

DEPARTMENT OF MATERIALS

DIVISION OF MATHEMATICAL, PHYSICAL AND LIFE SCIENCES

LECTURE LIST FOR HILARY TERM 2023

Lectures begin on the first possible day after the beginning of Full Term (Sunday, 15 January) unless otherwise stated

Unless otherwise indicated, all lectures begin on the hour and finish at five minutes before the next hour.

No food or drink (except bottled water) is permitted in the lecture theatres.

Timetable for Materials Science

Key to Teaching Venue Abbreviations:

| | |
|---------|---|
| HRLT | Hume-Rothery Lecture Theatre, Hume-Rothery Building |
| BRLT | Banbury Road Lecture Theatre, 21 Banbury Road |
| LR3 | Lecture Room 3, Thom Building (Eng Sci) |
| LR8 IEB | Lecture Room 8, Information Engineering Building |
| ETBCR | ETB Committee Room, Engineering Technology Building |
| BRCR | Banbury Road Conference Room, 21 Banbury Road |
| PRMR | Parks Road Meeting Room, 12/13 Parks Road |
| HRMR | Hume-Rothery Meeting Room, Hume-Rothery Building |
| HBTL | Holder Building Teaching Labs, Holder Building |
| HRF | Hume-Rothery Foyer, Hume-Rothery Building |
| RR | Rex Richards Room 40.08, Rex Richards Building |

| Subject | Lecturer | Time | Place |
|--|---------------------------------|---|-----------------------------------|
| FIRST YEAR | | | |
| Practical Class Meeting | Prof. P.D. Nellist | M. 11 (wk 1) | HRLT |
| Practical Classes | Various staff | Th. F. 2-5 (wks 1-8) | HBTL |
| Computing for Materials Science | Prof. J.R. Yates | T. 9-12 (wks 2-3) | BRCR and RR |
| Engineering Drawing Classes | Mr P. Bailey | F. 2-5 (MAN/STA/CCC/STC wks 1&3, SEH/QNS/TRI wks 2&4) | Engineering Design Office, ETB |
| Crystallography Classes | Dr A. Mostaed & Dr A.A. Sheader | T. 9-12 (wks 4,6,8) | LR3 Thom Bldg |
| How to Obtain a Materials-related Summer Placement | Prof. A.A.R. Watt | F. 12.15-1.15 (wk 2) | LR8 |
| Looking to the Future: Career Planning | Dr A. Evans (OUCaS) | T. 2.00-3.00 (wk 2) | HRLT |
| Prelims Examination Briefing | Prof. T.J. Marrow | W. 11 (wk 8) | HRLT |

Materials Science 1: Physical Foundations of Materials

| | | | |
|--|--|---|------|
| Electromagnetic Properties and Devices | Prof. S.C. Speller | Recommended view time of online lectures T. (wk 1) M. (wks 2-3) | |
| | | In-person lectures | HRLT |
| | | W. Th. F. 11 (wks 1-3) | |
| Random Processes & Statistical Physics | Prof. R.S. Weatherup | M. W. Th. 11 (wks 4-5) | HRLT |
| | | M. W. 11 (wk 6) | |
| Wave Mechanics, Quantum Theory and Bonding | Prof. R.J. Nicholls & Prof. P.D. Nellist | Th. F. 12 (wks 4,6) | HRLT |
| | | Th. 12, F 11 (wk 5) | BRLT |
| | | M. W. 12 (wk 8) | HRLT |

Materials Science 2: Structure and Mechanical Properties of Materials

| | | | |
|--|---|------------------------|------|
| Defects in Crystals | Prof. M.R. Castell | T. W. Th. F. 12 (wk 1) | HRLT |
| | | M. W. Th. F. 12 (wk 3) | |
| Structures of Crystalline and Glassy Materials | Prof. M.L. Galano & Prof. K.A.Q. O'Reilly | M. Th. 12 (wk 2) | HRLT |
| | | M. W. 12 (wk 4) | |

