

NATURAL SCIENCES TRIPOS, PART III

MICHAELMAS 2006

LENT 2007

EASTER 2007

ASTROPHYSICS

Course Website: <http://www.ast.cam.ac.uk/teaching/undergrad/>

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

DR J. M. STEWART

General Relativity. M. W. F. 10 *MR 2*

PROF. J. C. B. PAPAIOZOU

Structure and Evolution of Stars. M. W. F. 12 *MR 3*

DR A. SCHEKOCIHIN

Magnetohydrodynamics and Turbulence. (Sixteen lectures) M. W. F. 11 *MR 12*

PROF. N. G. TUROK

Cosmology. Tu. Th. S 10 *MR 2*

DR G. I. OGLIVIE

Astrophysical Fluid Dynamics. Tu. Th. S. 11 *MR 9*

DR J. S. SANDERS*

Introduction to Unix & Computing. O24 CTA (Five lectures, 2pm daily, starting Th. 5 October)

PROF. M. PETTINI

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

PROF. M. R. E. PROCTOR

Stellar and Planetary Magnetic Fields. M. W. F. 9 *MR 15*

DR N. W. EVANS

Astrophysical Dynamics. Tu. Th. S. 11 *MR 14*

PROF. J. E. PRINGLE

Accretion Discs. (Sixteen lectures) Tu. Th. 10 *MR 13*

BIOCHEMISTRY

Course Organiser: Prof. C. J. Howe (e-mail: ch26@mole.bio.cam.ac.uk)Course Website: <http://www.bioc.cam.ac.uk/teaching/partii/>

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

The course starts with an introductory lecture by PROF. HOWE at 9 a.m. on M. 2 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. 2-6 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 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)

Research Project Colloquium

PROF. C. J. HOWE AND DR T. R. HESKETH (Joint chairs)

Presentation of interim reports. 4-5 Dec.

Research Project Colloquium

PROF. C. J. HOWE AND DR T. R. HESKETH (Joint chairs)

Presentation of final reports. 10-11 May

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)

NATURAL SCIENCES TRIPOS, PART III (continued)

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| | <p>5. PROF. C. W. J. SMITH AND OTHERS
Control of gene expression in eukaryotes
(Fifteen lectures in part joint with Part II Zoology.)
Option Organisers: Prof. C. W. J. Smith and Dr T. Krude</p> <p>6. PROF. K. SIDDLER AND OTHERS
Medical biochemistry. Obesity & diabetes – from genes to pathology (Fifteen lectures)
Option Organiser: Prof. K. Siddle</p> <p>7. DR F. HOLLFELDER AND OTHERS
Enzyme mechanisms and the evolution of enzyme function (Fifteen lectures)
Option Organiser: Dr F. Hollfelder</p> <p>8. DR A. A. GRACE AND OTHERS
Cardiovascular molecular and cellular biology (Fifteen lectures)
Option Organisers: Dr A. A. Grace and Dr R. W. Farndale</p> <p>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</p> <p>10. DR F. R. LIVESEY AND OTHERS
Perspectives in stem cell biology (Fifteen lectures)
Option Organiser: Dr F. R. Livesey</p> <p>12. PROF. T. L. BLUNDELL AND OTHERS
Biotechnology (Fifteen lectures)
Option Organiser: Dr K. Lilley</p> <p>13. DR D. M. CARRINGTON AND OTHERS
Regulation of the eukaryotic cell cycle (Fifteen lectures)
Option Organiser: Dr D. M. Carrington</p> <p>14. DR A. P. KELLY AND OTHERS
Molecular immunology (Fifteen lectures).
Option Organiser: Dr A. P. Jackson</p> | |
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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. 3 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. 4 Oct. in the *Wolfson Lecture Theatre*.

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

NATURAL SCIENCES TRIPOS, PART III (continued)

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EXPERIMENTAL AND THEORETICAL PHYSICS

Course Organiser: Dr T. Duke (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 (4 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 M. A. THOMSON (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)
 Quantum Condensed Matter Field Theory. Tu. Th. S. 12
- DR M. P. HOBSON (P)
 Classical Field Theory and Gravitation. M. W. F. 12

The following course from Part III Mathematics (p. 153) may be offered for examination.

