hesketh and Dr N. Affara
Oncogenes, Tumour Suppressor Genes and Carcinogenesis. (Fifteen lectures in part joint with Option E of Part II Pathology)

10. DR A. M. TOLKOVSKY AND OTHERS
Option Organiser: Dr A. M. Tolkovsky
Perspectives in Molecular Neurobiology. (Fifteen lectures)

12. DR N. J. GAY AND OTHERS
Option Organiser: Dr N. J. Gay
Biotechnology. (Fifteen lectures)

13. DR D. M. CARRINGTON AND OTHERS
Option Organiser: Dr D. M. Carrington
Regulation of the Eukaryotic Cell Cycle. (Fifteen lectures)

14. PROF. R. N. PERHAM AND OTHERS
Option Organisers: Prof. R. N. Perham and Dr S. E. Jackson
Protein Folding and Assembly. (Fifteen lectures)

Data handling classes W. 3–5, 26 Jan., 19 Feb.

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

CHEMISTRY (OPTION A AND OPTION B)

Course Organiser: Dr J. H. Keeler E-mail: James.Keeler@ch.cam.ac.uk

All lectures will be given in the *Department of Chemistry, Lensfield Road*

Students must register for the course in the *Department of Chemistry, Lensfield Road*, between 9 and 1 or 2 and 4 on Tuesday, 7 Oct.

A booklet containing details of the times of the lecture courses will be given out on registration. Others interested in the lecture courses can obtain a copy of this booklet on application to the Course Organiser. This information is also available from the website, www-teach.ch.cam.ac.uk

All students must attend an introductory talk concerning the practical course at 12 noon on Wednesday, 8 Oct. in *Lecture Theatre 3*.

EXPERIMENTAL AND THEORETICAL PHYSICS

Course Organiser: Prof. M. Warner E-mail: II-physics@phy.cam.ac.uk

Students offering **Option A** must take the whole of **course H** in the Michaelmas Term and 32 hours of lectures in that course in the Lent Term. They must in addition take **course K**, Concepts in Physics from **course I** and a suitable selection from the material of **courses J** and **S**.

Students offering **Option B** must take the whole of **course H**. In addition they must take a suitable selection from the material of **courses J** and **S**. **Course I** is non-examinable.

The material of **course J** is examined at the start of the term following that in which each block, TP1 and TP2, is given.

The course will begin with a meeting on the first Wednesday of Full Term (8 Oct.) at 9.30 a.m. in the *Pippard Lecture Theatre*.

Lectures are given at the *Cavendish Laboratory (West Cambridge),* in the *Pippard Lecture Theatre* unless otherwise stated.

Course H

DR C. G. SMITH
Solid State Physics. M. Th. 9

DR R. J. NEEDS
Thermal and Statistical Physics. Tu. Th. 10

PROF. D. A. RITCHIE
Quantum Mechanics II. W. F. 9

DR P. ALEXANDER AND OTHERS
Computational Physics. M. W. F. 10 (First twelve lectures)
Classes weekdays 2 – 5 (9 Oct. – 3 Dec.). Students attend one day per week

DR N. R. COOPER
Relativity and Electrodynamics. Tu. 9 (First four lectures); M. W. F. 10 (Last twelve lectures)

DR R. T. PHILLIPS
Light, Atoms and Lasers. Tu. Th. 9

DR R. PADMAN
Systems. Tu. Th. 10 (First eight lectures)

DR V. GIBSON
Nuclear Physics. M. W. F. 9 (First twelve lectures)

DR M. A. THOMSON
Particle Physics. M. W. F. 9 (Last twelve lectures)

PROF. M. WARNER
Fluids. M. W. F. 10 (First sixteen lectures)

PROF. W. Y. LIANG AND OTHERS
General Examples Class. M. W. 2–4

Course I

PROF. M. S. LONGAIR
Concepts in Physics. Tu. Th. 10 (Last eight lectures)

DR S. MAHAJAN
Order of Magnitude Physics. (Eight lectures beginning 23 Feb.) M. W. F. 10

THE STAFF OF THE CAVENDISH LABORATORY
Current Research Work in the Cavendish Laboratory (not examinable). See Part III Experimental and Theoretical Physics (p. 217)

Course J

DR E. TERENTJEV AND DR C. H. W. BARNES
Theoretical Physics TP1. Tu. Th. 12–1 (Twelve lectures beginning 14 Oct.); Tu. 2–4 (Four classes, 21 Oct., 4 Nov., 18 Nov., 2 Dec.)

PROF. B. R. WEBBER AND DR N. R. COOPER
Theoretical Physics TP2. Tu. Th. 12–1 (Twelve lectures, beginning 20 Jan.); Tu. 2–4 (Four classes, 27 Jan., 10 Feb., 24 Feb., 9 Mar.)

Course K

PROF. J. A. C. BLAND AND DR J. R. BATLEY
Physics in Action. F. 11.30 *Mott Seminar Room*
Group Project Work. F. 2–4 *Ryle Seminar Room*

Course S

DR R. J. BUTCHER AND OTHERS
Experiment E1: Registration W. 9.30 (8 Oct.)

DR H. SIRRINGHAUS AND OTHERS
Literature Review

DR R. J. BUTCHER AND OTHERS
Experiment E2: Registration W. 2.30 (14 Jan.)

DR H. SIRRINGHAUS AND OTHERS
The same continued.

DR H. SIRRINGHAUS AND OTHERS
The same continued.

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 | **LENT 2004** | **EASTER 2004**

GENETICS

Course Organisers: Dr M. Segal and Dr C. Farr E-mail: partII.organisers@gen.cam.ac.uk
Course Website: www.gen.cam.ac.uk/

A detailed timetable for this course will be available in the Department of Genetics.

All lectures take place in the *Part II Lecture Room (G6), Department of Genetics* on M. T. W. T. F. 9 and 10.30, unless otherwise stated

DR D. SUMMERS, DR P. OLIVER AND DR J. ARCHER
Prokaryotic Genetics. (Fifteen lectures, beginning 9 Oct.)
DR I. FURNER, DR M. SEGAL AND DR D. MACDONALD
Plant and Fungal Genetics. (Twelve lectures, beginning 9, 10 and 28 Oct. onwards.)
PROF. M. ASHBURNER AND DR C. O'KANE
Drosophila Genetics. (Eleven lectures, beginning 13 Oct.)
DR C. FARR, DR M. ZERNICKA-GOETZ AND DR J. AHRINGER
Animal Genetics. (Five lectures, beginning 12 Nov.)
DR D. MACDONALD AND DR C. FARR
Human Genetics and Genomics. (Twenty lectures, beginning 30 Oct.)
DR M. SEGAL AND PROF. D. GLOVER
Control of Cell Division in Eukaryotes. (Twelve lectures, beginning 20 Nov. and 2 Dec.)

Long Reading Weekend. 7 Nov. until 11 Nov. inclusive

Journal Sessions. M. 11.30 (Three sessions, beginning 20 Oct.)

Social Aspects of Genetics. 2.00 (Six sessions, beginning 10 Oct.)

DR M. MAJERUS, DR F. BALLOUX AND DR J. BROWN
Evolutionary Genetics. (Twenty six lectures, beginning 12 Jan.)
DR A. MARTINEZ ARIAS, DR D. ST. JOHNSTON AND DR J. AHRINGER
Genetics of Development. (Sixteen lectures, beginning 12 Jan.)
PROF. M. ASHBURNER AND DR D. MACDONALD
Genome Change and Diversity. (Eleven lectures, beginning 16 Feb.)

Reading Week. 9 Feb. until 13 Feb. inclusive

Journal Sessions. M. 11.30 (Three sessions, beginning 16 Feb.)

Problem Solving Sessions. 2.00 (Three sessions, beginning 18 Feb.)

Revision seminars (Five sessions, dates to be announced)

GEOLOGICAL SCIENCES AND MINERAL SCIENCES

Students offering Option A (leading to the three year degree – Part IIA) must take two core courses in the Michaelmas Term and two options in the Lent and Easter Terms. They must in addition attend the Skills course S1 in the Michaelmas Term.

Students offering Option B (leading to Part IIB and to the four year degree – Part III) must take two core courses in the Michaelmas Term and three options in the Lent and Easter Terms. They must in addition attend the Skills course S1 in the Michaelmas Term.

Core C1 Geophysics
PROF. J. A. JACKSON, DR F. TILMANN AND PROF. D. P. MCKENZIE
Convenor: Prof. J. A. Jackson
Lectures. Tu. Th. 9 *Harker Room*
Practicals. Tu. Th. 10–12 *Petrology Laboratory*

Core C2 Petrology and Geochemistry
DR T. J. B. HOLLAND, DR A. GALY AND DR S. GIBSON
Convenor: Dr T. J. B. Holland
Lectures. M. F. 9 *Harker Room*
Practicals. M. F. 10–12 *Petrology Laboratory*

Core C3 Sedimentology and Palaeontology
DR N. HOVIUS, PROF. R. B. RICKARDS AND DR R. WOOD
Convenor: Dr N. Hovius
Lectures. W. 9, F. 12 *Harker Room*
Practicals. W. 10–12, F. 2–4 *Palaeontology Laboratory*

Core C4 Mineralogy
DR S. A. T. REDFERN, PROF. M. A. CARPENTER AND DR R. J. HARRISON
Convenor: Prof. M. A. Carpenter
Lectures. M. W. 2 *Oxburgh Room*
Practicals. W. Th. 3–4.30 *IB Mineralogy Laboratory*

Core C5 Mineral Physics
DR M. T. DOVE AND MR P. WELCHE
Convenor: Dr M. T. Dove
Lectures. W. 9, F. 2 *Oxburgh Room*
Practicals. W. 10–11.30, F. 3–4.30 *IB Minerals Laboratory*

Option 1 Basin Dynamics
PROF. J. A. JACKSON, DR A. G. SMITH AND PROF. R. S. WHITE ET AL
Convenor: Dr A. G. Smith
Lectures. Tu. Th. 9 *Tilley Room*
Practicals. Tu. 10–11.30, Th. 10–11.30 *Petrology Laboratory*

The same continued. (Eight revision sessions)

Option 2 Sedimentary Systems
DR A. GALY AND DR J. A. D. DICKSON
Convenor: Dr J. A. D. Dickson
Lectures. Tu. F. 2 *Harker Room*
Practicals. Tu. F. 3–4.30 *Petrology Laboratory*

The same continued. (Eight revision sessions)

Option 3 Metamorphic and Igneous Processes
DR D. M. PYLE, DR T. J. B. HOLLAND AND PROF. M. J. BICKLE
Convenor: Dr D. M. Pyle
Lectures. M. Th. 2 *Harker Room*
Practicals. M. Th. 3–4.30 *Petrology Laboratory*

The same continued. (Eight revision sessions)

Option 4 Long Term Climate Change
PROF. I. N. MCCAVE, PROF. N. J. SHACKLETON, PROF. H. E. ELDERFIELD AND A. N. OTHER
Convenor: Prof. H. E. Elderfield
Lectures. M. 9, W. 2 *Harker Room*
Practicals. M. 10–11.30, W. 3–4.30 *Structural Laboratory*