Materials Science 3: Transforming Materials

| | | | |
|-------------------------------|------------------|---|------|
| Introduction to Nanomaterials | Prof. N. Grobert | Recommended view time of online lectures tbc Live/Teams Q&A workshop tbc | |
| Electrochemistry | Prof. M. Pasta | M.W. F. 12 (wk 5) | HRLT |
| | | M. W. 12 (wk 6) | HRLT |
| | | T. Th. 11 (wk 7) | HRLT |
| | | F. 11 (wk 7) | BRLT |

Mathematics for Materials Science

| | | | |
|---------------------------------|-----------------|-----------------------|------|
| Taylor Series and Limits | Dr A.A. Sheader | M. Th. 9 (wk 1) | HRLT |
| | | W. 9 (wk 7) | |
| Integration & Complex Numbers | Dr J. Prentice | M. Th. F. 9 (wks 2-4) | HRLT |
| Ordinary Differential Equations | Dr A.A. Sheader | M. W. F. 9 (wk 5) | HRLT |
| | | M. Th. F. 9 (wk 6) | |

| <i>Subject</i> | <i>Lecturer</i> | <i>Time</i> | <i>Place</i> |
|--|---|--|----------------------|
| SECOND YEAR | | | |
| GP1: | | | |
| Lifecycle, Processing & Engineering of Materials | | | |
| Materials End-of-Life | Prof. H.E. Assender & Prof. S. Lozano-Perez | M. 11, W. 10, F. 9 (<i>wks 1-4</i>) | BRLT |
| GP2: | | | |
| Electronic Properties of Materials | | | |
| Semiconductor Materials and Devices | Dr C.S. Allen & Prof. R.S. Bonilla | M. 12, Th. 10 (<i>wks 2-5</i>) F. 10 (<i>wks 2-3</i>) | BRLT |
| GP3: | | | |
| Mechanical Properties of Materials | | | |
| Plastic Deformation of Materials | Dr E. Liotti & Prof. T.J. Marrow | T. 10, W. 9 (<i>wks 1-2,4</i>) Th. 12 (<i>wks 1-2</i>) T. 10, W. 12 (<i>wk 3</i>) | BRLT |
| Structural Failure of Materials | Prof. R. I. Todd | In-person lectures: M. 10 (<i>wk 5</i>) F. 10 (<i>wk 7</i>) | BRLT |
| Recommended view time of online lectures W. 9, Th. 9 (<i>wks 5-6</i>) M. 10 (<i>wks 6-7</i>) | | | |
| GP4: | | | |
| Structure & Thermodynamics of Materials | | | |
| Structural & Compositional Characterisation of Materials I | Prof. S. Lozano-Perez | T. 9, W. 12, F. 9 (<i>wks 5-6</i>) T. 9 (<i>wk 7</i>) F. 9 (<i>wk 7</i>) | BRLT HRLT BRLT |
| Other Lectures | | | |
| Entrepreneurship/ Business Plan (Lecture) | Dr S.M. Wilkinson | Recommended view time of online lectures Th. 9 (<i>wks 1-4,7</i>) Th. 10 (<i>wk 6</i>) Th. 9-11 (<i>wk 8</i>) Online Q&A sessions (20mins via Teams) Th. 11 (<i>wks 1,4,6</i>) Th. 11.30 (<i>wk 2</i>) | |
| Entrepreneurship/ Business Plan (Lecture) | S.P. Newbury | Recommended view time of online lectures F. 2 (<i>wk 4</i>) | |
| Entrepreneurship/ Business Plan (Project Clinic) | Dr S.M. Wilkinson | ONLINE - F. 2-4 (<i>wk 3</i>) 15 mins per group between 2pm and 4pm (to sign up in advance) | |
| Entrepreneurship/ Business Plan (Feedback Clinic) | Dr S.M. Wilkinson | ONLINE - F. 2-4 (<i>wk 7</i>) 15 mins per group between 2pm and 4pm (to sign up in advance) | |
| Practical Class Meeting | Prof. P.D. Nellist | M. 9.30-10 (<i>wk 1</i>) | BRLT |
| Industrial Visit | Dr E. Liotti | Th. 1-6 (<i>wk 8</i>) and Th. 1-6 (<i>wk 5 OR wk 6</i>) tbc | HRF |
| Practical Classes | Various staff | M. T. W. 2-5 (<i>wks 1-8</i>) | HBTL |
| How to Obtain a Materials-related Summer Placement | Prof. A.A.R. Watt | F. 12.15-1.15 (<i>wk 2</i>) | LR8 |
| Tata Steel Industrial Lecture, Prize-giving & Lunch | Dr E. Liotti & Tata Steel Representative | Th. 12-2 (<i>wk 4</i>) tbc | LR8 |

