

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

MICHAELMAS 2006

LENT 2007

EASTER 2007

### QUANTITATIVE BIOLOGY

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

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

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

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

**Lectures.** Tu. Th. 9

DR A. KLECZKOWSKI

Introduction to the Growth and Decline of Populations.  
(Ten lectures, 5 Oct.–7 Nov.)

DR J. LUDLAM

Physiological Modelling. (Six lectures, 9–28 Nov.)

MR J. J. TRAPP

Introduction to Modelling of Interacting  
Populations. (Seven lectures, 18 Jan.–  
8 Feb.)

DR R. JOHNSTONE AND DR A. MANICA

Introduction to Statistical Methods. (Nine  
lectures, 10 Feb.–13 Mar.)

DR R. JOHNSTONE

Optimisation and Game Theory. (Four  
lectures, 26 Apr.–8 May)

DR J. GOG

Interacting Populations: Ecological  
Applications. (Four lectures, 10–22 May)**Supplementary lectures.** S. 9

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

**Examples classes and Computer Practicals** Th. 2–3. 15, 3.30–4.45 or 4.45–6

Students should register electronically for all IA biological practical courses.

A. KLECZKOWSKI, DR J. LUDLAM AND DR R. JOHNSTONE

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

DR R. JOHNSTONE, DR J. GOG

## PART IB

### ADVANCED PHYSICS

Course Organiser: Dr R. D. E. Saunders (e-mail: IB-advanced-physics@phy.cam.ac.uk)  
Course Website: www.phy.cam.ac.uk/teaching/

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

DR C. J. B. FORD

Electromagnetism. Tu. Th. S. 9 (Not last two S.)

DR J. ELLIS

Classical Dynamics. (First ten lectures)  
Tu. Th. S. 9

DR W. ALLISON

Statistical Physics. (Last nine lectures,  
beginning 13 Feb.) Tu. Th. 9

DR W. ALLISON

The same continued. (First seven lectures)  
Tu. Th. S. 9

Those not taking NST Part IB Mathematics:

PROF. S. WITHINGTON

Mathematics and Theoretical Physics. M. F. 11 Room B,  
Arts School, Bene't Street

Those taking NST Part IB Mathematics:

PROF. M. WARNER

Methods of Mathematical Physics. (Twelve  
lectures, beginning 5 Feb.) M. W. 9**Laboratory Work**

DR R. D. E. SAUNDERS

Systems and Measurement.

DR R. J. BUTCHER

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 W. 4 Oct. at the *Cavendish Laboratory*. **Laboratory work is continuously assessed.**

## NATURAL SCIENCES TRIPOS, PART IB (continued)

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## ANIMAL BIOLOGY

Course Organiser: Dr B. Hedwig (e-mail: bh202@cam.ac.uk)  
 Course Website: [www.zoo.cam.ac.uk/degree/1banimal/index.html](http://www.zoo.cam.ac.uk/degree/1banimal/index.html)

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

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

PROF. N. B. DAVIES AND PROF. P. P. G. BATESON  
 Behaviour and Ecology. (Twelve lectures, beginning 6 Oct.)  
 PROF. S. B. LAUGHLIN AND PROF. M. BURROWS  
 Brain and Behaviour. (Twelve lectures, beginning 3 Nov.)

DR W. FEDERLE AND DR W. A. FOSTER  
 Adaptation and Evolution: Insect Biology.  
 (Twelve lectures, beginning 19 Jan.)  
 PROF. J. A. CLACK AND DR R. ASHER  
 Adaptation and Evolution: Vertebrate  
 Evolutionary Biology. (Twelve lectures,  
 beginning 16 Feb.)

DR R. A. JOHNSTONE AND DR N. I. MUNDY  
 Evolutionary Principles. (Twelve lectures,  
 beginning 25 Apr.) *Note the early start  
 of this course.*

**Practical work:** Students will be expected to do four hours practical work per week between 12 and 5 on Wednesdays or 12 and 5 on Thursdays. Students should register for all IB biological practical courses on W. 4 Oct. between 11.00 and 12.15 in the *Senate House*.

## BIOCHEMISTRY AND MOLECULAR BIOLOGY

Course Organiser: Dr T. R. Hesketh (email: t.r.hesketh@bioc.cam.ac.uk)  
 Course Website: <http://www.bioc.cam.ac.uk/teaching/BMB/>

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 F. 6 Oct.

