Welcome from Professor Sue Gibson, Director of the Graduate School

The Graduate School has several roles but our main functions are to provide a broad, effective and innovative range of professional skills development courses and to facilitate interdisciplinary interactions by providing opportunity for students to meet at academic and social events. Whether you wish to pursue a career in academia, industry or something else, professional skills development training will improve your personal impact and will help you to become a productive and successful researcher.

Professional skills courses for Master's students are called “Masterclasses” and they cover a range of themes, for example, presentation skills, academic writing and leadership skills (http://www3.imperial.ac.uk/graduateschool/currentstudents/professionalskillsmasters/masterclassprogramme). All Masterclasses are free of charge to Imperial Master's students and I would encourage you to take as many as you can to supplement your academic training. The Graduate School works closely with the Graduate Students' Union (GSU) and is keen to respond to student needs so if there is an area of skills training, or an activity that you would like us to offer, but which is not currently provided, please do get in touch (graduate.school@imperial.ac.uk).

The Graduate School also runs a number of exciting social events throughout the year which are an opportunity to broaden your knowledge as well as to meet other students and have fun. Particular highlights include the Ig Nobel Awards Tour Show, the Chemistry Show and the 3 minute thesis competition. You should regularly check the Graduate School's website and e-Newsletters to keep up to date with all the events and training courses available to you.

Finally, I hope that you enjoy your studies here at Imperial, and I wish you well.

Sue Gibson
I would like to welcome you to the graduate school courses for postgraduate professional development. The team of tutors here come from a wide variety of experiences and we understand just how important it is to develop professional skills whilst undertaking postgraduate studies and research. Not only will this development improve success during your time at Imperial College, but it will also prepare you for your future careers. We are continually working to develop and innovate the courses we offer and over this year you will see many new offerings both face to face and online. I encourage you to explore and engage with the diverse range of opportunities on offer from the team at the graduate school and I wish you well in your studies.

Janet De Wilde
CONTENTS

Part A – Overview / Introduction
   1. Introduction
   2. Programme Structure
   3. Requirements for Programme Completion
   4. Calendar of Important dates
   5. Ensuring your Programme is a Success – who does what?
   6. Expectations
   7. Blackboard (VLE)
   8. Campus information

Part B – What you can expect
   9. Facilities
   10. Teaching and Supervision
   11. Assessment
   12. Pastoral and Academic Support
   13. Evaluation and Quality Assurance

Part C – The Modules
   14. Core Modules
   15. Option Modules

Part D – Important Links and Appendices
1. Introduction

About this Handbook

Welcome to the MSc in Optics and Photonics and the MRes in Photonics. The purpose of this handbook is to provide current and prospective students, and staff, with a detailed description of the course, including assessment and feedback mechanisms. As the MRes in Photonics shares much of the taught material with the MSc in Optics and Photonics most of the material in this handbook applies to both courses. If a statement is specific to the MRes in Photonics it is highlighted in blue.

This handbook describes the framework of the course and its assessment but the Course Organiser and/or Course Committee may make changes to detailed procedures if the circumstances indicate this is desirable. Similarly, the Board of Examiners has absolute discretion to modify the criteria described in this handbook, although in practice this would only occur in exceptional circumstances. Students will be notified of any changes prior to their introduction.

Aims and Objectives

The formal aim of the MSc in Optics and Photonics Course is:

"To provide a high quality education in optics that prepares students for research or technical work in industry or an academic environment."

This aim is fulfilled via the following formal objectives. MSc graduates will have:

- acquired an understanding of the specialised subject's essentials, beyond the undergraduate level, and of aspects at the forefront of the subject by taking advanced courses and optional seminars;
- learnt research skills by undertaking a supervised independent project;
- learnt technical and design skills through advanced practical and laboratory training;
- be prepared for working effectively in an academic or business environment; and,
- acquired knowledge of technical aspects of the field through independent study.

The aim of the MRes in Photonics is to provide training in photonics prior to the start of PhD studies.

The specific objectives of the MRes programme are to:

- attract well-qualified students and provide an intellectually challenging degree programme in Photonics;
- provide high quality advanced education in photonics beyond undergraduate level within an environment with considerable teaching and research experience in the field;
• give students the experience of undertaking a major, individual, research project and reporting the results in a full scientific report and presentation;
• give students training in appropriate research methods;
• develop students’ skills of communication, both written and oral, to specialised and non-specialised audiences;
• equip students for further academic study at Doctoral level in photonics and in subjects where photonics is an important enabling science.

The Optics Section

The masters courses are run by three of the research groups within the Blackett Laboratory; the Photonics Group (Head of Group: Prof. M. J. Damzen), the Quantum Optics and Laser Science (QOLS) Group (Head of Group: Prof. M. Kim) and the Experimental Solid State (EXSS) Group (Head of Group: Prof. R. Murray). Details of the research activities of these Groups can be found at http://www.imperial.ac.uk/natural-sciences/departments/physics/research/photonics/, http://www.imperial.ac.uk/natural-sciences/departments/physics/research/quantum-optics-and-laser-science/ and http://www.imperial.ac.uk/natural-sciences/departments/physics/research/experimental-solid-state-physics/. The Photonics and QOLS groups together constitute the Optics Section; with around 150 people the section constitutes the largest and most comprehensive grouping of optics activity within the UK academic sector. External funding of the optics section exceeds £4M.

There has been optics teaching and research for nearly a century since the founding of the Department of Technical Optics at the College in 1917, and a Masters level course has been offered for more than 40 years, although the content and nature of teaching has evolved with the subject and technology over the years.

Graduate School
As soon as you begin your postgraduate studies at Imperial College you automatically become a member of the Graduate School. Membership means you become part of a wider community, broadening and enriching your academic experience. http://www3.imperial.ac.uk/graduateschool
2. **Programme Structure**

The general structure of the MSc is as follows:

**Term 1 (Both courses): Lectures and Laboratory Work**

Compulsory courses:
- Laboratory – 7 ECTS;
- Imaging (Török/Dunsby) - 6 ECTS;
- Lasers (Dunsby/Damzen) - 6 ECTS;
- Optical Measurement and Devices (Weir/Paterson) – 6 ECTS;

and either:
- Optical Communications Physics (Oulton/Giannini) - 3 ECTS and 3 ECTS; or
- Plasmonics and Metamaterials (Maier/Hess) – 6 ECTS.

**Term 2 (Optics and Photonics): Lectures, Laboratory Work and Self Study Project;**

Compulsory courses:
- Laboratory – 5 ECTS;
- Self Study Project – 2 ECTS.

Optional lecture courses (students choose 24 ECTS from the list below):
- Advanced Topics in Nanophotonics (Hess/McCall/Oulton) – 6 ECTS;
- Biomedical Optics (McGinty) – 3 ECTS;
- Fibre Optic Technology (Popov) – 3 ECTS;
- Laser Optics (Tarbutt) – 3 ECTS;
- Laser Technology (Tisch) – 3 ECTS;
- Nonlinear Optics (Weir) – 3 ECTS;
- Optical Design (Török) 6 ECTS;
- Optical Design Laboratory (Middleton/Neil) – 6 ECTS;
- Optical Displays (Anthopoulos) – 3 ECTS;
- Optoelectronic Components and Devices (Ekins-Daukes) – 3 ECTS;
- Photonic Structures (McCall/Stavrinou) – 3 ECTS.