The same continued. (Eight revision sessions)

Option 5 Evolutionary Palaeobiology
PROF. R. B. RICKARDS AND DR D. B. NORMAN
Convenor: Prof. R. B. Rickards
Lectures. W. F. 9 *Harker Room*
Practicals. W. F. 10–11.30 *Palaeontology Laboratory*

The same continued. (Eight revision sessions)

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004

GEOLOGICAL SCIENCES AND MINERAL SCIENCES (continued)

Skills Course S1
DR N. H. WOODCOCK AND DR A. G. SMITH
Convenor: Dr N. H.Woodcock
Tu. Th. 2–5 *Harker Room and Computer Room* (first three weeks)

Field Course to Greece 5–13 Dec. 2003
PROF. J. A. JACKSON

Option M3 Spectroscopic Methods
DR S. ASHBROOKE, DR M. ZHANG, DR G. LUMPKIN AND DR M. T. DOVE
Convenor: Dr I. Farnan
Lectures. M. F. 9 *Oxburgh Room*
Practicals. M. F. 10–11.30 *IB Minerals Laboratory*

Option M1 High Pressure Mineralogy
PROF. G. D. PRICE, PROF. M. A. CARPENTER, DR S. RIOS-BANOS, DR E. ARTACHO AND DR M. WELCH
Convenor: Prof. M. A. Carpenter
Lectures: M. W. 2 *Oxburgh Room*
Practicals. M. W. 3–4.30 *IB Minerals Laboratory*

Option M2 Disordered Materials
DR M. T. DOVE, DR I. FARNAN AND DR S. RIOS BANOS
Convenor: Dr I. Farnan
Lectures. W. F. 9 *Oxburgh Room*
Practicals. W. F. 10–11.30 *IB Minerals Laboratory*

The same continued. (Eight revision sessions)

The same continued. (Eight revision sessions)

HISTORY AND PHILOSOPHY OF SCIENCE

A detailed timetable and course handbook are available from the Department. For further details E-mail: hps-admin@lists.cam.ac.uk

Prof. Forrester and Dr Hopwood would like to see all Part II students taking HPS on Wednesday 8 Oct. at 11 a.m. in *Seminar Room 2, Department of History and Philosophy of Science*.

All classes and seminars will be held in the *History and Philosophy of Science Seminar Rooms, Free School Lane* unless otherwise stated

Primary Source Seminars
It is essential that all HPS Part II students attend four seminars, three from the papers they are taking and one other.
Paper 1: PROF. N. JARDINE, J. Kepler, *A Defence of Tycho against Ursus*. Tu. 4 (weeks 1–4)
DR L. TAUB AND OTHERS, Ptolemy, The Almagest
Paper 2: DR S. SCHAFFER AND OTHERS, Robert Hooke, *Micrographia* (1665). F. 4 (weeks 1–4)
Paper 3: DR R. NOAKES AND OTHERS, J. Tyndall, *Belfast Address* (1874). Th. 11 (weeks 1–4)
Paper 4: DR T. LEWENS AND OTHERS, 'The Spandrels of San Marco and the Panglossian Paradigm', S. J. Gould and R. C. Lewontin, in *Proceedings of the Royal Society of London* 205: 581–98. W. 4 (weeks 1–4)
Paper 5: DR J. MCMILLAN AND OTHERS, 'Mr Truman's Degree', in G.E.M. Anscombe, *Collected Philosophical Papers*, vol 3.
DR J. AGAR, Rachel Carson, *Silent Spring*, Houghton Mifflin (1962). W. 9 (weeks 1–4)
Paper 6: PROF. J. FORRESTER, 'The Psychology of the Dream Processes', in Freud, *The Interpretation of Dreams*, Ch 7. W. 2 (weeks 1–4)
Paper 7: DR A. CUNNINGHAM, *Natural and Political Observations..... upon the Bills of Mortality,* J. Graunt, (1672). F. 12 (weeks 1–4)
Paper 8: DR N. HOPWOOD, 'The Aetiology of Tuberculosis', Robert Koch, (1882), trans. K. Codell Carter, *Essays of Robert Koch* (1987). M. 12 (weeks 3 and 4), Tu. 2 (week 3), Th. 2 (week 4)

(Paper 1) Classical Traditions in the Sciences
Course Organisers: Dr L. Taub, E-mail: lct1001@hermes.cam.ac.uk and Prof. N. Jardine, E-mail: nj103@cam.ac.uk
PROF. N. JARDINE AND/OR DR L. TAUB
Primary Source. Tu. 4 (weeks 1–4)
PROF. N. JARDINE, PROF. R. MCKITTERICK AND DR L. TAUB
Introduction. Th. 10 (weeks 1–4) *(Essential. No supervisions).*
PROF. N. JARDINE, DR A. MOSLEY
Astronomy, Maths and Mechanics. Th. 9 (weeks 1–6)
DR L. TAUB AND DR A. MOSLEY
Instruments, Books and Collections. Th. 11 (weeks 1–8)
DR L. TAUB, PROF. D. SEDLEY, DR K. TYBJERG AND DR C. SALAZAR
Ancient Greek and Roman Science. F. 11 (weeks 1–8)
DR B. MUSALLAM AND DR N. EL-BIZRI
Arabic Science. M. 2 (weeks 5–8)
DR S. KUSUKAWA AND DR A. CUNNINGHAM
The Rise, Flourishing and Fall of Natural Philosophy, 1300–1789. Tu. 10 (weeks 1–4)
DR A. CUNNINGHAM
The Making of the 'Scientific Revolution'. Tu. 10 (weeks 5–8)

Dissertation Seminar
W. F. 4 (weeks 1–4)
It is essential that each HPS Part II student attends at least two of these seminars

DR S. KUSUKAWA
Early Modern Nature. M. 3 (weeks 5–8)
DR E. ROBSON
Centres of Excellence: Patronage and the Exact Sciences in the Middle East, 800BCE-1500CE. Th. 3 (weeks 1–8)
DR R. SERJEANTSON
Proof and Persuasion. F. 3 (weeks 5–8)
PROF. SIR GEOFFREY LLOYD
Greek and Chinese Science. M. 3 (weeks 1–4)

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 | **LENT 2004** | **EASTER 2004**

HISTORY AND PHILOSOPHY OF SCIENCE (continued)

(Paper 2) Natural And Moral Philosophies
Course Organiser: Dr S. Schaffer, E-mail: sjs16@hermes.cam.ac.uk

DR S. SCHAFFER AND OTHERS
Primary Source. F. 4 (weeks 1–4)

DR P. FARA, MR S. MANDELBROTE, DR S. SCHAFFER AND DR N. WILDING
Natural Philosophy and Exact Sciences. W. 3 (weeks 1–8)

DR M. FRASCA-SPADA
Human Nature and Knowledge: Locke, Berkeley and Hume. W. 10 (weeks 1–8)

DR P. FARA, MR S. MANDELBROTE, DR S. SCHAFFER AND DR N. WILDING
The same continued. W. 3 (weeks 1–4)

DR M. FRASCA-SPADA AND PROF. N. JARDINE
Human Nature and Knowledge: Kant. W. 3 (weeks 5–8)

PROF. N. JARDINE, DR A. SECORD AND DR P. WHITE
Natural Histories. W. 12 (weeks 1–8)

DR L. TAUB
Instruments, Models and Tools. M. 10 (weeks 1–4)

(Paper 3) Science, Industry And Empire
Course Organiser: Dr J. Agar, E-mail: jonagar2000@hotmail.com

DR R. NOAKES ET AL
Primary Source. Th. 11 (weeks 1–4)

DR N. HOPWOOD, PROF. N. JARDINE AND DR S. SCHAFFER
Laboratories and Disciplines. F. 2 (weeks 1–8)

DR T. DIXON
Religion and Science in Nineteenth-Century Britain. Th. 11 (weeks 5–8)

DR H. BLACKMAN
The Laboratory Revolution in Biology. M. 3 (weeks 1–4)

DR J. ENDERSBY
The Evolutionary Synthesis. M. 3 (weeks 5–8)

DR P. FARA
Images of Science. Th. 10 (weeks 5–8)

DR S. SCHAFFER, DR R. NOAKES AND DR K. PRICE
Classical Physics and its Contexts. W. 10 (weeks 1–8); F. 11 (weeks 5–8)

DR R. O'CONNOR
Visions of Earth History. M. 11 (weeks 1–4)

DR A. SECORD
Natural History in the Nineteenth Century. M. 10 (weeks 5–8)

DR P. WHITE
Science and Literature in the Victorian Age. M. 11 (weeks 5–8)

DR J. AGAR
Technology. W. 11 (weeks 5–8)

DR L. TAUB AND OTHERS
Instruments and Exhibitions. F. 11 (weeks 1–4)

(Paper 4) Metaphysics, Epistemology, and the Sciences
Course Organisers: Prof. P. Lipton, E-mail: pl112@hermes.cam.ac.uk and Dr T. Lewens, E-mail: tml1000@hermes.cam.ac.uk

DR T. LEWENS
Primary Source. W. 4 (weeks 1–4)

DR C. BOURNE
Causation and Law. W. 12 (weeks 1–4)

DR T. LEWENS
Realism. W. 12 (weeks 5–8)

DR R. JENNINGS
Recent History of the Philosophy of Science. M. 10 (weeks 1–8)

DR M. KUSCH
Epistemology of Testimony. M. 11 (weeks 1–8)

DR T. LEWENS AND DR M. MAMELI
Philosophy of Biology. Th. 10 (weeks 1–8)

PROF. J. FORRESTER
Thinking in Cases. W. 11 (weeks 1–4)

PROF. P. LIPTON
Induction. Tu. 12 (weeks 1–8)

(Paper 5) Science and Technology Studies
Course Organiser: Dr M. Kusch; E-mail: mphk2@cam.ac.uk

DR J. MCMILLAN AND OTHERS
Primary Source. W. 9 (weeks 1–4)

DR J. AGAR
Primary Source. Tu. 3 (weeks 1–4)

DR M. KUSCH AND DR S. SCHAFFER
Sociology of Scientific Knowledge. Tu. 12 (weeks 1–8)

DR J. AGAR
Sociology and Historiography of Technology. Th. 3 (weeks 5–8)

PROF. N. JARDINE
Historiography of the Sciences. F. 3 (weeks 1–8)

DR S. DE CHADAREVIAN AND DR J. AGAR
Science and Technology after World War II. Tu. 10 (weeks 1–8); Th. 12 (weeks 5–8)

DR T. LEWENS AND DR J. MCMILLAN
Bioethics. Tu. 11 (weeks 1–8)

DR N. HOPWOOD AND DR S. WILMOT
Reproductive Technologies. W. 2 (weeks 1–8)

DR S. SIVASUNDARAM
Science and Race. M. 2 (weeks 1–4)

DR E. ROBSON
The Material Culture of Mathematics in Historical Perspective. F. 9 (weeks 1–8)

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 | **LENT 2004** | **EASTER 2004**

HISTORY AND PHILOSOPHY OF SCIENCE (continued)

(Paper 6) History and Philosophy of Mind
Course Organiser: Prof. J. Forrester, E-mail: jpf11@hermes.cam.ac.uk

PROF. J. FORRESTER
Primary Source. W. 2 (Weeks 1–4)

PROF. J. FORRESTER
Freud, Psychoanalysis and the Twentieth Century. W. 11 (weeks 1–8); W. 2 (weeks 5–8).

