

NATURAL SCIENCES TRIPOS, PART IA

MICHAELMAS 1998

LENT 1999

EASTER 1999

LEARNING DAY

Committee for the Natural Sciences Tripos Learning Day for first-year students

This event will give new undergraduates an introduction to 'the Cambridge teaching system', study skills and stress management. The sessions are informal and detailed timetables are available from Senior Tutors.

Wednesday, 7 October 1998: *Chemistry Lecture Theatre 1, Lensfield Road, 2-4 p.m.*

BIOLOGY OF CELLS

All lectures are in the Babbage Lecture Theatre, on the New Museums Site on M. W. F. at 10. a.m. Practical work takes place in the Zoological Laboratory at 11-1 and 2-4 on M. 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

PROF. J. C. GRAY, PROF. R. N. PERHAM, DR M. A. TESTER,
DR K. M. BRINDLE AND DR A. G. SMITH
Biology of Cells (Twenty-four lectures)
DR A. V. GRIMSTONE, DR C. J. R. THORNE AND DR J. DAVIES
Biology of Cells (Practical work)

DR D. K. SUMMERS, DR P. E. REYNOLDS,
DR D. MacDONALD, PROF. M. AKAM AND
PROF. R. A. LASKEY
Biology of Cells (Twenty-four lectures)
DR D. K. SUMMERS AND DR P. E. REYNOLDS
Biology of Cells (Practical work)

PROF. C. M. BATE AND PROF. J. C. GRAY
Biology of Cells (Twelve lectures)
DR D. E. HANKE, DR A. V. GRIMSTONE AND
OTHERS
Biology of Cells (Practical work,
demonstrations and revision)

BIOLOGY OF ORGANISMS

Course Co-ordinator: Dr M. E. N. Majerus E-mail: menm@mole.bio.cam.ac.uk

All lectures will be given in the Department of Zoology Tu. Th. S. 11

DR W. A. FOSTER
Natural Selection and Animal Diversity (Six lectures)
DR R. S. K. BARNES
Evolution and Animal Diversity (Twelve lectures)
DR C. P. ELLINGTON
Physiological Ecology and Evolution (Six lectures)
DR W. A. FOSTER, DR R. S. K. BARNES AND
DR C. P. ELLINGTON
Practical Work. M. 11-1, 2-4 or Tu. 12-1, 2-5
Department of Zoology

DR D. E. HANKE
Biology of Seed Plants (Sixteen lectures)
DR J. M. DAVIES
Biology of Fungi (Four lectures)
DR J. P. CARR
Plants and their Enemies (Four lectures)
DR M. A. TESTER AND DR J. P. CARR
Practical Work. M. 11-1, 2-4 or Tu. 12-1, 2-5
Department of Plant Sciences

DR M. E. N. MAJERUS AND DR P. O'DONALD
Evolution and Genetics (Twelve lectures)

DR M. E. N. MAJERUS
Practical Work. M. 11-1, 2-4 or
Tu. 12-1, 2-5 *Department of Plant
Sciences*

CHEMISTRY

Course Co-ordinator: Dr J. 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 (Sixteen lectures)
DR C. ABELL
Chemical Reactions (Eight lectures)

Practical Chemistry. M. F. 10-12 or 11-1 and 2-5;
Tu. Th. 11-1 and 2-5. Students should register in
the *1A Laboratory, Lensfield Road*, between 8.30 and
12.30 or 2 and 4.30 on Tuesday, 6 Oct. when they
will be assigned attendance on the morning and
afternoon periods of one particular day in either
odd weeks (beginning Th. 8 Oct.) or even weeks
(beginning Th. 15 Oct.) of the term

Department of Plant Sciences
DR C. ABELL
Chemical Reactions (Five lectures, continued)
DR J. H. KEELER
Kinetics of Reactions (Nine lectures)
Energetics and Equilibria (Ten lectures)

Practical Chemistry
Attendance days as for Michaelmas Term

DR D. S. WRIGHT
Chemistry of the Elements (Twelve lectures)

Practical Chemistry
Attendance days as for Michaelmas Term

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

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 Biology of Organisms. The two courses will be identical in content.

Course A

DR F. H. KING

Scientific Computing.

(Six lectures, beginning 10 Nov.) Tu. S. 11 or

(Six lectures, beginning 12 Nov.) Th. S. 11

*Chemical Laboratory, Lensfield Road*Practical work¹

DR F. H. KING Registration for a total of one hour of formal practical work will take place at the first lecture

Course B²

DR F. H. KING

Scientific Computing (Two and a half days, beginning

3 Dec. at 9). Th. F. S. 9 *Hopkinson Lecture Room*Practical work¹

DR F. H. KING This will be included in the three-day period

Practical work¹

DR F. H. KING

Practical work¹

DR F. H. KING

Practical work¹

DR F. H. KING

Practical work¹

DR F. H. KING

¹ The computing facilities used for the practical work will be available for informal use throughout the year.

² Course B involves lectures, practical work and free time. It is expected that most of those attending this course will have completed the work by the end of Saturday morning.

GEOLOGY

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

DR J. A. JACKSON, DR S. GIBSON AND DR A. G. SMITH

Earth as a planet and volcanic processes

(Twenty-four lectures)

DR S. CONWAY MORRIS

Palaeobiology (Eleven lectures)

PROF. T. H. VAN ANDEL

Earth Surface Processes and Sediments

(Twelve lectures)

DR P. F. FRIEND

Introduction to Geology of Arran

(One lecture)

Field Course in Arran

Party A. 11–19 Mar.

Party B. 18–26 Mar.

Party C. 25 Mar.–2 Apr.

DR N. H. WOODCOCK

Historical and Environmental Geology of

Britain (Twelve lectures)

Practical work: There are three one-hour practicals to be taken per week: one during the periods Tu. 10–1, W. 9–1, one during Th. 10–1, W. 9–1, and the third during S. 10–11, M. 9–1. Students must register for practical classes in the Department of Earth Sciences on Monday, 5 or Tuesday, 6 October between 9.30 and 1 or 2.30 and 5.

Long Vacation Course: A course on Geological Field Methods will be given 21 June–1 July 1999 for students intending to take a geological subject.

MATERIALS AND MINERAL SCIENCES

Course Co-ordinator: Dr S. A. T. Redfern 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 Babbage Lecture Theatre on M. W. F. 12

PROF. A. H. WINDLE

Introduction to Materials. (Two lectures)

DR S. A. T. REDFERN

Structure of Materials. (Eleven lectures)

DR D. M. KNOWLES

Mechanical Behaviour. (Eleven lectures)

DR A. L. GREER

Phase Equilibria. (Six lectures)

DR J. A. LITTLE

Diffraction and Imaging. (Twelve lectures)

DR I. FARNAN

Structure and Properties. (Six lectures)

DR M. T. DOVE

Solid-State Phase Transitions. (Five lectures)

DR E. R. WALLACH

Materials in Practice. (Seven lectures)

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

Students should register for practical work at the *South Wing, Department of Earth Sciences* between 9.30 and 12.30 or 2.30 and 4.30 on Tuesday, 6 October or Wednesday 7 October.

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 above).

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

MATHEMATICS*

*All lectures given for this course in the Babbage Lecture Theatre will start at 9 a.m. promptly***Course A**

DR J. PERRY

Mathematics I. Tu. Th. S. 9 *Chemical Laboratory*
 Examples class. W. 4.30-6 (Two classes - 11, 25 Nov.)
Arts School, Room A

Course B

DR A. T. WINTER

Mathematics I. Tu. Th. S. 9 *Babbage Lecture Theatre*
 Examples class. W. 4.30-6 (Four classes - 21 Oct., 4, 18
 Nov., 2 Dec.) *Arts School, Room A*

Course A

DR P. H. HAYNES

Mathematics II. Tu. Th. S.9 (Sixteen
 lectures, ending 18 Feb.)
Chemical Laboratory
 Examples Class. W. 4.30-6 (Two classes - 10,
 24 Feb.) *Arts School, Room A*
 DR F. H. KING
 Computing Techniques and
 Applications**. Tu. Th. S. 9
 (Six lectures, beginning 20 Feb.)
Chemical Laboratory

Course B

DR R. B. HOYLE

Mathematics II. Tu. Th. S.9 (Sixteen
 lectures, ending 18 Feb.)
Babbage Lecture Theatre
 Examples Class. W. 4.30-6 (Two classes -
 19 Feb., 3 Mar.) *Arts School, Room A*
 DR F. H. KING
 Computing Techniques and
 Applications**. Tu. Th. S. 9 (Six
 lectures, beginning 20 Feb.)
Chemical Laboratory

Course A

DR A. J. MACFARLANE

Mathematics III. Tu. Th. S.9
Chemical Laboratory

Course B

DR A. BURGESS

Mathematics III. Tu. Th. S.9
Babbage Lecture Theatre

* It is strongly recommended that everyone attending this course should attend at least the first lecture of the Computing Course for Physical Scientists given in the Michaelmas Term (see p. 170).

** Associated with this course there will be an assessed exercise which will be taken into account by the Examiners. The assessments will take place in the afternoons of 3, 4 and 5 May 1999. Further details will be issued during the course.

ELEMENTARY MATHEMATICS FOR BIOLOGISTS

All lectures and examples classes will take place in the Hopkinson Lecture Room, New Museums Site

DR F. H. KING AND MR J. J. TRAPP

Mathematics and the Use of Mathcad*. M. W. F. 9

Examples Class. Th. 2 (beginning 22 Oct.)

MRS E. M. ALDWORTH

Biometry. M. W. F. 9 (Sixteen lectures)

DR R. D. H. WALKER

Elementary Calculus. M. W. F. 9 (Six lectures,
 beginning 22 Feb.)

DR F. H. KING AND MISS C. H. NORTHEAST

Assessed Computing Exercise. M. 9
 (One class, 8 Mar.)

Examples Class. Th. 2 (beginning 14 Jan.)

MR J. J. TRAPP

Modelling in Biology. M. W. F. 9

Examples Class. Th. 2 (beginning 22 Apr.)

Elementary Mathematics for Biologists is intended for students who do not have A-level Mathematics whereas Quantitative Biology caters for students with A-level Mathematics. It is to be noted that NEITHER course provides a qualification for offering Mathematics together with only one other subject in Part IB of the Natural Sciences Tripos.

* Associated with this course there will be an assessed computing exercise which will be taken into account by the Examiners. The assessments will take place on 8 March as shown.

NATURAL SCIENCES TRIPOS, PART IA (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

PHYSICS

*All lectures are on M. W. F. 9**Course A is given in the Cockcroft Lecture Theatre, New Museums Site.**Course B is given in the Chemical Laboratory, Lensfield Road.**Laboratory Work, course P, takes place at the Cavendish Laboratory (West Cambridge).*

Year Group Co-ordinator: Dr D. A. Green 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 is designed for students who took single-subject mathematics at A-level. Students are recommended to attend course PC 'Computing for Physical Scientists' unless they are already familiar with spreadsheets and computer-aided algebra.

All students must attend an introductory talk and register for course P at 11.30 on Wednesday 7 October at the *Cavendish Laboratory*. **Laboratory work is continuously assessed.** 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.

Course A

DR P. J. DUFFETT-SMITH
Mechanics and Molecules

DR V. GIBSON
Oscillations and Waves. (first twelve lectures)
DR D. A. GREEN
Fields, Relativity and Quantum Physics.
(last twelve lectures)

The same continued

Course B

DR J. R. WALDRAM
Mechanics and Molecules

DR J. R. BATLEY
Oscillations and Waves. (first twelve lectures)
PROF. M. S. LONGAIR
Fields, Relativity and Quantum Physics.
(last twelve lectures)

The same continued

Course P

DR M. M. CHAUDHRI 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

PROF. G. G. LONZARICH AND OTHERS
The same continued

Course PC

Computing for Physical Scientists (see p. 170).

PHYSIOLOGY

Course organiser: Dr H. P. C. Robinson E-mail: hpocr@cus.cam.ac.uk

Lectures. Tu. Th. S. 12 *Plant Sciences Lecture Theatre*

PROF. R. C. THOMAS
Introduction to Physiology (One lecture, 8 Oct.)
Physiology of Nerve Cells (Seven lectures, 10-24 Oct.)
DR H. P. C. ROBINSON
Physiology of muscle (Six lectures, 27 Oct.-7 Nov.)
DR C. J. SCHWIENING AND DR D. A. GIUSSANI
Cardiovascular system and autonomic nervous system
(Ten lectures, 10 Nov-1 Dec.)

Lectures. Tu. Th. S. 12 *Plant Sciences Lecture Theatre*

DR M. J. MASON
Breathing and blood gases
(Eight lectures, 14-30 Jan.)
DR S. O. SAGE
Renal Physiology and body fluid homeostasis
(Ten lectures, 2-23 Feb.)
DR S. L. DICKSON
Digestion (Six lectures, 25 Feb.-9 Mar.)

Lectures. Tu. Th. 12 *Plant Sciences Lecture Theatre*

DR R. I. WOODS
Temperature regulation and the control of
bodyweight (Three lectures, 22-29 Apr.)
DR S. B. DUNNETT
Motivation (Four lectures, 4-13 May)

Practical Work

Experimental physiology. W. or F. 2-4 (5)
Histology. W. or F. 11-1 (and W 2-4 for those also
reading Materials and Mineral Sciences.)

Practical Work

The same continued

Practical Work

The same continued

QUANTITATIVE BIOLOGY¹

Course organiser: Dr J. A. Barrett E-mail: J.Barrett@gen.cam.ac.uk

Lectures Tu. Th. S. 9, in the Large Lecture Theatre, Department of Plant Sciences

DR S. GUBBINS

Introduction to Quantitative Biology (Three lectures)
Growth and decline of populations (Twelve lectures)
DR J. A. BARRETT, DR W. AMOS AND DR R. JOHNSTONE
Comparison of populations (Nine lectures)

MR J. J. TRAPP

Introduction to modelling of interacting
populations (Eight lectures)
DR D.J.D. EARN
Interacting populations: ecological
applications (Six lectures)
MRS E. ALDWORTH
Interacting populations: biochemical and
physiological applications (Six lectures)
Miscellaneous statistical methods
(Four lectures)

DR C. P. ELLINGTON

Physiological modelling (Eight lectures)
MR J. J. TRAPP, MRS E. A. ALDWORTH,
DR J. A. BARRETT AND
DR S. GUBBINS
Synthesis and revision (Four lectures)

Examples and computing classes

DR S. GUBBINS, DR R. JOHNSTONE AND OTHERS
Th. 2-3.30 or 4-5.30

Examples and computing classes

MR J. J. TRAPP, DR D.J.D. EARN AND OTHERS
Th. 2-3.30 or 4-5.30

Examples and computing classes

DR C. P. ELLINGTON
Th. 2-3.30 or 4-5.30

Note: Computing classes will be held in *The Mond Computing Rooms*. Examples classes in *Room B, Arts School*.

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 with only one other subject in Part Ib of the Natural Sciences Tripos.

NATURAL SCIENCES TRIPOS, PART 1B

MICHAELMAS 1998

LENT 1999

EASTER 1999

ANIMAL BIOLOGY¹

Course Organiser: Dr B. J. McCabe E-mail: b.j.mccabe@zoo.cam.ac.uk

*Lectures will take place at the Department of Zoology unless otherwise stated, M. W. F. 11***Behaviour and Ecology**

DR R. KILNER AND PROF. P. P. G. BATESON (Twelve lectures, beginning 9 Oct.)

Brains and Behaviour

DR S. B. LAUGHLIN AND PROF. M. BURROWS (Twelve lectures, beginning 6 Nov.)

Adaptation and EvolutionDR S. H. P. MADDRELL AND DR W. A. FOSTER
Insects (Twelve lectures, beginning 15 Jan.)
DR J. A. CLACK AND DR A. E. FRIDAY
Vertebrates (Twelve lectures, beginning 12 Feb.)**Environmental Physiology**DR C. P. ELLINGTON AND DR S. CURRIE
(Twelve lectures, beginning W. 21 Apr.)
(Note the early start of this course)

Students will be expected to do four hours practical work per week between 12 and 5 on Wednesdays or 11 and 5 on Thursdays.

¹ Candidates who intend to read Part II Zoology and who have not taken Biology of Organisms are recommended to attend one of the Easter Vacation Field Courses. Details are posted in the Laboratory.

BIOCHEMISTRY AND MOLECULAR BIOLOGY

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

*Lectures are given in the lecture theatre of the Department of Biochemistry, Old Addenbrooke's Site building, 80 Tennis Court Road, M. W. F. 10. Practicals at the Department of Genetics***Genes and proteins: macromolecules in action**

DR C. J. HOWE

Gene cloning and manipulation. Genetic engineering (Five lectures, 9–19 Oct.)

PROF. J. O. THOMAS

Control of gene expression: DNA structure and DNA-protein interactions (Five lectures, 21–30 Oct.)

DR N. M. STANDART

Control of gene expression: transcription, RNA processing and translation (Five lectures, 2–11 Nov.)

DR P. F. LEADLAY

Proteins, enzymes and protein engineering (Ten lectures, 13 Nov. 4–Dec.)

Energy transduction, cell signalling and cell proliferation

DR M. D. BRAND

Energy transduction in bacteria, mitochondria and chloroplasts (Six lectures, 13–25 Jan.)

DR B. R. MARTIN

Control of metabolism (Six lectures, 27 Jan. 8–Feb.)

DR R. W. FARNDALE

Transmembrane signalling: molecules and mechanisms (Six lectures, 10–22 Feb.)

DR T. R. HESKETH AND DR D. M. CARRINGTON

Control of eukaryotic cell growth (Eight lectures, 24–27 Feb., 2–12 Mar.)