**Term 2 (Photonics MRes): Lectures, Laboratory Work and Self Study Project;**

Compulsory courses:
- Literature review and project plan – 10 ECTS.

Optional lecture courses (students may choose up to 12 ECTS from the list above in lieu of their project work, with the agreement of their project supervisor):

**Term 3 and summer period (Optics and Photonics): Project Work**

- Full time project work - 28 ECTS.
Projects are offered by academic staff based on their current research, and may be offered by other research organisations or by industrial companies, so the projects available will not be known until the course begins. The list below shows some of the projects undertaken by MSc students in 2014-15.

- Circularly Polarised Light OLED;
- Photonics Sensor for Photovoltaic Applications;
- Demonstrating concentrated photovoltaic solar power;
- Low emissivity coatings for c-Si photovoltaic/thermal solar cells;
- Design and evaluation of a flexible 3-D imaging system based on OPT;
- Biomimetics: Design and construction of a scatterometer to investigate complex optical structures within the natural world;
- Low-cost imaging spectrometer;
- Structurally chiral laser modes;
- Optical methods for the assessment of rice quality;
- Compressive Sensing;
- Diode-Pumped Alexandrite Lasers;
- Adhesion lithography for coplanar nanogap devices.

**Term 3 and summer period (Photonics MRes): Project Work**

- Full time project work - 50 ECTS.

Your project and supervisor will have been agreed prior to beginning the MRes.

Students will also be expected to take relevant professional skills development courses offered by the Graduate School. These are usually offered in terms 1 and 2.

The timetable for the course will be distributed using iCalendar.

All Master’s students are required to undertake an online course in plagiarism awareness. More information about the course and how to enrol is available at: [http://www3.imperial.ac.uk/graduateschool/plagiarismawarenesscourse](http://www3.imperial.ac.uk/graduateschool/plagiarismawarenesscourse). Students on the MSc will need to have completed the course by **November 17\textsuperscript{th} 2015** prior to the start of the standard experiments.
3. Requirements for Programme Completion

The MSc in Optics and Photonics consists of three elements:

1) Lecture courses (40% of the total course mark), consisting of the components:
   a) Core course examinations (20% of the total course mark); and
   b) Option course examinations (20% of the total course mark).

2) Project (35% of the total course mark), consisting of the components:
   a) Self Study Project (5% of the total course mark); and
   b) Dissertation (30% of the total course mark).

3) Laboratory (25% of the total course mark); the laboratory element consists of a single component.

The MRes in Photonics consists of two elements:

1) Core Skills (35% of the total course mark), consisting of the components:
   a) Examinations (20% of the total course mark); and
   b) Laboratory work (15% of the total course mark).

2) Project (65% of the total course mark), consisting of the components:
   a) Literature review (5% of the total course mark); and
   b) Optional courses (up to 10% of the total course mark).
   c) Project work (up to 60% of the total course mark);

To pass the course, the candidate must achieve an aggregate mark of 50% or higher in each element. In addition, they must have passed each component with a mark of 40% or higher.

A candidate can be considered for a Merit if the candidate has achieved an aggregate mark of ≥60%; and a mark of ≥60% for at least two of the elements and ≥50% for the other element.

A candidate can be considered for a Distinction if the candidate has achieved an aggregate mark of ≥70%; and a mark of ≥70% for at least two of the elements and ≥60% for the other element.

The Examiners nevertheless reserve the right to make adjustments to the procedures given in this section in exceptional circumstances.

Formal feedback to the students in each activity is by way of a letter grade indicating the percentage band of their attainment. The definition of the letter grades is given here.

DEADLINES: Deadlines are absolute. The Board of Assessors reserve the right not to mark reports submitted late. Computer difficulties will not be accepted as excuses for late submission. Any extenuating circumstances (e.g. illness) should be discussed with the course organiser immediately.

Resits
Resits for the written examinations may be held either late in the academic year or at the next available opportunity, usually the following academic year. Students can select on which occasion they wish to resit the examinations (but College regulations allow only one resit, otherwise the student is deemed to have failed the course). Students will retake the examinations for the specific subjects they have failed.

Mitigation and Extenuating Circumstances

The College will consider requests for mitigating and extenuating circumstances that may have affected a student’s performance in examinations or other areas of their course. Please note that claims for mitigating or extenuating circumstances should be made before, or no later than five days after, the examination or assessment and should be supported by documented evidence, if that is available.

To apply for mitigating circumstances please complete the appropriate form:

http://www.imperial.ac.uk/workspace/registry/public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Major.docx

for examinations and project reports and

http://www.imperial.ac.uk/workspace/registry/public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Minor.docx

for laboratory reports.

Please note that the information regarding your claim for mitigation or extenuation will remain confidential and will only be viewed by the advisory panel which will make a recommendation to the Board of Examiners about your request. You may indicate if there is any information which you DO NOT wish to be released to the Board of Examiners but bear in mind that the more information that is received by the Board the better able they will be to reach an informed decision.

Please contact the course organiser or your personal tutor for further information.
4. **Calendar of Important dates**

For the 2015-16 academic year the term dates are:

- **Autumn Term**: Saturday 3rd October 2015 to Friday 18th December 2015;
- **Spring Term**: Saturday 9th January 2016 to Wednesday 23rd March 2016;
- **Summer Term**: Saturday 23rd April 2016 to Friday 30th September 2016.

The examinations for the *Imaging and Lasers* lecture courses will be in the week 11th – 15th January 2016. The examination for the *Optical Measurement and Devices* course will be between 25th April and 13th May. The examinations for the *Plasmonics and Metamaterials* and *Optical Communications Physics* lecture courses will be held at the same time as the corresponding undergraduate examination, and the date will be announced later.

The examination for the *optional courses* is expected to be between 25th April – 13th May 2016, though these dates depend upon the undergraduate examination dates.

The *Self Study* project should be submitted on Wednesday 23rd March 2016. The presentations will be on 21st and 22nd March 2016.

The *Summer Project* written report should be submitted by Tuesday 20th September 2016. The presentations will be on 21st and 22nd September 2016.

The submission dates for the assessed laboratory coursework will be given during the course.
5. Ensuring your Programme is a Success – who does what?