- DR D. TONG
 Quantum Field Theory. Tu. Th. S. 9 (MR2)

Course M**Minor Options**

- Twelve-lecture courses beginning in the second week of term.
- DR J. R. BATLEY (S)
 Gauge Field Theory. Tu. Th. 9 (beginning 25 Jan.)
- PROF. D. J. C. MACKAY (P)
 Information Theory, Pattern Recognition and Neural Networks. W. F. 11 (beginning 26 Jan.)
- PROF. M. A. PARKER (S)
 The Frontiers of Particle Physics. M. 12, F. 9 (beginning 26 Jan.)
- DR W. ALLISON (S)
 The Frontiers of Experimental Condensed Matter Physics. M. W. 9 (beginning 29 Jan.)
- DR C. BERGEMANN (M)
 Superconductivity and Quantum Coherence. M. W. 10 (beginning 29 Jan.)
- DR C. H. W. BARNES (M)
 Quantum Electronics in Semiconductors. M. 12, F. 9 (beginning 26 Jan.)
- PROF. R. T. PHILLIPS AND PROF. P. B. LITTLEWOOD (S)
 From Quantum Optics to Quantum Matter. M. 11 and F. 10 (beginning 26 Jan.)
- PROF. B. D. SIMONS (S)
 Phase Transitions and Collective Phenomena. Tu. Th. 12 (beginning 25 Jan.)
- PROF. C. A. HANIFF (S)
 The Frontiers of Observational Astrophysics. Tu. Th. 10 (beginning 25 Jan.)
- DR S. THOMAS AND OTHERS (M)
 Medical Physics. Tu. Th. 12 (beginning 25 Jan.)
- DR T. A. J. DUKE (S)
 Biological Physics. Tu. Th. 11 (beginning 25 Jan.)
- DR J. MILLS AND OTHERS (S)
 Entrepreneurship. M. Th. 4 (beginning 25 Jan.)
- PROF. SIR RICHARD FRIEND (S)
 Materials, Electronics and Renewable Energy. W. F. 12 (beginning 26 Jan.)

The following course from Part III Mathematics (p. 153) may be offered for examination.

- PROF. H. OSBORN
 Advanced Quantum Field Theory. Tu. Th. S. 11 (MR2)

PROF. M. WARNER AND OTHERS (P)
 Examples Classes in General Physics. Tu. F. 2-4 (Nine classes, beginning 27 April, no class on 11 May)

NATURAL SCIENCES TRIPOS, PART III (continued)

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Course N

THE STAFF OF THE CAVENDISH LABORATORY
 Postgraduate Research Opportunities at the Cavendish.
 Reception on Th. 23 Nov. at 1 p.m. in the Foyer of the
 Pippard Lecture Theatre.
 Exhibition from 20 Nov. to 1 Dec.

PROF. P. B. LITTLEWOOD AND OTHERS
 Cavendish Physical Society seminars. W. 4.30
 (Alternate weeks beginning 11 Oct.)

Course T

DR R. PADMAN AND OTHERS
 Project Work.

DR J. N. BUTTERFIELD (S)
 Philosophy of Physics. F. 2 (Four lectures
 beginning 26 Jan)

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* (31 Jan. in
Small Lecture Theatre)
 Research in the *TCM Group* (7 Feb. 2.15 in
TCM Seminar Room)

PROF. P. B. LITTLEWOOD AND OTHERS
 The same continued.

DR R. PADMAN AND OTHERS
 The same continued.

PROF. P. B. LITTLEWOOD AND OTHERS
 The same continued.

DR R. PADMAN AND OTHERS
 The same continued.

NATURAL SCIENCES TRIPOS, PART III (continued)

MICHAELMAS 2006

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GEOLOGICAL SCIENCES AND MINERAL SCIENCES

Course Website: <http://www.esc.cam.ac.uk/new/v10/teaching/geology/ii-iii/courses.html>
<http://camtools.caret.cam.ac.uk/>

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 M6 Diffraction, Electron Microscopy and Microanalysis

DR M. WELCH, PROF. M. T. DOVE, DR R. J. HARRISON, DR C. HAYWARD AND DR G. BROMILEY
 Convenor: Dr R. J. Harrison
 Lectures. M. F. 9 *Harker 2*
 Practicals. M. F. 10–11.30 *IB Minerals Laboratory*

Option 6 Continental Tectonics and Mountains

PROF. J. A. JACKSON, ET AL
 Convenor: Dr J. A. Jackson
 Lectures. Tu, Th. 9 *Tilley Room*
 Practicals. Tu. 10–11.30, Th. 10–11.30
Petrology Laboratory

The same continued. (Eight revision sessions)