DR M. KUSCH
On Rule-Following. F. 10 (weeks 1–8)

DR D. THOM
Psychology and Eugenics in Early Twentieth-Century Britain. Th. 3 (weeks 1–4)

PROF. P. LIPTON
Topics in the Philosophy of Mind. F. 10 (weeks 1–8)

DR G. BERRIOS
History of Psychopathology and Psychiatry. F. 3 (weeks 1–4)

DR N. MANSON
Unconscious Mentality and Freud's Methodology. Tu. 3 (weeks 1–8)

DR J. MCMILLAN
Mental Health, Compulsory Treatment and Ethics. Th. 11 (weeks 1–4)

DR J. AGAR
Turing and the History of Artificial Intelligence. Th. 11 (weeks 5–8)

(Paper 7) History of Medicine from Antiquity to the Enlightenment
Course Organiser: Dr A. Cunningham, E-mail: arc7@cam.ac.uk

DR A. CUNNINGHAM
Primary Source. F. 12 (weeks 1–4)

DR A. CUNNINGHAM
Medicine and Society in Europe, 1250–1800. Th. 12 (weeks 1–8); F. 12 (weeks 5–8)

PROF. SIR GEOFFREY LLOYD AND DR C. SALAZAR
Medicine and Society in the Ancient World. F. 12 (weeks 1–8)

DR M. SATCHELL
Medical Spaces and Places, 1100–1650, F. 2 (weeks 1–4)

DR S. PENNELL
Medicine and the Household, 1500–1750. F. 2 (weeks 5–8)

DR S. KUSUKAWA
Renaissance Anatomy from Leonardo da Vinci to William Harvey. Th. 12 (weeks 1–4)

MR P. JONES
Medicine and Communication, 1400–1600. Tu. 2 (weeks 1–4)

DR M. SATCHELL
Field Trip to Medieval Hospitals. 12 Mar.

(Paper 8) Modern Medicine and Biomedical Sciences
Course Organiser: Dr N. Hopwood, E-mail: ndh12@cam.ac.uk

DR N. HOPWOOD
Primary Source. M. 12 (weeks 3&4), Tu. 2 (week 3), Th. 2 (week 4).

DR N. HOPWOOD, DR S. DE CHADAREVIAN, DR H. KAMMINGA AND DR K. TAYLOR
Making Modern Medicine. M. 12 (weeks 1–8); Tu. 2 (weeks 1–8); Th. 2 (weeks 1–8)

DR A. CUNNINGHAM
Dissection and the Body in the Age of Revolutions. Th. 2 (weeks 1–4)

DR J. SCHICKORE
Medical Microscopy. M. 12 (weeks 1–4)

DR N. HOPWOOD
Embryos, Ancestors and the Unborn. M.12 (weeks 5–8)

PROF. J. FORRESTER
History of Psychiatry. Th. 2 (weeks 5–8)

Attention is drawn to courses announced by other authorities. Students are particularly advised to attend other relevant courses in the Faculties of History, Philosophy, and Social and Political Sciences.

DR N. WRIGHT
Latin for Beginners M. T. Th. F. 5

DR P. BURSILL-HALL
Topics in the History of Mathematics. M. W. F. 4 *Mill Lane Lecture Room 9*

DR M. BRAVO AND OTHERS
Cultures of the field (times to be announced)

DR N. WRIGHT
The same continued.

PROF. E. J. CRAIG
Causality from Descartes to Hume. 2 slots a week, weeks 5–8) Tu. 11, W. 12 [Philosophy]

DR J. MARENBON
Medieval Logic

DR P. SMITH
Scientific Realism F. 12 (weeks 5–8) [Philosophy]

DR S. SIVASUNDARAM
Science and Nature in 19thC British Empire, F. 11 (weeks 1–4) [History Faculty].

DR N. WRIGHT
The same continued.

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 | **LENT 2004** | **EASTER 2004**

MATERIALS SCIENCE AND METALLURGY

Course Organiser: Dr M. G. Blamire E-mail: PartII@msm.cam.ac.uk

A detailed timetable is available in the Department.

All lectures will be given in the *Seminar Room (T001)*

DR T. J. MATTHAMS
C3 Mathematical Methods. (Six lectures)
DR P. A. MIDGLEY
C4 Tensor Properties. (Twelve lectures)
DR J. A. LEAKE
C6 Crystallography. (Nine lectures)
PROF. A. L. GREER
C7 Kinetics. (Nine lectures)
DR J. A. LITTLE
C8 Chemical Stability. (Nine lectures)
PROF. H. K. D. H. BHADESHIA
C9 Alloys. (Nine lectures)
PROF. A. H. WINDLE
C10 Structure and Properties of Polymers. (Twelve lectures)
DR J. L. DRISCOLL
C11 Surfaces and Interfaces. (Six lectures)
DR W. J. CLEGG
C13 Ceramics. (Nine lectures)

Speakers from Industry
(M. 11, 1 Dec.)

Visit to Industry
Half day (3 Dec.)

Examples Classes
Timetable available in the Department

Practical Classes
M. Tu. W. 2–5 (Two sessions to be chosen each week)

Management Option
PROF. D. J. FRAY
F. 2–3 (Four lectures)
A. N. OTHER
Th. 2–3 (Eight lectures)

Language Option
(Two hours per week) M. 4–6 *or* Tu. 4–6 *or* W. 2–4 *or* Th. 2–4 *or* Th. 4–6 *or* F. 2–4

DR R. V. KUMAR
C1 Phase Equilibria. (Six lectures)
PROF. J. E. EVETTS
C5 Physical Properties. (Twelve lectures)
DR S. TIN
C12 Plasticity and Deformation. (Nine lectures)
PROF. A. H. WINDLE
C14 Polymer Processing. (Six lectures)
DR C. RAE
C15 Fracture and Fatigue. (Twelve lectures)
DR T. J. MATTHAMS
C16 Composite Materials. (Twelve lectures)
DR R. V. KUMAR
C17 Heat and Mass Transfer. (Six lectures)

Speakers from Industry
(Th. 11, 4 Mar.)

Visit to Industry
Half day (17 Feb.)

Examples Classes
Timetable available in the Department

Projects
Design project
Materials project

Management Option
DR G. T. BURSTEIN
F. 2–3 (Eight lectures)

Language Option
The same continued.

DR E. R. WALLACH
C2 Selection of Materials. (Six lectures)
DR S. M. BEST
C18 Biomaterials. (Six lectures)

NEUROSCIENCE

Course Organiser: Dr T. J. Bussey E-mail: tjb1000@cam.ac.uk

All lectures will be held in *Lecture Room 2 Austin Building*, unless otherwise stated

Module 1: Development, Degeneration and Regeneration.
M. Th. 9
PROF. M. BATE
Early Development of the Nervous System. (Six lectures, 9–27 Oct.)
DR G. COOK
Axonal Growth. (Four lectures, 30 Oct., 3, 6, 17 Nov.)

READING WEEK (10–14 NOV.)

PROF. J. H. ROGERS
Development of Connections. (Four lectures, 20 Nov.–1 Dec.)

PROF. E. B. KEVERNE
Development of Brain and Behaviour. (Three lectures, 12–19 Jan.)
Note the early start of this course.
DR P. KIRKPATRICK
Ischaemia, Excitotoxicity, and Stroke. (Two lectures, 22, 26 Jan.)
DR M.-G. SPILLANTINI
Neural Degeneration. (Four lectures, 29 Jan.–9 Feb.)

READING WEEK (16–21 Feb.)

DR R. BARKER
Neural Regeneration. (Four lectures, 12 Feb., 23 Feb.–1 Mar.)
DR R. FRANKLIN
Glial Degeneration and Repair. (Three lectures, 4–11 Mar.)

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NATURAL SCIENCES TRIPOS, PART II (continued)

NEUROSCIENCE (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004
Module 2: Cellular and Molecular Neurobiology. W. F. 9, unless otherwise stated		
DR R. MURRELL-LAGNADO Membrane-Located Voltage Sensors and Control of Neurone Function. (Five lectures, 8–22 Oct.) *Note the early start of this course.*	DR P. THORN Synaptic Mechanisms and Calcium Signalling. (Seven lectures, 14 Jan.–4 Feb.)	
DR J. A. KOENIG Receptor-Control of Neuronal Excitability: (a) Fast Neurotransmitters. (Five lectures, 24 Oct.–7 Nov.)	DR B. MCCABE Synaptic Plasticity. (Three lectures, 6–13 Feb.)	
READING WEEK (10–14 Nov.)	READING WEEK (16–20 Feb.)	
DR J. A. KOENIG Receptor-Control of Neuronal Excitability: (b) Slow Neurotransmitters. (Four lectures, 19–28 Nov.)	DR J. M. EDWARDSON Intracellular Signalling and Neurotransmitter Release. (Four lectures, 25 Feb.– 5 Mar.)	
DR P. J. RICHARDSON Genomics of Neuronal Systems. (Two lectures 3, 5 Dec.)	DR S. CHAWLA Regulation of Gene Expression. (Three lectures, 9 Mar. (Tu. 12) and 10, 12 Mar.)	
Module 3: Control of Action. W. F. 10, unless otherwise stated		
DR B. HEDWIG Synaptic, Cellular and Network Properties. (Four lectures, 8–17 Oct.) *Note the early start of this course.*	DR M. HASTINGS Neural Control of Circadian Rhythms. (Four lectures, 14–23 Jan.) *Note the early start of this course.*	
DR D. PARKER Vertebrate Locomotion. (Three lectures, 22–29 Oct.)	LECTURER TO BE ARRANGED Cerebellum. (Four lectures, 30 Jan.–11 Feb.)	
DR T. MATHESON Limb Targeting. (Four lectures, 3 Nov. (M. 12) and 31 Oct., 5, 7 Nov.)		
READING WEEK (10–14 Nov.)	READING WEEK (16–21 Feb.)	
DR P. EVANS Modulating a System. (Four lectures, 19–28 Nov.)	DR R. H. S. CARPENTER Neural Decisions. (Three lectures, 25 Feb.–3 Mar.)	
	DR S. JONES Striatum. (Four lectures, 8 Mar. (M. 12) and 5–12 Mar.)	
Module 4: Sensory Systems. Tu. 9, Th. 10		
DR R. HARDIE Photoreceptors. (Four lectures, 9–21 Oct.)	PROF. P. A. MCNAUGHTON Pain. (Four lectures, 13–22 Jan.) *Note the early start of this course.*	
PROF. E. B. KEVERNE Olfactory Receptors. (Two lectures, 23, 28 Oct.)	DR H. KRAPP Electric Senses and Motor Vision. (Four lectures, 27 Jan.–5 Feb.)	
PROF. J. MOLLON Visual Processing in the Retina. (Four lectures, 30 Oct.–7 Nov., 18 Nov.)	DR J. ALCANTARA Auditory Hair Cells. (Two lectures, 10, 12 Feb.)	
READING WEEK (10–14 Nov.)	READING WEEK (16–21 Feb.)	
DR B. HEDWIG Auditory Mechanisms. (Four lectures, 20 Nov.–2 Dec.)	DR J. ALCANTARA Hearing. (Six lectures, 24 Feb.–11 Mar.)	
Module 5: Learning, Memory and Cognition. M. Tu. 10		
DR B. J. MCCABE Cellular Mechanisms of Learning and Memory. (Four lectures, 13–21 Oct.)	DR R. CARDINAL Brain Mechanisms of Memory and Cognition. (Six lectures, 12, 19, 26 Jan., 2, 9, 23 Feb.) *Zoology Main Lecture Theatre* *Note the early start of this course.*	
DR T. BUSSEY Conditioning and Associative Learning. (Four lectures, 27 Oct.–4 Nov.)	DR R. A. MCCARTHY Cognitive Neuropsychology. (Eight lectures, 13, 20, 27 Jan., 3, 10, 24 Feb., 2, 9 Mar.) *Zoology Main Lecture Theatre* *Note the early start of this course.*	
READING WEEK (10–14 Nov.)	READING WEEK (16–21 Feb.)	
DR L. SAKSIDA Computational Neuroscience I: Conditioning and Associative Learning. (Two lectures, 17, 18 Nov.)	DR L. SAKSIDA Computational Neuroscience II: Memory and Cognition. (Two lectures, 1, 8 Mar.)	
DR P. BRENNAN Olfactory Learning. (Four lectures, 24 Nov.–2 Dec.)		