The staff primarily responsible for administering the courses are:

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Person</th>
<th>Room No</th>
<th>Tel Ext.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Organiser</td>
<td>Dr. Kenny Weir (k.weir)</td>
<td>900C</td>
<td>47501</td>
</tr>
<tr>
<td>PG Development Officer</td>
<td>Dr. Andrew Williamson (andrew.williamson)</td>
<td>316</td>
<td>47631</td>
</tr>
<tr>
<td>Physics Postgraduate Administrator</td>
<td>Ms. Loli Sanchez Rey (l.sanchez)</td>
<td>316</td>
<td>47512</td>
</tr>
<tr>
<td>Head of Laboratory</td>
<td>Prof. Mark Neil (mark.neil)</td>
<td>608</td>
<td>46611</td>
</tr>
<tr>
<td>Optics Cluster Office</td>
<td>Ms. Judith Baylis (j.baylis)</td>
<td>606</td>
<td>47713</td>
</tr>
<tr>
<td></td>
<td>Miss. Sanja Maricic (s.maricic)</td>
<td>606</td>
<td>47742</td>
</tr>
<tr>
<td></td>
<td>Mrs. Marcia Salviato (m.salviato)</td>
<td>606</td>
<td>47862</td>
</tr>
<tr>
<td>Optics Workshop/Safety Officer</td>
<td>Mr. Martin Kehoe (m.kehoe)</td>
<td>617</td>
<td>47712</td>
</tr>
<tr>
<td>Board of Examiners</td>
<td>Dr. Kenny Weir</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Ray Murray (r.murray)</td>
<td>913</td>
<td>47578</td>
</tr>
<tr>
<td></td>
<td>Prof Mike Damzen (m.damzen)</td>
<td>610</td>
<td>47783</td>
</tr>
<tr>
<td></td>
<td>Prof Myungshik Kim (m.kim)</td>
<td>1202, EE</td>
<td>47754</td>
</tr>
<tr>
<td></td>
<td>External Examiner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postgraduate Welfare Advisor</td>
<td>Dr. Arnaud Czaja (a.czaja)</td>
<td>726</td>
<td>41789</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Huxley)</td>
<td></td>
</tr>
<tr>
<td>Department Postgraduate Student Representative</td>
<td>Michael Rutherford (m.rutherford13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department Careers Advisor</td>
<td>Prof. Lesley Cohen</td>
<td>B912</td>
<td>47598</td>
</tr>
<tr>
<td>Department Director of Post-graduate Studies</td>
<td>Prof. Stefan Maier</td>
<td>H903</td>
<td>46063</td>
</tr>
<tr>
<td>MSc External Examiner</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Email addresses are the name in brackets added to @imperial.ac.uk

To call a College number from outside, dial 020 759 plus the Internal phone number (above).

The courses are administered on a day-to-day basis by the course organiser, Dr Kenny Weir. They are also overseen by the MSc Course Committee. It usually meets once per term. The current members of this committee are:

- Dr. Kenny Weir (Chair);
- Student Representative (Optics and Photonics);
Student Representative (Photonics MRes);
Prof. Mike Damzen;
Prof. Myungshik Kim;
Prof. Ray Murray;
Prof. Mark Neil;
Prof. Peter Török;
Dr. Andrew Williamson;

The Physics Masters Committee has overall responsibility for the Masters courses in the Department. The Director of Postgraduate Studies chairs the committee, and the course organisers and the student representatives are members of the committee. It meets twice a year.
6. Expectations

Our Principles

At its June 2012 meeting the Senate approved a Student Charter for the College, entitled Our Principles. The Principles were developed by a College Working Group including representatives of all Faculties and undergraduate and postgraduate students.

The Principles define the guiding principles of the College community and cover all students, both undergraduate and postgraduate. They are not a legal contract but rather an easily accessible, concise source of information and a clear display of staff, student and ICU collaboration. They will be reviewed annually by the Quality Assurance Advisory Committee.

The Principles are available at: http://www.imperial.ac.uk/students/student-support/our-principles/. Each Principle is accompanied by ‘drop-down’ text, which elaborates upon the overarching statements and provides links to further information.

General Regulations for students

The College’s regulation for students may be found at http://www3.imperial.ac.uk/registry/proceduresandregulations

Code of Student Discipline

This Code of Student Discipline provides for the hearing of complaints concerning breaches of discipline by students, and for rights of appeal where appropriate, and sets down the penalties that may be imposed, including termination of membership of the College http://www.imperial.ac.uk/admin-services/secretariat/

Attendance

The College monitors the attendance of all its students. Students are requested to notify lecturers and the Course Organiser if they become ill. Students are required to provide a medical certificate if they are absent for 3 days or more, including during the summer project. If a student misses an examination because they are ill it is essential that they obtain a medical certificate.

Employment during studies

Please note the College’s policy regarding part time employment during your MSc course https://workspace.imperial.ac.uk/registry/Public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Student%20Employment%20During%20Studies.pdf
Progress and Performance

All assessments during the lecture courses and laboratory should be returned within two weeks with a letter grade and comments from the marker. The dissertation is marked after the end of the academic year; please contact the course organiser for details on how to get feedback on the report. The grades are related to the marks by the following table:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mark Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>$m \geq 80%$</td>
</tr>
<tr>
<td>A</td>
<td>$70% \geq m \geq 79.9%$</td>
</tr>
<tr>
<td>B</td>
<td>$60% \geq m \geq 69.9%$</td>
</tr>
<tr>
<td>C</td>
<td>$50% \geq m \geq 59.9%$</td>
</tr>
<tr>
<td>D</td>
<td>$40% \geq m \geq 49.9%$</td>
</tr>
<tr>
<td>F</td>
<td>$M \leq 39.9%$</td>
</tr>
</tbody>
</table>

(‘E’ is not used)

Complaints

Imperial College aims to give the highest specialised instruction and service to all its students, however, in some cases it recognises that students may not always be satisfied with the service that they have received. If you wish to raise a concern, you should first seek advice from your student representatives and raise the matter with the individual concerned. If you are not satisfied with the outcome, you should consult the College’s Registry website which provides clear and consistent procedures that indicate how you can take your comments further:

http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/complaintsappeals
7. **Blackboard (VLE)**

Some of the course material may be published on Blackboard and lectures shared with the UG course recorded using Panopto [http://learn.imperial.ac.uk](http://learn.imperial.ac.uk). You should be registered for the appropriate courses soon after you arrive; if you wish to be registered for further courses please contact [andrew.williamson@imperial.ac.uk](mailto:andrew.williamson@imperial.ac.uk).
8. Campus information

General information about the College, including maps of the South Kensington campus, may be found at [http://www3.imperial.ac.uk/campusinfo/](http://www3.imperial.ac.uk/campusinfo/).

Directions

Imperial College is located just behind (south of) the Albert Hall in South Kensington. The nearest tube stations are South Kensington and Gloucester Road on the District/Circle Line and High Street Kensington on the Circle Line. South Kensington and Gloucester Road are also on the Piccadilly Line which goes directly to Heathrow Airport.

The Department of Physics is located at the Blackett Laboratory, on the corner of Queen’s Gate and Prince Consort Road (the entrance is on this road).