Biochemistry of prokaryotes

PROF. G. P. C. SALMOND AND COLLEAGUES

Biochemistry of prokaryotes (Nine lectures, 21 Apr. 10–May)

*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 9 Oct.***Practical work** will take place in the *Department of Genetics* (top floor) Four hours from 11 on Mondays or Tuesdays or Wednesdays or Thursdays or Fridays.

CHEMISTRY A

Course-Co-ordinator: Dr J. 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

Quantum Mechanics (Twelve lectures)

DR P. M. W. GILL AND DR M. J. DUER

Symmetry and Bonding (Twelve lectures)

DR R. D. AMOS

Mathematics for Chemists (first three weeks). M. F. 9
(non examinable course for those not attending 1B
Mathematics for Natural Sciences)

Practical Chemistry. M. Tu. W. Th. F. 1.45–5

Students must register in the *OII 1B Laboratory (Room 180) Department of Chemistry, Lensfield Road*, between 9 and 1 or 2 and 4 on Tuesday, 6 October, 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, 7 October and 10.45 a.m. in

DR I. R. McDONALD

Molecular Energy Levels and Thermodynamics (Twelve lectures)

PROF. D. A. KING

Solids and Surfaces (Twelve lectures)

Practical Chemistry. M. Tu. W. Th. F. 10–5

Attendance days as for Michaelmas Term

DR J. A. PYLE AND DR S. E. JACKSON

Reactivity and Solutions (Twelve lectures)

NATURAL SCIENCES TRIPOS, PART 1B (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

CHEMISTRY B

Course Co-ordinator: Dr J. Keeler E-mail: James.Keeler@ch.cam.ac.uk

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

DR S. G. WARREN

Key Organic Reactions (Twelve lectures)

PROF. D. H. WILLIAMS AND DR J. M. RAWSON

Molecules-Structures and Spectra (Twelve lectures)

DR I. PATERSON

Shape and Organic Reactivity (Twelve lectures)

PROF. B. F. G. JOHNSON AND DR R. SNAITH

Chemistry of the Metallic Elements (Twelve lectures)

DR W. JONES

Chemistry beyond Molecules (Twelve lectures)

Practical Chemistry. M. Tu. W. Th. F. 1.45-6

Students must register in the *OII Ib Laboratory (Room 180) Department of Chemistry, Lensfield Road* between 9 and 1 or 2 and 4 on Tuesday, 6 October, 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, 7 October, at 10 a.m. in *Lecture Theatre 1*

Practical Chemistry. M. Tu. W. Th. F. 10-5

Attendance days as for Michaelmas Term

ECOLOGY

Course Organiser: Dr S. A. Corbet E-mail: s.a.corbet@zoo.cam.ac.uk

Lectures will be given in the Department of Zoology on M. W. F. 9

DR M. E. N. MAJERUS

Introduction to the course (One lecture)

DR R. S. K. BARNES

The Marine Ecosystem (Six lectures)

DR S. A. CORBET

Freshwater Communities (Five lectures)

DR P. J. GRUBB

Terrestrial Ecosystems (Six lectures)

DR P. J. GRUBB

Dynamics and Diversity of Vegetation (Six lectures)

DR W. AMOS

Predators and Prey (Six lectures)

PROF. T. H. CLUTTON-BROCK

Evolution of Social Behaviour (Six lectures)

DR M. E. N. MAJERUS

Ecological Genetics (Six lectures)

DR S. A. CORBET

Insect/Plant Interactions (Six lectures)

DR J. SWINTON

Ecological Dynamics (Six lectures)

DR P. J. GRUBB

Biodiversity (Six lectures)

(The above lectures will start W. 21 Apr.)

(Note the early start of this course)

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

EXPERIMENTAL PSYCHOLOGY

Course Organiser: Dr S. Monsell E-mail: sm124@cam.ac.uk

Lectures will be held in Mill Lane, Lecture Room 3, Practical work in the Psychological Laboratory unless otherwise stated

DR P. WHITTLE, DR M. ELMER AND DR S. MONSELL Human Experimental Psychology: Perception; Memory; Action; Psycholinguistics (Twenty-four lectures, 8 Oct.–1 Dec.). Tu. Th. S. 11	DR A. DICKINSON Learning and Memory (Nine lectures, 14 Jan.–2 Feb.). Tu. Th. S. 11	DR S. BARON-COHEN Abnormal Psychology (Six lectures, 22 Apr.–4 May). Tu. Th. S. 11
DR P. WHITTLE, DR M. ELMER AND DR S. MONSELL Human Experimental Psychology: Perception; Memory; Action; Psycholinguistics (Twenty-four lectures, 8 Oct.–1 Dec.). Tu. Th. S. 11	DR R. A. MCCARTHY Neuropsychology (Three lectures, 4, 6, 9 Feb.). Tu. Th. S. 11	
DR P. WHITTLE, DR M. ELMER AND DR S. MONSELL Human Experimental Psychology: Perception; Memory; Action; Psycholinguistics (Twenty-four lectures, 8 Oct.–1 Dec.). Tu. Th. S. 11	DR K. C. PLAISTED Developmental Psychology (Six lectures, 11, 13, 16, 18, 20, 23 Feb.). Tu. Th. S. 11	
DR P. WHITTLE, DR M. ELMER AND DR S. MONSELL Human Experimental Psychology: Perception; Memory; Action; Psycholinguistics (Twenty-four lectures, 8 Oct.–1 Dec.). Tu. Th. S. 11	PROF. N. J. MACKINTOSH Intelligence (Three lectures, 25, 27 Feb., 2 Mar.). Tu. Th. S. 11	
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	DR K. C. PLAISTED Reasoning (Three lectures, 4, 6, 9 Mar.). Tu. Th. S. 11	
	Practical Work. The same continued	Practical Work. The same continued

FLUID MECHANICS

Lectures will be held in the Department of Chemical Engineering, Pembroke Street

Introduction to Fluid Mechanics DR C. D. RIELLY (Twenty four lectures). Tu. Th. S. 11	Transport Processes DR A. N. HAYHURST (Sixteen lectures) Tu. Th. S. 11	Transport Process DR A. N. HAYHURST (Four lectures) Tu. Th. S. 11
DR C. D. RIELLY (Twenty four lectures). Tu. Th. S. 11	Continuous Contacting Processes DR D. I. WILSON (Eight lectures) Tu. Th. S. 11	Reactors PROF. J. BRIDGWATER (Eight lectures) Tu. Th. S. 11
Practical Work and Examples Classes M. W. 9–11 or M. 2–4	Practical Work and Examples Classes M. W. 9–11 or M. 2–4	Examples Classes M. W. 9–11

Students should register for practical work on Tuesday, 6 October, between 2 and 4 p.m. at the *Department of Chemical Engineering*

GEOLOGICAL SCIENCES A

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

DR N. H. WOODCOCK Maps and Structures. (Ten lectures) PROF. R. S. WHITE Tectonics and Seismology. (Eight lectures) DR H. ELDERFIELD Evolution of the Hydrosphere. (Six lectures)	DR J. A. DICKSON Biogenic and Chemical Sediments. (Eight lectures) DR P. F. FRIEND Clastic, Sedimentology. (Eight lectures) DR J. N. BUTTERFIELD Palaeontology. (Eight lectures) Geological Sciences Field Class. (15–27 Mar.)	DR D. B. NORMAN Vertebrate palaeontology. (Five lectures) DR P. F. FRIEND Sedimentary Basins Reviewed. (Five lectures)
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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, 7 October, between 9.30 and 12.30, or 2.30 and 4.30, to register their choice of times from those available, which are M. W. F. 11–1, 2–4; Tu. Th. S. 10–1.

GEOLOGICAL SCIENCES B

All lectures are held in the Tilley Lecture Room, Department of Earth Sciences, on Tu. Th. S. 9

DR A. H. SHEN Igneous Mineralogy (Twelve lectures)	The same continued (Four lectures)	DR M. B. HOLNESS AND DR S. A. GIBSON Metamorphism and Magmatism Case Studies. (Nine lectures)
DR D. M. PYLE AND DR M. J. BICKLE Igneous Petrology. (Twelve lectures)	DR G. A. CHINNER AND DR T. J. B. HOLLAND Metamorphic Minerals and Metamorphic Petrology (Twenty lectures) Geological Sciences Field Class. (15–27 Mar.)	

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, 7 October, between 9.30 and 12.30, or 2.30 and 4.30, to register their choice of times from those available, which are M. W. F. 11–1, Tu. Th. S. 10–12, M. Tu. Th. 2–4.

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

HISTORY AND PHILOSOPHY OF SCIENCE

All lectures will be delivered in the Rayleigh Lecture Theatre, Free School Lane

DR W. CLARK
Natural Philosophy. M. 5 (weeks 1–8); W. 5 (weeks 1–4)

PROF. P. LIPTON
Philosophy of Science. F. 5 (weeks 1–8); W. 5 (weeks 5–8)

DR J. FORRESTER, DR N. HOPWOOD AND
DR J. SECORD
History of Science. M. 5 (weeks 1–8); W. 5 (weeks 5–8)

The same continued. F. 5 (weeks 1–8)
DR M. KUSCH
Sociology of Scientific Knowledge. W. 5 (weeks 1–4)

DR R. JENNINGS
Ethics in Science. F. 5 (weeks 1–4)
DR K. RIDDERBOS
Philosophy of Physics. M. 5 (weeks 1–4)
DR N. HOPWOOD AND DR J. SECORD
History of Science. W. 5 (weeks 1–4)

MATERIALS SCIENCE AND METALLURGY

Course co-ordinator: Dr G. T. Burstein E-mail: Part IB@msm.cam.ac.uk

All lectures are held in the Babbage Lecture Theatre on Tu. Th. S. 10

DR H. K. D. H. BHADSHIA
Metals and Alloys. (Twelve lectures)
DR G. T. BURSTEIN
Environmental Behaviour of Materials. (Twelve lectures)

DR I. M. HUTCHINGS
Polymers. (Nine lectures)
DR R. V. KUMAR
Ceramics and Ionic Solids. (Six lectures)
DR P. D. BRISTOWE
Electrical and Magnetic Properties of
Materials. (Nine lectures)

DR R. C. REED
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 2–4 on any weekday

The same continued

The same continued

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, 6 October or Wednesday 7 October.

Industrial Visits

Details to be announced

The same continued

MATHEMATICS

PROF. P. K. TOWNSEND
Mathematical Methods I M. W. F. 11
Chemical Laboratory

Examples Class** (Two classes – 11 and 25 Nov.)
W. 2.15–4.15 *Arts School, Room A*

DR R. E. HUNT
Mathematical Methods II (Sixteen lectures,
ending 19 Feb.) M. W. F. 11 *Chemical
Laboratory*

Examples Class (10 Mar. only). M. 2.15–4.15
Arts School, Room A

DR H. OSBORN
Mathematical Methods III (Ten
lectures) M. W. F. 11
Chemical Laboratory

Examples Class (Two classes – 28 Apr. and
13 May). W. 2.15–4.15
Arts School, Room A

DR S. B. DALZIEL
Numerical Methods* (Eight lectures, beginning
22 Feb.). M. W. F. 11
Chemical Laboratory

* Optional weekly sessions of practical work with a computer will be available at times to be arranged.

** This Examples Class interleaves with the Examples Class in Mathematical Physics, Advanced Course F, p. 000.

MINERAL SCIENCES

Lectures will be given in the New Seminar Room, Department of Earth Sciences, on M. W. F. 9

DR M. T. DOVE
Degrees of Order in Solids. (Fourteen lectures)
DR I. FARNAN
Transport Properties: Bulk diffusion. (Five lectures)
Transport Properties: Surface diffusion. (Five lectures)

DR S. A. T. REDFERN
Ferroelectric Phase Transitions in oxides and
Ceramics. (Six lectures)
PROF. E. K. H. SALJE
Symmetry and Physical Properties.
(Ten lectures)
DR M. T. DOVE
Stability of Crystal Structures. (Eight lectures)

DR A. SHEN
Minerals and the Natural Environment.
(Nine lectures)

Practical Work. M. F. 10–12 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, 7 October.

NATURAL SCIENCES TRIPOS, PART I B (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

MOLECULAR CELL BIOLOGY

Course co-ordinator: Dr D. MacDonald E-mail: d.macdonald@gen.cam.ac.uk

*Lectures will be held in the Biffen Lecture Theatre, Department of Genetics. Tu. Th. S. 10***Molecular Biology of the Cell Nucleus**PROF. R. A. LASKEY
(Nine lectures)**Molecular Genetics of Yeast Cells**DR D. MACDONALD
(Five lectures)**Strategies of Genetic Organisation and Expression in****Prokaryotes**DR P. OLIVER
(Five lectures)**Genome Structure and Evolution**DR C. O'KANE
(Five lectures)**Organelle Biogenesis**DR J. C. GRAY
(Six lectures, beginning 12 Jan.)
(*Note early start of this course*)**Cytoskeleton**DR D. BRAY
(Four lectures)**Membrane Traffic**DR P. DUPREE
(Four lectures)**Intercellular Communication I**DR K. JOHNSTONE
(Two lectures)**Intercellular Communication II**DR S. LAUGHLIN
(Two lectures)**Development I**DR D. ST. JOHNSTON
(Four lectures)**Development II**PROF. J. B. GURDON
(Four lectures, ending 11 Mar.)**Development III**PROF. C. M. BATE
(Four lectures, beginning 20 Apr.)
(*Note early start of this course*)**Development IV**DR D. E. HANKE
(Six lectures, ending 11 May)

Practical work will take place in the *Department of Zoology*. Students will be expected to do four hours practical work per week between 11 a.m. and 1 p.m., 2 and 5 p.m. on Tuesdays or Fridays.

PATHOLOGY

Course Organiser: Dr D. E. Bowyer E-mail: david.bowyer@mole.bio.cam.ac.uk

Lectures. M. W. F. 12 Chemical Laboratory Lecture TheatreDR Y. W. LOKE
Mechanisms of Acute Inflammation
Healing
Persistent Inflammation (Four lectures, 9–16 Oct.)DR N. HOLMES
The Immune System: Organs and Cells
B Cells and Antibodies
The Major Histocompatibility Complex
T CellsCellular Interactions: Cytokines
The Complement System
Tolerance
Autoimmunity
Hypersensitivity and Chronic Inflammation
(Nine lectures, 19 Oct.–6 Nov.)DR Y. W. LOKE
Transplantation. Blood Groups
(One lecture, 9 Nov.)DR N. HOLMES
Immunity and Immunisation
(One lecture, 11 Nov.)PROF. A. C. MINSON
The Nature of Viruses
Virus replication
Host Cell Modification
Acute Virus Infection
The Response to Infection
Persistent and Latent Infection
Mechanisms of Viral Pathogenesis
Control of Virus Infection
Spongiform Encephalopathy: BSE and CJD
(Nine lectures, 13 Nov.–2 Dec.)**Practical Work Department of Pathology**Tu. 10–12 and Th. 2–4 or Tu. 2–4 and Th. 10–12
or W. and F. 10–12 or 2–4**Lectures. M. W. F. 12 Chemical Laboratory Lecture Theatre**DR R. W. LE PAGE
Bacterial Agents of Infectious Disease
Bacterial Cells and Populations
Transmission of Bacterial Infections
Bacterial Pathogenicity: Concepts
Bacterial Diseases: Mechanisms of Pathogenicity I
Bacterial Diseases: Mechanisms of Pathogenicity II
Bacterial Diseases: Mechanisms of Pathogenicity III
Combating Bacterial Diseases
(Eight lectures, 13–29 Jan.)DR N. COLEMAN
Tuberculosis. Granulomatous Disease
(One lecture, 1 Feb.)DR D. DUNNE
Introduction to Parasite Infections
Host-Parasite Interactions
Metazoan Parasite Diseases
Protozoan Parasite Diseases
(Four lectures, 3–10 Feb.)DR N. COLEMAN
Disorders of Red Blood Cells
Thrombosis and Embolism
Arterial Disease
Heart Failure and Hypertension
Ischaemia and Infarction
(Five lectures, 12–22 Feb.)DR M. A. STANLEY
Alterations in Tissue and Organ Growth
Nomenclature and Behaviour of Neoplasms
Experimental Tumour Biology
Cancer as a Genetic Disease I
Cancer as a Genetic Disease II
Mechanisms of Invasion and Metastasis
Causes of Human Cancer: Chemical and Physical Carcinogens
Causes of Human Cancer: Biological Carcinogens
(Eight lectures, 24 Feb.–12 Mar.)**Practical Work Department of Pathology**Tu. 10–12 and Th. 2–4 or Tu. 2–4
and Th. 10–12 or W. and F. 10–12 or 2–4**Lectures. M. W. F. 12 Department of Pathology, Lecture Theatre**DR N. AFFARA
Genetic Pathology: Introduction
Molecular Analysis of Mendelian Disorders
Genotype-Phenotype Correlations
Chromosomal Imbalance
Complex Mechanisms: The Genome
Mapping Project (Five lectures, 21–30 Apr.)**Practical Work Department of Pathology**Revision classes
Tu. 10–12 and Th. 2–4 or Tu. 2–4 and
Th. 10–12 or W. and F. 10–12 or 2–4

NATURAL SCIENCES TRIPOS, PART 1B (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

PHARMACOLOGY

Course Organiser: Dr T-P. Fan E-mail: tpf.1000@cus.cam.ac.uk

All lectures are held in the Lecture Theatre, Department of Pharmacology, on M. W. F. 11

DR C. W. TAYLOR
Drug and receptors: Introduction. (Five lectures, 9–19 Oct.)

PROF. R. F. IRVINE
Drugs and receptors: Local and intracellular messengers. (Six lectures, 21 Oct.–2 Nov.)

DR C. W. TAYLOR
Drug and receptors: Receptor mechanisms. (Four lectures, 4–11 Nov.)

DR J. M. EDWARDSON
Drugs and receptors: Integration of signalling pathways. (Six lectures, 13–25 Nov.)

DR M. A. BARRAND
Chemotherapy I. (Three lectures, 27 Nov.–2 Dec.)