Lectures are given in the *Lecture Theatre of the Sanger Building, Department of Biochemistry, Old Addenbrooke's Site, on M. W. F. at 10*

**Genes and proteins: macromolecules in action**

PROF. C. J. HOWE  
 Gene Cloning and Manipulation. (Five lectures,  
 beginning 6 Oct.)  
 PROF. DAME JEAN THOMAS  
 Control of Gene Expression: DNA Structure and DNA-  
 Protein Interactions. (Five lectures, beginning 18 Oct.)  
 PROF. C. W. J. SMITH  
 Control of Gene Expression: Transcription, RNA  
 Processing and Translation. (Five lectures,  
 beginning 30 Oct.)  
 PROF. SIR TOM BLUNDELL  
 Protein Structure, Flexibility and Function. (Five  
 lectures, beginning 10 Nov.)  
 DR F. HOLLFELDER  
 Enzyme Catalysis and Protein Engineering. (Five  
 lectures, beginning 22 Nov.)

**Energy transduction, cell signalling and cell proliferation**

DR G. C. BROWN  
 Energy Transduction in Bacteria, Mitochondria  
 and Chloroplasts. (Six lectures, beginning  
 17 Jan.) *Note the early start of this course.*  
 PROF. K. M. BRINDLE  
 Control of Metabolism. (Six lectures,  
 beginning 31 Jan.)  
 DR R. W. FARNDALE  
 Transmembrane Signalling: Molecules and  
 Mechanisms. (Six lectures, beginning  
 14 Feb.)  
 DR D. M. CARRINGTON  
 Control of Eukaryotic Cell Growth. (Four  
 lectures, beginning 28 Feb.)  
 DR T. R. HESKETH  
 Oncogenes, Tumour Suppressor Genes, and  
 Cancer (Four lectures, beginning 9 Mar.)

**Biochemistry of microorganisms**

DR M. WELCH AND PROF. G. P. C. SALMOND  
 Bacterial Chemotaxis, Signalling, and  
 Secretion Systems. (Five lectures,  
 beginning 25 Apr.) *Note the early start  
 of this course.*  
 DR D. M. CARRINGTON  
 Molecular Biology of Protozoa. (Four  
 lectures, beginning 7 May)

**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 IB practical courses on W. 4 Oct. between 11.00 and 12.15 in the *Senate House*.

## CELL AND DEVELOPMENTAL BIOLOGY

Course Organiser: Dr C. O'Kane (e-mail: c.okane@gen.cam.ac.uk)  
 Course Website: [www.bio.cam.ac.uk/teaching/cdb/index.html](http://www.bio.cam.ac.uk/teaching/cdb/index.html)

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,  
 5–24 Oct.)  
 DR D. SUMMERS AND DR P. OLIVER  
 Genetic Systems of Prokaryotes. (Six lectures, 26 Oct.–7  
 Nov.)  
 DR C. O'KANE  
 Genome Structure and Evolution. (Five lectures, 9–18 Nov.)  
 DR D. MACDONALD  
 Molecular Genetics of Yeast Cells. (Four lectures, 21–28  
 Nov.)

PROF. J. C. GRAY  
 Organelle Biogenesis. (Six lectures, 16–27 Jan.)  
 DR M. SEGAL  
 Cytoskeleton. (Four lectures, 30 Jan.–6 Feb.)  
 DR P. DUPREE  
 Membrane Traffic. (Four lectures, 8–15 Feb.)  
 DR K. JOHNSTONE AND DR H. SKAER  
 Intercellular Communication. (Four lectures,  
 17–24 Feb.)  
 DR H. SKAER  
 Development I. (Four lectures, 27 Feb.–6 Mar.)  
 PROF. J. SMITH  
 Development II. (Four lectures, 8–15 Mar.)  
*Note the early start of this course*

DR C. ALONSO  
 Development III. (Four lectures, 26 Apr.–3  
 May)  
 DR D. HANKE AND DR J. HASELOFF  
 Development IV. (Six lectures, 5–17 May)

**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 Tuesdays or Fridays. Practical classes start at several different times to allow students to attend lectures in other subjects. Students should register for all IB biological practical courses on W. 4 Oct. between 11.00 and 12.15 in the *Senate House*.