Health, Welfare and Student Support

[http://www.imperial.ac.uk/student-space/](http://www.imperial.ac.uk/student-space/)

The College Health Service may be found at 40 Princes Gardens. Their telephone number is Ext. 4-9375/6. For emergencies call Ext. 4444. Students may use the Health Service free of charge during normal working hours; the Health Service is open from 8:00am to 6:30pm weekdays during term time (but it is closed after 1pm on Tuesdays), and 8:00am to 5:00pm out of term. Appointments may be made by calling the above number. Otherwise, there is a triage clinic (appointments not necessary) from 8:30am to 10am.

We strongly recommend that you register with an NHS general practitioner as soon as you arrive at Imperial, even if you do not normally need to see a doctor. Students who live away from College should register with an NHS general practitioner local to their place of residence, in case they need the doctor to visit them at home, or for medical advice out-of-hours.

Dental treatment is also provided at the Health Service. Appointments are usually necessary (call 0207 589 6623). It is generally necessary to pay for dental treatment, although students may be eligible for subsidised treatment.

If travelling elsewhere in the European Union, you would be advised to obtain an EHIC card [https://www.ehic.org.uk/Internet/home.do](https://www.ehic.org.uk/Internet/home.do) prior to your travel, as this will enable you to receive medical treatment at reduced cost. The EHIC is available to all persons resident in the United Kingdom, but non European Union students will need longer to apply.

The contact details for other welfare services are:

<table>
<thead>
<tr>
<th>Service</th>
<th>Internal Tel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency assistance (Medical, Security and Fire, Police, Ambulance)</td>
<td>4444 (internal)</td>
</tr>
<tr>
<td>The Health Centre</td>
<td>020 7584 6301 or 49375</td>
</tr>
</tbody>
</table>
The Student Hub (Accommodation) 49444
(The Student Counselling service 49637
Chaplaincy (Religious support, including other major faiths) 49600
Students Union 48060
(Sports
The College Sports Centre can be found at 7 Prince’s Gardens. Details of facilities, opening times and other information can be found at http://www3.imperial.ac.uk/sports/ethos.

Security and Emergencies
Emergencies of all types may be reported to Ext. 4444. There are First Aid boxes around the Department and in the laboratories, and your safety induction and literature should give you details on First Aid procedures.

Petty theft happens from time to time. Don’t leave valuables lying around and always close and lock the door, even if you go out for just a short time. Make sure that the doors to any rooms containing computers are properly locked if you are one of the last to leave in the evenings or at weekends. Unfortunately, some thefts have been from locked offices, so if you have a laptop, either take it home each night or lock it in a secure place. If you see anyone at all suspicious, call security at the above number.
Part B – What you can expect

9. Facilities

Student’s Union

All students at Imperial College are members of the Imperial College Union [http://www.imperialcollegeunion.org/](http://www.imperialcollegeunion.org/) and the Graduate Student’s Union [https://union.ic.ac.uk/presidents/gsu/](https://union.ic.ac.uk/presidents/gsu/). As well as social, sporting and cultural events the Union offers other services such as welfare and housing advice.

The Physics Department has a Postgraduate Committee which represents masters and PhD students and also organises a range of social events throughout the year.

If you wish to represent your fellow students to the College details on how to do so may be found at [https://www.imperialcollegeunion.org/representation](https://www.imperialcollegeunion.org/representation).

Computing

General support and information on using computers at Imperial College is the responsibility of ICT (Information and Communication Technologies division). Information for new students can be found at [http://www.imperial.ac.uk/admin-services/ict/](http://www.imperial.ac.uk/admin-services/ict/) under ‘New to Imperial?’.

All new members of College will be given a College username and email address. The induction pack given to you at the start of your studies will explain how to activate your account – please note you will need your CID number to do this.

General help on computing matters can be obtained from service desk. Their website is also linked from [http://www.imperial.ac.uk/admin-services/ict/](http://www.imperial.ac.uk/admin-services/ict/). Their email address is Service.Desk@imperial.ac.uk or they can be contacted by phone on ext. 49000.

Students can use any of the college’s public area PCs. The main public areas in College which are available to MSc students are in the central library on level 2 and the undergraduate computing lab on level 3 Blackett, although undergraduates have priority of use in the latter. Some Halls of Residence have their own computer suites available for residents.

The computer suites have network printers for use by students. Each student has an account to pay for their printing and you must have sufficient credit in this account to print your job. When starting, your account will be given some credit – extra credits can be obtained from the card loaders throughout College.

The College has a wireless network, and guidance on connecting your computer to the network can be found at [http://www.imperial.ac.uk/admin-services/ict/](http://www.imperial.ac.uk/admin-services/ict/) in one of the quick links.

Please note that if you are using your own computer on a College network you are still bound by the College’s terms and conditions of use, which you will have to agree to prior to
activating your account and which can be seen at https://www.imperial.ac.uk/ict/activateaccount/.

Calculators

The College Board of Graduate Studies has determined that only College-owned approved non-programmable calculators can be used in the written examinations. The Physics Department has approved and can provide calculators, which use algebraic logic. Appropriate arrangements will be made for students wishing to use RPN calculators. However, in all cases, only College-owned calculators may be used in the written examinations and therefore students are advised to either purchase an appropriate calculator or practise on a College-owned calculator before the written examinations.

Library

The Central Library is next to the Sherfield Building. The catalogue may be accessed from terminals in the Central Library and over the web (starting from the College home page). The Central Library also houses the Haldane Library, with a good general collection (fiction and non-fiction) and a music and DVD library.

Electronic journals are available via the library website:

http://www3.imperial.ac.uk/library

Note that the Physics Department does not have its own library.

Food and Drink

Lunch can be bought in the Student Common Room, on Level 2 of the Sherfield Building or downstairs in the Main Dining Room.

Tea, coffee and sandwiches are available in the Physics Common Room, on Level 8 of the Blackett Lab (which also offers an impressive view over London). Due to their large number, MSc students are unfortunately not permitted to use the Maths Department Common Room on Level 5 of the Huxley Building or the Senior Common Room in the Sherfield Building.

A number of sandwich shops, restaurants and pubs, at a range of prices, may be found on Gloucester Road (one block west of Queen's Gate), and around the tube station at South Kensington. Beit Quad and Southside have student bars.

Mail

The Department’s postal address is:

Physics Department,
Imperial College London,
South Kensington campus,
London, SW7 2AZ, UK

If you have any mail to be delivered to the Department, please use your name together with the above address. The mail will be delivered to the pigeonholes outside the Optics Cluster Office.

Telephone
The general college number is 020 7589 5111. The College operator may be obtained by dialling 0. Five-figure internal numbers may be dialled directly on the phone. All extension numbers prefixed with a 4 may be dialled directly by external callers using 020 7594-XXXX, where XXXX is the last four digits of the extension. Extension numbers prefixed with a 5 do not have the direct dialling facility. Use the “People” tab (top right, next to the Search textbox) on the College website to find telephone numbers and offices of members of College. Microsoft Outlook also has contact details for the staff and students.