Practical Work. Tu. 12–1 or W. 12–1 and Tu. 2–5 or W. 2–5. A detailed timetable will be posted in the Department

DR P. M. DEAN
Drug metabolism. (One lecture, 13 Jan.)

DR R. MURRELL-LAGNADO
Pharmacokinetics, general anaesthetics. (Five lectures, (5–25 Jan.)

DR M. A. BARRAND
Chemotherapy II. (Four lectures, 27 Jan.–3 Feb.)

DR P. M. DEAN
Drug design. (Two lectures, 5, 8 Feb.)

DR R. M. HENDERSON
Cardiovascular and renal pharmacology. (Eleven lectures, 10 Feb.–5 Mar.)

PROF. A. W. CUTHBERT
Immunosuppression and gene therapy. (Two lectures, 8, 10 Mar.)

Practical Work
The same continued

DR P. J. RICHARDSON
Central nervous system: neurodegeneration, psychoses, affective disorders. Pain and opiates. (Seven lectures, 21 Apr.–5 May)

DR D. R. FERGUSON
Toxicology. (Two lectures, 7, 10 May)

Practical Work
The same continued

Note that lectures in the Lent and Easter terms begin on Wednesday. This change is to allow more time between the end of the course and the examinations.

PHYSICS

Lectures, course C, are given in the Maxwell Lecture Theatre, New Museums Site, M. W. F. 12
Laboratory Work, course Q, takes place at the Cavendish Laboratory (West Cambridge)

Year Group Co-ordinator: Dr A. L. Bleloch E-mail: IB-single-physics@phy.cam.ac.uk

All students must attend an introductory talk and register for course Q at 2:30 on Wednesday 7 October at the Cavendish Laboratory.

Laboratory work is continuously assessed.**Course C**

DR A. L. BLELOCH
Waves and Imaging Instruments

DR C. J. B. FORD
Quantum Physics

PROF. H. AHMED
Physics of Electronic Devices

Course Q

DR A. L. BLELOCH
Waves. M. or F. 2–5

MR P. J. WARNER AND DR E. H. LINFIELD
Electronics and Systems. M. or F. 2–5

NATURAL SCIENCES TRIPOS, PART IB (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

ADVANCED PHYSICS

*Lectures are given in the Cockcroft Lecture Theatre, New Museums Site, unless otherwise stated.
Laboratory Work, course R, takes place at the Cavendish Laboratory (West Cambridge)*

Year Group Co-ordinator: Dr S. F. Gull E-mail: IB-advanced-physics@phy.cam.ac.uk

Of the courses listed below, **F** and **G** are not examinable in Part IB.

Although others may attend, course **F** is mainly for those expecting to proceed to Part II Experimental and Theoretical Physics and taking Mathematics (p. 176) in addition to Advanced Physics. An understanding of the content of this course will be assumed in discussion of the more theoretical topics in Parts II and III.

Course **G** is intended for students who are *not* taking Mathematics. It will cover a number of topics in vector and Fourier analysis, with worked examples.

All students must attend an introductory talk and register for course **R** at 2:30 on Wednesday 7 October at the *Cavendish Laboratory*.

Classes are open at the hours listed below. Students are expected to attend for a period of not less than six hours each week. Those who are offering two other experimental sciences besides Advanced Physics may experience some difficulty in meeting this requirement and, if so, should consult Dr R. D. E. Saunders at the *Cavendish Laboratory*; special arrangements will be made in such cases.

Laboratory work is continuously assessed.

Course D

DR B. R. WEBBER
Dynamics. Tu. S. 9

DR R. D. E. SAUNDERS
Experimental Methods. Th. 9

DR J. M. RILEY
Waves. M. W. F. 12 (first twelve lectures)

DR S. F. GULL
Electromagnetism. M. W. F. 12 (last twelve lectures)

DR H. P. HUGHES
Optics. Tu. Th. S. 9 (first twelve lectures)

DR M. C. PAYNE
Quantum Mechanics I. Tu. Th. S. 9
(last twelve lectures)

DR S. F. GULL
Electromagnetism. M. W. F. 12
(first twelve lectures)

PROF. A. HOWIE
Thermal Physics. M. W. F. 12
(last twelve lectures)

The same continued. Tu. Th. S. 9

PROF. R. H. FRIEND
Condensed Matter Physics. M. W. F. 12

Course F

PROF. P. B. LITTLEWOOD AND OTHERS
Examples Class in Mathematical Physics. W. 2.15–4.15
(Two classes, 18 Nov., 2 Dec.)
Room A, Arts School, Bene't Street
This class interleaves with the Mathematics examples class

PROF. P. B. LITTLEWOOD AND OTHERS
The same continued. (Seven classes, beginning
20 Jan.)

The same continued. (One class, 5 May)

Course G

DR C. G. SMITH
Mathematical Concepts in Physics. M. W. F. 11
(first sixteen lectures) *Room A, Arts School,
Bene't Street*

Course R

DR R. D. E. SAUNDERS AND OTHERS
Systems and Measurement. Tu. or Th. 10–6
or M. and F. 2–6

DR C. J. ADKINS AND OTHERS
Waves and Optics. Tu. or Th. 10–6
or M. and F. 2–6

PHYSIOLOGY

Course organiser: Dr D. J. Tolhurst E-mail: djt12@cam.ac.uk

Lectures. M. W. F. 9 *Main Physiology Lecture Theatre
except where otherwise stated*

DR A. P. HILLIER
Endocrinology. (Ten lectures, 9–30 Oct.)
Babbage Lecture Theatre

DR W. H. COLLEDGE
Reproduction. (Eight lectures, 2–18 Nov.)

DR J. C. D. HICKSON
Fetal, neonatal and maternal physiology.
(Six lectures, 20 Nov.–2 Dec.)

Lectures. M. W. F. 9 *Main Physiology Lecture
Theatre*

DR H. R. MATTHEWS
Synapses and sensory receptors. (Four lectures,
15–22 Jan.)

DR D. J. TOLHURST
Somatic sensation and pain. (Four lectures,
25 Jan.–1 Feb.)

DR H. R. MATTHEWS
Neurophysiology of vision. (Six lectures,
3–15 Feb.)

DR D. J. TOLHURST
Control of movement and posture. (Six lectures,
17 Feb.–1 Mar.)

DR I. M. WINTER
Hearing. (Four lectures, 3–10 Mar.)

Lectures. M. W. F. 9 *Main Physiology Lecture
Theatre*

DR H. R. MATTHEWS
Taste and smell. (One lecture, 23 Apr.)

DR R. H. S. CARPENTER
Higher functions of the nervous system.
(Five lectures, 26 Apr.–5 May.)

DR J. H. ROGERS
Developmental neurobiology. (Four lectures,
7–14 May.)

Practical Work

Th. 2–4

Practical Work

Tu. Th. 2–4 or Th. 10–12, 2–4

Practical work

Th. 2–4

NATURAL SCIENCES TRIPOS, PART 1B (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

PLANT SCIENCES

Course Co-ordinator: Miss C. Sweeney E-mail: cas41@cam.ac.uk

*All lectures will take place at the Department of Plant Sciences unless otherwise stated***PLANT CELLULAR AND MOLECULAR BIOLOGY****Module 1. The Molecular Basis of Plant Function**

PROF. J. C. GRAY

Genetic engineering of plants. (Lectures 1–4; 8–15 Oct.)
Photosynthesis. (Lectures 5–9; 17–27 Oct.)

DR A. G. SMITH

Intermediate metabolism. (Lectures 10–14;
29 Oct.–7 Nov.)

PROF. E. A. C. MACROBBIE AND PROF. R. A. LEIGH

Metabolism and transport. (Lectures 15–24;
10 Nov.–1 Dec.)**Module 2. Molecular Responses of Plants to the Environment**

DR A. G. SMITH

Biosynthesis¹. (Lectures 25–30; 12–23 Jan.)

DR K. JOHNSTONE AND DR J. P. CARR

Plant pathology. (Lectures 1–7; 26 Jan.–9 Feb.)

DR J. P. CARR

Molecular mechanisms of plant disease
resistance. (Lectures 8–12; 11–20 Feb.)

DR D. E. HANKE

Development. (Lectures 13–18; 23 Feb.–6 Mar.)

DR I. FURNER

Development. (Lectures 19–20; 9, 11 Mar.)

DR A. G. SMITH

Metabolic response to the environment¹.
(Lectures 21–25; 20–29 Apr.)

DR M. A. TESTER

Molecular response to environmental stress.
(Lectures 26–30; 1–11 May.)**PLANT ORGANISMAL BIOLOGY****Module 3. Dynamics and Physiology of World Vegetation**

DR P. J. GRUBB

Overview of world's vegetation. (Lectures 1–8;
8–24 Oct.)

A. N. OTHER

Vegetation history of the world during the tertiary and
quaternary. (Lectures 9–14; 27 Oct.–7 Nov.)

DR P. J. GRUBB

Plant growth and survival in relation to temperature,
water and nutrients. (Lectures 15–24;
10 Nov.–1 Dec.)

DR M. A. TESTER

Plant growth and survival in relation to water
and nutrients. (Lectures 25–26;
12, 14 Jan.)Plant distribution and climate; effects of global
change on world vegetation.
(Lectures 27–30; 16–23 Jan.)**Module 4. Plants-Microbes and Conservation**

DR K. JOHNSTONE AND DR J. P. CARR

Plant pathology. (Lectures 1–7; 26 Jan.–9 Feb.)

DR J. SWINTON

Population dynamics of disease resistance.
(Lectures 8–10; 11–16 Feb.)

DR K. JOHNSTONE

Microbial interactions in the rhizosphere.
(Lectures 11–15; 18–27 Feb.)

PROF. J. S. PARKER

Plant genetic resources. (Lectures 16–20;
2–11 Mar.)

PROF. J. S. PARKER

Plant genetic resources. (Lectures 21–22;
20, 22 Apr.)

DR D. BRIGGS

Plant genetic resources. (Lectures 23–30;
24 Apr.–11 May)¹ Note the early start of this course.

NATURAL SCIENCES TRIPOS, PART II (GENERAL)

MICHAELMAS 1998

LENT 1999

EASTER 1999

A candidate may offer

- either (a) Advanced Physics and one other subject from Part Ib excluding Geological Sciences A of the Natural Sciences Tripos which he has not previously offered;
 or (b) one subject from Part Ib of the Natural Sciences Tripos which he has not previously offered and one Special Subject;
 or (c) 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 24 for the Natural Sciences Tripos.

The time-tables 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 Co-ordinator: 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. 184). Exact course details are to be arranged in the future. Further details can be obtained from Dr J. H. Keeler in the *Department of Chemistry*.

SPECIAL SUBJECT HUMAN IMPACT ON THE ENVIRONMENT

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 or chosen from a list of approved subjects. The essay to be handed in by the second week of the Easter Term.

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

Lectures

DR P. ROHANI, DR P. GRUBB, DR W. AMOS, PROF. T. CLUTTON-BROCK, DR T. COULSON, DR H. JONES AND DR A. HECTOR

Population and Community Ecology. M. W. F. 5
 (Twenty-four lectures)
Department of Plant Sciences

DR M. BROOKE, DR W. AMOS, DR P. GRUBB,
 DR A. BALMFORD, DR D. BRIGGS AND
 DR I. HODGE

Conservation Biology. M. W. F. 5 (Twenty-four lectures)
Department of Zoology

DR J. R. FLOWERDEW AND

DR A. CHEPSTOW-LUSTY
 Human Impact on the Environment.
 M. W. F. 5 (Twelve lectures)
Department of Zoology

SPECIAL SUBJECT PATHOLOGY

This course consists of the lectures in Cellular Pathology available in Part II Pathology (see p. 190). Candidates will also be required to attend classroom work on Monday afternoon between 2 p.m. and 5 p.m. It is important that all candidates attend the Introduction Lecture to Part II Pathology on 7 October at 5 p.m. in the Department of Pathology.

SPECIAL SUBJECT PHYSICS

Year Group Co-ordinator: Dr S. R. Julian 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. 185). 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, experiment E3, 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 1998

LENT 1999

EASTER 1999

ANATOMY OPTION A: RESEARCH IN DEVELOPMENTAL BIOLOGY AND NEUROSCIENCE

Course units: Each unit usually comprises Th. F. 9–11 and Tu. 9–12
Other lectures and seminars will be posted in the Department

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

Course Organiser: Dr R. A. H. White E-mail: rw108@mole.bio.cam.ac.uk

DR A. C. ROBERTS AND DR R. A. H. WHITE
Course Introduction. Tu. 10–12 (6 Oct)
DR S. J. BRAY AND DR R. A. H. WHITE
Origins of Pattern. (8, 9, 13 Oct.)
DR S. BRAY AND DR D. TANNAHILL
Techniques in Developmental Biology. (15, 16, 20 Oct.)
DR D. TANNAHILL
Regional Identity and Patterning in Vertebrates. (22, 23, 27 Oct.)
PROF. W. A. HARRIS AND DR N. PAPALOPULU
Neurogenesis in Vertebrates. (29, 30 Oct., 10 Nov.)

Study Week (2–6 Nov.)

DR N. BROWN AND DR C. E. HOLT
Tissue Development. (12, 13, 17 Nov.)
DR A. C. FERGUSON-SMITH AND DR P. N. SCHOFIELD
Genetic Imprinting. (19, 20, 24 Nov.)
DR G. J. BURTON AND DR A. C. FERGUSON-SMITH
Early Mammalian Development. (26, 27 Nov., 1 Dec.)

DR G. M. W. COOK AND DR C. E. HOLT
Axon Pathfinding. (14, 15, 19 Jan.)
DR M. V. SOFRONIEW
Neuronal Degeneration and Regeneration.
(21, 22, 26 Jan.)
DR A. C. ROBERTS AND DR S. A. EDGLEY
Techniques in Neuroscience. (28, 29 Jan., 2 Feb.)
DR R. C. HARDIE AND PROF. W. A. HARRIS
Phototransduction. (4, 5, 16 Feb.)

Study Week (8–12 Feb.)

DR R. E. J. DYBALL
Signalling between Neurons. (18, 19, 23 Feb.)
DR F. J. P. EBLING AND DR J. HERBERT
Puberty. (25, 26 Feb., 2 Mar.)

ANATOMY OPTION B: DISEASE, SOCIETY AND SEXUALITY

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

Course Organiser: Prof. M. H. Johnson Email: mhj@mole.bio.cam.ac.uk

Lectures will start at 4.30, unless otherwise indicated

HIV and AIDS

PROF. M. H. JOHNSON
Health, Illness and Disease. (Two lectures, 6, 7 Oct.)
DR L. WILLOCKS AND DR D. ANGELIS
Epidemiology of HIV. W. 12, 2, 4.30 (Three lectures, 14 Oct.)
DR G. J. BURTON
Transmission of HIV – perception of risk.
(One lecture, 16 Oct.)
DR R. A. H. WHITE
Molecular Biology of HIV. (Three lectures, 19, 20, 21 Oct.)
Immunology of HIV. (Three lectures, 23, 26, 27 Oct.)
DR C. CARNE
Clinical aspects of HIV W. F. 2 (Two lectures 28, 30 Oct.)

Neurobiology of Emotion

DR C. FRASER
Attitudes and prejudice. (Three lectures, 9, 10, 11 Nov.)
DR A. C. ROBERTS
Neural basis of emotions. (Four lectures, 16, 17, 18, 20 Nov.)
Addition. W. F. 4.30 (25, 27 Nov.); M. 9 (30 Nov.);
(Three lectures)
DR M. LONDON
Drugs and alcohol. (One lecture) W. 2.15 (2 Dec.)
PROF. E. B. KEVERNE
Aggression. (Two lectures, 1, 2 Dec.)

Workshops, Seminars and Journal Clubs

As announced in the Department (Starting 6 Oct.)

Neurobiology of Emotion

DR N. HUNT
Mood and depression. M. 4.30 (11 Jan.);
F. 2.15 (15 Jan.) (Two lectures)
DR G. J. BURTON
Choosing and giving your seminar.
(One lecture, 13 Jan.)
DR J. HERBERT
Stress. (Two lectures, 15, 18 Jan.)
Life events. (Two lectures, 19, 20 Jan.)
DR J. STEVENSON-HINDE
Relationships. (Three lectures, 22, 25, 26 Jan.)

Sex, Gender and Sexuality

PROF. M. H. JOHNSON
Sexual selection and determination.
(Six lectures, 27, 29 Jan., 1, 2, 3, 5, Feb.)
DR A. C. FERGUSON-SMITH
Asexual reproduction. M. Tu. 4
(Two lectures, 15, 16 Feb.)
PROF. M. H. JOHNSON
What is a parent? (One lecture, 17 Feb.)
DR A. DIXSON
Psychosexual Development. (Three lectures,
22, 23, 24 Feb.)
Sexual Behaviour. (Four lectures, 1, 2, 3,
5 Mar.)

Workshops, Seminars and Journal Clubs

As announced in the Department

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

ASTROPHYSICS

All lectures will be delivered in the Hoyle Building, Institute of Astronomy

DR C. D. MacKAY
Introductory Astrophysics. Tu. Th. 10, F. 12
DR P. P. EGGLETON
Statistical Physics. M. W. F. 10
DR C. J. CLARKE
Astrophysical Fluid Dynamics. M. W. F. 11
DR R. F. CARSWELL
Theory of Relativity. M. 12, Tu. Th. 11

DR J. E. PRINGLE
Stellar Dynamics and Structure of
Galaxies. M. W. F. 10
PROF. R. S. ELLIS
Physical Cosmology. M. 12, Tu. Th. 11
DR R. G. McMAHON
Topics in Contemporary Astrophysics.
M. W. F. 11
DR I. R. PARRY
Structure and Evolution of Stars.
Tu. Th. 10, F. 12

BIOCHEMISTRY

Course Co-ordinator: Dr D. M. Carrington E-mail: mc115@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 5 October.