| Subject | Lecturer | Time | Place |
|---|---|--|---|
| Poster Competition | Prof. P.D. Nellist & Prof. D.E.J. Armstrong | F. 4-6 (<i>wk 3</i>) | IEB Atrium |
| Supplementary Subjects | | | |
| History and Philosophy of Science: The Origins of Science | Dr S. Allen | T. 12 (<i>wks 1-8</i>) See Canvas for details | tbc |
| Quantum Chemistry | Prof. W. Barford & Prof. J.E. McGrady | T. F. 11 (<i>wks 1-7</i>) | Physical and Theoretical Chemistry Laboratory |

THIRD YEAR

| | | | |
|---|--|-----------------------------|---|
| ¹ Atomistic Modelling (two-week module) | Dr C.E. Patrick & Prof. J.R. Yates | M-F. 9-5 (<i>wks 1-2</i>) | RR |
| ¹ Advanced Characterisation of Materials (two-week module) | Prof. M.P. Moody, Prof. M.L. Galano, Prof. N. Grobert & others | M-F. 9-5 (<i>wks 1-2</i>) | Lectures - HRLT Practical work – location varied |

See timetable issued by module organisers for precise details and locations

Hilary Term Options (OP2)

Lectures

| | | | |
|--|---|--|------|
| Advanced Polymers | Dr M. Forghani | M. 2, T. 12, F. 10 (<i>wks 3-6</i>) | HRLT |
| Quantum Technology | Prof. J.M. Smith | M. 3, T. 9, F. 2 (<i>wks 3-5</i>) T. 9, F. 2 (<i>wk 6</i>) W. 10 (<i>wk 7</i>) | HRLT |
| Biomaterials & Natural Materials | Prof. J.T. Czernuszka | M. 10, W. 10, F. 3 (<i>wks 3-6</i>) | HRLT |
| Enabling Nanotechnology: From Materials to Devices | Prof. H. Bhaskaran | M. 11, T. 2, W. 3, Th. 10 (<i>wk 3</i>) Th. 10, F. 11 (<i>wk 4</i>) T. 2, W. 3, Th. 9, F. 11 (<i>wk 5</i>) M. 3, F. 11 (<i>wk 6</i>) | HRLT |
| Materials for Nuclear Systems | Prof. T.J. Marrow, Prof. D.E.J. Armstrong & Prof. S. Lozano-Perez | T. 11 (<i>wks 3-6,8</i>) W. 9 (<i>wks 3,8</i>) Th. 2 (<i>wks 3-4</i>) Th. 12 (<i>wk 5</i>) Th. 10, Th. 3 (<i>wk 6</i>) M. 2 (<i>wk 7</i>) | HRLT |

Options Classes

Michaelmas Term Options (OP1) Classes¹

| | | | |
|---|-------------------------------|------------------------------------|-------|
| ¹ Materials & Devices for Optics & Optoelectronics Class 3 | Class Lecturer Dr M. Slota | M. 2, T. 9, W. 9 (<i>wk 2</i>) | ETBCR |
| ¹ Magnetic and Superconducting Materials Class 3 | Class Lecturer Dr M. Slota | Th. 9, Th. 4, F. 2 (<i>wk 2</i>) | ETBCR |
| ¹ Engineering Ceramics: Synthesis & Properties | Class Lecturer | | |