Lockers
There are some lockers available for masters students on Level 0 of the Blackett laboratory (with blue doors). If you want to borrow a locker, please contact andrew.williamson@imperial.ac.uk. Please make sure that you remove all items at the end of the academic year, anything not removed will be disposed of.

...and when you finish the College has an alumni network http://www.imperial.ac.uk/alumni/.
10. Teaching and Supervision

The College standard working day is used, with 50-minute lectures commencing on the hour, starting at 09:00 at the earliest. Most MSc in Optics and Photonics lectures are in the Blackett Laboratory, Room 630 with some lectures in Lecture Theatres 2 and 3. Room 630 is used for other teaching activities within College, though if it is not being used it is generally available for MSc students. The laboratory work is carried out in the dedicated MSc laboratory space in room 418. The optical design laboratory does not require laboratory equipment and is held in room 630.

MSc in Optics and Photonics

Self study projects are selected early in the second term. A list of projects with supervisors is presented, and students can approach the supervisor and both may agree on the project. If the student has their own idea for a project they can approach the course organiser and, if it is agreed the student may approach potential supervisors (with help from the course organiser if needed). If a student has difficulty finding a project, they should speak to the course organiser.

The process is similar for summer projects. In February a list of project with supervisors is presented and students may select a project as above. Several projects may be offered by industrial companies or external research organisations; if a student is interested in these projects then a visit and interview are usually arranged prior to either party agreeing to the project – please note the company is not obliged to accept a student.

If you wish to arrange your own project you must speak to the Course Organiser as soon as possible, and by the end of February at the latest. The Department needs to ensure that supervisory, health and safety and intellectual property issues are agreed before the project is approved. It is expected that most projects will have been arranged by the end of the second term, and all should be in place by the start of the examinations.

MRes in Photonics

The self study project will be chosen in discussion with the Supervisor and the Course Organiser. The summer project will be based on the research to be undertaken during the PhD.

Safety

In a course that makes use of high-voltage power supplies, lasers and chemicals, safety is of paramount importance. All students are issued with the current version of the Blackett Laboratory Safety Booklet at the start of the MSc course, and all students are required to attend the College Laboratory Safety lecture and to pass the online Laser Safety course http://www.imperial.ac.uk/safety/lasersafety/. This is necessary in order to be able to register for the use of lasers in the laboratory. The Risk Assessment Foundation Training course http://www3.imperial.ac.uk/staffdevelopment/safety/index/raft (login required) which teaches how to assess the potential hazards of an experiment, is also compulsory and you will need to prepare a risk assessment for some experimental equipment you design as part of the laboratory course.
It is important to bear in mind safety issues when working in the laboratory, particularly when working with laser beams. Detailed guidance on safety in the MSc laboratory is issued to students with the rest of the laboratory details, and College guidance on safety may be found here.

Projects may be taken in research group laboratories where high-power laser beams or other potentially dangerous equipment such as high-voltage power supplies are routinely in use. Students must read, sign and follow the safety guidelines agreed for each laboratory covering electrical, chemical and laser safety as appropriate.

The Building Evacuation Signal is an announcement “to leave the building”. When this is heard everyone must leave immediately by the nearest fire exit; by the main stairs in the Blackett Laboratory if working in the MSc lecture room or laboratory or by the stairs between the Huxley Building and the Blackett Laboratory if working in the Optics Reading Room or the stairs at the end of each wing of the Blackett Laboratory.
11. Assessment

The procedures for the examinations and the criteria for completing the courses are governed by the College’s Academic and Examination arrangements, http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations. The College’s policy on religious obligations in assessments may be found at http://www3.imperial.ac.uk/registry/exams.

Written Examinations

Assessment of the lecture courses is by written examinations, the examination questions being set by the lecturers delivering the course. One or more of the courses may include questions that require the use of a college provided computer – if so the structure and regulations of the examination will be made clear prior to the start of the course.

For the MSc and MRes examinations, each examination question is marked out of 20 by the course lecturer, the mark being moderated by a second marker. The total mark for each paper is converted to a percentage, the corresponding letter grade being fed back to the student. The undergraduate examinations follow the same process, but the mark for each question is usually different (it is clearly printed on the question).

Draft examination papers are prepared by the lecturer, moderated by a second member of staff and sent in advance to the External Examiner who reviews them and suggests changes. After discussion with the course lecturers, these changes are usually incorporated into the final papers.

The examination marks are reviewed by meetings of the internal assessors (staff involved in the courses). The College requires that individual students cannot be identified by staff present at Examiners meeting and they will be identified only when the results are presented after the External Examiners meeting and when the results are communicated to Registry.

The marks are then forwarded to the External Examiner for information. The Board of Examiners consists of the External Examiner, Prof. M. Kim, Prof. M. J Damzen, Prof. R. Murray and Dr. K. Weir. The Board of Examiners meet soon after the completion of the course to review all the marks and make final recommendations to the College. It is traditional to send a copy of a selection of the project reports to the External Examiner in advance of this meeting, to provide additional information that might assist the decision process.

A separate meeting will consider any claims for mitigating circumstances and their recommendations will be reviewed by the appropriate Examiners meeting.

All candidates within 2.5% of a boundary will be considered for promotion by the Board of Examiners.
Core lecture courses:

Candidates must sit the examinations appropriate to the course(s) they have taken.

*Imaging* (2.0 hours; two compulsory questions);
*Lasers* (2.0 hours, two compulsory questions);
*Optical Measurement and Devices* (2.0 hours, two compulsory questions).

The *Optical Communications Physics* and *Plasmonics and Metamaterials* examinations will follow the same rubric as the undergraduate examination.

Optional lecture courses:

The examinations of the optional lecture courses is subdivided into separate examinations for each lecture course. Some of these examinations may be held serially.

*Laser Technology* (45 minutes, two questions, of which the candidate answers one);
*Laser Optics* (45 minutes, two questions, of which the candidate answers one);
*Nonlinear Optics* (45 minutes, two questions, of which the candidate answers one);
*Optical Fibre Technology* (45 minutes, two questions, of which the candidate answers one);
*Biomedical Optics* (45 minutes, two questions, of which the candidate answers one);
*Photonic Structures* (45 minutes, two questions, of which the candidate answers one);
*Optoelectronic Components and Devices* (45 minutes, two questions, of which the candidate answers one);
*Optical Displays* (45 minutes, two questions, of which the candidate answers one);
*Advanced Topics in Nanophotonics* (2.0 hours, four questions, of which the candidate answers three);

The assessment of the Optical design course is 2/3 examination and 1/3 assessed problem sheet. The examination is 1.5 hours, three questions, of which the candidate answers two.

The assessment of the Optical Design Laboratory is based upon a report submitted at the end of the course. The mark for Optical Design Laboratory counts the equivalent of two examination questions.

Past examination papers are available on the [Blackboard](https://www.imperial.ac.uk/natural-sciences/departments/physics/students/current-students/undergraduates/lecture-courses/) (login required).
Laboratory

Each subsection that follows details the assessment procedure for each laboratory activity. The percentage in each subsection heading indicates the weighting used in determining the laboratory mark; this weighting is based on the time spent on each activity. The percentage for the MRes in Photonics is shown in blue.

