

NATURAL SCIENCES TRIPOS, PART III

MICHAELMAS 2005

LENT 2006

EASTER 2006

ASTROPHYSICS

All lectures will be held in *the Centre for Mathematical Sciences meeting rooms (MR), Clarkson Road* except those marked * which will be held at the *Institute of Astronomy, Madingley Road*

DR G. I. OGILVIE
Astrophysical Fluid Dynamics. Tu. Th. S. 11 *MR 9*

PROF. J. C. B. PAPALOIZOU
Structure and Evolution of Stars. M. W. F. 12 *MR 3*

DR J. M. STEWART
General Relativity. M. W. F. 10 *MR 2*

PROF. N. G. TUROK AND PROF. A. C. DAVIS
Cosmology. Tu. Th. S 10 *MR 2*

DR A. SCHEKOCHIHIN
Magnetohydrodynamics and Turbulence. M. W. F. 11
MR 12

DR J. S. SANDERS*
Introduction to Unix & Computing. O24 CTA (5 lectures,
2pm daily, starting Th. 6 Oct.)

PROF. M. PETTINI
Physical Cosmology. M. W. F. 10 *MR 4*

PROF. G. F. GILMORE
Galaxies and Dark Matter. Tu. Th. S. 9
MR 14

PROF. M. R. E. PROCTOR
Stellar and Planetary Magnetic Fields.
M. W. F. 9 *MR 9*

BIOCHEMISTRY

Course Organiser: Prof. D. J. Ellar (email: djel1@mole.bio.cam.ac.uk)
Course Website: www.bioc.cam.ac.uk/teaching/partii/

The course starts with an introductory lecture by PROF. ELLAR at 9 a.m. on M. 3 Oct. in the *Lecture Theatre in the Sanger Building, Department of Biochemistry, Old Addenbrooke's Site*.

Research Techniques lectures will be held in the *Lecture Theatre in the Sanger Building, Department of Biochemistry, Old Addenbrooke's site*. Detailed time-tables will be posted in the *Department of Biochemistry*.

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

Lectures are given in the *Department of Biochemistry*

Research project support

DEPARTMENTAL STAFF
Laboratory Safety, Preparation of Scientific Figures and
Scientific Reports, Record Keeping, Experimental
Design, Seminar Presentation. 3–7 Oct.

Research Technique Lectures Tu. Th. 5

DEPARTMENTAL STAFF AND OTHERS
Organiser: Dr R. W. Farndale
Molecular Biology. (Six lectures)
Protein Expression and Purification. (Four lectures)
Analytical Techniques in Protein and Peptide
Characterization. (Three lectures)
Structure Determination by NMR and X-ray
Crystallography. (Four lectures)
Protein-Protein Interactions in Solution. (One lecture)

Research Project Colloquium

PROF. D. J. ELLAR AND DR T. R. HESKETH (Joint chairs)
Presentation of interim reports. 5–6 Dec.

Research Technique Lectures Tu. Th. 5

DEPARTMENTAL STAFF AND OTHERS
Organiser: Dr R. W. Farndale
Protein-Protein Interactions in Solution.
(Four lectures, continued)
Bioinformatics, Modelling and Computational
Biochemistry. (Two lectures)
Proteomics and Functional Genomics. (Six
lectures)
Microscopy and Imaging. (Four lectures)

Options lectures

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

Research Project Colloquium

PROF. D. J. ELLAR AND DR R. T. HESKETH (Joint
chairs)
Presentation of final reports. 11–12 May

NATURAL SCIENCES TRIPOS, PART III (continued)

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BIOCHEMISTRY (continued)

8. DR A. A. GRACE AND OTHERS
Cardiovascular Molecular and Cellular
Biology. (Fifteen lectures)
Option Organiser: Dr A. A. Grace
9. 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
N. Affara
10. DR A. M. TOLKOVSKY AND OTHERS
Perspectives in Molecular Neurobiology.
(Fifteen lectures)
Option Organiser: Dr A. M. Tolkovsky
12. DR N. J. GAY AND OTHERS
Biotechnology. (Fifteen lectures)
Option Organiser: Dr N. J. Gay
13. DR D. M. CARRINGTON AND OTHERS
Regulation of the Eukaryotic Cell Cycle.
(Fifteen lectures)
Option Organiser: Dr D. M. Carrington
14. DR N. J. GAY AND OTHERS
Molecular Immunology. (Fifteen lectures).
Option Organiser: Dr N. J. Gay

Data handling classes
3–3.45, 20, 27 Jan.