## NATURAL SCIENCES TRIPOS, PART 1b (continued)

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## CHEMISTRY A

Course Organiser: Dr J. H. Keeler (e-mail: [jhk10@cam.ac.uk](mailto:jhk10@cam.ac.uk))  
 Course Website: [www-teach.ch.cam.ac.uk/](http://www-teach.ch.cam.ac.uk/)

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

DR S. C. ALTHORPE  
 Introduction to Quantum Mechanics. (Twelve lectures)  
 DR P. D. WOTHERS  
 Molecular Spectroscopy. (Six lectures)

DR D. J. WALES  
 Symmetry and Bonding. (Six lectures)  
 DR J. H. KEELER  
 Molecular Energy Levels and Thermodynamics.  
 (Fourteen lectures)  
 PROF. S. R. ELLIOTT AND PROF. R. M. LAMBERT  
 Electrons in Solids. (Four lectures)

PROF. S. R. ELLIOTT AND PROF. R. M. LAMBERT  
 Electrons in Solids. (Eleven lectures, continued)

**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 Tu. 3 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 W. 4 Oct. at 10.45 a.m. in the *Bristol-Myers Squibb Lecture Theatre*.

## CHEMISTRY B

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

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

DR S. G. WARREN AND DR M. D. SMITH  
 Key Organic Reactions. (Twelve lectures)  
 DR N. BAMPOS  
 Structure Determination. (Six lectures)  
 DR R. A. LAYFIELD  
 Coordination Chemistry. (Six lectures)

DR R. A. LAYFIELD  
 Coordination Chemistry. (Two lectures  
 continued)  
 DR P. D. BAKER  
 Organometallic Chemistry. (Six lectures)  
 DR J. M. GOODMAN AND DR P. D. WOTHERS  
 Shape and Organic Reactivity. (Ten lectures)

DR F. J. LEEPER  
 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 Tu. 3 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 W. 4 Oct. at 10 a.m. in the *Bristol-Myers Squibb Lecture Theatre*.

## ECOLOGY

Course Organiser: Prof. T. H. Clutton-Brock (e-mail: [t.h.clutton-brock@zoo.cam.ac.uk](mailto:t.h.clutton-brock@zoo.cam.ac.uk))  
 Course Website: [www.plantsci.cam.ac.uk/plantsci/teaching/ec1b/index.html](http://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 D. K. A. BARNES  
 The Global Marine Ecosystem. (Six lectures, 7–19 Oct.)  
 DR E. V. J. TANNER, PROF. H. GRIFFITHS AND DR D. A. COOMES  
 The Ecology of Change. (Eighteen lectures, 21 Oct–29 Nov.)

DR O. KRUGER  
 Predators and Prey. (Six lectures, 20 Jan.–1 Feb.)  
 DR O. KRUGER  
 Breeding Systems. (Six lectures, 3–15 Feb.)  
 TBA  
 Ecological Genetics. (Six lectures, 17 Feb.–1 Mar.)  
 DR A. MANCIA  
 Ecological Dynamics. (Six lectures, 3–15 Mar.)

DR E. V. J. TANNER  
 Biodiversity. (Six lectures, 26 Apr.–8 May)  
**Note the early start of this course**  
 DR A. BALMFORD  
 Humans and Ecology. (Six lectures, 10–22 May)

## NATURAL SCIENCES TRIPOS, PART IB (continued)

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## EXPERIMENTAL PSYCHOLOGY

Course Organiser: Dr K. C. Plaisted (e-mail: kcp1000@cam.ac.uk)  
 Course Website: <http://www.psychol.cam.ac.uk/pages/teaching/course.html>

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. T. W. ROBBINS

Introduction to the study of Experimental Psychology.  
 (One lecture, 5 Oct.)

DR G. J. DAVIS AND OTHERS

Human Experimental Psychology: Perception; Attention;  
 Memory; Action; Psycholinguistics. (Twenty-three  
 lectures, 7 Oct.–28 Nov.)

DR R. A. MCCARTHY

Neuropsychology of Language. (Two lectures,  
 18, 20 Jan.)