Demonstration Experiments (42/162 hrs = 26%; 42/102hrs = 40%)

Assessment for the demonstration experiments is via the student’s laboratory notebook. Written comments are made on the notebook by the assessor. The resultant letter grade is written in the laboratory notebook.

Standard Experiments (60/162 hrs = 37%; 60/102hrs = 60%)

Assessment for the standard experiments is via the report submitted by 2.00pm on the Thursday following the completion of the experiment. Written comments are made on the report by the assessor. The resultant letter grades are written on the report.

System Design (60/162 hrs = 37%; Photonics MRes students do not perform this experiment)

Assessment for the System Design is via the report written by the student during the assigned period for the experiment. Written comments are made on the report by the assessor. The corresponding letter grades are written on the report.

Each percentage mark attained in the laboratory subsections is combined to compute the overall mark for the laboratory element.

Self-study Project

The self-study module is assessed via oral presentation and a report.

The self-study report is marked by the supervisor.

The final mark for the self-study component is the weighted average of the oral presentation and the written report (weighting 1:4). The letter grade corresponding to this mark is formally fed back to the students.

Project

The project is assessed via an oral presentation and a report.

The final mark for the project is the weighted average of the oral presentation and the written report (weighting 1:4).
The project report is marked by the supervisor; a second marker (blind) marks the report as well. The project report mark is the weighted average of the oral presentation and the written report (weighting 1:4). The letter grade corresponding to this mark is formally fed back to the students.

**Students should be aware of the need to give proper credit for the work of others when writing papers, reports, theses, etc. This is particularly important when the work is in collaboration with other persons. The College definition and policy regarding plagiarism can be found here.**

**Professional skills**

This course involves advice on and activities valued in a working environment (i.e., careers advice, presentation skills). The Graduate School offer a range of courses and these will be publicised during the year. Details can be found at [http://www3.imperial.ac.uk/graduateschool/currentstudents/professionalskillsmasters](http://www3.imperial.ac.uk/graduateschool/currentstudents/professionalskillsmasters).
12. Pastoral and Academic Support

Student welfare is of particular concern to members of academic staff in departments and divisions, and to warden teams in Halls: https://workspace.imperial.ac.uk/registry/public/Procedures%20and%20Regulations/Quality%20Assurance/Academic%20and%20Pastoral%20Support%20of%20Postgraduate%20Taught%20Students.pdf.

Your first point of contact to raise queries or issues should always be your course team, details can be found in 5. However, all students also have confidential access - independent of department or division - to the College Tutors (http://www.imperial.ac.uk/student-space/tab%20on%20right) regarding academic issues, and all aspects of pastoral care and discipline within the College.

Every MSc in Optics and Photonics student is assigned a member of the academic staff as Personal Tutor early in the course. The role of the Personal Tutor is primarily to be the first point of contact for any issues or difficulties that may arise throughout the course. He or she will be able to advise students on selection of courses, career matters, writing recommendation letters, and also any matters of a non-academic nature:

Students on the MRes in Photonics will have the same welfare arrangements as other PhD students in the Photonics group. These will be explained during the Group induction.

The Postgraduate tutor in the Physics Department is Dr Arnaud Czaja (a.czaja@imperial.ac.uk – ext. 41789), who is available to discuss any matter, personal and academic, in confidence. In addition, the Department’s Senior Tutor Prof Jing Zhang (ph.stutor@imperial.ac.uk) may also be able to assist.

If you wish to discuss matters with a female member of staff please contact Prof Lesley Cohen (l.cohen@imperial.ac.uk) or Dr Yvonne Unruh (y.unruh@imperial.ac.uk) who may be able to assist.

Other useful sources of support offered by the College are:

http://www3.imperial.ac.uk/studenthub (for general assistance)
http://www3.imperial.ac.uk/academic-english (for English language support)
http://www.imperial.ac.uk/study/international-students (for international students)
http://www3.imperial.ac.uk/registry (for academic matters)
http://www3.imperial.ac.uk/careers (for careers advice)
13. Evaluation and Quality Assurance

The Department is keen to gather the student’s view of their experience and learning while they are here, and to use their feedback to improve the delivery of the courses. The Departmental body with responsibility for the provision of Postgraduate Taught courses is the Postgraduate Masters Committee (PMC), chaired by the Director of Postgraduate Studies.

Postgraduate Masters Committee

The membership of the PMC consists of the course organisers, the student representatives for each masters course and the Directors of Postgraduate Studies and of Undergraduate Studies. The PMC typically meets twice a year. Each Masters course must elect a student representative early in the autumn term to serve on the PMC. Their role is to inform the PMC of the concerns of the students and to assist in implementing any changes proposed.

https://www.imperialcollegeunion.org/representation

As well as the formal monitoring system, students are encouraged to raise any concerns with the course organiser as they arise.

Optics Masters Course Committee

The MSc in Optics and Photonics/MRes in Photonics has a course committee, which meets twice a year to monitor the courses and discuss concerns raised by the student representatives (the MRes students should discuss issues concerning their research using the procedures for their research group). These representatives are elected by the students on the programmes and serve on the committee (and the Postgraduate Masters Committee).

Course Questionnaire

Your feedback is important to your department, the College and Imperial College Union. Whilst, there are a variety of means to give your feedback on your Imperial experience, the following College-wide surveys give you regular opportunities to make your voice heard:

- **PG SOLE lecturer/module**
- **Student Experience Survey (SES)**

The PG SOLE lecturer/module survey runs at the end of the Autumn and Spring Terms. This survey is your chance to tell us about the modules you have attended and the lecturers who taught them. Run at the same time as the Autumn Term PG SOLE is the Union’s Student Experience Survey (SES). This survey will cover your induction, welfare, pastoral and support services experience. During December you will receive an email in your Imperial College account with a link to the surveys.