Data handling classes
2.30–4.00, 28 Oct., 3 Nov.

CHEMISTRY

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

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

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

All students must attend an introductory talk concerning the course at 10 a.m. on W. 5 Oct. in the *Wolfson Lecture Theatre*.

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

EXPERIMENTAL AND THEORETICAL PHYSICS

Course Organiser: Prof. B. R. Webber (e-mail: III-physics@phy.cam.ac.uk)
Course Website: www.phy.cam.ac.uk/teaching/

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

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

The course will begin with a meeting on the first Wednesday of Full Term (5 Oct.) at 12.30 p.m. in the *Small Lecture Theatre*.

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

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

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

Course L

Major Options

PROF. H. SIRRINGHAUS (P)
Advanced Quantum Condensed Matter Physics.
Tu. Th. S. 11

PROF. U. STEINER (S)
Soft Matter. M. W. F. 9

DR P. ALEXANDER, PROF. A. C. FABIAN AND PROF. A. N.
LASENBY (P)
Astrophysics and Cosmology. M. W. F. 11

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

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

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

Minor Options

Twelve-lecture courses beginning in the
second week of term.

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

PROF. D. J. C. MACKAY (P)
Information Theory, Pattern Recognition and
Neural Networks. W. F. 11 (beginning
25 Jan.)

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

PROF. M. A. PARKER (S)
The Frontiers of Particle Physics. M. 12, F. 9
(beginning 27 Jan.)

DR C. BERGEMANN (M)
Superconductivity and Quantum Coherence.
M. W. 10 (beginning 25 Jan.)

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NATURAL SCIENCES TRIPOS, PART III (continued)

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EXPERIMENTAL AND THEORETICAL PHYSICS (continued)

<p>Not more than one of the following courses from Part III Mathematics (p. 148) may be offered for examination.</p> <p>PROF. N. S. MANTON Quantum Field Theory. Tu. Th. S. 9 (MR2)</p> <p>PROF. J. C. B. PAPALOIZOU Structure and Evolution of Stars. M. W. F. 12 (MR3)</p>	<p>DR C. H. W. BARNES (M) Quantum Electronics in Semiconductors. M. 12, F. 9 (beginning 27 Jan.)</p> <p>PROF. R. T. PHILLIPS AND PROF. P. B. LITTLEWOOD (S) From Quantum Optics to Quantum Matter. M. 11 and F. 10 (beginning 27 Jan.)</p> <p>PROF. B. D. SIMONS (S) Phase Transitions and Collective Phenomena. Tu. Th. 12 (beginning 27 Jan.)</p> <p>DR W. G. PROUD (S) Shock Waves and Explosives. W. F. 12 (beginning 25 Jan.)</p> <p>PROF. C. A. HANIFF (S) The Frontiers of Observational Astrophysics. Tu. Th. 10 (beginning 26 Jan.)</p> <p>DR S. THOMAS AND OTHERS (M) Medical Physics. Tu. Th. 12 (beginning 26 Jan.)</p> <p>PROF. M. C. PAYNE (P) Quantum Information. W. F. 12 (beginning 25 Jan.)</p> <p>DR T. A. J. DUKE (S) Biological Physics. Tu. Th. 11 (beginning 26 Jan.)</p> <p>DR S. N. STOCKLEY AND OTHERS (S) Entrepreneurship. M. Th. 4 (beginning 26 Jan.)</p>	<p>PROF. M. WARNER AND OTHERS (P) Examples Classes in General Physics. Tu. F. 2–4 (Nine classes, beginning 28 April, no class on 12 May)</p>
Course M	<p>The following course from Part III Mathematics (p. 148) may be offered for examination.</p> <p>PROF. H. OSBORN Advanced Quantum Field Theory. Tu. Th. S. 11 (MR2)</p>	
Course N	<p>THE STAFF OF THE CAVENDISH LABORATORY (S) Themes of Cavendish Research. Tu. 2</p> <p>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 <i>Cavendish Laboratory</i> Research in the <i>Rutherford Building</i> (1 Feb. in <i>Small Lecture Theatre</i>) Research in the <i>TCM Group</i> (8 Feb. 2.15 in <i>TCM Seminar Room</i>)</p>	
<p>PROF. P. B. LITTLEWOOD AND OTHERS Cavendish Physical Society seminars. W. 4.15 (Four seminars, 12, 26 Oct., 9, 23 Nov.)</p>	<p>PROF. P. B. LITTLEWOOD AND OTHERS The same continued. (Four seminars, 25 Jan., 8, 22 Feb., 8 Mar.)</p>	<p>PROF. P. B. LITTLEWOOD AND OTHERS The same continued. (Two seminars, 10, 24 May)</p>
Course T	<p>DR R. PADMAN AND OTHERS Project Work.</p>	<p>DR R. PADMAN AND OTHERS The same continued.</p>