PROF. A. DICKINSON

Biological Aspects of Learning, Memory,  
 Motivation and Emotion. (Three lectures,  
 23–27 Jan.)

DR I. P. L. MCLAREN

Learning and Memory. (Four lectures, 30  
 Jan.–6 Feb.)

DR J. RUSSELL

Developmental Psychology. (Six lectures, 8–20  
 Feb.)

DR K. C. PLAISTED

Decision Making. (Two lectures, 22, 24 Feb.)

DR K. C. PLAISTED

IQ. (Two lectures, 27 Feb., 1 Mar.)

DR K. C. PLAISTED

Social Psychology. (Five lectures, 3–13 Mar.)

PROF. S. BARON-COHEN

Abnormal Psychology. (Six lectures, 26  
 Apr.–8 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 IB biological practical courses on W. 4 Oct. between 11.00 and 12.15 in the *Senate House*.

## GEOLOGICAL SCIENCES A

Course Organiser: Dr N. H. Woodcock (e-mail: nhw1@esc.cam.ac.uk)  
 Course Website: <http://www.esc.cam.ac.uk/new/v10/teaching/geology/ib-a/courses.html>  
<http://camtools.caret.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)

PROF. H. ELDERFIELD

Evolution of the Hydrosphere. (Eight lectures)

DR J. A. D. DICKSON

Biogenic and Chemical Sediments. (Eight  
 lectures)

DR N. HOVIUS AND DR N. H. WOODCOCK

Clastic Sedimentology. (Eight lectures)

DR N. J. BUTTERFIELD

Evolutionary Palaeobiology and  
 Micropalaeontology. (Eight lectures)

Introduction to Southwest England field trip.

Th. 10 (15 Mar.)

**Geological Sciences Field Class.** (11–21 Apr.)

DR D. B. NORMAN

Vertebrate Palaeontology. (Five lectures)

DR N. J. WHITE

Sedimentary Basins Reviewed. (Five lectures)

DR N. HOVIUS

GIS for geological mapping (Two 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 W. 4 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 S. A. Gibson (e-mail: sally@esc.cam.ac.uk)  
 Course Website: <http://www.esc.cam.ac.uk/new/v10/teaching/geology/ib-b/courses.html>  
<http://camtools.caret.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)

PROF. M. A. CARPENTER

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)

DR J. MACLENNAN

Magmatic Settings. (Five lectures)

DR J. M. BUNBURY

Metamorphic Mineralogy. (Five lectures)

DR T. J. B. HOLLAND

Introduction to Metamorphism. (Eight lectures)

PROF. M. J. BICKLE

Metabasites (Six lectures)

Introduction to South West England field trip.

Th. 10 (15 Mar.)

**Geological Sciences Field Class** (11–21 Apr.)

DR A. GALY

Evolution of the Himalayas. (Five lectures)

DR S. GIBSON

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 W. 4 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)

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## HISTORY AND PHILOSOPHY OF SCIENCE

Course Organiser: Prof. S. Schaffer (e-mail: sjs16@cam.ac.uk)  
 Course Website: <http://www.hps.cam.ac.uk/students/Fpage.html>

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

PROF. S. SCHAFFER AND DR E. LEONG

History of Natural Philosophy. M. 5 (weeks 1–8); F. 5 (weeks 1–4)

PROF. M. KUSCH

Epistemology: Scepticism and Testimony. W. 5 (weeks 1–4)

PROF. M. KUSCH

Sociology of Scientific Knowledge. W. 5 (weeks 5–8)

DR T. LEWENS

Induction and Causation. F. 5 (weeks 5–8)

PROF. J. SECORD, DR N. HOPWOOD AND PROF. J. FORRESTER

History of Science, Technology and Medicine. M. 5 (weeks 1–8); W. 5 (weeks 5–8)

PROF. P. LIPTON

Philosophy of Science. W. 5 (weeks 1–4); F. 5 (weeks 1–8)

PROF. J. SECORD AND DR N. HOPWOOD

History of Science, Technology and Medicine. F. 5 (weeks 1–4)

DR T. LEWENS

Philosophy of Biology. W. 5 (weeks 1–4)

DR R. JENNINGS

Ethics in Science. M. 5 (weeks 1–4)

## MATERIALS SCIENCE AND METALLURGY

Course Organiser: Dr N. A. Rutter (e-mail: PartIB@msm.cam.ac.uk)  
 Course Website: [www.msm.cam.ac.uk/teaching/mat1b/](http://www.msm.cam.ac.uk/teaching/mat1b/)

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

PROF. H. K. D. BHADESHIA

Phase Transformations. (Twelve lectures)

PROF. G. T. BURSTEIN

Materials and the Environment. (Twelve lectures)

**Industrial Visits**

Details to be announced.