All these surveys are anonymous and the more students that take part the more representative the results so please take a few minutes to give your views.
If you would like to know more about any of these surveys or see the results from previous surveys, please visit: http://www3.imperial.ac.uk/registry/proceduresandregulations/surveys

For further information on surveys please contact the Registry’s Surveys Team on surveys.registrysupport@imperial.ac.uk

College Monitoring of Courses

Independent of the above, the College reviews all masters courses and ensures that they are compliant with statutory requirements and best practice. Details on the processes may be found at http://www3.imperial.ac.uk/registry/proceduresandregulations/qualityassurance/approvalandreview

For further information on surveys please contact the Registry’s Surveys Team on surveys.registrysupport@imperial.ac.uk.
Part C – The Modules

14. Core Module:

**Imaging** Prof. P Török/Dr C Dunsby

**Lasers** Dr C Dunsby /Prof. M Damzen
Optics: geometric optics, paraxial approximation, ray transfer matrices, optical aberrations, wave optics. (1) Introduction: overview of laser action; historical context; (2) Waves and photons: Maxwell equations, optical electric field and polarisation; wave equations in vacuum and in LIH media; photon energy and momentum, optical tweezers; laser cooling; (3) Light-Matter interaction: interaction between an EM wave and a dielectric medium; relationship between susceptibility and refractive index; dispersion in a dielectric medium; homogeneous and inhomogeneous line broadening; (4) Laser physics: Basic radiative processes; absorption, spontaneous and stimulated emission and associated rate equations; population inversion and gain; 3- and 4- level laser systems; relative merits of different gain media; threshold gain condition, small signal gain, gain at threshold and saturation.; (5) Laser devices: Gas lasers, solid-state lasers, fibre lasers; dye lasers; (6) Laser modes and dynamics: temporal-spectral properties of laser radiation (c.w. to mode-locked); q-switching; mode-locked lasers; spectral selection and narrow line-width (SLM) operation; active and passive mode-locking; limits to ultrashort pulse generation;

**Optical Measurement and Devices** Dr. K. Weir, Dr. C. Paterson
Light as a wave; definition of the polarisation state of light; polarisation calculus; devices for the manipulation of polarisation; measurement of polarisation; ellipsometry. Principles of interferometry; division of wavefront and division of amplitude; multiple beam interferometers; laser interferometers; practical interferometers. Interferometric and non-interferometric techniques for testing the quality of optical surfaces, optical components and image forming systems; optical techniques for making other types of measurement. Optical properties of thin films; design of thin film antireflection coatings, mirrors, beam splitters and polarisers; narrow band optical interference filters; practical techniques for the manufacture of thin film devices.

**Plasmonics and Metamaterials** Prof. S Maier/Prof. O Hess

**Optical Communications Physics I** *Dr R Oulton*

**Optical Communications Physics II (Information Theory)** *Dr V Giannini*

Details of the courses may be found at

https://www.imperial.ac.uk/natural-sciences/departments/physics/students/current-students/undergraduate-and-masters-degree-courses-list/

(login required)
15. Option Modules:

**Biomedical Optics Dr. J. A. McGinty**
Introduction to biomedicine and imaging; Optical properties of biological tissue and interactions with light: macroscopic to microscopic; Introduction to microscopy: wide-field imaging; contrast mechanisms; Advanced microscopy techniques: confocal microscopy; multi-photon; structured illumination; SPIM; FLIM; Beyond the diffraction limit: FRET; super-resolution; Coherence gated imaging: time-domain OCT; frequency-domain OCT; Imaging larger biological specimens: optical projection tomography; diffuse optical tomography; Endoscopic imaging; Optical therapies: surgery via photocoagulation, disruption, ablation; PDT.

**Laser Optics Dr M Tarbutt**

**Laser Technology Prof J Tisch /Nonlinear Optics Dr K Weir**
Details of the course may be found at [https://www.imperial.ac.uk/natural-sciences/departments/physics/students/current-students/undergraduate-and-masters-degree-courses-list/](https://www.imperial.ac.uk/natural-sciences/departments/physics/students/current-students/undergraduate-and-masters-degree-courses-list/) (login required)

**Optical Design Prof. P Török**

**Optical Design Laboratory Prof. M. A. A. Neil/Mr K. Middleton**
This course builds on the theoretical foundations of the Optical Design lecture course to apply these principles using state of the art computer aided optical design software. The design of particular lens systems such as singlets, doublets, eyepieces and magnifiers catadioptric systems, telephoto and inverse telephone lenses, triplets and Tessars, double gauss lenses and infrared optics are covered.
Optical Displays: Prof. T Anthopoulos
Introduction to Display Characteristics (Brightness, Colour hue and saturation, Contrast, Viewing angle, Efficiency, Response time, Memory, Resolution, Durability); Science and Technology of Display Devices: Emissive (Vacuum fluorescent, Plasma, Thin film electroluminescence, Field emission, Organic LED, Inorganic LED, Fluorescent liquid crystal) and Non-emissive (Liquid crystal, Electrochromic, Electrophoretic, Micro-mirror); Other Display Issues: Driving Schemes (Active matrix, Passive matrix), Flexible Substrates, Light out-coupling.

Optical Fibre Technology: Dr. S Popov
The course covers fundamentals of the waveguiding in fibres, fibre properties, including linear and nonlinear light propagation; basic principles of operation of passive and active fibre components including conventional geometry and novel doped and micro-structured fibres. This builds up the portfolio of essential knowledge that allows understanding of principles of operation of continuous wave and pulsed fibre lasers, Raman lasers and amplifiers; telecom systems and advanced topics on wavelength and time format extension of fibre laser sources are covered.

The syllabus is broad and starts from a discovery of waveguiding by Colladon in 1841 in a stream of water, the emphasis in the taught material is made on learning objectives and outcomes that give knowledge immediately relevant to contemporary top achievements in the field: assessment of linear and non-linear fibre parameters, limits on light propagation and generation in fibre devices, operation parameters of current element base of fibre components in contemporary systems. These are directly linked in the course with the two most important and rapidly developing applications of fibre optics technology: development of high power fibre lasers for industrial applications, diversification of their wavelength and time format, and application of specific fibre devices in conventional and new emerging fields.

Opto-electronic Components and Devices Dr. N. Ekins-Daukes
Semiconductor materials, hetero-structures and quantum structures (2 lectures), optical absorption & emission in semiconductor diodes (2 lectures), principles and practice of light emitting diodes, solar cells, laser diodes and photodetectors & CCD arrays(6 lectures)

Photonic Structures – Prof. M McCall/Dr P Stavrinou
Qualitative introduction: origin of Bragg zones in multilayer dielectrics, Fibre Bragg gratings and their application. Coupled wave theory, From Maxwell’s equations to Helmholz equation with periodic perturbation. Coupled wave approximation. Solution and key results for Bragg wavelength, bandwidth and reflectivity. Add-drop multiplexer. Chiral thin films. Defects in 1-D structures. Microcavity devices (i.e. Lasers, LEDs, modulators, detectors); Introduction and interpretation of photonic band structure diagrams (Bloch modes); Types of lattice structure (square, triangular...). Propagation in the plane, propagation out of the plane (out-coupling, scattering - losses etc); Applications and key practical issues (fabrication, PBG guides):- super prisms, compact waveguiding, emissive structures.
16. Marking criteria and template for written work

These will be provided at the start of each course.

17. Marking criteria and template for dissertation

These will be provided at the start of the course.

18. Options Module Choice Form

This will be provided at the Options Fair in December.

19. Graduate School

All MSc students are enrolled in the Graduate School, which is responsible for providing Professional Skills courses and for Quality Assurance. You can find more information about the Graduate School at http://www3.imperial.ac.uk/graduateschools.