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 | **LENT 2004** | **EASTER 2004**

PATHOLOGY

Course Organiser: Dr I. Brierley E-mail: ib103@mole.bio.cam.ac.uk
Course Website: www.path.cam.ac.uk/

All lectures will be given in the *Department of Pathology* unless otherwise stated.

Introductory lecture
All options. W. 3 (One lecture, 8 Oct.) *It is important that all students attend the introductory lecture*

Option A: Cellular and Genetic Pathology Tu. Th. S. 9
Option Organiser: Dr N. Affara (E-mail: na106@cam.ac.uk; Tel: 33700)

DR I. FURNER, DR D. GRIFFIN, DR J. YATES, DR N. AFFARA, DR C. SARGENT, DR D. RUBINSZTEIN, DR D. R. SARGAN, DR J. AJIOKA, DR D. MACDONALD AND DR M. HURLES
N.B. Some lectures are held at 11.30 or 12
Part I: Genes, Genomes and Disease

DR N. AFFARA, DR C. PRINT, DR L. HULL, DR A. SHARKEY AND DR A. PHILPOTT
Part II: Molecular Genetics and Pathology of Reproduction

DR P. EDWARDS, PROF. A. H. WYLLIE, DR R. HESKETH, DR R. CLARKSON, PROF. V. P. COLLINS, DR A. BANNISTER, DR C. CALDAS, DR JONES, DR C. WATSON AND PROF. M. A. STANLEY.
Part III: Defects in Cellular Growth and Differentiation: Cancer

PROF. S. SMITH, DR C. PRINT AND DR S. CHARNOCK-JONES
Part IV: Angiogenesis

PROF. C. FFRENCH-CONSTANT
Part V: Neurodevelopmental Biology and Genetic Disease

Option B: Immunology Tu. Th. 5, Sa. 10.15
Option Organiser: Dr H. Reyburn (E-mail: htr20@cam.ac.uk; Tel: 66422)

DR H. REYBURN, DR M. CLARK, PROF. A. R. GREEN, DR K. G. C. SMITH, PROF. J. TROWSDALE, DR A. KELLY, DR P. LEHNER, DR G. ALEXANDER, DR N. HOLMES, PROF. I. MCCONNELL AND PROF. D. T. FEARON

DR N. HOLMES, DR B. A. BLACKLAWS, DR J. BONAME, DR P. MASTROENI, DR H. REYBURN, DR D. B. PALMER, PROF. D. T. FEARON, DR G. BUTCHER AND PROF. I. MCCONNELL

DR M. CLARK, PROF. J. S. H. GASTON AND DR H. REYBURN

Option C: Microbial and Parasitic Disease M. W. F. 9
Option Organiser: Dr I.B. Kingston (E-mail: ibk1000@cam.ac.uk; Tel: 33330)

DR R. HAYWARD, DR V. KORONAKIS, PROF. D. J. MASKELL AND DR G. FRASER
Bacterial Disease and Pathogenicity

DR D. BROWN, DR V. KORONAKIS AND DR P. MASTROENI
Combating Bacterial Disease

DR N. BROWN AND PROF. A. M. LEVER
Fungal Infections

DR G. FRASER AND DR I. B. KINGSTON
Journal Research Seminars

DR I. B. KINGSTON, DR J. AJIOKA, DR M. SHIRLEY, DR C. PEACOCK AND DR S. MELVILLE
Major Protozoal Diseases

DR D. DUNNE, DR K. HOFFMAN, DR I. B. KINGSTON AND DR E. MICHAEL
Major Helminth Diseases

DR I. B. KINGSTON AND DR J. W. AJIOKA
Journal Research Seminars (10–1)

DR M. BOOTH
Epidemiology

DR I. B. KINGSTON AND DR S. CROFT
Parasite Vaccines and Chemotherapy

Project Seminars (10–4)

Option D: Virology M. W. F. 5
Option Organiser: Dr T. D. K. Brown (E-mail: tdkb@mole.bio.cam.ac.uk; Tel: 36917)

PROF. A. H. WYLLIE, DR T. D. K. BROWN, DR S. WYNNE, DR P. DIGARD, DR J. GRAY, DR I. BRIERLEY, DR H. BROWNE AND DR J. SINCLAIR

DR G. TURNER, DR B. A. BLACKLAWS, DR J. BONAME, DR P. BORROW, PROF. A. M. L. LEVER, DR S. EFSTATHIOU, PROF.. A. C. MINSON DR P. DIGARD, DR T. D. K BROWN, DR J. C. STERLING, DR H. BROWNE, DR P. D. MINOR, DR G. K. DARBY AND DR P. STEVENSON

DR T. D. K. BROWN, DR P. DIGARD, PROF. P. SISSONS, DR M. BOOTH AND DR B. T. GRENFELL

IT Training
MS ROBERTS

continued >

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

PHARMACOLOGY

Course Organiser: Dr J. M. Edwardson E-mail: jme1000@cam.ac.uk

The introductory session for NST and MVST Part II (Two Paper and Four Paper) students will be at 9 a.m., Wednesday, 8 Oct. in the *Lecture Theatre, Department of Pharmacology*. It is expected to last all morning with a break for coffee.

Lectures will be given in the *Lecture Theatre, Department of Pharmacology*

Pharmacology of Integrated Systems (also MVST Part II Pharmacology of Integrated Systems)

DR C. R. HILEY
Cardiovascular Pharmacology. (Eight lectures, 9 Oct.–4 Nov.) Tu. Th. 11

PROF. P. A. MCNAUGHTON
Cellular and Molecular Aspects of Pain. (Four lectures, 10–17 Oct.) M. W. F. 9

DR M. A. BARRAND AND DR H. W. VAN VEEN
Resistance to Antibacterial, Antiparasitic and Anticancer Agents. (Six lectures, 20–31 Oct.) M. W. F. 9

DR T. P. FAN
Pharmacology of Inflammation and Angiogenesis. (Six lectures, 3–14 Nov.) M. W. F. 9

DR P. THORN
Gastrointestinal Pharmacology. (Four lectures, 6–18 Nov.) Tu. Th. 11

DR M. A. BARRAND
Apoptosis (Three lectures) (17, 19 Nov.) M. W. 9, (20 Nov.) Th. 11

DR M. A. BARRAND
Blood Brain Barrier. (Three lectures, 21–26 Nov.) M. W. F. 9

DR F. H. MARSHALL
Drug Discovery. (Three lectures, 28 Nov.–3 Dec.) M. W. F. 9

DR A. J. MORTON
Neurodegeneration. (Eight lectures, 16 Jan.–2 Feb.) M. W. F. 9

DR P. J. RICHARDSON
Genomics. (Two lectures, 4–6 Feb.) W. F. 9

DR Z. SARNYAI
Pharmacology of Psychiatric Disorders. (Eight lectures, 9–25 Feb.) M. W. F. 9

DR R. M. HENDERSON
Hyperlipidaemias and the Pharmacology of the Liver. (Four lectures, 27 Feb.–5 Mar.) M. W. F. 9

Molecular and Cellular Pharmacology

PROF. M. J. WARING AND PROF. V. K. K. CHATTERJEE
Drugs, Receptors and DNA. (Six lectures, 9–28 Oct.) Tu. Th. 9

DR L. MACVINISH
Pharmacology of Cystic Fibrosis and the Lung Epithelium. (Four lectures, 10–17 Oct.) M. W. F. 10

DR S. CHAWLA
Control of Transcription. (Three lectures, 20–24 Oct.) M. W. F. 10

DR J. M. YOUNG
Analysis of Drug-Receptor Interactions. (Five lectures, 27 Oct.–5 Nov.) M. W. F. 10

DR S. B. HLADKY
pH Regulation. (Three lectures, 30 Oct.–6 Nov.) Tu. Th. 9

DR J. M. EDWARDSON
Mechanisms of Exocytosis and Endocytosis. (Six lectures, 11–27 Nov.) Tu. Th. 9

DR R. MURRELL-LAGNADO, DR S. B. HLADKY AND DR S. CHAWLA
Potassium, Sodium and Calcium Channels. (Twelve lectures, 7–28 Nov.) M. W. F. 10, (Two lectures, 2 Dec.) Tu. 9, 10

DR M. A. BARRAND
Aquaporins. (Two lectures, 1–3 Dec.) M. W. 10

DR H. W. VAN VEEN
Carriers and Pumps as Targets for Drug Development. (Four lectures, 15–27 Jan.) Tu. Th. 9

DR J. A. KOENIG
Ligand Gated Ion Channels. (Three lectures, 16–20 Jan.) M. W. F. 10

DR C. ADKINS
G-Protein Coupled Receptors. (Three lectures, 23–28 Jan.) M. W. F. 10

PROF. R. F. IRVINE
Phosphoinositide Derived Messengers. (Four lectures, 29 Jan.–10 Feb.) Tu. Th. 9

DR A. GENAZZANI
Excitatory Amino Acids. (Three lectures, 30 Jan.–4 Feb.) M. W. F. 10

PROF. D. COOPER
cAMP Signalling. (Four lectures, 12–24 Feb.) Tu. Th. 9

DR P. THORN
Spatial Aspects of Intracellular Signalling. (Two lectures, 26 Feb., 2 Mar.) Tu. Th. 9

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

PHYSIOLOGY

Course Organiser: Dr C. L.–H. Huang E-mail: clh11@cus.cam.ac.uk
Course Website: www.physiol.cam.ac.uk/

Common Module
Module organiser: Dr M. J. Mason
These sessions are open to both NST and MVST students, unless otherwise stated
Sessions to be announced on the Physiology website

NST Orientation Day
W. 9 Oct. *Main Physiology Lecture Theatre*

Module 1: Sensory Systems W. Th. 9 ***Physiology Lecture Theatre 3*** (TBC)
Module organiser: Dr I. M. Winter

PROF. A. C. CRAWFORD
Peripheral Auditory System. (Four lectures, 15, 22, 29 Oct. 5 Nov.)
DR D. J. TOLHURST
Visual Cortex. (Four lectures, 16, 23, 30 Oct., 6 Nov.)
DR I. M. WINTER
Central Auditory System. (Four lectures, 13, 20, 27 Nov., 4 Dec.)
DR H. R. MATTHEWS
Introduction to Photoreceptors. (One lectures, F. 3, 7 Nov.)
DR H. R. MATTHEWS
Photoreceptors. (Four lectures, 12, 19, 26 Nov., 3 Dec.)