DR W. J. CLEGG

Biomechanics. (Twelve lectures)

DR J. A. ELLIOTT

Soft Materials. (Twelve lectures)

The same continued.

DR K. M. KNOWLES

Electronic Properties of Materials. (Ten lectures)

**Practical Work:** Either Th. 2–4 or F. 9–11 or Tu. 2–4 and two further hours 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 p.m. and 4.30 p.m. on Tu. 3 Oct. or W. 4 Oct.

## MATHEMATICS

Course Organiser: e-mail: [nst@maths.cam.ac.uk](mailto:nst@maths.cam.ac.uk)  
 Course Website: [www.maths.cam.ac.uk/undergrad/NST/sched/](http://www.maths.cam.ac.uk/undergrad/NST/sched/)

Students taking this course must also register electronically for the assessed **Computer Practical Course** before 3 Nov. 2006. Details are given in the course booklet distributed at the first lecture of *Mathematical Methods I* in Oct. 2006 and can also be found on [www.maths.cam.ac.uk/undergrad/NST/tripos/nstcomp](http://www.maths.cam.ac.uk/undergrad/NST/tripos/nstcomp)

All lectures will be delivered in the *Arts School, Room A, Bene't Street*, on M. W. F. 11 unless otherwise stated

DR G. I. OGILVIE

Mathematical Methods I.

**Examples Class** W. 2.15–4.15 (Two classes, 8, 22 Nov.)

DR J. GUTOWSKI

Mathematical Methods II.

**Examples Class** W. 2.15–4.15 (Two classes, 14 Feb., 7 Mar.)

PROF. M. E. MCINTYRE

Mathematical Methods III. (Ten lectures)

**Examples Class** W. 2.15–4.15 (Two classes, 2, 9 May)

The Examples Class interleaves with the Examples Class in *Mathematical Physics (Part IB Advanced Physics Course F)* (p. 179).

## NATURAL SCIENCES TRIPOS, PART IB (continued)

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## MINERAL SCIENCES

Course Organiser: Dr I. Farnan (email: i.farnan@esc.cam.ac.uk)  
 Course Website: <http://www.esc.cam.ac.uk/new/v10/teaching/minsci/ib/courses.html>  
<http://camtools.caret.ca.ac.uk/>

All lectures are in the *Harker 2 Room, Department of Earth Sciences*, on Tu. Th. S. 11

DR A. L. GOODWIN

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)

PROF. M. T. DOVE

Bonding and Lattice Dynamics. (Six lectures)

PROF. E. ARTACHO

Phase Transitions. (Eight lectures)

PROF. E. ARTACHO

Applications of Mineral Sciences. (Nine lectures)

**Practical Work.** Students should register for 4 hours practical work a week 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 W. 4 Oct.

## NEUROBIOLOGY

Course Organiser: Dr J. Alcántara: (e-mail: j.alcantara@psychol.cam.ac.uk)  
 Course Website: <http://www.pdn.cam.ac.uk/teaching/part1b/1b-neurobiology.html>

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

PROF. W. A. HARRIS

Introduction to the Brain. (One lecture, 5 Oct.)

DR M. EDWARDSON

G-Protein Coupled Receptors. (One lecture, 7 Oct.)

PROF. W. A. HARRIS

Neural Determination (Four lectures, 10–17 Oct.)

DR H. P. C. ROBINSON

Electrical Properties of Neurons. (Four lectures, 19–26 Oct.)

DR M. EDWARDSON

Chemical Properties of Neurons. (Four lectures, 28 Oct.–4 Nov.)

PROF. S. LAUGHLIN

Vision. (Six lectures, 7–18 Nov.)

DR I. M. WINTER

Hearing. (Three lectures, 21–25 Nov.)