NATURAL SCIENCES TRIPOS, PART III (continued)

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GEOLOGICAL SCIENCES AND MINERAL SCIENCES

Course Website: www.esc.cam.ac.uk/new/v10/teaching/geology/ii-iii/courses.html

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

Seminar Course

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

Option M3 Spectroscopic Methods

DR I. FARNAN, DR M. ZHANG, DR G. LUMPKIN AND DR M. T.DOVE

Convenor: Dr I. Farnan

Lectures. M. F. 9 *Harker 2 Room*

Practicals. M. F. 10–11.30 *IB Minerals Laboratory*

Option 1 Basin Dynamics

DR N. J. WHITE AND OTHERS

Convenor: Dr N. J. White

Lectures. Tu. Th. 9 *Tilley Room*

Practicals. Tu. 10–11.30, Th. 10–11.30

Petrology Laboratory

The same continued. (Eight revision sessions)

Option 2 Sedimentary Systems

DR A. GALY AND DR J. A. D. DICKSON

Convenor: Dr J. A. D. Dickson

Lectures. Tu. F. 2 *Harker Room*

Practicals. Tu. F. 3–4.30 *Petrology*

Laboratory

The same continued. (Eight revision sessions)

Option 3 Metamorphic and Igneous Processes

DR D. M. PYLE, DR T. J. B. HOLLAND AND

DR J. MACLENNAN

Convenor: Dr D. M. Pyle

Lectures. M. Th. 2 *Harker Room*

Practicals. M. Th. 3–4.30 *Palaeontology*

Laboratory

The same continued. (Eight revision sessions)

Option 4 Long Term Climate Change

PROF. I. N. MCCAVE, PROF. M. J. BICKLE AND PROF.

H. E. ELDERFIELD

Convenor: Prof. H. E. Elderfield

Lectures. M. 9, W. 2 *Harker Room*

Practicals. M. 10–11.30, W. 3–4.30 *Structural*

Laboratory

The same continued. (Eight revision sessions)

Option 5 Evolutionary Palaeobiology

DR N. J. BUTTERFIELD AND DR D. B. NORMAN

Convenor: Dr N. J. Butterfield

Lectures. W. F. 9 *Harker Room*

Practicals. W. F. 10–11.30 *Palaeontology*

Laboratory

The same continued. (Eight revision sessions)

Option M1 High Pressure Mineralogy

PROF. G. D. PRICE, PROF. M. A. CARPENTER,

DR S. RIOS, DR E. ARTACHO AND DR M. WELCH

Convenor: Prof. M. A. Carpenter

Lectures: W. F. 9 *Harker 2 Room*

Practicals. W. F. 10–11.30 *IB Minerals*

Laboratory

The same continued. (Eight revision sessions)

Option M2 Disordered Materials

DR M. T. DOVE, DR I. FARNAN AND

DR K. TRACHENKO

Convenor: Dr I. Farnan

Lectures. M. 9, W. 2 *Harker 2 room*

Practicals. M. 10–11.30, W. 3–4.30 *IB*

Minerals Laboratory

The same continued. (Eight revision sessions)

MATERIALS SCIENCE AND METALLURGY

Readers of the Lecture-List are advised to contact the Department for details