Core course lectures take place at 5.30 p.m. for the first six weeks of the Michaelmas Term, and at 9 a.m. and 10.30 a.m. thereafter.In the Lent Term, lectures for options 1–10 are given in the mornings. Lectures for option 11 are given at 5 p.m. in the *Department of Genetics*.

Detailed time-tables are posted in the Department of Biochemistry.

Core lectures

DR P. F. LEADLAY
Enzyme structure and function. (Five lectures,
beginning 5 Oct.)
DR R. J. JACKSON
Protein synthesis and translational control. (Five
lectures, beginning 12 Oct.)
DR S. BELL
Mechanisms and control of transcription in eukaryotes.
(Five lectures, beginning 19 Oct.)
DR P. A. EVANS
Aspects of protein structure: genome to proteome.
(Five lectures, beginning 26 Oct.)
DR D. M. CARRINGTON
DNA recombination in genetic exchange and gene
expression. (Five lectures, beginning 2 Nov.)
PROF. J. O. THOMAS
Protein-DNA interactions and gene expression.
(Five lectures, beginning 9 Nov.)
DR C. J. HOWE
Gene expression in plants. (Four lectures, beginning
16 Nov.)
DR T. R. HESKETH
Receptor tyrosine kinases. (Four lectures, beginning
23 Nov.)
PROF. G. P. C. SALMOND
Signal transduction in prokaryotes. (Four lectures,
beginning 25 Nov.)
PROF. SIR TOM BLUNDELL
G protein-based signalling. (Four lectures, beginning
27 Nov.)
DR R. W. FARNDALE
Lipid and phospholipase signalling. (Four lectures,
beginning 1 Dec.)

Core lectures

DR P. DUPREE
Protein targeting to the endoplasmic
reticulum. (Three lectures, beginning
11 Jan.)
DR S. A. GAYTHER
Genome mapping and identification of disease
genes. (Two lectures, beginning 11 Jan.)
DR H. DAVIDSON
Protein sorting. (Six lectures, beginning
13 Jan.)
DR A. GRACE
Disease genes: function and manipulation.
(Three lectures, beginning 15 Jan.)
DR S. E. JACKSON
Protein folding *in vivo*. (Three lectures,
beginning 20 Jan.)

Options lectures

- PROF. G. P. C. SALMOND AND OTHERS
Bacterial virulence and antimicrobial
chemotherapy. (Fifteen lectures)
Option Organiser: Prof. G. P. C. Salmond
- DR A. R. C. RAINE AND OTHERS
Proteins, nucleic acids and their interactions.
(Fifteen lectures)
Option Organiser: Dr A. R. C. Raine
- DR P. DUPREE AND OTHERS
Plant molecular biology. (Fifteen lectures)
Option Organiser: Dr P. Dupree
- DR C. W. J. SMITH AND OTHERS
Control of gene expression in eukaryotes.
(Fifteen lectures in part joint with Part II
Zoology.)
Option Organisers: Dr C. W. J. Smith and
Prof. R. A. Laskey
- DR J. P. LUZIO AND OTHERS
Medical biochemistry. (Fifteen lectures)
Option Organiser: Dr J. P. Luzio
- DR J. BLACKBURN AND OTHERS
Enzyme mechanisms and the evolution of
enzyme function. (Fifteen lectures)
Option Organiser: Dr J. Blackburn
- PROF. J. C. METCALFE AND OTHERS
Cardiovascular molecular and cellular
biology. (Fifteen lectures)
Option Organisers: Prof. J. C. Metcalfe and
Dr A. Grace
- DR T. R. HESKETH AND OTHERS
Oncogenes, tumour suppressor genes and
carcinogenesis. (Fifteen lectures in part
joint with Option E of Part II Pathology.)
Option Organisers: Dr T. R. Hesketh and
Dr P. A. W. Edwards

continued >

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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BIOCHEMISTRY (continued)

10. DR S. LUMMIS AND OTHERS
Neurobiology: molecular dynamics at the synapse. (Fifteen lectures)
Option Organiser: Dr S. Lummis
11. PROF. C. M. BATE AND OTHERS
Developmental biology (Twenty-four lectures joint with Part II Genetics, Plant Sciences, and Zoology.)
Option Organiser: Prof. C. M. Bate

CHEMISTRY

Course Co-ordinator: Dr J. Keeler E-mail: James.Keeler@ch.cam.ac.uk

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

OPTION A AND OPTION B

DR M. GERLOCH

- I0** The Valence Shell in Transition Metal Chemistry
(Twelve lectures, last four weeks starting 6 Nov.). M. W. F. 9

PROF. S. V. LEY AND PROF. A. B. HOLMES

- O0** The Foundations of Organic Synthesis
(Twelve lectures, first four weeks starting 9 Oct.). M. W. F. 9

DR R. L. JONES

- P0** Spectroscopy, Energy Levels and Molecular Structure
(Twelve lectures, last four weeks starting 5 Nov.). Tu. Th. 9, F. 10

PROF. N. C. HANDY

- T0** Molecular Orbital Theory (Twelve lectures, first four weeks starting 8 Oct.). Tu. Th. 9, F. 9

DR A. BRIDGEMAN

- II** The Chemistry of the Heavier Transition Metals (Twelve lectures, first four weeks starting 15 Jan.). Tu. 10, W. F. 9

PROF. A. J. KIRBY AND DR F. J. LEEPER

- O1** Structure and Reactivity (Twelve lectures, first four weeks starting 14 Jan.). M. Tu. Th. 9

DR T. RAYMENT

- P1** Chemistry of Ions in Solution and at Surfaces (Twelve lectures, first four weeks starting 15 Jan.). M. W. F. 10

PROF. J-P. HANSEN

- T1** Statistical Mechanics (Twelve lectures, first six weeks starting 14 Jan.). M. 12, Th. 10

OPTION A

Details of lecture times to be arranged

A. N. OTHER

- A1** Coordination Chemistry in the Laboratory and Life (Eight lectures)

The same continued. (Four lectures)

PROF. D. H. WILLIAMS AND DR R. F. NEWTON

- A2** Medicinal Chemistry (Eight lectures)

The same continued. (Four lectures)

DR M. ATKINS

- A3** Industrial Chemistry (Eight lectures)

The same continued. (Four lectures)

DR A. J. STONE AND DR J. M. GOODMAN

- A4** Molecular Modelling (Eight lectures)

The same continued. (Four lectures)

DR J. KLINOWSKI AND DR S. C. MORATTI

- A5** The Chemistry of Everyday Life (Eight lectures)

The same continued. (Four lectures)

DR M. P. CHIPPERFIELD AND A. N. OTHER

- A6** Atmospheric Chemistry (Eight lectures)

The same continued. (Four lectures)

OPTION B

PROF. B. F. G. JOHNSON AND DR J. RAWSON

- I2** Rings, Chains and Networks (Twelve lectures, starting 12 Feb.). Tu. 10, W. F. 9

DR S. G. WARREN AND DR J. B. SPENCER

- O2** Chemistry of Natural Products (Twelve lectures, starting 11 Feb.). M. Tu. Th. 9

DR D. A. JEFFERSON

- P2** Diffraction Methods in Chemistry (Twelve lectures, starting 12 Feb.). M. W. F. 10

DR R. D. AMOS

- T2** Perturbation Theory (Twelve lectures, starting 12 Feb.). Times to be announced

DR M. J. MAYS

- I3** Organometallic Chemistry in Catalysis (Eight lectures, starting 23 Apr.). Tu. 10, W. F. 9

DR C. ABELL AND PROF. A. J. KIRBY

- O3** The Chemistry of Life (Eight lectures, starting 22 Apr.). M. Tu. Th. 9

DR D. HUSAIN

- P3** Dynamics of Chemical Change (Eight lectures, starting 23 Apr.). M. W. F. 9

DR P. M. W. GILL

- T3** Density Functional Theory (Eight lectures, starting 22 Apr.). M. W. 12, Th. 10

Practical Chemistry, daily 10–5. Students must register in the *O11 Part II Laboratory, Department of Chemistry, Lensfield Road* between 9 and 1 or 2 and 4 on Tuesday 6 October. All students must attend an introductory talk concerning the practical course at 12 noon on Wednesday 7 October in *Lecture Theatre 3*.

Practical Chemistry, daily 10–5

NATURAL SCIENCES TRIPOS, PART II (continued)

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EXPERIMENTAL AND THEORETICAL PHYSICS

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

Year Group Co-ordinator: Dr S. R. Julian 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 (7 Oct.) at 9.30 a.m. in the Pippard Lecture Theatre.

Course H

DR R. J. NEEDS
Solid State Physics. Tu. Th. 9
DR S. R. JULIAN
Thermal and Statistical Physics. Tu. Th. 10
DR D. R. WARD
Quantum Mechanics II. M. F. 9
DR C. M. M. NEX
Computational Physics (first twelve lectures).
M. W. F. 10
Example classes weekdays 2–5 (22 Oct.–18 Nov.)
Students attend one day per week
DR P. ALEXANDER
Relativity and Electromagnetism. W. 9 (first four
lectures); M. W. F. 10 (last twelve lectures)

DR R. J. BUTCHER
Atomic Physics and Light. Tu. Th. 9
DR R. PADMAN
Systems (first eight lectures). Tu. Th. 10
DR T. O. WHITE
Nuclear Physics (first sixteen lectures).
M. W. F. 9
DR V. GIBSON
Particle Physics (last eight lectures).
M. W. F. 9
DR M. WARNER
Fluids (first sixteen lectures). M. W. F. 10

DR T. O. WHITE AND OTHERS
General Example Class. M. W. 2–4

Course I

PROF. M. S. LONGAIR
Concepts in Physics (last eight lectures).
Tu. Th. 10
THE STAFF OF THE CAVENDISH LABORATORY
Current Research Work in the Cavendish
Laboratory (not examinable). See Part III
Experimental and Theoretical Physics
(p. 199).

Course J

DR R. E. ANSORGE AND DR E. TERENTJEV
Theoretical Physics TP1. Tu. Th. 12–1 (Twelve lectures,
beginning 13 Oct.); Tu. 2–4 (Four classes, 20 Oct.,
3, 17 Nov., 1 Dec.)

PROF. P. B. LITTLEWOOD AND DR G. RAJAGOPAL
Theoretical Physics TP2. Tu. Th. 12–1
(Twelve lectures, beginning 19 Jan.);
Tu. 2–4 (Four classes, 26 Jan., 9, 23 Feb.,
9 Mar.)

Course K

PROF. L. M. BROWN AND DR R. E. ANSORGE
Physics in Action. F. 11.30
Small Lecture Theatre
Group Project Work. F. 2–4
Ryle Seminar Room

Course S

DR P. F. SCOTT AND OTHERS
Experimental E1. Registration (7 Oct.). W. 9.30

DR P. J. DUFFETT-SMITH AND OTHERS
Experiment E2. Registration (13 Jan.).
W. 9.30
Experiment E3 (not available to those taking
TP2). Registration (10 Feb.). W. 9.30

DR D. R. WARD AND OTHERS
Literature Review

DR D. R. WARD AND OTHERS
The same continued

DR D. R. WARD AND OTHERS
The same continued

NATURAL SCIENCES TRIPOS, PART II (continued)

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GENETICS

A detailed timetable for this course is available in the Department of Genetics

DR C. O'KANE, PROF. M. EVANS, DR J. A. BARRETT,
DR D. MACDONALD, DR P. OLIVER, DR D. SUMMERS,
PROF. M. ASHBURNER AND DR J. AHRINGER
Genes and Organisms. M. Tu. W. Th. F. 9
(Forty lectures) (beginning 12 Oct.)

DR D. SUMMERS AND DR P. OLIVER
Prokaryotic Genetics. M. Tu. W. Th. F. 10.30
(Eight lectures) (beginning 12 Oct.)

DNA repair. M. Tu. W. Th. F. 9, 10.30 (Five lectures)
(beginning 25 Nov.)

DR P. O'DONALD
Genetic Pathology and Human Cancer (jointly with Part
II Pathology. Tu. Th. 5, S. 10 (Eighteen lectures)
(beginning 16 Oct.)

Statistical Methods. M. Tu. W. Th. 10 (Eight sessions)
(beginning 2 Nov.)

DR J. A. BARRETT
Quantitative Genetics. M. Tu. F. 10.30 (Three lectures)
(beginning 13 Nov.)

THE STAFF
Journal sessions. M. 11.30 (Eight sessions)
(beginning 12 Oct.)

Social Aspects of Genetics. F. 2 (Eight sessions)
(beginning 23 Oct.)

DR J. A. BARRETT, DR M. E. N. MAJERUS,
DR P. O'DONALD AND DR N. GOLDMAN
Evolutionary, Population and Ecological
Genetics. M. Tu. W. Th. F. 12
(Thirty-two lectures) (beginning 11 Jan.)

PROF. C. M. BATE AND OTHERS
Part II Development Option. M. Tu. F. 5
(Twenty-four lectures) (beginning 15 Jan.)

PROF. M. J. EVANS, DR I. FURNER, DR C. FARR,
DR C. O'KANE AND DR A. BRAND
Transgenesis. W. Th. 9 (Sixteen lectures)
(beginning 11 Jan.)

THE STAFF
Journal sessions. M. 10.30 (Eight sessions)
(beginning 18 Jan.)

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 and the Seminar course R1 in the Lent 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

DR N. J. WHITE, DR J. A. JACKSON AND PROF. D. P. MCKENZIE
Lectures. M. Th. 9 *Harker Room*
Practicals. M. Th. 10–12 *Petrology Laboratory*

Core C2 Petrology and Geochemistry

DR H. ELDERFIELD, DR T. J. B. HOLLAND AND DR S. GIBSON
Lectures. Tu. F. 9 *Harker Room*
Practicals. Tu. F. 10–12 *Petrology Laboratory*

Core C3 Sedimentology and Palaeontology

DR P. F. FRIEND, DR N. H. WOODCOCK, DR R. B. RICKARDS,
DR J. A. D. DICKSON AND DR R. A. WOOD
Lectures. W. S. 9 *Harker Room*
Practicals. W. S. 10–12 *Palaeontology Laboratory*

Core C4 Mineralogy

DR M. A. CARPENTER, DR T. J. B. HOLLAND AND
DR S. A. T. REDFERN
Lectures. N, W. 12 *Harker Room*
Practicals. M. W. 2–4 *Harker II Room*

Core C5 Mineral Physics

DR M. T. DOVE AND PROF. E. SALJE
Lectures. Tu. F. 12 *Harker Room*
Practicals. Tu. F. 2–4 *Harker II Room*

Skills Course S1

DR N. H. WOODCOCK AND DR A. G. SMITH
Tu. Th. 2–5 *Harker Room and Computer Room*
(First three weeks)

Field Course to Greece 5–13 Dec. 1998

DR J. A. JACKSON, PROF. D. P. MCKENZIE AND DR A. G. SMITH

Option 6 Continental Tectonics and Mountains

DR J. A. JACKSON, DR A. G. SMITH AND DR G. HOVIUS
Lectures. M. Th. 9 *Tilley Lecture Theatre*
Practicals. M. Th. 10–11.30
Petrology Laboratory

The same continued. (Eight revision sessions)

Option 7 Ocean and Continent Margins

PROF. R. S. WHITE, DR T. MINSHULL,
DR M. C. SINHA, DR J. HAINES AND
DR D. M. PYLE
Lectures. Tu. F. 9 *Tilley Lecture Theatre*
Practicals. Tu. F. 10–11.30
Petrology Laboratory

The same continued. (Eight revision sessions)

Option 8 Metamorphic and Igneous Processes

DR T. J. B. HOLLAND, DR M. B. HOLNESS AND
DR D. M. PYLE
Lectures. W. S. 9 *Harker Room*
Practicals. W. S. 10–11.30 *Petrology*
Laboratory

The same continued. (Eight revision sessions)

Option 9 The oceans and climate change

PROF. T. H. VAN ANDEL, PROF. N. J. SHACKLETON
AND DR H. ELDERFIELD
Lectures. M. Th. 2 *Harker Room*
Practicals. M. Th. 3–4.30 *Petrology*
Laboratory

The same continued. (Eight revision sessions)

Option 10 Palaeoecology and ancient ecosystems

DR R. B. RICKARDS, DR E. HARPER,
DR R. A. WOOD AND DR N. J. BUTTERFIELD
Lectures. Tu. F. 2 *Harker Room*
Practicals. Tu. F. 3–4.30 *Palaeontology*
Laboratory

The same continued. (Eight revision sessions)

Option M4 Properties of Crustal Materials

DR S. A. T. REDFERN AND PROF. E. SALJE
Lectures. Tu. Th. 2 *Oxburgh Room*
Practicals. Tu. Th. 3–4.30
Petrology Laboratory

The same continued. (Eight revision sessions)

Option M5 Crystal Physics

DR M. T. DOVE, DR S. A. T. REDFERN AND
PROF. E. SALJE
Lectures. Tu. F. 11 *Oxburgh Room*
Practicals. Times by arrangement

The same continued. (Eight revision sessions)

NATURAL SCIENCES TRIPOS, PART II (continued)

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GEOLOGICAL SCIENCES AND MINERAL SCIENCES (continued)

Option M6 X-ray Diffraction, Electron Microscopy, and the Analysis of Defect Structure

PROF. E. SALJE, DR A. SHEN, DR S. A. T. REDFERN
AND DR M. T. DOVE
Lectures/Practicals. Times by arrangement
Oxburgh Room

The same continued. (Eight revision sessions)

Review Course R1 (for Part IIA only)

DR A. G. SMITH AND OTHERS
M. W. F. 11.30–1.30 and W. 2–3.30
Harker II Room

HISTORY AND PHILOSOPHY OF SCIENCE

Unless otherwise stated all lectures and classes will be given in the History and Philosophy of Science Seminar Rooms, Free School Lane

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

Students are warned of the following clashes in lecture times during Michaelmas term: **Paper 1** Ancient Science/**Paper 7** The Philosophical Basis of Medicine, Thursday at 12 noon. **Paper 4** Scientific Realism/**Paper 6** Topics in the History of British Psychology, Friday at 12 noon. It is not necessary to take all of the lectures on offer in any one paper in order to sit that paper in the exams.