DR H. R. MATTHEWS

Olfaction and Taste. (Two lectures, 28, 30 Nov.)

DR I. M. WINTER

Somatosensation and Pain. (Four lectures, 16–23 Jan.) *Note the early start of this course.*

DR D. PARKER

Motor System. (Seven lectures, 25 Jan.–8 Feb.)

PROF. D. WOLPERT

Sensorimotor Integration. (Three lectures, 10–15 Feb.)

DR M. LANDGRAF

Development of Neural Connections. (Four lectures, 17–24 Feb.)

PROF. B. J. EVERITT

Motivation and Emotion. (Four lectures, 27 Feb.–6 Mar.)

DR B. J. MCCABE

Synaptic Efficacy. (Four lectures, 8–15 Mar.)

DR T. J. BUSSEY

Learning and Memory. (Four lectures, 24 Apr.–1 May) *Note the early start of this course.*

DR T. J. BUSSEY

Higher Functions of the Nervous System. (Three lectures, 3–8 May)

PROF. L. K. TYLER

Language and the Brain. (Two lectures, 10–12 May)

**Practical Work:** 3 hour practical classes Th. 2–5 or Tu. 2–5. Students should register for all IB biological practical courses on W. 4 October between 11.00 and 12.15 in the *Senate House*.

## NATURAL SCIENCES TRIPOS, PART IB (continued)

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## PATHOLOGY

Course Organiser: Dr I. B. Kingston (e-mail: [ibk1000@cam.ac.uk](mailto:ibk1000@cam.ac.uk))  
 Course Website: [www.path.cam.ac.uk/ugrad/part1/](http://www.path.cam.ac.uk/ugrad/part1/)

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

PROF. M. A. STANLEY

Cell Injury. (One lecture, 6 Oct.)

DR A. MOFFETT

Innate Immune System; Acute Inflammation: Defence Mechanisms; Healing and Chronic Inflammation. (Three lectures, beginning 9 Oct.)

DR A. KELLY

The Adaptive Immune System; B Cells and Antibodies; The Major Histocompatibility Complex; T Cells. (Four lectures, beginning 16 Oct.)

PROF. J. TROWSDALE

Tolerance; Autoimmunity; Hypersensitivity; Transplantation. (Four lectures, beginning 25 Oct.)

PROF. A. C. MINSON

Nature of Viruses; Viral Multiplication in the Host Cell; Responses to Viral Infection; Acute and Chronic Infection; Epidemiology of Viral Infection; Combating Viral Infection; Prion Diseases. (Seven lectures, beginning 3 Nov.)

DR I. B. KINGSTON

Introduction to Parasitic Diseases; Key Examples of Parasitic Diseases: Malaria; Key Examples of Parasitic Diseases: Schistosomiasis. (Three lectures, beginning 20 Nov.)

DR A. CARMICHAEL

Fungi (Two lectures, beginning 27 Nov.)

DR G. FRASER

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 17 Jan.)

*Note the early start of this course.*

PROF. A. WYLLIE

Vascular reactions to injury; Atherosclerosis; Ischemia, infarction and their results. (Three lectures, beginning 2 Feb.)

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 9 Feb.)

DR P. A. W. EDWARDS

Discovering Genes Mutated in Human Cancer I; Discovering Genes Mutated in Human Cancer II. (Two lectures, beginning 21 Feb.)

DR C. CUEVA-MENDEZ

New Therapeutic Targets in Cancer (One lecture, 26 Feb.)

DR C. SMITH

Emerging Virus Infections I and II; HIV. (Three lectures, beginning 28 Feb.)

DR P. DIGARD

Flu Pandemics. (One lecture, 7 Mar.)

DR M. FIELD

Zoonoses – Trypanosomiasis; Zoonoses – Leishmaniasis. (Two lectures, beginning 9 Mar.)

DR J. AJIOKA

Zoonoses – Toxoplasmosis. (One lecture, 14 Mar.)

DR M. FARRINGTON

Emerging bacterial diseases, old and new. (One lecture, beginning 25 Apr.)  
*Note the early start of this course.*

PROF. M. A. STANLEY

Tuberculosis. (One lecture, 27 Apr.)

PROF. D. MASKELL

The evolution of pathogenic bacteria; Bacterial zoonosis. (Two lectures, beginning 30 Apr.)