Module 2: Motor Systems F. 9, 11 ***Physiology Lecture Theatre 3***
Module organiser: Dr R. H. S. Carpenter

PROF. C. L-H. HUANG
Activation of Skeletal Muscle. (Three lectures, F. 9 (10 Oct.); F. 11 (10, 17 Oct.))
PROF. A. C. CRAWFORD
Muscle Spindles. (Two lectures, F. 9, 11 (24 Oct.))
DR A. PELAH
Visuomotor Adaptation and Control. (Two lectures, F. 9, 11 (31 Oct.))
DR R. H. S. CARPENTER
Introduction to Eye Movements. (Four lectures, F. 9 (3, 7, 21 Nov.); F. 11 (21 Nov.))
PROF. R. N. LEMON
Corticospinal Organisation. (Four lectures, F. 9 (14, 28 Nov.); F. 11 (14, 28 Nov.))

Sessions to be announced on the Physiology website

NST Journal Clubs *Bryan Matthews Room*
Sessions to be announced on the Physiology website

PROF. R. D. PATTERSON
Higher Auditory Processing. (Four lectures, 21, 22, 28, 29 Jan.
DR N. J. INGHAM
Binaural Hearing. (Two lectures, 4, 5 Feb.)
PROF. H. B. BARLOW
Higher Visual Processes. (Three lectures, 11, 12, 18 Feb.)
DR M. JUUSOLA
Information Coding in Sensory Systems. (Four lectures, 25, 26 Feb., 3, 4 Mar.)

DR R. H. S. CARPENTER
Oculomotor Neurophysiology. (Five lectures, F. 9 (16, 23, 30 Jan.); F.11 (30 Jan.))
DR H. R. MATTHEWS
Long-Latency Reflexes. (Three lectures, F .9 (6 Feb.); F. 11 (6, 13 Feb.))
PROF. J. C. ROTHWELL
Cortical and Subcortical Control of Movement. (Six lectures, F. 9 (20, 27 Feb., 5 Mar.); F. 11 (20, 27 Feb., 5 Mar.))

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 LENT 2004 EASTER 2004

PHYSIOLOGY (continued)

Module 3: Systems Physiology W. F. 10 *Physiology Lecture Theatre 3*
Module organiser: Dr S. O. Sage

DR S. O. SAGE
Renal Physiology. (Five lectures, 10, 15, 17, 22, 24 Oct.)
DR R. J. BARNES
Cardiovascular System in Exercise. (Four lectures, 29, 31 Oct., 5, 7 Nov.)
DR N. W. MORRELL
Pulmonary Circulation. (Two lectures, 12, 14 Nov.)
PROF. J. T. FITZSIMONS
Thirst and Sodium Appetite. (Five lectures, 19, 21, 26, 28 Nov., 3 Dec.)
DR A. V. EDWARDS
Autonomic Peptides. (Four lectures, 16, 21, 23, 28 Jan.)
DR J. BRADLEY
Chronic Renal Failure. (Two lectures, 30 Jan., 4 Feb.)
DR J. FIRTH
Acute Renal Failure. (Three lectures, 11, 13, 18 Feb.)
PROF. D. B. DUNGER
Diabetes Mellitus. (Two lectures, 20, 25 Feb.)
DR G. S. H. YEO AND DR S. FAROOQI
Control of Body Weight. (Three lectures, 27 Feb., 3, 5 Mar.)

Module 4: Developmental Physiology Th. F. 12 *Bryan Matthews Room*
Module organiser: Dr A. J. Forhead

DR A. J. FORHEAD
Development of Fetal Organs. (Four lectures, 9, 10, 16, 17 Oct.)
DR S. K. L. ELLINGTON
Embryogenesis. (Four lectures, 23, 24, 31 Oct., 6 Nov.)
PROF. A. L. FOWDEN
Growth and Metabolism of the Fetus. (Three lectures, 7, 27, 28 Nov.)
DR D. A. GIUSSANI
Fetal Cardiovascular Development. (Three lectures, 13, 14, 20 Nov.)
DR D. A. GIUSSANI
Fetal Breathing Movements. (One lecture, 21 Nov.)
DR W. H. COLLEDGE
Transgenesis. (Four lectures, 15, 16, 22, 23 Jan.)
PROF. M. A. H. SURANI
Developmental Biology. (Four lectures, 29, 30 Jan., 6, 19 Feb.)
PROF. A. L. FOWDEN
Growth and Metabolism of the Fetus. (Three lectures, 12, 13, 20 Feb.)
DR D. A. GIUSSANI
Parturition. (One lecture, 26 Feb.)
DR A .J. FORHEAD
Glucocorticoids in Fetal Maturation and Programming. (Two lectures, 27 Feb., 4 Mar.)
DR D. A. GIUSSANI
Fetal Programming. (One lecture, 5 Mar.)

Module 5: Cellular Physiology M. 10, Tu. 9 *Bryan Matthews Room*
Module organiser: Dr C. J. Schwiening

PROF. C. L-H. HUANG
Voltage-Gated Ion Channels. (Three lectures, 13, 14, 20 Oct.)
DR M. J. MASON
Techniques Lectures: Fluorescence Measurements of Ion Activities. (Two lectures, 21, 27 Oct.)
DR M. P. MAHAUT-SMITH
Calcium Signalling. (Three lectures, 28 Oct., 3, 4 Nov.)
DR S. O. SAGE
Store-Mediated Calcium Entry. (Three lectures, 11, 17, 18 Nov.)
DR J. FRASER
Cell Volume Regulation. (One lecture, 24 Nov.)
DR P. WOODING
Electron Microscopy. (One lecture, 25 Nov.)
DR S. HLADKY
Intracellular pH Regulation. (Two lectures, 1, 2 Dec.)
PROF. R. C. THOMAS
Proton Channels. (One lecture, 15 Jan.)
PROF. R. C. THOMAS
pH Effects on Calcium. (One lecture, 19 Jan.)
DR C. J. SCHWIENING
pH Microdomains. (One lecture, 20 Jan.)
DR C. J. SCHWIENING
Calcium Effects on pH. (One lecture, 26 Jan.)
DR J. H. ROGERS
Signal Transduction in Neural Development. (Five lectures, 27 Jan., 2, 3, 9, 10 Feb.)
DR J. W. FAWCETT
Neural Development. (Three lectures, 16, 23, 24 Feb.)
DR H. P. C. ROBINSON
Synaptic Mechanisms. (Four lectures, 1, 2, 8, 9 Mar.)

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 LENT 2004 EASTER 2004

PHYSIOLOGY (continued)

Module 6: Medical Neurobiology Tu. Th. 10 *Physiology Lecture Theatre 3*
Module organiser: Dr J. H. Rogers

PROF. C. L-H. HUANG
Neurological Imaging. (Two lectures, 9, 14 Oct.)
PROF. J. D. PICKARD AND OTHERS
Stroke, Intracranial Pressure, and CNS Injury. (Four lectures, 16, 21, 23, 28 Oct.)
DR M.-G. SPILLANTINI
Neural Degeneration. (Three lectures, 30 Oct., 4, 6 Nov.)
DR J. H. ROGERS
Neural Regeneration. (Four lectures, 11, 13, 18, 20 Nov.)
DR R. BARKER
Brain Grafting. (Two lectures, 25, 27 Nov.)

MICHAELMAS TERM LECTURERS
Discussion. (One lecture, 15, Jan.)
DR M. CALDWELL
Neural Stem Cells. (Three lectures, 20, 22, 27 Jan.)
DR R. FRANKLIN
Demyelination and Remyelination. (Two lectures, 29 Jan., 3 Feb.)
DR J. HUNTER
Development of CNS Pharmaceuticals. (One lecture, 5 Feb.)
PROF. P. A. MCNAUGHTON
Pain. (Two lectures, 10, 12 Feb.)
DR A. LEE
Cognitive Disorders in Neurological Disease. (Two lectures, 17, 19 Feb.)
DR E. WEISBLATT
Psychiatric Disorders. (Four lectures, 24, 26 Feb., 2, 4 Mar.)
LENT TERM LECTURERS
Discussion. (One lecture, 9 Mar.)

PLANT SCIENCES

Course Organiser: Dr A. G. Smith E-mail: alison.smith@plantsci.cam.ac.uk
Module organisers appear below. E-mail: firstname.surname@plantsci.cam.ac.uk unless otherwise specified
Course Website: www.plantsci.cam.ac.uk/Plantsci/teaching/content.html

All lectures take place in the *Tom ap Rees Lecture Room of the Department of Plant Sciences* unless otherwise stated

Module M1: Frontiers in Plant-Microbe Interactions
Module organiser: Dr J. P. Carr
DR J. P. CARR, DR K. JOHNSTONE AND A. N. OTHER
M. W. F. 9 (Twenty-four lectures, beginning 12 Oct.)

Module M2: Plant Metabolism
Module organiser: Dr A. G. Smith
DR S. CAMPAROT, DR A. G. SMITH, DR P. DUPREE AND PROF. J. C. GRAY
M. W. F. 10 (Twenty-four lectures, beginning 12 Oct.)

Module M3: Dynamics, History and Future of Vegetation
Module organiser: Prof. H. Griffiths
PROF. H. GRIFFITHS, DR E. V. J. TANNER AND DR D. A. COOMES AND DR O. RACKHAM
M. Tu. F.12 (Twenty-four lectures, beginning 12 Oct.)