THE TEACHING OFFICERS
Primary Sources Seminar (*essential*). Tu. 4

PAPER 1: CLASSICAL TRADITIONS IN THE SCIENCES
DR L. TAUB, DR S. KUSUKAWA AND PROF. R. McKITTERICK
Introduction to Paper 1. Tu. 11 (weeks 1–4) (*essential*)
DR S. KUSUKAWA
From Baghdad to Prague:
(1) Islamic and Latin Middle Ages. Tu. 3
(weeks 5–8)
PROF. SIR G. E. R. LLOYD
Ancient Science. [OII] (16 L, 8C). Tu. 12, 5, Th. 12
Classics Faculty

DR L. TAUB, DR S. KUSUKAWA AND DR S. DE RENZI
Instruments, Books and Collections. Tu. 10
(weeks 1–4)

PAPER 2: NATURAL AND MORAL PHILOSOPHIES
DR W. CLARK
Natural Philosophy and Exact Sciences. W. 11
DR M. FRASCA SPADA
Human Nature and Knowledge I: Locke, Berkeley and Hume. Th. 10
DR L. TAUB, DR H. HIGTON AND DR F. WILLMOTH
Instruments, Models and Tools. Tu. 10
(4L, 4C, weeks 5–8)

PAPER 3: SCIENCE, INDUSTRY AND EMPIRE
DR N. HOPWOOD, DR S. DE CHADAREVIAN AND
PROF. N. JARDINE
Laboratories and Disciplines from the Napoleonic Wars to National Socialism. F. 2
DR J. SECORD, DR L. TAUB AND OTHERS
Nature and Society in Victorian Britain. Th. 3

The same continued (*essential*). Tu. 4
(weeks 1–4)

DR A. CUNNINGHAM AND DR S. KUSUKAWA
Natural Philosophy at 1500. Th. 10
(weeks 5–8)

DR R. FRENCH
Natural Philosophy in the Medieval Schools. W. 3

DR L. TAUB, DR S. KUSUKAWA, DR F. WILLMOTH
AND PROF. N. JARDINE
From Baghdad to Prague:
(2) Renaissance Maths; Settings and Models of Early Modern Astronomy. Tu. 3

The same continued. (weeks 1–4)

The same continued

DR W. CLARK
History of Universities. Th. 3 [also Paper 3]

The same continued. (weeks 5–8)

DR M. FRASCA SPADA AND PROF. N. JARDINE
Human Nature and Knowledge II: Kant.
Th. 10 (weeks 1–4)

PROF. N. JARDINE, DR E. SPARY AND DR P. WHITE
Natural Histories. M. 3

DR W. CLARK
History of Universities. Th. 3 [also Paper 2]

DR J. SECORD
Science and Imperialism. M. 10

The same continued. W. 10

DR O. SIBUM
Working Experiments: Machines and Gestural Knowledge in the Physical Sciences.
M. 3 (weeks 5–6); F. 2 (week 6)

DR J. TOPHAM
Scientific Publishing and the Readership for Science in nineteenth century Britain.
F. 2 (weeks 1–4)

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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HISTORY AND PHILOSOPHY OF SCIENCE (continued)

PAPER 4: METAPHYSICS, EPISTEMOLOGY,
AND THE SCIENCES

- DR R. JENNINGS
Recent History of the Philosophy of Science. M. 10
- PROF. P. LIPTON
Explanation, Causation and Law. W. 12
- DR P. SMITH
Scientific Realism. F. 12 *Philosophy Faculty*

PAPER 5: SCIENCE AND TECHNOLOGY
STUDIES

- DR A. BARRY
Social Theory. F. 10 (weeks 1-4)
- PROF. N. JARDINE
Historiography of the Sciences. W. 10
- MS P. GOULD AND DR D. THOM
Gender and Science. M. 11, F. 10 (4L, 4C, weeks 5-8)
- DR M. KUSCH
Sociology of Scientific Knowledge. Th. 11

PAPER 6: HISTORY AND PHILOSOPHY
OF MIND

- DR M. KUSCH
Topics in Phenomenological Philosophy of Mind. F. 11
- PROF. M. RICHARDS
Darwinism and the Social Sciences. Tu. 2
Social and Political Science
- DR D. THOM
Topics in the History of British Psychology. F. 12

PAPER 7: MAKING MODERN MEDICINE

- DR R. FRENCH
The Philosophical Basis of Medicine. Th. 12
Medical Ethics in Antiquity. M. 11
Medicine in the Medieval University. M. 12
(weeks 5-8)
- DR N. HOPWOOD
Making Modern Medicine: From the Paris Hospital to
AIDS. Th. 2
- DR S. KUSUKAWA
Medical Illustration. M. 12 (weeks 1-4)

- DR K. HAWLEY
The Meaning of Scientific Terms. Tu. 11
(weeks 1-4)
- DR M. HILD
Probability and Scientific Inference. Tu. 11
(weeks 5-8)
- DR M. KUSCH
Social Epistemology. Th. 11
- PROF. P. LIPTON
Problems of Induction. W. 12

- DR J. FORRESTER, DR R. JENNINGS AND OTHERS
Ethical Dimensions of Science. Tu. 12
- DR S. DE CHADAREVIAN
Science and War. M. 2 (weeks 1-4)
- DR J. SECOND
Science Communication. F. 10 (weeks 1-4)

- DR J. FORRESTER
Freud, Psychoanalysis and the twentieth
century. M. 12 (weeks 5-8); F. 12
- PROF. P. LIPTON
Topics in the Philosophy of Mind. F. 11
Maxwell Lecture Theatre

- The same continued. M. 11 (weeks 1-4)
The Soul and Medicine. Tu. 2 (weeks 1-4)
Animal Experimentation. Tu. 2 (weeks 5-8)

- The same continued. M. 12 (weeks 1-4)
- DR N. HOPWOOD
Embryos in History: The Science and Politics of
Development. Th. 2
- DR C. SALAZAR
Military Medicine: Greece, Rome, the Crusades
and the Napoleonic Wars. Th. 12
(weeks 1-4)
- PROF. SIR G. E. R. LLOYD
Disease in Greek Thought. M. 11
(weeks 5-8); Th. 12 (weeks 5-8)
Classics Faculty

Prof. Lipton and Dr Second would like to see all Part II students on Wednesday, 7 October at 2:15 p.m.
in *Seminar Room 2, Department of History and Philosophy of Science, Free School Lane.*

*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.*

- PROF. E. J. CRAIG
Hume's *Dialogues concerning natural religion*. M. 10 [Phil]
- DR S. JAMES
Reason and Passion in early modern philosophy. Tu. 11
(weeks 1-6) [Phil]
- PROF. D. H. MELLOR
Induction. Tu. 11 [Phil]
Physicalism. Th. 10 [Phil]
- DR F. WATTS
Theological Issues in the Human and Life
Sciences. F. 12 [Div] *Divinity School*
- DR P. SMITH
Theories and Theory Change. Tu. 11 [Phil]
- DR N. WRIGHT
Latin for Beginners (32C). M. Tu. Th. F. 5
Classics Faculty

- DR P. BURSILL-HALL
Topics in the History of Mathematics.
M. W. F. 4 *Mill Lane (6)* [Math]
- DR K. HAWLEY
Laws of Nature. F. 9 (weeks 1-4) [Phil]

- PROF. E. J. CRAIG
Causality from Descartes to Hume.
Th. 12, F. 11 (weeks 1-4) [Phil]
- PROF. D. H. MELLOR
Causation. Th. 11, F. 10 (weeks 1-4) [Phil]

The same continued (32C). M. Tu. Th. F. 5

The same continued (16C). M. Tu. Th. F. 5

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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EASTER 1999

MATERIALS SCIENCE AND METALLURGY

Course Co-ordinator: Dr R. V. Kumar E-mail:PartII@msm.cam.ac.uk

All lectures will be given in the Seminar Room, Department of Materials Science and Metallurgy

A detailed timetable is available in the Department

<p>PROF. D. J. FRAY C1 Phase Equilibria. Tu. Th. 9 (Six lectures) (beginning 8 Oct.)</p> <p>DR E. R. WALLACH C2 Selection of Materials. Tu. Th. 10 (8–15 Oct.); Tu. W. F. 12 (20–23 Oct.) (Six lectures)</p> <p>DR J. A. LEAKE C3 Mathematical Methods. M. W. F. 9 (Six lectures) (beginning 9 Oct.)</p> <p>DR R. E. CAMERON C4 Tensor Properties. M. W. F. 10 (Twelve lectures) (beginning 9 Oct.)</p> <p>DR P. D. BRISTOWE C5 Physical Properties. Tu. 10 (20, 27 Oct., 3, 17 Nov.); Tu. 12 (10, 24 Nov.); Th. 10 (beginning 22 Oct.) (Twelve lectures)</p> <p>DR K. M. KNOWLES C6 Crystallography. M. F. 9 (beginning 23 Oct.); W. 9 (28 Oct., 11 Nov.); Th. 12 (5 Nov.) (Nine lectures)</p> <p>DR A. L. GREER C7 Kinetics. Tu. Th. 9 (Nine lectures) (beginning 29 Oct.)</p> <p>DR J. A. LITTLE C8 Chemical Stability. M. W. F. 10 (Twelve lectures) (beginning 6 Nov.)</p> <p>DR H. K. D. H. BHADESHIA C9 Alloys. M. W. F. 9 (4, 13, 16, 18, 20, 25, 30 Nov.); W. F. 12 (6, 11 Nov.) (Nine lectures)</p> <p>INDUSTRIAL VISITORS C18 Tu. 10 (Two lectures) (10, 24 Nov.)</p> <p>Example Classes M. Th. 11.15–1 (beginning 12 Oct.)</p> <p>Practical Classes M. Tu. W. 2–5 (Two sessions to be chosen per week)</p> <p>Management Option DR G. BURSTEIN AND OTHERS F. 2–3</p> <p>Language Option Two hours per week: M. 4–6 or Tu. 4–6 or W. 2–4 or</p>	<p>PROF. A. H. WINDLE C10 Polymer Microstructure. Tu. Th. 9 (19 Jan.–11 Feb.); F. 10 (5 Feb.) (Nine lectures)</p> <p>DR G. T. BURSTEIN C11 Surfaces and Interfaces. W. 12, Th. 10 (Six lectures) (beginning 14 Jan.)</p> <p>DR I. M. HUTCHINGS C12 Plasticity and Metalworking. M. W. F. 9 (Nine lectures) (beginning 15 Jan.)</p> <p>DR W. J. CLEGG C13 Ceramics. M. W. F. 10 (15, 18, 20, 22, 25, 27, 29 Jan., 8, 10 Feb.); Th. 9 (14 Jan.); Th. F. 12 (21 Jan., 12 Feb.) (Twelve lectures)</p> <p>DR G. GOLDBECK-WOOD C14 Polymer Processing. W. 12 (10 Feb.); Th. 10 (4–25 Feb.); F. 12 (19 Feb.) (Six lectures)</p> <p>DR D. M. KNOWLES C15 Fracture and Fatigue. M. W. F. 9 (Twelve lectures) (beginning 5 Feb.)</p> <p>DR T. W. CLYNE C16 Composites. M. Tu. F. 9 (16 Feb., 5, 8 Mar.); M. W. F. 10 (12, 15, 19, 22, 24, 26 Feb., 1 Mar.); W. 12 (17 Feb., 3 Mar.) (Twelve lectures)</p> <p>DR R. V. KUMAR C17 Heat and Mass Transfer. Tu. Th. 9 (Six lectures) (beginning 18 Feb.)</p> <p>INDUSTRIAL VISITORS C18 W. 10 (Two lectures) (17 Feb., 3 Mar.)</p> <p>INDUSTRIAL VISITS 17 Feb. 2–5; 10 Mar. all day</p> <p>The same continued</p> <p>The same continued</p> <p>Management Option Details to be announced</p> <p>Language Option The same continued</p>	<p>Computing Course 29, 30 Apr.</p> <p>Easter Term Techniques and Computing Projects</p>
NEUROSCIENCE		
Course Co-ordinator: Dr R. Hardie E-mail: rch14@hermes.cam.ac.uk		
<i>All lectures will be held in Lecture Room 2, Austin Building, unless otherwise stated</i>		
<p>1. Development, Degeneration and Regeneration. M. Th. 9, *F. 12</p> <p>DR M. BATE Early development of the nervous system. (Six lectures, 8, 12, 15, 19, 22, 26 Oct.)</p> <p>DR G. COOK Axonal growth. (Four lectures, 29 Oct., 2, 5, 16 Nov.)</p> <p>READING WEEK (9–13 Nov.)</p> <p>PROF. W. HARRIS Development of connections. (Four lectures, 20*, 23, 27*, 30 Nov.)</p>	<p>PROF. E. B. KEVERNE Genes, brain development and behaviour. (Three lectures, 11, 14, 18 Jan.)</p> <p>DR M. SOFRONIEW Neural degeneration. (Five lectures, 21, 25, 28 Jan., 1, 4 Feb.)</p> <p>DR S. DUNNETT Neural regeneration. (Four lectures, 8, 11, 22, 25 Feb.)</p> <p>READING WEEK (15–19 Feb.)</p> <p>PROF. A. COMPSTON Glial degeneration and repair. (Three lectures, 1, 4, 8 Mar.)</p> <p>MR P. KIRKPATRICK Protection from ischaemia. (One lecture, 11 Mar.)</p>	

continued >

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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NEUROSCIENCE (continued)

2. Cellular and Molecular Neurobiology. W. F. 9

DR R. MURRELL-LAGNADO
Membrane-located voltage sensors and control of neurone function. (Five lectures, 7, 9, 14, 16, 21 Oct.)

DR A. J. MORTON
Receptor-control of neuronal excitability (a) fast neurotransmitters. (Five lectures, 23, 28, 30 Oct., 4, 6 Nov.)

READING WEEK (9–13 Nov.)

DR J. A. KOENIG
Receptor-control of neuronal excitability (b) slow neurotransmitters. (Four lectures, 18, 20, 25, 27 Nov.)

DR E. K. MATTHEWS
Free radicals in neuronal systems. (One lecture, 2 Dec.)

3. Control of Action. *M. 12, W. F. 10

PROF. M. BURROWS
Synaptic, cellular and network properties. (Four lectures, 7, 9, 12*, 14 Oct.)

DR P. EVANS
Modulating a system. (Four lectures, 16, 21, 23, 28 Oct.)

DR S. EDGLEY
Cerebellum. (Four lectures, 4, 6, 16*, 20 Nov.)

READING WEEK (9–13 Nov.)

DR S. BAKER
Motor cortex. (Three lectures, 25, 27 Nov., 2 Dec.)

4. Sensory Systems. Tu. 9, Th. 10

DR R. HARDIE
Photoreceptors. (Four lectures, 8, 13, 15, 20 Oct.)

PROF. E. B. KEVERNE
Olfactory receptors. (Two lectures, 22, 27 Oct.)

DR S. LAUGHLIN
Visual processing in the retina. (Four lectures, 29 Oct., 3, 5, 17 Nov.)

READING WEEK (9–13 Nov.)

DR A. PELAH
Visual processing in the cortex. (Five lectures, 19, 24, 26 Nov., 1, 3 Dec.)

5. Learning, Memory and Cognition. M. Tu. 10

PROF. G. HORN
Cellular mechanisms of learning and memory. (Four lectures, 12, 13, 19, 20 Oct.)

DR P. BRENNAN
Olfactory learning in a biological context. (Four lectures, 26, 27 Oct., 2, 3 Nov.)

READING WEEK (9–13 Nov.)

DR A. DICKINSON
Conditioning and associative learning. (Four lectures, 16, 17, 23, 24 Nov.)

PROF. N. MACKINTOSH
Discrimination learning. (Two lectures, 30 Nov., 2 Dec.)

PROF. R. F. IRVINE
Calcium signalling. (Three lectures, 13, 15, 20 Jan.)

DR J. M. EDWARDSON
Intracellular signalling and neurotransmitter release. (Four lectures, 22, 27, 29 Jan., 3 Feb.)

DR P. THORN
Synaptic mechanisms. (Three lectures, 5, 10, 12 Feb.)

READING WEEK (15–19 Feb.)

DR B. McCABE
Synaptic plasticity. (Three lectures, 24, 26 Feb., 3 Mar.)

DR H. BADING
Regulation of gene expression. (Two lectures, 5, 10 Mar.)

DR F. EBLING
Biological rhythms. (Four lectures, 13, 15, 20, 22 Jan.)

PROF. B. EVERITT
Striatum. (Four lectures, 1*, 5, 8*, 12 Feb.)

READING WEEK (15–19 Feb.)

DR R. CARPENTER
Neural decisions. (Three lectures, 24, 26, Feb., 3 Mar.)

DR J. HERBERT
Motivational systems. (Four lectures, 5, 8*, 10, 12 Mar.)

DR A. FINDLAY
Somatic sensation. (Three lectures, 12, 14, 19 Jan.)

PROF. A. CRAWFORD
Auditory hair cells. (Two lectures, 21, 26 Jan.)

DR S. LAUGHLIN
Active senses in bats and electric fish. (Four lectures, 28 Jan., 2, 4, 9 Feb.)

READING WEEK (15–19 Feb.)

DR J. ALCANTARA
Hearing. (Six lectures, 23, 25 Feb., 2, 4, 9, 11 Mar.)