20. Study guide for Master’s students

The College has produced a study guide specifically for masters students. It can be seen at https://workspace.imperial.ac.uk/college/public/pdfs/ISG Masters.pdf

21. Postgraduate Open Day

Wednesday 10th December is the Postgraduate Open Day, to advertise both Masters and PhD courses. If you are considering continuing to a PhD in the Department you will find it a very useful event. Each Research Groups have individual opens days, usually in January and details of these are available at the Postgraduate Open Day.

https://www.imperial.ac.uk/natural-sciences/departments/physics/students/admissions/postgraduate-admissions/open-days/

22. The Registry Department

The Registry Department maintains the official records of your studies, and can provide much needed documentation before, during and after your studies. Details may be found at http://www3.imperial.ac.uk/registry/abouttheregistry
APPENDIX I: Policy on Scientific Misconduct

The College considers any allegation of scientific misconduct to be a matter of great concern and will investigate any such allegation fully. Given its international reputation and status, the College has a responsibility to the scientific community and to the public at large and therefore, where appropriate, will make public the outcome of any such investigation.

https://workspace.imperial.ac.uk/registry/Public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Examination%20and%20Assessment%20Academic%20Integrity.pdf

Definitions
The College has adopted the Royal College of Physicians’ definitions of scientific misconduct as including piracy, plagiarism and fraud. The following definitions give indicative descriptions of the types of activity covered by this regulation. These descriptions are neither exclusive nor exhaustive:

a. Piracy is the deliberate exploitation of ideas and concepts from others without acknowledgement.

b. Plagiarism is the copying of ideas, data or text (or a combination of these) without permission or acknowledgement.

c. Fraud involves deception—usually, but not exclusively, the invention of data. This could also include the omission from analysis and publication of inconvenient components of a data set.

Other types of scientific misconduct may be separately defined, but the College views them as combinations or sub-types of those defined above. In addition to scientific misconduct, these procedures will also apply to cases of scientific negligence.

Procedures for the Investigation of Allegations of Research Misconduct

See the ordinances at http://www.imperial.ac.uk/admin-services/secretariat/.

STATEMENT ON PLAGIARISM

You are reminded that all work submitted as part of the requirements for any examination (including coursework) of Imperial College and the University of London must be expressed in your own words and incorporate your own ideas and judgements.

Plagiarism, that is, the presentation of another person’s thoughts or words as though they were your own, must be avoided, with particular care in coursework, essays and reports written in your own time. Note that you are encouraged to read and criticise the work of others as much as possible. You are expected to incorporate this in your thinking and in your coursework and assessments. But you must acknowledge and label your sources.

Direct quotations from the published or unpublished work of others, from the internet, or from any other source must always be clearly identified as such. A full reference to their source must be provided in the proper form and quotation marks used. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as a single unacknowledged long quotation from a single source. Equally, if you summarise another person’s ideas or judgements, figures, diagrams
or software, you must refer to that person in your text, and include the work referred to in your bibliography. Departments are able to give advice about the appropriate use and correct acknowledgement of other sources in your own work.

The direct and unacknowledged repetition of your own work which has already been submitted for assessment can constitute self-plagiarism. Where group work is submitted, this should be presented in a way approved by your department. You should therefore consult your tutor or course organiser if you are in any doubt about what is permissible. You should be aware that you have a collective responsibility for the integrity of group work submitted for assessment.

The use of the work of another student, past or present, constitutes plagiarism. Where work is used without the consent of that student, this will normally be regarded as a major offence of plagiarism.

Failure to observe these rules may result in an allegation of cheating. Cases of suspected plagiarism will be dealt with under the College’s Examination Offences Policy and may result in a penalty being taken against any student found guilty of plagiarism.

Cheating Offences Policy and Procedures
http://www3.imperial.ac.uk/registry/exams/examoffences

Plagiarism advice for postgraduate taught course (Master's) students
http://www.imperial.ac.uk/admin-services/library/learning-support/plagiarism-awareness/

TurnitinUK Plagiarism Detection Service at Imperial College
http://www.imperial.ac.uk/admin-services/ict/self-service/teaching-learning/elearning-services/
APPENDIX II: Students with disabilities, specific learning difficulties, long-term health issues

At Imperial College we recognise that studying at university can be a challenge, especially if you have a disability. We are keen that you have every opportunity to fulfil your potential and graduate with the degree you deserve. It is therefore important that you let us know about any disability, specific learning difficulty or health problem as soon as possible so that we can give expert advice and support to enable you to do this.

Some people never think of themselves as having a disability, but students who have experienced any of the issues listed below have found that a little extra help and support has made all the difference to their study experience.

- Specific learning difficulties (such as dyslexia, dyspraxia, AD[H]D)
- Autistic spectrum disorder (such as Asperger’s)
- Deafness or hearing difficulties
- Long term mental health difficulties (such as chronic anxiety, bipolar disorder, depression)
- Medical conditions (such as epilepsy, arthritis, diabetes, Crohn’s disease)
- Physical disabilities or mobility impairments
- Visual difficulties

Where to find help:

1. **Your Disability Liaison Officer** (DLO) Dr Andrew Williamson
   (andrew.williamson@imperial.ac.uk, Blackett Laboratory, Room 316, Tel: 020 7594 7631) is your first point of contact within your department and is there to help you with arranging any support within the department that you need. The DLO is also the person who will apply for additional examination arrangements on your behalf. You need to contact him without delay if you think that you may need extra time or other adjustments for your examinations.
   [http://www3.imperial.ac.uk/registry/exams/specialexamarrangements](http://www3.imperial.ac.uk/registry/exams/specialexamarrangements)

2. **Disability Advisory Service**: [http://www3.imperial.ac.uk/disabilityadvisoryservice](http://www3.imperial.ac.uk/disabilityadvisoryservice)
   The Disability Advisory Service works with individual students no matter what their disability to ensure that they have the support they need. We can also help if you think that you may have an unrecognised study problem such as dyslexia. Our service is both confidential (information about you is only passed on to other people in the university with your agreement) and individual in that any support is tailored to what you need.

   Some of the sorts of things we can help with are:

   - Being an advocate on your behalf with others in the College such as your departmental liaison officer senior tutor or exams officer, the accommodation office or the estates department
   - Checking that your evidence of disability is appropriate and up-to-date
   - Arranging a diagnostic assessment for specific learning difficulties
   - Help with applying to the College for the cost of an assessment
   - Help with your application for the Disabled Students Allowance (DSA) see below
• Helping students not eligible for the Disabled Students Allowance in obtaining support from other sources
• Help with arranging extra Library support
• Supporting applications for continuing accommodation for your second or later years

3. **Disabled Students Allowance:**
[http://www3.imperial.ac.uk/disabilityadvisoryservice/supportatimperial/funding](http://www3.imperial.ac.uk/disabilityadvisoryservice/supportatimperial/funding)
Students who are home for fees and who have a disability can apply for a grant called the Disabled Students Allowance which can pay any extra costs that are a direct result of disability. This fund is not means-tested and is also a grant not a loan so any home student with a disability can apply and will not be expected to pay it back. Remember students with unseen disabilities such as mental health difficulties, dyslexic type difficulties or long term health problems are also eligible for this fund.