Module M4: Transport and Signal Transduction
Module organiser: Prof. R. Leigh
DR V. DEMIDCHIK, PROF. R. LEIGH, DR R. DAVENPORT AND DR A. A. R. WEBB
Tu. Th. 9 W.12 (Twenty-four lectures, beginning 11 Oct.)

Module L1: Development of Plants and Fungi
Module organiser: Dr D. Hanke
DR J. DAVIES, DR J. HASELOFF, DR D. E. HANKE AND DR B. J. GLOVER
M. W. F. 9 (Twenty-four lectures, beginning 16 Jan.)

Module L2: Plant Responses to the Environment
Module organiser: Dr E. V. J. Tanner
DR E. V. J. TANNER, DR R. DAVENPORT, PROF. H. GRIFFITHS AND DR D. A. COOMES
M. W. F. 10 (Twenty-four lectures, beginning 16 Jan.)

Module L3: Variation and Evolution
Module organiser: Prof. J. S. Parker
PROF. J. S. PARKER AND DR T. M. UPSON
M. 11, Tu. Th. 9 (Twenty-four lectures, beginning 15 Jan.)

Module L4: Plant Genes and Organelles
Module organiser: Prof. J. S. Gray
DR A. SMITH, PROF. J. S. GRAY, DR Y.-L. CHUA, DR K. WILLEY AND DR P. DUPRE
Tu. Th. 10, W 11 (Twenty-four lectures, beginning 15 Jan.)

Module L5: Frontiers in Microbial Physiology and Ecology
Module organiser: Dr K. Johnstone
DR K. JOHNSTONE, DR A. TUNNACLIFFE, DR J. DAVIES, DR K. MAXWELL, DR M. MANZANGRA AND DR S. VILCHEZ
M. W. F. 12 (Twenty-four lectures, beginning 16 Jan.)

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 LENT 2004 EASTER 2004

PLANT SCIENCES (continued)

The modules below may also be offered in Part II Plant Sciences:

Population Biology
Interdepartmental Module
Module organiser: Prof. B. T. Grenfell (E-mail: b.t.grenfell@zoo.cam.ac.uk)
PROF. B. T. GRENFELL, DR T. COULSON, DR W. AMOS AND DR R. A. JOHNSTONE
M. W. F. 5 (Twenty-four lectures, beginning 10 Oct.)

Aquatic Ecology
Department of Zoology
Module organiser: Dr D. C. Aldridge
DR M. BROOKE, DR D. C. ALDRIDGE, DR D. K. A. BARNES, DR P. HERRING AND DR A. CLARKE
M. W. F.11 (Twenty-four lectures, beginning 10 Oct.)

Conservation Biology
Interdepartmental Module
Module organiser: Dr A. P. Balmford (E-mail: apb12@cam.ac.uk)
DR M. BROOKE, DR D. A. COOMES, DR W. AMOS, DR A. P. BALMFORD, DR E. V. J. TANNER AND OTHERS
M. W. F. 4 (Twenty-four lectures, beginning 16 Jan.)

Behavioural Ecology
Department of Zoology
Module organiser: Dr R. A. Johnstone (E-mail: r.a.johnstone@zoo.cam.ac.uk)
PROF. N. B. DAVIES, DR R. A. JOHNSTONE, PROF. T. H. CLUTTON-BROCK AND DR W. A. FOSTER
Tu. Th. Sa.11 (Twenty-four lectures, beginning 17 Jan.)

The following non-examined module is compulsory in Part II Plant Sciences:

Statistics for Part II Biologists
DR B. J. MCCABE
M. 9 and 2 (6 Oct.) M. Tu. W. Th. F. 2 (7–16 Oct.) (Ten lectures) *Large Lecture Theatre, Department of Plant Sciences*
Practical work
M. W. F. 10–12 or 3–5 (6–10 Oct.) M. W. F. 3–5 (13–20 Oct.) (Seven classes) *The Titan Teaching Rooms, Computing Service, New Museums Site*
Please note early start of course

PSYCHOLOGY

Course Organiser: Dr K. C. Plaisted E-mail: kcp1000@cus.cam.ac.uk

Lectures will be held in the *Lecture Theatre, Department of Experimental Psychology* unless otherwise stated

General Courses
PROF. T. W. ROBBINS
General Introduction. Th. 9 (One lecture, 9 Oct.)
DR M. R. F. AITKEN
Statistics. W. Th. F. 2 (Six lectures, 9–23 Oct.)
Practical Classes. M. W. 2–4 (Three classes, 13–29 Oct.) *Physiology Lecture Theatre 3*
Advanced Statistics. W. Th. 2 (Four lectures, 19–27 Nov.)
Practical Classes. M. 2–4 (Two classes, 24 Nov.–1 Dec.) *Practical Classroom*
DR G. J. DIGIROLAMO
Experimental Design. Th. 2–4 (One class, 30 Oct.)
PROF. J. D. MOLLON
Writing a Project Report. M. 5 (One class, 2 Feb.)

Section A
PROF. J. D. MOLLON
Vision. M. 9 (Eight lectures, beginning 13 Oct.)
DR J. ALCÁNTARA AND DR H. GOCKEL
Hearing. Th. 10 (Eight lectures, beginning 9 Oct.), Tu. 9 (Four lectures, 14 Oct.–4 Nov.)
DR G. J. DIGIROLAMO
Attention, Cognition and Control. M. 11 (Eight lectures, beginning 13 Oct.)
PROF. J. D. MOLLON
Vision. M. 9 (Eight lectures, 12 Jan.–9 Feb., 23 Feb.–8 Mar.)
Note the early start of this course
DR G. J. DAVIS
Visual Cognition. M. 11 (Eight lectures, 12 Jan.–9 Feb., 23 Feb.–8 Mar.)
DR H. SMITHSON
Special Topics in Vision. W. 12 (Four lectures, 11 Feb., 25 Feb.–10 Mar.)

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

PSYCHOLOGY (continued)

Section B

PROF. N. J. MACKINTOSH
Intelligence. F. 11 (Eight lectures, beginning 10 Oct.)

DR J. RODD
Language, Mind and Brain. Tu. 10 (Eight lectures, beginning 14 Oct.), W. 11 (Eight lectures, beginning 15 Oct.)

DR I. P. L. MCLAREN
Learning, Memory and Cognition. M. Th. 12 (Fourteen lectures, 12 Jan.–12 Feb., 23 Feb.–4 Mar.)
Note the early start of this course

DR I. P. L. MCLAREN
Connectionism. Tu. 12 (Seven lectures, 13 Jan.–10 Feb., 24 Feb.–2 Mar.)

DR L. M. SAKSIDA
Connectionism. Th. 10 (Eight lectures, 15 Jan.–12 Feb., 26 Feb.–11 Mar.)

DR F. PULVERMÜLLER
Neurophysiology of Language Processing in the Brain. F. 11 (Four lectures, 13 Feb., 27 Feb.–12 Mar.)

Section C

PROF. B. J. EVERITT AND PROF. T. W. ROBBINS
Brain Mechanisms of Motivation. M. W 10 (Fourteen lectures, 13 Oct.–5 Nov., 17 Nov.–3 Dec.)

PROF. A. DICKINSON
Comparative Psychology of Learning and Memory M. Th. 12 (Fifteen lectures, beginning 13 Oct.)

DR N. S. CLAYTON
Comparative Psychology of Cognition. W. 12 (Seven lectures, 15 Oct., 29 Oct.–3 Dec.), F. 2 (One lecture, 24 Oct.)

DR R. N. CARDINAL
Brain Mechanisms of Cognition. M. 10 (Six lectures, 12 Jan.–9 Feb., 23 Feb.)
Physiology Main Lecture Theatre
Note the early start of this course

DR R. A. MCCARTHY
Cognitive Neuropsychology. Tu 10 (Eight lectures, 13 Jan.–10 Feb., 24 Feb.–9 Mar.)
Physiology Main Lecture Theatre., W. 11 (Eight lectures, 14 Jan.–11 Feb., 25 Feb.–10 Mar.)

DR N. S. CLAYTON
Comparative Psychology of Cognition. W. 12 (Four lectures, 14 Jan.–4 Feb.)

Section D

PROF. S. BARON-COHEN
Abnormal Psychology: Cognitive Perspectives. F. 10 (Six lectures, 10 Oct.–14 Nov.)

DR J. RUSSELL
Cognitive Development. F. 12 (Eight lectures, beginning 10 Oct.)

DR J. STEVENSON-HINDE AND OTHERS
Temperament and Attachment. M. W. 5 (Eight lectures, 13 Oct.–5 Nov.)

DR K. C. PLAISTED
Social and Emotional Development. Tu. 12 (Eight lectures, beginning 14 Oct.)

DR E. WEISBLATT
Trauma, Development and Psychiatry. Th. 5 (Four meetings, 6–27 Nov.)

DR L. BROSAN
Clinical Aspects of Abnormal Psychology. Tu. 5 (Four meetings, 11 Nov.–2 Dec.)

Attention is drawn to lectures given by Prof. J. Forrester on Freud, Psychoanalysis and the Twentieth Century. W. 11 (Eight lectures beginning 15 Oct.) and W. 2 (Four lectures beginning 12 Nov.), *Department of History and Philosophy of Science.*

DR J. RUSSELL AND DR S. BUTTERFILL
Philosophical Issues in Mental Development. Tu. 5 (Eight lectures, 13 Jan.–10 Feb., 24 Feb.–9 Mar.)
Note the early start of this course

DR J. RUSSELL
Language Acquisition. F. 12 (Eight lectures, 16 Jan.–13 Feb., 27 Feb.–12 Mar.)

PROF. B. J. EVERITT
Abnormal Psychology: Biological Perspectives. W. 10 (Six lectures, 21 Jan.–11 Feb., 25 Feb.–3 Mar.)

DR P. L. APPLETON
Clinical Aspects of Abnormal Development Seminars. Th. 5 (Three meetings, 26 Feb.–11 Mar.)

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NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

ZOOLOGY

Course Organiser: Dr H. Skaer E-mail: h. skaer@zoo.cam.ac.uk

Lectures will be given in the *Department of Zoology* unless otherwise stated

Topics in Vertebrate Evolution
Module organiser: Dr J. A. Clack
DR J. A. CLACK, DR A. E. FRIDAY, DR H. BLOM, DR A. R. MILNER, DR E. RAYFIELD, DR M. WILKINSON, DR P. M. BARRETT, DR P. UPCHURCH AND DR A. C. MILNER
M. W. F. 10 (Twenty-four lectures, beginning 10 Oct.)

Aquatic Ecology
Module organiser: Dr D. Aldridge
DR M. BROOKE, DR D. ALDRIDGE, DR D. BARNES AND PROF. A. CLARKE
M. W. F. 11 (Twenty-four lectures, beginning 10 Oct.)

Population Biology
Module organiser: Prof. B. T. Grenfell
DR T. N. COULSON, PROF. B. T. GRENFELL, DR T. N. COULSON, DR W. AMOS, DR R. A. JOHNSTONE AND DR S. DALL
M. W. F. 5 (Twenty-four lectures, beginning 10 Oct.)