Option 7 Oceanic and Continental Margins

PROF. R. S. WHITE, ET AL
 Convenor: Prof. R. S. White
 Lectures. W. F. 9 *Harker Room*
 Practicals. W. F. 10–11.30 *Petrology Laboratory*

The same continued. (Eight revision sessions)

Option 8 Metamorphic and Igneous Processes

DR S. GIBSON, DR M. HOLNESS AND DR A. GALY
 Convenor: Prof. M. J. Bickle
 Lectures. M. Th. 2 *Harker Room*
 Practicals. M. Th. 3–4.30 *Petrology Laboratory*

The same continued. (Eight revision sessions)

Option 9 Quaternary Oceans and Climate Change

PROF. H. ELDERFIELD, DR A. PIOTROWSKI AND DR L. SKINNER
 Convenor: Prof. H. Elderfield
 Lectures. M. 9, W. 2 *Harker Room*
 Practicals. M. 10–11.30, W. 3–4.30 *Petrology Laboratory*

The same continued. (Eight revision sessions)

Option 10 Ancient Ecosystems

DR N. J. BUTTERFIELD AND A. N. OTHER
 Convenor: 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 M. WELCH, PROF. M. A. CARPENTER AND DR M. DARAKTCHIEV
 Convenor: Prof. M. A. Carpenter
 Lectures. Tu. F. 2 *Harker 2*
 Practicals. Tu. F. 3–4.30 *IB Minerals Laboratory*

The same continued. (Eight revision sessions)

Option M5 Computational Methods in Crystal Physics

PROF. E. ARTACHO AND A. N. OTHER
 Convenor: Dr E. Artacho
 Lectures: M. 9, W. 2 *Harker 2*
 Practicals. M. 10–11.30, W. 3–4.30 *IB Harker 2*

The same continued. (Eight revision sessions)

NATURAL SCIENCES TRIPOS, PART III (continued)

MICHAELMAS 2006

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EASTER 2007

MATERIALS SCIENCE AND METALLURGY

Course Organiser: Dr W. J. Clegg (e-mail: PartIII@msm.cam.ac.uk)
 Course Website: www.msm.cam.ac.uk/teaching/PtIII/

A detailed timetable is available on the Department website, as above.

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

DR N. A. RUTTER

T1 Thermal Analysis. (Four lectures)

DR A. C. HARRISON

T2 Electron Microscopy and Analysis. (Eight lectures)

PROF. M. G. BLAMIRE

T3 Optical, X-Ray and Neutron Techniques. (Six lectures)

DR J. A. ELLIOTT

M2 Particle Technology. (Twelve lectures)

DR R. V. KUMAR

M3 Extraction and Recycling. (Twelve lectures)

DR J. A. LITTLE AND DR K. M. KNOWLES

M4 Surface Engineering. (Twelve lectures)

DR W. J. CLEGG

M5 Deformation Kinetics. (Twelve lectures)

PROF. M. G. BLAMIRE

M10 Microfabrication and Nanotechnology. (Twelve lectures)

DR R. E. CAMERON

M11 Biomaterials. (Twelve lectures)

DR E. R. WALLACH

M14 Joining. (Twelve lectures)

PROF. G. T. BURSTEIN

M15 Corrosion and Protection. (Twelve lectures)**Speakers from Industry**

(Tu. 11, 24 Oct. and Tu. 11, 21 Nov.)

Visit to Industry

Half day (29 Nov.)

Examples Classes

Timetable available on the Department website.

Project

Teamwork project

Management and Language Options

Details available from the Department website.

DR P. A. MIDGLEY

M1 Electron and Photons in Solids. (Twelve lectures)

PROF. A. H. WINDLE

M6 Polymeric Materials. (Twelve lectures)

DR N. D. MATHUR

M7 Electronic Ceramics. (Twelve lectures)

PROF. A. L. GREER AND DR B. A. GLOWACKI

M8 Glasses and Nanomaterials. (Twelve lectures)

PROF. D. J. FRAY

M9 Ionic Materials. (Twelve lectures)

DR E. R. WALLACH

M12 Energy and Materials (Twelve lectures)

DR B. A. GLOWACKI

M13 Magnetic and Superconducting Materials. (Twelve lectures)

DR P. D. BRISTOWE

M16 Materials Modelling. (Twelve lectures)**Speakers from Industry**

(Th. 11, 1 Feb. and Tu. 11, 27 Feb.)

Visit to Industry

Half day (20 Feb.)

Examples Classes

Timetable available on the Department website.

Project

Individual research project

Management and Language Options

Details available from the Department website.