Lecture Room 1, Austin Building

PROF. T. ROBBINS
Brain mechanisms of memory and cognition. (Eight lectures, 11, 18, 25 Jan., 1, 8, 22 Feb., 1, 8 Mar.)

DR R. A. MCCARTHY
Cognitive neuropsychology. (Eight lectures, 12, 19, 26 Jan., 2, 9, 23 Feb., 2, 9 Mar.)

READING WEEK (15–19 Feb.)

PATHOLOGY

Course organizer: Dr M. Clark E-mail:mrc7@cam.ac.uk

At the Department of Pathology further details will be posted in our Department and are also available on our web server (URL: <http://www.path.cam.ac.uk/>)

Introductory lecture (One lecture, 7 Oct.). W. 5 It is important that all students attend the introductory lecture

Option A Cellular Pathology

Lectures. Tu. Th. S. 9

DR P. WEISSBERG, DR S. THIRU, DR M. R. BENNETT,
DR C. FITZSIMMONS, DR K. L. H. CARPENTER AND
DR M. J. MITCHINSON

Arterial Disease

DR Y. W. LOKE AND DR A. KING
Immunobiology of Reproduction

Option A Cellular Pathology

Lectures. Tu. Th. S. 9

DR D. G. D. WIGHT
Liver cell biology
DR P. A. W. EDWARDS, DR A. TOLKOVSKY,
PROF. B. PONDER, DR R. HESKETH,
DR M. A. STANLEY AND DR A. KOUZARIDES
Cancer

Option A Cellular Pathology

Lectures. Tu. Th. S. 9

DR W. F. BLAKEMORE, DR R. RIDLEY AND
DR R. J. M. FRANKLIN
Processes in Neuropathology

NATURAL SCIENCES TRIPOS, PART II (continued)

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PATHOLOGY (continued)

Option B Immunology**Lectures.** M. W. F. 9

PROF. I. MCCONNELL AND DR H. REYBURN
Haemopoietic and Lymphoid Systems
DR D. ALEXANDER AND PROF. D. FEARON
Lymphocyte signalling
DR M. R. CLARK
Immunoglobulins and T-cell receptors
PROF. J. TROWSDALE AND DR A. KELLY
Major histocompatibility complex and Antigen Presentation

Option C Microbial and Parasitic Disease**Lectures.** M. W. F. 5

DR V. KORONAKIS
Bacterial Disease and Pathogenicity
DR D. BROWN, DR V. KORONAKIS AND DR J. WELLS
Combating Bacterial Disease
DR A. LEVER
Fungal Infections
DR V. KORONAKIS AND DR J. AJIOKA
Research seminars

Option D Virology**Lectures.** Tu. Th. S. 10.15

PROF. A. C. MINSON AND DR A. BLOOMER
Basic Principles
DR I. BRIERLEY AND DR P. OLIVER
Multiplication of Bacteriophage
DR T. D. K. BROWN, DR I. BRIERLEY, DR J. KARN AND
DR SINCLAIR
Animal Virus Multiplication

Option E Genetic Pathology**Lectures.** Tu. Th. S. 9

DR J. FURNER, PROF. M. A. FERGUSON-SMITH, DR J. YATES,
DR M. EVANS AND DR N. A. AFFARA
Strategies for Analysing Complex Genomes
DR N. A. AFFARA, DR D. RUBINSZTEIN, DR D. BARTON,
DR M. POPE, PROF. T. COX, DR M. EVANS,
DR D. MACDONALD, DR R. TREMBATH,
DR S. KENWRICK AND DR M. PATTERSON
Studying Disease Genes

Option B Immunology**Lectures.** M. W. F. 9

PROF. P. J. LACHMANN
The Complement System
DR N. HOLMES, DR H. REYBURN AND
DR B. BLACKLAWS
Mechanisms of Immunity
DR A. COOKE
Auto immunity
DR G. BUTCHER
Transplantation

Option C Microbial and Parasitic Disease**Lectures.** M. W. F. 5

DR B. KINGSTON, DR J. AJIOKA AND DR R. LE PAGE
Major Protozoal Diseases
DR D. DUNNE AND DR B. KINGSTON
Major Helminth Diseases

Option D Virology**Lectures.** Tu. Th. S. 10.15

DR P. SISSONS, DR T. D. K. BROWN,
DR S. EFSTATHIO, DR I. BRIERLEY AND
PROF. A. C. MINSON
Viruses in the Multicellular Host.
DR S. INGLIS
Viruses in the Community
DR H. BROWNE AND DR G. DARBY
Intervention

Option E Genetic Pathology**Lectures.** Tu. Th. S. 9

DR P. A. W. EDWARDS, DR R. HESKETH,
DR A. KOUZARIDES, PROF. B. A. PONDER,
DR G. EVAN AND DR J. DOORBAR
Somatic Changes to the Genome and Cancer

Option B Immunology**Lectures.** M. W. F. 9

PROF. I. MCCONNELL
Animal Immunodeficiency Viruses
DR M. R. CLARK
Monoclonal Antibody Therapy
Tumour Immunity
PROF. J. H. S. GASTON
Arthritis

Option C Microbial and Parasitic Disease**Lectures.** M. W. F. 5

DR D. DUNNE AND DR S. CROFT
Anti-Parasite Strategies
DR D. A. P. BUNDY
Epidemiology

Option D Virology**Lectures.** Tu. Th. S. 10.15

DR S. INGLIS, DR D. G. D. WIGHT, DR P. SISSONS,
DR T. D. K. BROWN AND
DR S. EFSTATHIOU
Virus Portraits
DR D. A. P. BUNDY
Viruses in the Community

Option E Genetic Pathology**Lectures.** Tu. Th. S. 9

DR P. A. W. EDWARDS
Tumour Biology Revision

PHARMACOLOGY

Course Organizer: Dr B. A. Callingham E-mail: bac5@cus.cam.ac.uk

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

DR C. R. HILEY AND DR W. FORD
Cardiovascular pharmacology. Th. 11 (8 Oct.);
M. W. F. 10 (9–26 Oct.) (Nine lectures)
DR M. A. BARRAND
Resistance to anti-cancer agents. Tu. Th. 11
(Three lectures) (13–20 Oct.)
DR M. A. BARRAND
Blood brain barrier. Tu. Th. 11 (Two lectures)
(22, 27 Oct.)
DR A. H. DICKENSON
Pain and analgesia. W. F. 9, Th. 11, 12 (Four lectures)
(28–30 Oct.)
DR M. A. BARRAND AND DR D. R. FERGUSON
Pharmacology of psychiatric disorders. M. W. F. 9
(Nine lectures) (2–20 Nov.)
PROF. A. W. CUTHBERT
Aquaporins and diabetes insipidus. Tu. Th. 11
(Two lectures) (5, 10 Nov.)
DR A. J. MORTON
Neurodegeneration. Tu. Th. 11 (Six lectures)
(12 Nov.–1 Dec.)
DR T-P. D. FAN
Pharmacology of inflammation and the immune
response. M. W. F. 9 (Five lectures) (23 Nov.–
2 Dec.)

#Pharmacology of Integrated Systems

DR R. M. HENDERSON
Hyperlipidaemias and the pharmacology of
the liver. Tu. Th. 11 (Two lectures)
(14, 19 Jan.)
DR P. THORN
Gastro-intestinal pharmacology. M. W. F. 9
(Four lectures) (15–22 Jan.)
PROF. A. W. CUTHBERT
Pharmacology of epithelial function.
M. W. F. 9 (Six lectures) (25 Jan.–5 Feb.)
DR K. MURPHY
Synaptic plasticity. M. W. F. 9 (Four lectures)
(8–15 Feb.)
DR P. E. REYNOLDS
Resistance to anti-bacterial drugs. W. F. 9
(Two lectures) (17, 19 Feb.)
DR P. THOMAS
Pharmacology of reproduction. M. Th. 9
(22 Feb.–1 Mar.); W. 9 (3 Mar.)
(Four lectures)

NATURAL SCIENCES TRIPOS, PART II (continued)

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PHARMACOLOGY (continued)

‡Cellular and Molecular Pharmacology

- DR R. M. HENDERSON
Patch clamp recording. Tu. Th. 9 (Three lectures)
(8–15 Oct.)
- DR P. J. RICHARDSON
Molecular biology of ligand-gated channels and
G-protein coupled receptors. M. W. F. 10
(Five lectures) (9–19 Oct.)
- DR E. K. MATTHEWS
Hormone receptors and growth factors. Tu. 9 (20 Oct.,
3 Nov.); Tu. Th. 9, F. 10 (23–29 Oct.) (Five lectures)
- PROF. A. W. CUTHBERT
Nicotinic receptors. M. W. 10, Th. 9 (Three lectures)
(24 Nov.–1 Dec.)
- DR R. MURRELL-LAGNADO
Potassium channels. M. W. F. 10 (Five lectures)
(28 Oct.–6 Nov.)
- DR S. B. HLADKY
Sodium channels and local anaesthetics. M. W. F. 10
(Five lectures) (23 Nov.–2 Dec.)
- DR E. K. MATTHEWS
Calcium channels. M. W. F. 10 (Four lectures)
(9–16 Nov.)
- DR S. B. HLADKY
General anaesthetics. Tu. Th. 9 (Three lectures)
(21–26 Oct.)
- DR E. K. MATTHEWS
Photon pharmacology. M. W. 10 (Two lectures)
(18–20 Nov.)

‡Cellular and Molecular Pharmacology

- DR P. M. DEAN
Computational molecular pharmacology
applied to drug design. Tu. Th. 9
(Six lectures) (14 Jan.–2 Feb.)
- DR C. W. TAYLOR
Intracellular signalling. M. W. F. 10
(Six lectures) (15–27 Jan.)
- DR P. THORN
Spatial and temporal aspects of intracellular
signalling. M. F. 10 (Two lectures)
(29 Jan., 1 Feb.)
- PROF. R. F. IRVINE
Signal transduction. M. W. F. 10
(Four lectures) (3–10 Feb.)
- DR W. WISDEN
Excitatory amino acids. Tu. Th. 9
(Three lectures) (4–11 Feb.)
- PROF. S. NEIDLE AND DR V. K. K. CHATTERJEE
Drugs, receptors and DNA. M. 10, Tu. 9, 10,
Th. 9 (15–18 Feb.); Tu. 9 (23 Feb.)
(Five lectures)
- DR J. M. EDWARDSON
Control of secretion and receptor
trafficking. W. 10 (17 Feb.); M. 10,
W. F. 9 (22–26 Feb.); Tu. Th. 9 (2–9 Mar.)
(Seven lectures)
- PROF. P. P. A. HUMPHREY
Drug discovery. M. W. F. 9 (Three lectures)
(5–10 Mar.)

‡ *Medical and Veterinary Sciences Tripos, Part II (General) Cellular and Molecular Pharmacology*

PHYSIOLOGY

All lectures in the Part II Lecture Room, Department of Physiology, unless otherwise stated

Timetable Co-ordinator: Dr C. L-H. Huang E-mail: clh11@cus.cam.ac.uk
(Co-ordinators of individual modules are shown below)

*Candidates must attend instruction on experimental procedures from the morning of Thursday
24 September 1998*

Common Module (Dr A. L. R. Findlay)**Orientation Day: Wednesday 7 October**

- Part II Lecture Room*
Issue of course literature. (9.30 a.m.)
- PROF. R. C. THOMAS
Introduction. (One session, 10 a.m.)
- DR J. C. D. HICKSON
Home Office Licence briefing. (One session, 10.30 a.m.)
- MR P. FROST, LIBRARIAN AND MR T. CARTER
Tour of Part II practical area, Library and Computer
work station area. (One session, 11.30 a.m.)
- DR C. L-H. HUANG
Selecting what practical classes to do, and how to write
them up. (One session, 12.15 p.m.)
- PROF. R. C. THOMAS
Reading a physiological research paper.
(One session, 2.15 p.m.)
- DR A. L. R. FINDLAY
Libraries and information databases. (One session,
3 p.m.)
- DR R. H. S. CARPENTER
Recording and presenting data in figures.
(One session, 4.15 p.m.)
- PROF. R. C. THOMAS
Reception. (5 p.m.) *Tea room*

Later sessions

- DR A. SILVER
Recording and presenting information in writing. F. 9
(One lecture, 16 Oct.)
- DR A. P. HILLIER
Explanation of research projects. W. 10
(One lecture, 30 Oct.)

Common Module. (Dr A. L. R. Findlay)

- DR D. J. TOLHURST
Selecting statistical procedures. Th. 11 (One
session, 14 Jan.)
- DR J. W. FAWCETT
Writing up a project and preparing a
poster. M. 10 (One session, 18 Jan.)
- DR I. M. WINTER
Module 1 Journal Club. M. Th. 4.30 (Two
sessions, 21 Jan, 8 Feb.)
- DR R. H. S. CARPENTER
Module 2 Journal Club. M. Tu. 4.30 (Two
sessions, 25 Jan, 9 Feb.)
- DR J. C. D. HICKSON
Module 3 Journal Club. Tu. Th. 4.30 (Two
sessions, 26 Jan., 11 Feb.)
- DR R. H. S. CARPENTER
Experimental design part of examination
Paper 1. M. 10 (One session, two hours,
15 Feb.)
- DR W. H. COLLEDGE
Module 4 Journal Club. M. Th. 4.30 (Two
sessions, 28 Jan., 15 Feb.)
- DR C. J. SCHWIENING
Module 5 Journal Club. M. Tu. 4.30 (Two
sessions, 1, 16 Feb.)
- DR R. J. BARNES
Module 6 Journal Club. Tu. Th. 4.30 (Two
sessions, 2, 18 Feb.)
- DR J. W. FAWCETT
Module 7 Journal Club. M. Th. 4.30 (Two
sessions, 4, 22 Feb.)

NATURAL SCIENCES TRIPOS, PART II (continued)

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PHYSIOLOGY (continued)

Common Module (continued)

PROF. R. C. THOMAS

What the examiners are looking for. F. 10
(One lecture, 20 Nov.)

DR J. W. FAWCETT

Research opportunities in the department and
elsewhere. Th. 9 (One session, 26 Nov.)**Module 1: Sensory Systems.** W. Th. 9

(Dr I. M. Winter)

PROF. A. C. CRAWFORD

Peripheral auditory system. (Four lectures,
29 Oct., 5, 12, 19 Nov.)

PROF. T. D. LAMB

Photoreceptors. (Six lectures, 8, 14, 15, 21, 22, 28 Oct.)

DR D. J. TOLHURST

The visual cortex. (Four lectures, 4, 11, 18, 25 Nov.)

Module 2: Motor Systems. F. 9, 11 as stated

(Dr R. H. S. Carpenter)

DR C. L-H. HUANG

Activation of skeletal muscle. F. 9, 11 (9 Oct.), F. 11
(16 Oct.) (Three lectures)

PROF. A. C. CRAWFORD

Muscle spindles. F. 9, 11 (Two lectures, 23 Oct.)

DR R. H. S. CARPENTER

Motor control systems. F. 9, 11 (Four lectures, 30 Oct.,
6 Nov.)

DR R. H. S. CARPENTER

Introduction to eye movements. F. 9, 11 (Two lectures,
13 Nov.)

PROF. R. N. LEMON

Corticospinal organisation. F. 9, 11 (Four lectures, 20,
27 Nov.)**Module 3: Systems Physiology and****Transport.** M. 9, Th. 11 (Dr J. C. D. Hickson)

PROF. J. T. FITZSIMONS

Thirst. (Six lectures, 8, 15 Oct., 9, 16, 23, 30 Nov.)

DR A. V. EDWARDS

Autonomic neuropeptides. (Four lectures, 12, 19, 26 Oct.,
2 Nov.)

DR B. SHACHAR-HILL

Epithelia. (Three lectures, 22, 29 Oct., 5 Nov.)

DR A. E. HILL

Epithelial transport. (Three lectures, 12, 19, 26 Nov.)

Module 4: Developmental and Fetal Physiology. Th. F. 12

(Dr W. H. Colledge)

DR R. J. BARNES

Introduction to fetal physiology. (Three lectures, 8, 15,
22 Oct.)

DR D. A. T. NEW

Embryology. (Two lectures, 9, 16 Oct.)

DR W. H. COLLEDGE

Transgenesis. (Four lectures, 23, 30 Oct., 6, 13 Nov.)

DR D. A. GIUSSANI

Fetal cardiovascular system and its control.
(Four lectures, 5, 12, 19, 20, 26 Nov.)**Module 1: Sensory Systems.** W. Th. 9

(Dr I. M. Winter)

DR I. M. WINTER

Central auditory neurophysiology. (Four
lectures, 20, 27 Jan., 3, 10 Feb.)

DR R. D. PATTERSON

Higher auditory processing. (Four lectures,
14, 21, 28 Jan., 4 Feb.)

DR A. L. R. FINDLAY

Somatic Sensation. (Four lectures, 17, 24 Feb.,
3, 10 Mar.)

PROF. H. B. BARLOW

High visual functions. (Three lectures, 11, 18,
25 Feb.)**Module 2: Motor Systems.** F. 9, 11 as stated

(Dr R. H. S. Carpenter)

DR R. H. S. CARPENTER

Neurophysiology of eye movements. F. 9
(15, 22, 29 Jan., 5, 12 Feb.)
(Five lectures)

DR A. PELAH

Visuomotor adaptation and control. F. 11
(Two lectures, 15, 22 Jan.)

DR H. R. MATTHEWS

Long-latency Reflexes. F. 11 (Three lectures,
29 Jan., 5, 12 Feb.)

DR J. C. ROTHWELL

Cortical and subcortical control of
movement. F. 9, 11 (Six lectures, 19,
26 Feb., 5 Mar.)**Module 3: Systems Physiology and****Transport.** M. 9, Th. 11

(Dr J. C. D. Hickson)

DR S. L. DICKSON

Pituitary secretion. (Two lectures, 18, 25 Jan.)