| Subject | Lecturer | Time | Place |
|---|--|---|--------------|
| Class 3 1Prediction of Materials Properties | Prof. R.I. Todd Class Lecturer | M. 4, W. 2, Th. 9 (<i>wk 2</i>) | BRCR |
| Class 3 1Microstructural Control in Engineering Alloys | Dr C.E. Patrick Class Lecturer | T. 2, W. 4, Th. 4 (<i>wk 2</i>) | BRCR |
| Class 2 | Prof. K.A.Q. O'Reilly & Dr E. Liotti | M. 2, F. 9, F. 4 (<i>wk 2</i>) | BRCR |
| Hilary Term Options (OP2) | | | |
| Classes ¹ | | | |
| 1Advanced Polymers | Class Lecturer | | |
| Class 1 | Dr M. Forghani | T. 3, Th. 2, F. 4 (<i>wk 6</i>) | BRCR |
| Class 2 | Dr M. Forghani | T. 2, W. 4, Th. 2 (<i>wk 7</i>) | BRCR |
| Class 3 | Dr M. Forghani | T. 2, Th. 9, F. 11 (<i>wk 8</i>) | BRCR |
| 1Quantum Technology | Class Lecturer | | |
| Class 1 | Prof. J.M. Smith | M. 11.30, T. 3, Th. 4 (<i>wk 6</i>) | PRMR |
| Class 2 | Prof. J.M. Smith | Th. 10, F. 10, F. 2 (<i>wk 7</i>) | PRMR |
| Class 3 | Prof. J.M. Smith | Th. 2, F. 9, F. 2 (<i>wk 8</i>) | PRMR |
| 1Biomaterials & Natural Materials | Class Lecturer | | |
| Class 1 | Prof. J.T. Czernuszka | M. 11, F. 4 (<i>wk 7</i>) | ETBCR |
| Class 2 | Prof. J.T. Czernuszka | T. 2, W. 10, F. 2 (<i>wk 8</i>) | ETBCR |
| 1Enabling Nanotechnology: From Materials to Devices | Class Lecturer | | |
| Class 1 | Prof. H. Bhaskaran | M. 4 (<i>wk 7</i>) | ETBCR |
| Class 2 | Prof. H. Bhaskaran | T. 9, W. 4, Th. 2 (<i>wk 8</i>) | ETBCR |
| 1Materials for Nuclear Systems | Class Lecturer | | |
| Class 1 | Prof. T.J. Marrow | M. 4, T. 3, Th. 4 (<i>wk 5</i>) | BRCR |
| Class 2 | Prof. D.E.J. Armstrong | W. 2, F. 10, F. 4 (<i>wk 7</i>) | BRCR |
| Class 3 | Prof. S. Lozano-Perez | tbc (<i>wk 1 TT</i>) | tbc |
| Other Lectures | | | |
| Part II Open Day | Prof. H.E. Assender & Prof. J.T. Czernuszka | W. 2-5 (<i>wk 6</i>) | HRLT |
| DPhil Poster Competition | Dr A.O. Taylor | W. 4.30-6.30 (<i>wk 6</i>) | IEB Atrium |
| Industrial Visit | Dr E. Liotti | Th. 1-6 (<i>wk 7</i>) and Th. 1-6 (<i>wk 5 or wk 6</i>) tbc | HRF |
| How to Obtain a Materials-related Summer Placement | Prof. A.A.R. Watt | F. 12.15-1.15 (<i>wk 2</i>) | LR8 |
| FHS Examination Briefing | Prof. T.J. Marrow | Th. 11 (<i>wk 8</i>) | HRLT |

FOURTH YEAR

Other Lectures

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|---|--|--------------------------------|-------------|
| 1Writing Skills, Plagiarism, Laboratory Notebooks, IPR & Patents | Prof. H.E. Assender & Dr P.J. Warren | F. 2-5 (<i>wk 3</i>) | BRLT |
| Ethics & sustainability Workshop | S.P. Newbury & Others | Th. F. 9-4.30 (<i>wk 10</i>) | HRMR |
| Presentation Skills: PowerPoint, Modern A/V Technology, PPT for Posters | Mr D. Baker (IT Services) & Dr A.O. Taylor | M. T. 1-4 (<i>wk 2</i>) | IT Services |

| Subject | Lecturer | Time | Place |
|--|-----------------|---------------------|--------------|
| Practical Tips on Delivering a Research Talk | Dr A.O. Taylor | T. 3.30 (wk 5) | HRLT |
| DPHil Poster Competition | Dr A. O. Taylor | W. 4.30-6.30 (wk 6) | IEB Atrium |

POSTGRADUATES

Please also see the Researcher Training area on the MPLS website:

<https://www.mpls.ox.ac.uk/training/pgr/PGR>

Postgraduate training

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|---|--|---|--------------|
| Safety (Compulsory for all new research workers) | C. Foldbjerg Holdway | T. 10 (wk 1) | HRLT |
| ³ Hydrofluoric Acid Safety | C. Foldbjerg-Holdway | W. 10 (wk 1) | Via Teams |
| ³ Safe Handling of Compressed Gas Cylinders | C. Foldbjerg Holdway | W. 11 (wk 1) | Via Teams |
| Writing Skills, Plagiarism, Laboratory Notebooks, IPR & Patents | Prof. H.E. Assender & Dr P.J. Warren | F. 2-5 (wk 3) | BRLT |
| Teaching Skills: Junior Demonstrating in the Materials Teaching Lab | Prof. P.D. Nellist & D.R. Passmore | F. 11.30-1.30 (wk 4) | BRRCR |
| Presentation Skills: PowerPoint, Modern A/V Technology, PPT for Posters | Mr D. Baker (IT Services) & Dr A.O. Taylor | M. T. 2-5 (wk 2) | IT Services |
| Practical Tips on Delivering a Research Talk | Dr A.O. Taylor | T. 3.30 (wk 5) | HRLT |
| Poster Competition | Dr A.O. Taylor | W. 4.30-6.30 (wk 6) | IEB Atrium |
| Teaching Skills: Materials Options Classes | Prof. M.L. Galano | F. 2-5 (wk 5) tbc | BRRCR |
| Introductory Meeting with Departmental Advisors | Dept Advisors | tbc | BRRCR tbc |
| 2 nd Year DPhil Talks | Drs A.O. Taylor + All Academic Staff | M.T. W. Th. 10-6 (wk 7) F. 10-6 (wk 7) | BRLT HRLT |
| Academic Writing (for Overseas students) | tbc (OULC) | tbc | tbc |

Postgraduate lecture courses

| | | | |
|-----------------------------------|---|---|------|
| Spectroscopy with (S)TEM | Dr A Mostaed, Prof. R.J. Nicholls & Prof. S. Lozano-Perez | Th. 11 (wks 1-4) T. 12 (wks 2-4) M. 11 (wk 5) | BRLT |
| Imaging and Diffraction in (S)TEM | Dr J.S. Kim & Dr N.P. Young | W. 2 (wks 2-6) F. 12 (wk 3,5-6) | BRLT |

²Hilary Term Options (OP2) Lectures See HT Third Year, above

Research colloquia

| | | | |
|---------------------|--|----------------------------|------|
| Materials Colloquia | | Th. 3:30-5pm (wks 1,3,5,8) | HRLT |
| Modelling Seminars | | tbc | HRLT |

¹ Students attend one class in each set and need to register for a specific class – details on how to do this are in the Option Course Synopsis and on Canvas.

²This course is also offered to undergraduates as a 3rd year option. All postgraduates are welcome to take the lecture course (but do not need to attend the classes). They may select it as one of the two assessed courses in the first year provided they have not already taken the course as an undergraduate.

³ Contact Christina Foldbjerg Holdway for details and an invitation:

christina.foldbjerg@materials.ox.ac.uk

UNDERGRADUATE TEACHING LAB PRACTICAL SCHEDULES FOR HILARY TERM 2023

Senior Demonstrators and their Deputies are reminded that they are required to be in the Department on the days their practicals are scheduled

| HT Wk | YEAR 1 (Thur, Fri) |
|--------|---|
| 1 2 | 1P5, Polymers – Molecular Weight Effects (NG , I Han) |
| 3 4 | 1P6, Thermal Analysis (E Liotti , KAQOR) |
| 5 6 | 1P6, Bubble Raft (J Ramirez Gonzalez , MRC) |
| 7 8 | 1P8, Electrode Potentials (Y Sun , MP) |

| HT Wk | YEAR 2 (Mon, Tue, Wed) |
|--------|---|
| 1 2 | 2P5, Diffusion (TJM , CRMG) |
| 3 4 | 2P6, Dislocations & Plasticity (MRC , JTC) |
| 5 6 | 2P7, Corrosion (W Song , Y Deng) |
| 7 8 | 2P8, Mechanical Properties of Polymers (PDN , AARW) |