Neural Mechanisms of Behaviour
Module organiser: Dr B. Hedwig
PROF. S. LAUGHLIN, PROF. M. BURROWS, DR B. HEDWIG, DR B. J. MCCABE, PROF. M. BATE AND PROF. E. B. KEVERNE
Tu. Th. S. 11 (Twenty-four lectures, beginning 9 Oct.)

Behaviour
Module organiser: Prof. E. B. Keverne
PROF. P. P. G. BATESON, DR B. J. MCCABE, PROF. E. B. KEVERNE, DR N. J. EMERY AND DR N. I. MUNDY
Tu. Th. 9, S. 10 (Twenty-four lectures, beginning 9 Oct.)

Cell Dynamics and Communication
Module organiser: Dr H. Skaer
DR H. SKAER, DR J. RAFF, DR R. DUDEN, DR M. ROBINSON, DR P. LUZIO, DR J. P. VINCENT, DR H. BAYLIS, PROF. P. SIMPSON AND DR H. SKAER
M. W. F. 4 (Twenty-four lectures, beginning 10 Oct.)

Control of Cell Growth and Genome Stability
Module organiser: Prof. S. P. Jackson
PROF. S. P. JACKSON, DR J. PINES, DR J. RAFF, DR M. JACKMAN, DR T. KRUDE, DR J. DOWNS, DR N. MCCARTHY AND DR T. LITTLEWOOD
M. W. F. 9 (Twenty-four lectures, beginning 10 Oct.)

Statistics for Part II Biologists
DR B. J. MCCABE
M. 9 and 2 (6 Oct.) M. Tu. W. Th. F. 2 (7–16 Oct.) (Ten lectures) *Large Lecture Theatre, Department of Plant Sciences*
Practical work
M. W. F. 10–12 or 3–5 (6–10 Oct.) M. W. F. 3–5 (13–20 Oct.) (Seven classes) *The Titan Teaching Rooms, Computing Service, New Museums Site*
Please note early start of course

Mammalian Evolution and Faunal History
Module organiser: Dr A. E. Friday
DR A. E. FRIDAY, DR E. M. WESTON AND DR R. C. PREECE
M. W. F. 10 (Twenty-four lectures, beginning 16 Jan.)

Conservation Biology
Module organiser: Dr A. Balmford
DR M. BROOKE, DR I. HODGE, DR W. AMOS, DR D. COOMES, DR A. BALMFORD, DR R. GREEN, DR E. TANNER AND DR J. O'SULLIVAN
M. W. F. 4 (Twenty-four lectures, beginning 16 Jan.)

Behavioural Ecology
Module organiser: Dr R. A. Johnstone
PROF. N. B. DAVIES, DR R. A. JOHNSTONE, DR R. KILNER, PROF. T. H. CLUTTON-BROCK AND DR W. A. FOSTER
Tu. Th. S. 11 (Twenty-four lectures, beginning 15 Jan.)

Animal Energetics: the cost of living
Module organiser: Dr R. G. Boutilier
DR R. G. BOUTILIER, PROF. C. ELLINGTON, DR L. PECK AND PROF. A. CLARKE
Tu. Th. S. 10 (Twenty-four lectures, beginning 15 Jan.)

Molecular and Developmental Evolution
Module organiser: Prof. M. Akam
PROF. M. AKAM, DR W. AMOS, DR N. MUNDY AND OTHERS
M. W. F. 11 (Twenty-four lectures, beginning 16 Jan.)

Developmental Biology
Module organiser: Prof. P. Simpson
PROF. P. SIMPSON, DR H. SKAER, DR H. BAYLIS, PROF. P. SIMPSON, DR H. SKAER AND PROF. M. AKAM
M. W. F. 5 (Twenty-four lectures, beginning 16 Jan.)

Control of Gene Expression
Module organiser: Dr T. Krude
DR T. KRUDE, DR R. SCHNEIDER, DR A. BANNISTER, DR C. ALONSO, DR J. DOWNS, DR D. SCADDEN, DR H. BAYLIS, DR C. SMITH AND PROF. R. JACKSON
M. W. F. 9 (Twenty-four lectures, beginning 16 Jan.) First nine lectures in the Department of Zoology; the following fifteen lectures take place in the Department of Biochemistry

Human Biology
Module organiser: Prof. T. H. Clutton-Brock
STAFF OF THE ZOOLOGY DEPARTMENT
M. W. F. 10 (Seven lectures, beginning 23 Apr.)

NATURAL SCIENCES TRIPOS, PART III

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

ASTROPHYSICS

All lectures will be held in *the Centre for Mathematical Sciences meeting rooms (MR), Clarkson Road*

PROF. J. E. PRINGLE
Astrophysical Fluid Dynamics. Tu. Th. S. 11 *MR 15*
DR C. A. TOUT
Structure and Evolution of Stars. M. W. F. 12 *MR 11*
DR J. M. STEWART
General Relativity. M. W. F. 9 *MR 2*
PROF. A. C. DAVIS
Cosmology. Tu. Th 10 *MR 2*
PROF. N. O. WEISS
Stellar Magnetohydrodynamics. M. W. F. 11 *MR 14*

DR R. F. CARSWELL AND PROF. M. PETTINI
Physical Cosmology. M. W. F. 9 *MR 9*
PROF. G. F. GILMORE
Galaxies and Dark Matter. M. W. F. 10 *MR 11*
PROF. M. R. E. PROCTOR
Dynamo Theory. M. W. F. 12 *MR 14*

DR G. I. OGILVIE
Accretion Discs. M. Tu. Th. F 12 *MR 15*

BIOCHEMISTRY

Course Organiser: Prof. D. J. Ellar E-mail: dje1@mole.bio.cam.ac.uk

The course starts with an introductory lecture by PROF. ELLAR at 9 a.m. on Monday 6 October in the *lecture theatre in the Sanger Building, Department of Biochemistry*, *Old Addenbrooke's Site.*

Option Course lectures take place throughout the day in Lent Term. Detailed time-tables will be posted in the *Department of Biochemistry*

Lectures are given in the *Department of Biochemistry*

Research project support
DEPARTMENTAL STAFF
Laboratory Safety, preparation of scientific figures and scientific reports, record keeping, experimental design, seminar presentation. 6–10 Oct.

Data Handling Classes W. 2.30–4.30 from 30 Oct.

Research Project Colloquium
PROF. D. J. ELLAR AND DR T. R. HESKETH (Joint chairs)
Presentation of interim reports. 8–9 Dec.

Data handling classes W. 3–5, 26 Jan., 19 Feb.

Option Lectures

1. PROF. G. P. C. SALMOND AND OTHERS
   Option Organiser: Prof. G. P. C. Salmond
   Bacterial Virulence and Antimicrobial Chemotherapy. (Fifteen lectures)
2. PROF. J. O. THOMAS AND OTHERS
   Option Organiser: Prof. J. O. Thomas
   Proteins, Nucleic Acids and Their Interactions. (Fifteen lectures)
3. DR M. D. BRAND AND OTHERS
   Option Organiser: Dr M.D. Brand
   Mitochondria and Bioenergetics. (Fifteen lectures)
4. DR P. DUPREE AND OTHERS
   Option Organiser: Dr P. Dupree
   Plant Cell and Molecular Biology. (Fifteen lectures)
5. PROF. R. J. JACKSON AND OTHERS
   Option Organisers: Prof. R. J. Jackson and Dr T. Krude
   Control of Gene Expression in Eukaryotes. (Fifteen lectures in part joint with Part II Zoology)
6. PROF. K. SIDDLE AND OTHERS
   Option Organiser: Prof. K. Siddle
   Medical Biochemistry. (Fifteen lectures)
7. DR F. HOLLFELDER AND OTHERS
   Option Organiser: Dr F. Hollfelder
   Enzyme Mechanisms and the Evolution of Enzyme Function. (Fifteen lectures)
8. PROF. J. C. METCALFE AND OTHERS
   Option Organisers: Prof. J. C. Metcalfe and Dr A. A. Grace
   Cardiovascular Molecular and Cellular Biology. (Fifteen lectures)

Research Project Colloquium
PROF. D. J. ELLAR AND DR T. R. HESKETH (Joint chairs)
Presentation of final reports. 6–7 May.

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NATURAL SCIENCES TRIPOS, PART III (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

BIOCHEMISTRY (continued)

9. DR T. R. HESKETH AND OTHERS
   Option Organisers: Dr T. R. Hesketh and Dr N. Affara
   Oncogenes, Tumour Suppressor Genes and Carcinogenesis. (Fifteen lectures in part joint with Option E of Part II Pathology)
10. DR A. M. TOLKOVSKY AND OTHERS
    Option Organiser: Dr A. M. Tolkovsky
    Perspectives in Molecular Neurobiology. (Fifteen lectures)
12. DR N. J. GAY AND OTHERS
    Option Organiser: Dr N. J. Gay
    Biotechnology. (Fifteen lectures)
13. DR D. M. CARRINGTON AND OTHERS
    Option Organiser: Dr D. M. Carrington
    Regulation of the Eukaryotic Cell Cycle. (Fifteen lectures)
14. PROF. R. N. PERHAM AND OTHERS
    Option Organisers: Prof. R. N. Perham and Dr S. E. Jackson
    Protein Folding and Assembly. (Fifteen lectures)

CHEMISTRY

Course Organiser: Dr J. H. Keeler E-mail: James.Keeler@ch.cam.ac.uk

Students must register for the course in the *Department of Chemistry, Lensfield Road,* between 9 and 1 or 2 and 4 on Tuesday 7 Oct.

A booklet containing details of the times of the lecture courses will be given out on registration. Others interested in the lecture courses can obtain a copy of this booklet on application to the Course Organiser. This information is also available on the website, www-teach.ch.cam.ac.uk

All students must attend an introductory talk concerning the course at 10 a.m. on Wednesday, 8 Oct. in *Lecture Theatre 2*.

All lectures will be given in the *Department of Chemistry, Lensfield Road* unless otherwise stated

EXPERIMENTAL AND THEORETICAL PHYSICS

Course Organiser: Prof. B. D. Simons E-mail: III-physics@phy.cam.ac.uk

Students must take **Courses L, M** and **T**. **Course N** is non-examinable.

Students must offer three Major Options from the Michaelmas Term courses, together with three Minor Options chosen from the Lent Term courses (or two Minor Options if a Long Vacation Project has been offered). The material of course L is examined at the start of the term following that in which each block, Major Options and Minor Options, is given.

The course will begin with a meeting on the first Wednesday of Full Term (8 Oct.) at 12.30 p.m. in the *Small Lecture Theatre*.

Lectures are given at the *Cavendish Laboratory (West Cambridge)* unless otherwise stated

The lecture rooms are indicated as follows: (P) *Pippard Lecture Theatre*, (S) *Small Lecture Theatre*, (M) *Mott Seminar Room*.

All Part III Mathematics courses are given in the *Centre for Mathematical Sciences, Clarkson Road* in the rooms indicated in parentheses.