DR J. C. D. HICKSON

Gut. (Six lectures, 21 Jan., 4, 11, 18, 25 Feb.,
4 Mar.)

DR J. BROWN

Fluid Balance. (Six lectures, 1, 8, 15, 22 Feb.,
1, 8 Mar.)**Module 4: Developmental and Fetal****Physiology.** Th. F. 12

(Dr W. H. Colledge)

PROF. M. A. H. SURANI

Developmental Biology. (Four lectures, 14, 15,
22, 29 Jan.)

DR A. L. FOWDEN

Fetal growth. (One lecture, 21 Jan.)

DR A. L. FOWDEN

Fetal endocrine glands. (Three lectures,
28 Jan., 4, 11 Feb.)

DR R. J. BARNES

Perinatal maturation of organ systems.
(Three lectures, 5, 12, 19 Feb.)

DR A. L. FOWDEN

Fetal maturation and delivery.
(Two lectures, 18, 25 Feb.)

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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PHYSIOLOGY (continued)

Module 5: Cellular Physiology. M. 10, Tu. 9
(Dr C. J. Schwiening)

DR V. L. LEW
Energetics of calcium transport. (Three lectures, 12, 13, 19 Oct.)

DR M. MASON
Measurement of intracellular calcium. (Three lectures, 20, 26, 27 Oct.)

DR M. MAHAUT-SMITH
Calcium signalling. (Three lectures, 2, 3, 9 Nov.)

DR H. P. C. ROBINSON
Synaptic mechanisms. (Four lectures, 16, 17, 23, 24 Nov.)

PROF. R. C. THOMAS
Intracellular pH regulation. (Four lectures, 30 Nov., 1 Dec., 19, 25 Jan.)

Module 6: Topics in Clinical Physiology.
W. F. 10 *In the Biffen Lecture Theatre unless otherwise stated* (Dr R. J. Barnes)

DR R. J. BARNES
Cardiovascular physiology, regulation of cardiac output, reflex control of the circulation, hypoxia and chemoreceptors. (Six lectures, 9, 14, 16, 21, 23, 28 Oct.)

PROF. J. T. FITZSIMONS
Oedema, shock and heart failure. (Five lectures, 4, 6, 11, 13, 18 Nov.)

DR A. ODURO
Myocardial protection and re-perfusion injury. (Two lectures, 25 Nov., 2 Dec.)

Module 7: Medical Aspects of Neurobiology. Tu. Th. 10 *In the Physiology Main Lecture Theatre* (Dr J. W. Fawcett)

DR J. MORTON
Neurodegeneration. (Four lectures, 8, 13, 15, 20 Oct.)

DR J. W. FAWCETT
Recovery from injury and regeneration. (Three lectures, 22, 27, 29 Oct.)

DR S. DUNNETT
Bram Grafting. (Two lectures, 3, 5 Nov.)

PROF. J. PICKARD AND MR P. KIRKPATRICK
Cerebrospinal fluid, raised intracranial pressure, Stroke, CNS injury. (Four lectures, 10, 12, 17, 19 Nov.)

DR J. HUNTER
Development of CNS pharmaceutical compounds. (One lecture, 24 Nov.)

DR R. FRANKLIN
Demyelination and remyelination. (Two lectures, 26 Nov., 1 Dec.)

Module 5: Cellular Physiology. M. 10, Tu. 9
(Dr C. J. Schwiening)

PROF. R. C. THOMAS
Intracellular pH regulation. (Four lectures, 30 Nov., 1 Dec., 19, 25 Jan.)

DR C. J. SCHWIENING
Neuronal calcium handling. (Three lectures, 26 Jan., 1, 2 Feb.)

DR J. W. FAWCETT
Neural development. (Four lectures, 8, 9, 16, 22 Feb.)

DR J. H. ROGERS
Molecular biology of neural development. (Five lectures, 23 Feb., 1, 2, 8, 9 Mar.)

Module 6: Topics in Clinical Physiology.
W. F. 10 *In the Biffen Lecture Theatre unless otherwise stated* (Dr R. J. Barnes)

DR J. BRADLEY, DR K. SMITH AND DR J. FIRTH
Physiological aspects of renal disease. (Six lectures, 15, 20, 22, 27, 29 Jan., 3 Feb.)

PROF. J. T. FITZSIMONS
Hypertension. (Four lectures, 5, 10, 12, 17 Feb.)

DR M. C. PETCH
The abnormal physiology of cardiac ischaemia, left ventricular overload and pulmonary hypertension. (Five lectures, 24, 26 Feb., 3, 5, 10 Mar.)

Module 7: Medical Aspects of Neurobiology. Tu. Th. 10 *In the Physiology Main Lecture Theatre* (Dr J. W. Fawcett)

DR I. M. WINTER
Hearing disorders. (Three lectures, 14, 19, 21 Jan.)

DR D. J. TOLHURST
Disorders of vision and visual assessment. (Three lectures, 26, 28 Jan., 2 Feb.)

DR R. BARKER
Relief of acute and chronic pain. (Two lectures, 4, 9 Feb.)

DR A. ROBERTS
Cognitive disorders in neurological disease. (Two lectures, 18, 23 Feb.)

PROF. I. GOODYER, DR A. HOLLAND AND DR P. BOLTON
Scientific basis and treatment of psychiatric disorders. (Four lectures, 25 Feb., 2, 4, 9, Mar.)

PLANT SCIENCES

Course Co-ordinator: Miss C. Sweeney E-mail: cas41@cam.ac.uk

At the Department of Plant Sciences unless otherwise stated

DR C. BREARLEY
Plant growth substances. Tu. Th. 10 (Six lectures, 15 Oct.–3 Nov.)

DR J. P. CARR
Molecular plant virology and engineered resistance. Tu. Th. 9 (Twelve lectures, 8 Oct.–17 Nov.)

DR P. DUPREE
Intracellular compartments, vesicular traffic and protein sorting. Tu. Th. 10 (Six lectures, 12 Nov.–1 Dec.)

PROF. J. C. GRAY
Control of gene expression. M. W. F. 9 (Twelve lectures, 6 Nov.–2 Dec.)

DR P. J. GRUBB
Ecology and ecophysiology of plants I. M. W. F. 9 (Twelve lectures, 9 Oct.–4 Nov.)

Ecology and ecophysiology of plants II. F. 11 (6–27 Nov.); S. 10 (7–14 Nov.) (Six lectures)

A. N. OTHER
Quaternary ecology. M. W. F. 12 (Twelve lectures 12 Feb.–10 Mar.)

DR D. BRIGGS
Evolution of plants in man-disturbed habitats. M. F. 12, W. 2.15 (Eight lectures, 15 Jan.–10 Feb.)

DR J. DAVIES
Fungal ion transport and nutrition. M. W. F. 9 (Twelve lectures, 12 Feb.–10 Mar.)

DR P. ECHLIN
Interpretation of plant ultrastructure. Tu. Th. 9 (Twelve lectures, 28 Jan.–9 Mar.)

DR B. GLOVER
The molecular biology and ecology of flowering. Tu. Th. 10 (Six lectures, 11 Feb.–4 Mar.)

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

PLANT SCIENCES (continued)

DR K. JOHNSTONE
Molecular plant-microbe interactions. Tu. Th. 12
(Twelve lectures, 22 Oct.–1 Dec.)

PROF. E. A. C. MACROBBIE AND PROF. R. A. LEIGH
Transport processes in plant cells. M. W. 10
(Twelve lectures, 12 Oct.–18 Nov.)

PROF. J. S. PARKER
Plant variation. M. W. 11 (Six lectures, 9–15 Nov.)

DR W. AMOS, DR P. ROHANI AND DR P. J. GRUBB
(Interdepartmental Course) Population and community
ecology. M. W. F. 5 (Twenty-four lectures, 9 Oct.–
2 Dec.) *Department of Plant Sciences*

DR B. J. McCABE
(Interdepartmental Course) Statistics for Part II
Biologists. M. 9, (5 Oct.); Tu. W. 9, 2 (6, 7 Oct.);
M. 2 (12, 19, 26 Oct.) (Nine lectures) *Large Lecture
Theatre, Department of Plant Sciences*

Practicals.
M. Tu. W. 10–12 or 3–5 (5, 6, 7 Oct.); M. 3–5 (12, 19, 26
Oct., 2 Nov.) *Old Music School*

DR S. GUBBINS
Botanical epidemiology. M. W. F. 9 (Twelve
lectures, 15 Jan.–10 Feb.)

DR O. RACKHAM
Woodland ecology and history. Th. 12
(Eight lectures, 14 Jan.–4 Mar.)

DR A. G. SMITH
Molecular biology of plant genomes.
M. W. F. 11 (Twelve lectures, 15 Jan.–
10 Feb.)

DR M. A. TESTER
Plant nutrition in environmental extremes.
M. W. F. 10 (Twelve lectures, 15 Jan.–
10 Feb.)

PROF. J. B. GURDON, DR D. ST JOHNSTON,
PROF. C. M. BATE AND DR D. E. HANKE
(Interdepartmental Course)
Developmental biology. M. Tu. F. 5
(Twenty-four lectures, 15 Jan.–9 Mar.)
Department of Genetics

DR P. J. GRUBB, DR D. BRIGGS, DR M. BROOKE AND
OTHERS
(Interdepartmental Course)
Conservation biology. M. W. F. 5
(Twenty-four lectures, 15 Jan.–10 Mar.)
Department of Zoology

PSYCHOLOGY

Course organizer: Dr S. Monsell E-mail: sm124@cus.cam.ac.uk

*Lectures will be held in Room 3, Mill Lane, unless otherwise announced. The venues for the Lent Term
should be checked at the Department of Experimental Psychology*

General Courses

PROF. N. J. MacKINTOSH
General Introduction. (One lecture only, 8 Oct.)

DR H. GOCKEL
Introductory Statistics. M. Tu. Th. F. 2 (Four classes
only, 8, 9, 12, 13 Oct.) All two hours.
Craig Marshall Seminar Room

DR I. P. L. McLAREN
Statistics. M. 2 (Two lectures, 19, 26 Oct.); W. 2 (Three
lectures, 14, 21, 28 Oct.); F. 2 (Three lectures, 16, 23,
30 Oct.) *Physiology Main Lecture Theatre*

Example Classes. Tu. 2 (20, 27 Oct.), 3, 10 Nov.) All two
hours *Practical Classroom*

Section A

PROF. J. D. MOLLON
Vision. W. 10 (Eight lectures, beginning 14 Oct.)

DR M. EIMER
Attention. W. 12 (Eight lectures, beginning 14 Oct.)

Section B

DR I. P. L. McLAREN
Connectionism. F. 10 (Eight lectures, beginning 9 Oct.)
Learning, Memory and Cognition. M. W. 11
(Sixteen lectures, beginning 12 Oct.)

DR D. R. J. LAMING
Human Judgment. Th. 10 (Eight lectures, beginning
8 Oct.); Tu. 11 (Eight lectures, beginning 13 Oct.);
Tu. 5 (Supplementary films and one lecture; eight
meetings, beginning 13 Oct.)
Psychology Lecture Theatre

General Courses

DR S. MONSELL
Writing a Project Report. M. 5 (One class
only, 8 Feb.) *Physiology Main Lecture
Theatre*

DR C. J. PLACK AND DR R. P. CARLYON
Hearing. Tu. W. 12 (Eleven lectures, 12, 13,
19, 20, 26, 27 Jan., 2, 3, 9, 10, 23 Feb.)

DR M. EIMER
Motor Control. F. 12 (Eight lectures, 15, 22,
29 Jan., 5, 12, 26 Feb., 5, 12 Mar.)

Section B

DR S. MONSELL
Experimental Psycholinguistics. W. 9 (Eight
lectures, 13, 20, 27 Jan., 3, 10, 24 Feb., 3,
10 Mar.); F. 10 (Eight lectures, 15, 22, 29
Jan., 5, 12, 26 Feb., 5, 12 Mar.)

PROF. N. J. MacKINTOSH
Intelligence. Th. 12 (Eight lectures, 14, 21, 28
Jan., 4, 11, 25 Feb., 4, 11 Mar.)

DR D. R. J. LAMING
Human Motivation. Tu. F. 9 (Sixteen
lectures, 12, 15, 19, 22, 26, 29 Jan., 2, 5, 9,
12, 23, 26 Feb., 2, 5, 9, 12 Mar.); Tu. 5
(Supplementary Films; Eight meetings,
12, 19, 26 Jan., 2, 9, 23 Feb., 2, 9 Mar.)
Psychology Lecture Theatre

continued >

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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PSYCHOLOGY (continued)

Section C

DR A. DICKINSON

Comparative Psychology of Learning and Cognition. M. F. 12 (Fourteen lectures, 9, 12, 16, 19, 23, 26, 30 Oct., 2, 13, 16, 20, 23, 27, 30 Nov.)

PROF. T. W. ROBBINS AND PROF. B. J. EVERITT

Brain Mechanisms of Motivation. M. 10, Tu. 12 (Fourteen lectures, 12, 13, 19, 20, 26, 27 Oct., 2, 3, 16, 17, 23, 24, 30 Nov., 1 Dec.)

Section D

DR J. RUSSELL

Developmental Psychology. Th. 12 (Eight lectures, beginning 8 Oct.)

DR S. BARON-COHEN AND DR A. MATTHEWS

Abnormal Psychology. F. 11 (Eight lectures, beginning 9 Oct.)

DR J. STEVENSON-HINDE AND OTHERS

Developmental Psychology Seminars. W. 5 (Four meetings, 11, 18, 25 Nov., 2 Dec.)
Craik Marshall Seminar Room

Section C

PROF. N. J. MACKINTOSH

Comparative Psychology of Learning and Cognition. Th. 10 (Eight lectures, 14, 21, 28 Jan., 4, 11, 25 Feb., 4, 11 Mar.)

PROF. T. W. ROBBINS

Brain Mechanisms of Memory and Cognition. M. 10 (Eight lectures, 11, 18, 25 Jan., 1, 8, 22 Feb., 1, 8 Mar.)
Room 2, Austin Building

DR R. A. MCCARTHY

Cognitive Neuropsychology. Tu. 10 (Eight lectures, 12, 19, 26 Jan., 2, 9, 23 Feb., 2, 9 Mar.) *Room 2, Austin Building*; W. 10 (Eight lectures, 13, 20, 27 Jan., 3, 10, 24 Feb., 3, 10 Mar.)

Section D

PROF. B. J. EVERITT AND DR J. TEASDALE

Abnormal Psychology. W. 11 (Eight lectures, 13, 20, 27 Jan., 3, 10, 24 Feb., 3, 10 Mar.)

PROF. R. PLOMIN

Abnormal Psychology Seminars. Th. 5 (Four meetings, 29 Jan., 4, 11, 25 Feb.)
Physiology Main Lecture Theatre

DR K. C. PLAISTED

Developmental Psychology. Th. 9 (Eight lectures, 14, 21, 28 Jan., 4, 11, 25 Feb., 4, 11 Mar.)

DR J. RUSSELL

Developmental Psychology. F. 11 (Eight lectures, 15, 22, 29 Jan., 5, 12, 26 Feb., 5, 12 Mar.)

DR J. STEVENSON-HINDE AND OTHERS

Developmental Psychology Seminars. W. 5 (Four meetings, 13, 20, 27 Jan., 3 Feb.)
Craik Marshall Seminar Room

DR P. WHITTLE

Psychoanalysis. M. 12 (Eight lectures, 11, 18, 25 Jan., 1, 8, 22 Feb., 1, 8 Mar.)