DR A. THACKRAY

Molecular aspects of prion diseases. (One lecture, 4 May)

**Practical Work.** *Department of Pathology* Tu, W, Th, F, am and pm. Students should register for all IB biological practical courses on W, 4 Oct. between 11.00 and 12.15 in the *Senate House* and attend an Introduction to Normal Histology for NST students, 5 and 6 Oct.

## PHARMACOLOGY

Course Organiser: Dr H. W. van Veen (e-mail: [hww20@cam.ac.uk](mailto:hww20@cam.ac.uk))  
 Course Website: [www.phar.cam.ac.uk/teaching/tea\\_nst1b.html](http://www.phar.cam.ac.uk/teaching/tea_nst1b.html)

All lectures take place in the *Lecture Theatre, Department of Pharmacology*, on M. W. F. 11.

PROF. C. W. TAYLOR

Introduction. Structure and function of receptors. Diabetes mellitus and obesity. (Nine lectures, 6–25 Oct.)

PROF. R. F. IRVINE

Intracellular Messengers. (Four lectures, 27 Oct.–3 Nov.)

DR R. D. MURRELL-LAGNADO

Synaptic Pharmacology. (Four lectures, 6–13 Nov.)

DR A. J. MORTON

Central Nervous System. (Seven lectures, 15–29 Nov.)

DR H. W. VAN VEEN

Antibiotics and Antiparasitics. (Four lectures, 19–26 Jan.)

DR S. B. HLADKY

Pharmacokinetics, Drug Metabolism and General Anaesthetics. (Five lectures, 29 Jan. – 7 Feb.)

DR C. R. HILEY

Cardiovascular and Renal Pharmacology. (Eleven lectures, 9 Feb. –5 Mar.)

DR Z. SARANYAI

Steroid Receptors and Reproductive Pharmacology. (Four lectures, 7–14 Mar.)

DR T. P. FAN

Inflammation and Peripheral Control of Pain. (Seven lectures, 27 Apr.–11 May)

PROF. D. M. F. COOPER

Cell Growth and Cancer. (Three lectures, 14–18 May)

**Practical Work.** 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 W, 4 Oct. between 11.00 and 12.15 in the *Senate House*.

## NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 2006

LENT 2007

EASTER 2007

## PHYSICS

Course Organiser: Dr R. D. E. Saunders (e-mail: IB-single-physics@phy.cam.ac.uk)  
 Course Website: www.phy.cam.ac.uk/teaching/

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

DR N. C. GREENHAM  
 Oscillations, Waves and Optics. M. F. 12  
 DR R. D. E. SAUNDERS  
 Experimental Methods. W. 12

**Laboratory Work**

DR R. D. E. SAUNDERS  
 Systems and Measurement.

PROF. D. R. WARD  
 Classical Thermodynamics. M. W. F. 12 (First  
 ten lectures)  
 DR H. P. HUGHES  
 Quantum Physics. M. W. F. 12 (Last fourteen  
 lectures, beginning 12 Feb.)

DR R. J. BUTCHER  
 Waves and Optics.

DR H. P. HUGHES  
 The same continued. (First ten lectures)

**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 at 2.30 p.m. on W. 4 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 Tu. 3 Oct. at the *Cavendish Laboratory*, where they will be allocated practical sessions that fit with their other IB subjects. **Laboratory work is continuously assessed.**

## PHYSIOLOGY

Course Organiser: Dr R. J. Barnes (e-mail: rjb4@cam.ac.uk)  
 Course Website: http://www.pdn.cam.ac.uk/teaching/part1b/1b-physiology.html

Lectures are given in the *Physiological Laboratory, Lecture Theatre 1*, on Tu. Th. S. 9

**Lectures:** Tu. Th. S. 9

DR R. J. BARNES  
 Introduction, the Autonomic Nervous System and the  
 Cardiovascular System. (Six lectures, 5–17 Oct.)  
 DR MICHAEL J. MASON  
 Respiration. (Six lectures, 19–31 Oct.)  
 DR MATTHEW J. MASON  
 Endocrinology. (Three lectures, 2–7 Nov.)  
 DR S. O. SAGE  
 Renal Physiology and Body Fluid Homeostasis. (Nine  
 lectures, 9–28 Nov.)