Course L

Major Options

PROF. W. Y. LIANG (P)
Principles of Quantum Condensed Matter Physics. Tu. Th. Sa. 11

PROF. A. M. DONALD (S)
Structure and Properties of Condensed Matter. M. W. F. 9

PROF. A. C. FABIAN, PROF. A. N. LASENBY AND PROF. M. J. REES (P)
Gravitational Astrophysics and Cosmology. M. W. F. 11

DR J. R. BATLEY (S)
Particle Physics. Tu. Th. Sa. 10

DR K. F. PRIESTLEY AND PROF. D. MCKENZIE (S)
Physics of the Earth as a Planet. M. W. F. 10

PROF. B. D. SIMONS (S)
Concepts in Theoretical Physics. Tu. Th. Sa. 12

Minor Options

PROF. B. R. WEBBER (S)
Gauge Field Theory. Tu. Th. 9

DR D. J. C. MACKAY (P)
Information Theory, Pattern Recognition and Neural Networks. W. F. 11

DR M. P. HOBSON (S)
General Relativity. M. W. 9

DR M. A. PARKER (S)
The Frontiers of Particle Physics. M. 12, F. 9

PROF. G. G. LONZARICH AND DR J. R. COOPER (M)
Experimental Aspects of Superconductivity and Generalised Quantum Order. M. W. 10

PROF. M. PEPPER AND DR C. H. W. BARNES (M)
Quantum Effects in Low-dimensional Semiconductor Devices. M. 12, F. 9

NATURAL SCIENCES TRIPOS, PART III (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004

EXPERIMENTAL AND THEORETICAL PHYSICS (continued)

DR D. HASKO (M)
Microelectronics and Semiconductor Materials. M. W. 9
DR H. SIRRINGHAUS (M)
Optoelectronics. Tu. Th. 10
PROF. B. D. SIMONS (S)
Phase Transitions and Collective Phenomena. Tu. Th. 12
DR W. G. PROUD (S)
Shock Waves and Explosives. W. F. 12
DR E. M. TERENTJEV (M)
Polymers and Colloids. Tu. Th. 9
PROF. A. N. LASENBY AND DR C. J. L. DORAN (S)
Physical Applications of Geometric Algebra. M. W. 10
DR C. A. HANIFF (S)
The Frontiers of Experimental Astrophysics. Tu. Th. 10
DR S. THOMAS AND OTHERS (M)
Medical Physics. Tu. Th. 12
DR W. G. REES (S)
Physics of Remote Sensing. M. 11 and F. 10
PROF. M. C. PAYNE (P)
Quantum Information. W. F. 12
DR T. A. J. DUKE AND DR C. MACPHEE (S)
Biological Physics. Tu. Th. 11
DR S. VYAKARNAM AND OTHERS (S)
Entrepreneurship. M. Th. 4

Not more than one of the following courses from Part III Mathematics (p. 154) may be offered for examination.
PROF. N. S. MANTON
Quantum Field Theory. Tu. Th. Sa. 9 (MR2)
DR C. A. TOUT
Formation, Structure and Evolution of Stars. M. W. F. 12 (MR11)

The following course from Part III Mathematics (p. 154) may be offered for examination.
DR J. M. EVANS
Advanced Quantum Field Theory. Tu. Th. Sa. 11 (MR3)

Course M

PROF. M. WARNER AND OTHERS (P)
Examples Class in General Physics. Tu. F. 2–4 (Eight classes)

Course N

THE STAFF OF THE CAVENDISH LABORATORY (S)
Themes of Cavendish Research. Tu. 10

DR M. MASSIMI (S)
Philosophy of Physics. F. 2 (first four lectures)
DR M. D. SEGALL (S)
Modelling with Supercomputers. F. 2 (last four lectures)
THE STAFF OF THE CAVENDISH LABORATORY
Current Research Work in the Cavendish Laboratory. Open Days for students reading Part II or Part III Physics W. 2–5 The Open Days will start with introductory talks at 2 p.m. in the *Cavendish Laboratory*
Research in the *Rutherford Building* (28 Jan. in *Small Lecture Theatre*)
Research in the *TCM Group* (4 Feb. 2.15 in *TCM Seminar Room*)
Research in the *Mott Building I* (15 Jan. in *Small Lecture Theatre*)
Research in the *Mott Building II* (21 Jan. in *Small Lecture Theatre*)

PROF. M. S. LONGAIR AND OTHERS
Cavendish Physical Society seminars. W. 4.30

PROF. M. S. LONGAIR AND OTHERS
The same continued.

PROF. M. S. LONGAIR AND OTHERS
The same continued.

Course T

DR R. PADMAN AND OTHERS
Project Work

DR R. PADMAN AND OTHERS
The same continued.

DR R. PADMAN AND OTHERS
The same continued.

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NATURAL SCIENCES TRIPOS, PART III (continued)

MICHAELMAS 2003	LENT 2004	EASTER 2004

GEOLOGICAL SCIENCES AND MINERAL SCIENCES

Students attend the seminar course in the Michaelmas Term and take three options in the Lent and Easter Term.

MICHAELMAS 2003	LENT 2004	EASTER 2004
Seminar Course A series of seminars will be run during the Michaelmas Term. Tu. 5 *Tilley Lecture Theatre*; Th. 12 *Harker Room*		
Option M3 Spectroscopic Methods DR S. ASHBROOKE, DR M. ZHANG, DR G. LUMPKIN AND DR M. T. DOVE Convenor: Dr I. Farnan Lectures. M. F. 9 *Oxburgh Room* **Practicals**. M. F. 10–11.30 *IB Minerals Laboratory*		
	Option 1 Basin Dynamics PROF. J. A. JACKSON, DR A. G. SMITH AND PROF. R. S. WHITE ET AL Convenor: Dr A. G. Smith Lectures. Tu. Th. 9 *Tilley Room* **Practicals**. Tu. 10–11.30, Th. 10–11.30 *Petrology Laboratory*	The same continued. (Eight revision sessions)
	Option 2 Sedimentary Systems DR A. GALY AND DR J. A. D. DICKSON Convenor: Dr J. A. D. Dickson Lectures. Tu. F. 2 *Harker Room* **Practicals**. Tu. F. 3–4.30 *Petrology Laboratory*	The same continued. (Eight revision sessions)
	Option 3 Metamorphic and Igneous Processes DR D. M. PYLE, DR T. J. B. HOLLAND AND PROF. M. J. BICKLE Convenor: Dr D. M. Pyle Lectures. M. Th. 2 *Harker Room* **Practicals**. M. Th. 3–4.30 *Petrology Laboratory*	The same continued. (Eight revision sessions)
	Option 4 Long Term Climate Change PROF. I. N. MCCAVE, PROF. N. J. SHACKLETON, PROF. H. E. ELDERFIELD AND A. N. OTHER Convenor: Prof. H. E. Elderfield Lectures. M. 9, W. 2 *Harker Room* **Practicals.** M. 10–11.30, W. 3–4.30 *Structural Laboratory*	The same continued. (Eight revision sessions)
	Option 5 Evolutionary Palaeobiology PROF. R. B. RICKARDS AND DR D. B. NORMAN Convenor: Prof. R. B. Rickards Lectures. W. F. 9 *Harker Room* **Practicals**. W. F. 10–11.30 *Palaeontology Laboratory*	The same continued. (Eight revision sessions)
	Option M1 High Pressure Mineralogy PROF. G. D. PRICE, PROF. M. A. CARPENTER, DR S. RIOS-BANOS, DR E. ARTACHO AND DR M. WELCH Convenor: Prof. M. A. Carpenter Lectures: M. W. 2 *Oxburgh Room* **Practicals**. M. W. 3–4.30 *IB Minerals Laboratory*	The same continued. (Eight revision sessions)
	Option M2 Disordered Materials DR M. T. DOVE, DR I. FARNAN AND DR S. RIOS BANOS Convenor: Dr I. Farnan Lectures. W. F. 9 *Oxburgh Room* **Practicals**. W. F. 10–11.30 *IB Minerals Laboratory*	The same continued. (Eight revision sessions)

NATURAL SCIENCES TRIPOS, PART III (continued)

MICHAELMAS 2003 **LENT 2004** **EASTER 2004**

MATERIALS SCIENCE AND METALLURGY

Course Organiser: Dr E. R. Wallach E-mail: PartIII@msm.cam.ac.uk

A detailed timetable is available in the Department.

All lectures will be given in the *Austin Lecture Room*

PROF. A. L. GREER
C19 Thermal Analysis. (Four lectures)
DR P. A. MIDGLEY
C20 Electron Microscopy and Analysis. (Eight lectures)
DR M. G. BLAMIRE
C21 Optical, X-Ray and Neutron Techniques. (Six lectures)
PROF. C. J. HUMPHREYS
M1 Electron and Photons in Solids. (Twelve lectures)
PROF. T. W. CLYNE
M2 Solidification and Powder Processing. (Twelve lectures)
DR W. J. CLEGG
M5 High Temperature Materials. (Twelve lectures)
DR N. D. MATHUR
M7 Electronic Ceramics. (Twelve lectures)
PROF. D. J. FRAY
M9 Ionic Materials. (Twelve lectures)
DR R. E. CAMERON
M11 Biomaterials. (Twelve lectures)
DR Z. H. BARBER
M12 Thin Films. (Twelve lectures)
DR E. R. WALLACH
M14 Joining. (Twelve lectures)

Speakers from Industry
(28 Oct., 1 Dec.)

Visit to Industry
(Half day, 3 Dec.)

Examples Classes
Timetable available in the Department

Project
Teamwork project

Management Option
(Details to be announced.)

Language Option
(Two hours per week) M. 4–6 *or* Tu. 4–6 *or* W. 2–4 *or* Th. 2–4 *or* Th. 4–6 *or* F. 2–4

DR R. V. KUMAR
M3 Extraction and Recycling. (Twelve lectures)
DR Z. H. BARBER AND OTHERS
M4 Ferroelectrics. (Twelve lectures)
PROF. A. H. WINDLE AND DR J. A. ELLIOTT
M6 Polymeric Materials. (Twelve lectures)
PROF. A. L. GREER
M8 Glasses and Nanomaterials. (Twelve lectures)
DR M. G. BLAMIRE
M10 Materials Aspects of Microdevices. (Twelve lectures)
DR B. A. GLOWACKI
M13 Magnetic and Superconducting Materials. (Twelve lectures)
DR G. T. BURSTEIN
M15 Corrosion. (Twelve lectures)
DR P. D. BRISTOWE
M16 Materials Modelling. (Twelve lectures)

Speakers from Industry
(29 Jan., 4 Mar.)

Visit to Industry
(Half day, 17 Feb.)

Examples Classes
Timetable available in the Department

Project
Individual research project

Management Option
(Details to be announced.)

Language Option
The same continued.

PROF. D. J. FRAY AND OTHERS
Patent, Innovation and Entrepreneurship. (Four lectures)

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