Attention is drawn to lectures on Concepts of Relationships given by Professor R. A. Hindle, M. 3, Th. 10 (Eight lectures, beginning 5 Nov.)
Maxwell Lecture Theatre

ZOOLOGY

Course Organiser: Dr J. A. Clack E-mail: j.a.clack@zoo.cam.ac.uk

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

Control of Cell Growth and Genome Stability

DR J. RAFF, DR J. PINES, DR G. EVAN, PROF. M. RAFF,
PROF. R. LASKEY, DR D. COVERLEY, DR T. KRUDE,
DR M. JACKMAN, DR C. FEATHERSTONE AND
PROF. S. P. JACKSON
(Twenty-four lectures). M. W. F. 9
Module Organizer: Prof. S. P. Jackson

Topics in Vertebrate Evolution

DR A. E. FRIDAY, DR J. A. CLACK, DR P. BARRETT,
DR M. COATES, DR P. FOREY AND DR A. C. MILNER
(Twenty-four lectures). M. W. F. 10
Module Organizer: Dr J. A. Clack

Aquatic Ecology

DR S. A. CORBET, DR L. E. FRIDAY, DR R. S. K. BARNES AND
DR P. J. HERRING
(Twenty-four lectures). M. W. F. 11
Module Organizer: Dr R. S. K. Barnes

Behaviour

DR B. J. McCABE, DR K. LALAND, DR A. DIXSON,
PROF. E. KEVERNE AND PROF. P. BATESON
(Twenty-four lectures). Tu. Th. S. 9
Module Organizer: Prof. E. Keverne

Neural Mechanisms of Behaviour

DR S. LAUGHLIN, PROF. M. BURROWS,
DR B. McCABE, PROF. E. KEVERNE AND
PROF. C. M. BATE
(Twenty-four lectures). M. W. F. 11
Module Organizer: Dr S. Laughlin

Behavioural Ecology

PROF. T. H. CLUTTON-BROCK, DR B. APPLEBY,
DR W. A. FOSTER, DR R. JOHNSTONE AND
DR N. E. LANGMORE
(Twenty-four lectures). Tu. Th. S. 11
Module Organizer: Prof. T. H. Clutton-Brock

Mammalian Evolution and Faunal History

DR A. E. FRIDAY, DR R. PREECE, DR A. J. STUART
AND DR M. BISHOP
(Twenty-four lectures). M. W. F. 10
Module Organizer: Dr A. E. Friday

Animal Energetics: the cost of living

DR C. P. ELLINGTON, DR J. STAPLES,
PROF. A. CLARKE AND DR L. PECK
(Twenty-four lectures). Tu. Th. S. 10
Module Organizer: Dr C. P. Ellington

Human Biology

(Six lectures). M. W. F. 10
Lecturers to be announced
Module Organizer: Prof. T. H. Clutton-
Brock

NATURAL SCIENCES TRIPOS, PART II (continued)

MICHAELMAS 1998

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ZOOLOGY (continued)

Insect Biology

DR S. A. CORBET, DR S. H. P. MADDRELL, MR A. BARRON AND
DR D. STERN

(Twenty-four lectures). Tu. Th. S. 10

Module Organizer: Dr S. A. Corbet

Organisation of the Cell

PROF. R. LASKEY, DR M. ROBINSON, DR S. MUNRO,
DR P. LUZIO, DR T. JACKSON, DR M. FREEMAN,
DR H. BAYLIS, DR S. LAUGHLIN AND DR C. SHARPE

(Twenty-four lectures). M. W. F. 5

Module Organizer: Dr C. Sharpe

Population and Community Ecology

All lectures held in the Department of Plant Sciences

DR P. ROHANI, DR P. GRUBB, DR W. AMOS, PROF. T. H.
CLUTTON-BROCK, DR T. COULSON, DR H. JONES AND
DR A. HECTOR

(Twenty-four lectures). M. W. F. 5

Module Organizer: Dr W. Amos

Statistics for Part II and Graduate Biologists

*All lectures held in Large Lecture Theatre, Department of
Plant Sciences*

DR B. J. McCABE

(Ten lectures). 5 Oct. at 9 and 2; 6 Oct. at 2 and 5;

7 Oct. at 9 or 2 and 5; 12, 19, 26 Oct.,

2 Nov. at 2

Practical work

5, 6, 7 Oct. from 10–12 or 3–5; 12, 19, 26 Oct., 2 Nov.
from 3–5

Module Organizer: Dr B. J. McCabe

(Note: early start of course)

Control of Gene Expression

*From 5 Feb. lectures held in the Department of
Biochemistry*

PROF. R. A. LASKEY, PROF. S. JACKSON,

DR K. MEYER, DR M. V. TAYLOR,

DR J. MURRAY, DR C. SMITH AND

DR R. JACKSON

(Twenty-four lectures). M. W. F. 9

Module Organizer: Prof. R. A. Laskey

Developmental Biology

All lectures held in Genetics Department

PROF. C. M. BATE, PROF. J. GURDON,

DR D. HANKE AND OTHERS

(Twenty-four lectures). M. Tu. F. 5

Module Organizer: Prof. C. M. Bate

Conservation Biology

DR M. BROOKE, DR D. BRIGGS, DR W. AMOS,

DR A. BALMFORD, DR P. GRUBB,

DR J. O'SULLIVAN AND DR I. D. HODGE

(Twenty-four lectures). M. W. F. 5

Module Organizer: Dr M. Brooke

NATURAL SCIENCES TRIPOS PART III

MICHAELMAS 1998

LENT 1999

EASTER 1999

CHEMISTRY

Course Co-ordinator: Dr. J. Keeler E-mail: James.Keeler@ch.cam.ac.uk

*All lectures will be given in the Department of Chemistry, Lensfield Road**All lecture times are to be arranged, and will be posted in the Department*

DR I. PATERSON AND PROF. S. V. LEY

O5 Stereocontrolled Organic Synthesis. (Twelve lectures)

DR C. ABELL AND DR F. J. LEEPER

O6 Enzymes-Nature's Catalysts. (Twelve lectures)

PROF. I. FLEMING AND PROF. A. J. KIRBY

O7 Mechanism in Organic Chemistry. (Twelve lectures)

DR S. G. WARREN AND DR R. F. NEWTON

O8 Medicinal Chemistry. (Twelve lectures)

PROF. J. K. M. SANDERS, DR P. R. RAITHBY AND

DR D. WRIGHT

O15 Molecules to Materials. (Twelve lectures)

DR R. SNAITH, DR D. WRIGHT AND DR M. J. MAYS

O16 Main Group Organometallics. (Twelve lectures)

PROF. J. K. M. SANDERS AND DR M. J. DUER

O17 Bio-Inorganic Chemistry. (Twelve lectures)

A. N. OTHER AND OTHERS

O18 Advanced Characterisation Techniques. (Twelve lectures)

PROF. D. A. KING AND DR R. M. LAMBERT

O15 Surface Science and Heterogeneous Catalysis. (Twelve lectures)

DR J. A. PYLE AND DR R. A. COX

O16 Atmospheric Chemistry. (Twelve lectures)

DR S. R. ELLIOTT AND DR W. JONES

O17 Electronic Properties and Reactivity of Solid Oxides. (Twelve lectures)

PROF. N. C. HANDY AND DR S. M. COLWELL

O15 Molecular Quantum Mechanics: Quantum Chemistry and Density Functional Theory. (Twelve lectures)

PROF. J-P. HANSEN

O16 Complex Fluids. (Twelve lectures)

DR J. M. GOODMAN AND PROF. A. B. HOLMES

O9 New Synthetic Methods. (Twelve lectures)

PROF. D. H. WILLIAMS AND DR J. B. SPENCER

O10 Antibiotics. (Twelve lectures)

PROF. A. B. HOLMES, DR S. C. MORATTI AND

PROF. J. K. M. SANDERS

O11 Polymers: Synthesis And Properties. (Twelve lectures)

DR M. J. GAIT, DR S. E. JACKSON AND DR J. CLARKE

O12 Biomolecules. (Twelve lectures)

DR J. P. ATTFIELD AND DR J. M. RAWSON

O19 Conductors and Magnets. (Twelve lectures)

PROF. B. F. G. JOHNSON AND DR P. R. RAITHBY

O10 Inorganic Nanoparticles and Materials. (Twelve lectures)

DR M. GERLOCH AND DR A. J. BRIDGEMAN

O11 Modern Bonding Probes in Inorganic Chemistry. (Twelve lectures)

DR D. KLENERMAN AND DR T. RAYMENT

O18 Colloids and Interfacial Science (Twelve lectures)

DR G. ROBERTS AND DR D. HUSAIN

O19 Molecular Scattering and Reaction Dynamics. (Twelve lectures)

DR D. KLENERMAN AND DR G. ROBERTS

O10 Laser Spectroscopy and its Application to Chemistry. (Twelve lectures)

DR A. J. STONE

O17 Symmetry and Angular Momentum. (Twelve lectures)

DR M. SPRIK

O18 Numerical Simulation Techniques in Chemistry. (Twelve lectures)

EXPERIMENTAL AND THEORETICAL PHYSICS

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

Year Group Co-ordinator: Dr J. A. C. Bland 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 lecture rooms are indicated as follows: (P) Pippard Lecture Theatre, (S) Small Lecture Theatre, (M) Mott Seminar Room, (R) Ryle Seminar Room*The course will begin with a meeting on the first Wednesday of Full Term (7 Oct.) at 12.30 in the *Small Lecture Theatre*

Course L

Major Options

DR W. ALLISON (P)

Solid State Physics. Tu. Th. S. 11

PROF. A. M. DONALD (S)

Structure and Properties of Condensed Matter. M. W. F. 9

PROF. A. C. FABIAN, DR A. N. LASENBY AND

PROF. M. J. REES (P)

Gravitational Astrophysics and Cosmology. M. W. F. 12

DR M. A. PARKER AND DR J. R. BATLEY (P)

Particle Physics. M. W. F. 11

DR K. F. PRIESTLEY AND DR A. J. HAINES (S)

Physics of the Earth as a Planet. Tu. Th. S. 10

DR B. D. SIMONS (S)

Theoretical Concepts in Physics. Tu. Th. S. 12

Minor Options

DR B. R. WEBBER (P)

Gauge Field Theory. W. F. 12

DR D. J. C. MacKAY (P)

Information Theory, Pattern Recognition and Neural Networks. M. W. 11

DR R. F. CARSWELL (S)

General Relativity. Tu. Th. 9

DR J. A. C. BLAND (S)

Low Dimensional Magnetism. M. W. 12

DR B. D. SIMONS (M)

Phase Transitions and Collective Phenomena. Tu. Th. 12

DR J. R. COOPER (M)

Superconductivity. Tu. Th. 9

DR C. H. W. BARNES (S)

Quantum Properties of Electron Systems in Semiconductors. Tu. F. 11

NATURAL SCIENCES TRIPOS PART III (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

EXPERIMENTAL AND THEORETICAL PHYSICS (continued)

Course L (continued)

Minor Options (continued)

DR G. A. C. JONES (*M*)
Microelectronics and VLSI. M. W. 9
DR N. C. GREENHAM AND DR D. R. RICHARDS (*S*)
Optoelectronics. Tu. Th. 12
PROF. J. E. FIELD AND DR N. K. BOURNE (*S*)
Shock Waves and Explosives. M. F. 9
DR J. MELROSE (*S*)
Polymers and Colloids. M. W. 11
DR A. N. LASENBY AND DR C. J. L. DORAN (*P*)
Physical Applications of Geometric (Clifford)
Algebra. Tu. Th. 11
PROF. R. E. HILLS (*S*)
The Frontiers of Experimental
Astrophysics. M. W. 10
DR P. P. DENDY AND OTHERS (*S*)
Medical Physics. Tu. Th. 10

Except where otherwise indicated, all Part III Mathematics courses are given in *Seminar Room A, DAMTP, Silver Street*

Not more than one of the following courses from Part III
Mathematics (p. 148) may be offered for examination

DR N. S. MANTON
Quantum Field Theory. M. W. F. 10
PROF. D. O. GOUGH AND DR C. A. TOUT
Structure and Evolution of Stars. M. W. F. 9

Not more than one of the following courses from
Part III Mathematics (p. 148) may be
offered for examination. Advanced
Quantum Field Theory may not be offered
together with Gauge Field Theory

PROF. P. V. LANDSHOFF
Advanced Quantum Field Theory.
M. W. F. 12
DR A. BURGESS AND DR H. E. MASON
Atomic Astrophysics. M. W. F. 9

Course M

DR M. WARNER AND OTHERS (*P*)
Examples Class in General Physics. F. 2–4

The same continued. Tu. F. 2–4
(Eight classes)

Course N

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

DR S. POPESCU (*S*)
Philosophy of Classical and Quantum
Physics. F. 10 (first four weeks)
DR G. RAJAGOPAL (*S*)
Supercomputing in Physics. F. 10
(last four weeks)
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* (27 Jan. in
Small Lecture Theatre)
Research in the *Mott Building* (3 Feb. in *Small*
Lecture Theatre)
Research in the *TCM Group* (10 Feb. in *TCM*
Seminar Room)

DR J. A. C. BLAND AND OTHERS
Cavendish Physical Society seminars. W. 4.30

DR J. A. C. BLAND AND OTHERS
The same continued

DR J. A. C. BLAND AND OTHERS
The same continued

Course T

DR C. J. B. FORD AND OTHERS
Project Work

DR C. J. B. FORD AND OTHERS
The same continued

DR C. J. B. FORD AND OTHERS
The same continued

NATURAL SCIENCES TRIPOS PART III (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

GEOLOGICAL SCIENCES AND MINERAL SCIENCES

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

Seminar Course

A series of up to 16 seminars will be run during the Michaelmas Term. Tu. 5 *Tilley Lecture Theatre*; Th. 12 *Harker II Room*

Option 6 Continental Tectonics and Mountains

DR J. A. JACKSON, DR A. G. SMITH AND DR G. HOVIUS
Lectures. M. Th. 9 *Tilley Lecture Theatre*
Practicals. M. Th. 10–11.30
Petrology Laboratory

Option 7 Ocean and Continent Margins

PROF. R. S. WHITE, DR T. A. MINHSULL, DR M. C. SINHA, DR J. HAINES AND DR D. M. PYLE
Lectures. Tu. F. 9 *Tilley Lecture Theatre*
Practicals. Tu. F. 10–11.30
Petrology Laboratory

Option 8 Metamorphic and Igneous Processes

DR T. J. B. HOLLAND, DR M. B. HOLNESS AND DR D. M. PYLE
Lectures. W. S. 9 *Harker Room*
Practicals. W. S. 10–11.30
Petrology Laboratory

Option 9 The oceans and climate change

PROF. T. H. VAN ANDEL, PROF. N. J. SHACKLETON AND DR H. ELDERFIELD
Lectures. M. Th. 2 *Harker Room*
Practicals. M. Th. 3–4.30
Petrology Laboratory

Option 10 Palaeoecology and ancient ecosystems

DR R. B. RICKARDS, DR E. HARPER, DR R. A. WOOD AND DR N. J. BUTTERFIELD
Lectures. Tu. F. 2 *Harker Room*
Practicals. Tu. F. 3–4.30
Palaeontology Laboratory

Option M4 Properties of Crustal Materials

DR S. A. T. REDFERN AND PROF. E. SALJE
Lectures. Tu. Th. 2 *Oxburgh Room*
Practicals. Tu. Th. 3–4.30
Petrology Laboratory

Option M5 Crystal Physics

DR M. T. DOVE, DR S. A. T. REDFERN AND PROF. E. SALJE
Lectures. Tu. F. 11 *Oxburgh Room*
Practicals. Times by arrangement

Option M6 X-ray Diffraction, Electron Microscopy, and the Analysis of Defect Structure

PROF. E. SALJE, DR A. SHEN, DR S. A. T. REDFERN AND DR M. T. DOVE
Lectures/Practicals. Times by arrangement
Oxburgh Room

Easter Field Course

11–18 March 1999

Options 6–10 and M4–M6 continue for eight revision sessions each

MATERIALS SCIENCE AND METALLURGY

Course Co-ordinator: Dr Z. H. Barber E-mail: Part III@msm.cam.ac.uk

All lectures will be given in the Austin Wing Lecture Theatre, Department of Materials Science and Metallurgy

DR A. L. GREER

C19 Thermal Analysis. Tu. Th. 9 (Four lectures, beginning 8 Oct.)

DR P. A. MIDGLEY

C20 Electron Microscopy and Analysis. M. Tu. W. Th. F. 12 (Eight lectures, beginning 8 Oct.)

DR J. A. LEAKE

C21 X-ray and Neutron Techniques. M. 12 (2 Nov.); W. 12 (21 Oct.–4 Nov.); F. 12 (23–30 Oct.) (Six lectures)

DR J. A. LEAKE AND DR A. L. GREER

M8 Glasses and nanomaterials. M. W. F. 9 (Twelve lectures, beginning 15 Jan.)

PROF. D. J. FRAY

M9 Ionic Materials. M. W. F. 10 (Twelve lectures, beginning 15 Jan.)

DR M. G. BLAMIRE

M10 Materials Aspects of Microdevices. M. W. F. 12 (Twelve lectures, beginning 15 Jan.)

DR P. D. BRISTOWE AND DR R. C. REED

M16 Materials Modelling. M. W. F. 12 (Twelve lectures, beginning 23 Apr.)

NATURAL SCIENCES TRIPOS PART III (continued)

MICHAELMAS 1998

LENT 1999

EASTER 1999

MATERIALS SCIENCE AND METALLURGY (continued)

PROF. C. J. HUMPHREYS

M1 Electrons and Photons in Solids. M. 9 (12, 19 Oct., 2, 23 Nov.); W. 9 (14, 20 Oct., 4, 25 Nov.); F. 9 (9–23 Oct., 27 Nov.) (Twelve lectures)

DR T. W. CLYNE

M2 Solidification and Powder Processing. M. 10 (12, 19 Oct., 2 Nov.); M. 12 (26 Oct.); Tu. 10 (27 Oct.); W. 10 (14 Oct.–4 Nov.); F. 10 (9, 16, 30 Oct.) (Twelve lectures)

DR R. V. KUMAR

M3 Extraction and Recycling. M. 9 (26 Oct., 9, 16, 30 Nov.); W. 9 (28 Oct., 11, 18 Nov., 2 Dec.); F. 9 (30 Oct., 6, 13, 20 Nov.) (Twelve lectures)

DR I. M. HUTCHINGS

M4 Tribology and Surface Engineering. Tu. Th. 9 (Twelve lectures, beginning 22 Oct.)

DR W. J. CLEGG

M5 High Temperature Materials. Tu. Th. 12 (Twelve lectures, beginning 22 Oct.)

DR G. GOLDBECK-WOOD AND PROF. A. H. WINDLE

M6 Polymeric Materials. M. W. F. 10 (Twelve lectures, beginning 6 Nov.)

DR K. M. KNOWLES

M7 Electronic Ceramics. M. W. F. 12 (Twelve lectures, beginning 6 Nov.)

INDUSTRIAL VISITORS

C22 M. 10 (One lecture, 26 Oct.)

Practical Classes

M. Tu. W. 2–5 (Two sessions to be chosen per week)

Examples Classes

(Details to be announced)

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. C. CAMERON

M11 Biomaterials. Tu. Th. 9 (Twelve lectures, beginning 28 Jan.)

DR Z. H. BARBER

M12 Thin Films. Tu. Th. 10 (Twelve lectures, beginning 28 Jan.)

DR B. A. GLOWACKI

M13 Magnetic and Superconducting Materials. Tu. Th. 12 (Twelve lectures, beginning 28 Jan.)

DR E. R. WALLACH

M14 Joining. M. W. F. 9 (Twelve lectures, beginning 12 Feb.)

DR G. T. BURSTEIN

M15 Corrosion and Protection. M. W. F. 10 (Twelve lectures, beginning 12 Feb.)

INDUSTRIAL VISITORS

C22 F. 12 (One lecture, 12 Feb.)

INDUSTRIAL VISIT

17 Feb. half day

The same continued

Examples Classes

(Details to be announced)

Management Option

(Details to be announced)

Language Option

The same continued

Examples Classes

(Details to be announced)