**Practical Work** Th. 2–4(5) or Tu. 2–4(5)

**Lectures:** Tu. Th. S. 9

DR A. J. FORHEAD  
 Reproduction. (Six lectures, 18–30 Jan.)  
 DR S. K. L. ELLINGTON  
 Development. (Two lectures, 1, 3 Feb.)  
 DR D. R. J. BAINBRIDGE AND DR J. GIBSON  
 Biology of Pregnancy. (Four lectures, 6–13 Feb.)  
 DR D. R. J. BAINBRIDGE  
 Birth, Lactation and the Neonate. (Three  
 lectures, 15–20 Feb.)  
 DR MATTHEW J. MASON  
 Digestion and Absorption. (Seven lectures,  
 22 Feb.–8 Mar.)  
 DR M. P. MAHAUT-SMITH  
 Weight Regulation and Nutrition. (Two  
 lectures, 13, 15 Mar.)

The same continued

**Lectures:** Tu. Th. S. 9

DR J. JENNER  
 Muscle in Exercise. (One lecture, 26 Apr.)  
 DR R. J. BARNES  
 Physiology of Exercise. (One lecture, 28 Apr.)  
 DR D. GORDON  
 Training. (One lecture, 1 May)  
 Exercise in Stressful Environments. (One  
 lecture, 3 May)  
 DR R. J. BARNES  
 Limits of Performance. (One lecture, 5 May)  
 DR MATTHEW J. MASON  
 Man in the Arctic. (One lecture, 8 May)  
*Optional for Medics.*  
 Vertebrates in the Arctic. (One lecture, 10 May)  
 Man in the Desert. (One lecture, 12 May)  
 Vertebrates in the Desert. (One lecture,  
 15 May) *Optional for Medics.*  
 DR MICHAEL J. MASON  
 Man in Space. (One lecture, 17 May)

The same continued

**Practical Work:** Students should register for all IB biological practical courses on W. 4 Oct. between 11.00 and 12.15 in the *Senate House*.

## PLANT AND MICROBIAL SCIENCES

Course Organiser and Departmental Contact: Dr E. V. J. Tanner (e-mail: evt1@cam.ac.uk)  
 Course Website: http://www.plantsci.cam.ac.uk/teaching/ps1b/

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

PROF. J. C. GRAY  
 Introduction and Overview. (One lecture, 5 Oct.)  
 PROF. J. C. GRAY  
 Genetic Manipulation of Plants. (Two lectures, beginning  
 7 Oct.)  
 DR J. M. HIBBERD AND DR A. G. SMITH  
 Photosynthesis and Management of Reserves. (Eight  
 lectures, beginning 12 Oct.)  
 DR J. M. DAVIES, PROF. H. GRIFFITHS AND DR E. V. J. TANNER  
 Plants in the Abiotic Environment: Water, Nutrients and  
 Temperature. (Thirteen lectures, beginning 31 Oct.)

DR K. JOHNSTONE  
 Environmental Microbiology. (Six lectures,  
 beginning 18 Jan.)  
 DR J. P. CARR  
 Plant Pathology. (Seven lectures, beginning 1 Feb.)  
 DR K. JOHNSTONE  
 Beneficial Plant-Microbe Interactions. (Five  
 lectures, beginning 17 Feb.)  
 DR B. J. GLOVER  
 Plant Development. (Six lectures, beginning  
 1 Mar.)

DR A. G. SMITH  
 Plants and Animals. (Three lectures,  
 beginning 24 Apr.)  
*Please note the early start of this course.*  
 DR D. A. COOMES  
 Conservation. (Four lectures, beginning  
 1 May)  
 PROF. J. C. GRAY  
 Exploitation of Plants. (Three lectures,  
 beginning 10 May)

**Practical work:** Students will be expected to do four hours practical work between 12 noon and 5 pm on M. or Tu. in four of the eight weeks of the Michaelmas Term; four of the eight weeks of Lent Term, and in three weeks of the Easter Term. Other activities which students will also be expected to attend will be scheduled in vacant practical slots. A field course will take place in Portugal in the Easter Vacation 2006; places are limited and are allocated in order of application. Students should register for all IB biological practical courses on W. 4 Oct. between 11.00 and 12.15 in the *Senate House*.