Course Information

TERM DATES
Autumn Term: October 1st - December 11th 2012
Spring Term: January 7th 2013 onwards
Subsequent holidays arranged to fit with course and project supervisors

COURSE STRUCTURE
The MSc is a 12-month full-time course starting in October each year. It consists of a five-month programme of lectures, seminars and practicals, followed by a six-month research project. Written examinations (two three-hour essay papers and one four-hour data handling paper) are held in January (one paper) and in March (two papers). A dissertation based on the research project is submitted in early September. All students have a viva in September. This is followed by the Examination Board meeting at which final marks for the MSc will be approved, subject to ratification by Imperial College London. A provisional pass list is published following the examiners' meeting, with final marks being communicated to students within six to eight weeks.

STAFF LIST
Course Director
Dr Mark Sullivan
Deputy Course Director
Prof Kate Hardy
Course Administrator
Examiners
Chairman of the examiners
Two internal examiners from Imperial College London
Three external examiners from other Universities
Admissions Tutors
Dr Mark Sullivan
Dr Nick Dibb
Examinations Officers
Prof Stephen Franks
Dr Mark Sullivan
Prof Kate Hardy
Postgraduate Tutor
Dr Aylin Hanyaloglu
Project Co-ordinator
Dr Mark Sullivan
Module Organisers
(in alphabetical order):
Dr Véronique Azuara (Lecturer)
Dr Nessa Carey (Senior Lecturer)
Dr Wei Cui (Senior Lecturer)
Dr Nick Dibb (Reader)
Dr Peter Dixon (Research Fellow)
Dr Mandy Donaldson (Clinical Scientist)
Prof Steven Franks (Professor)
Prof Vivette Glover (Professor)
Dr Pascale Guillot (Lecturer)
Dr Aylin Hanyaloglu
Prof Kate Hardy (Professor)
Mr Stuart Laverty (Consultant)
Dr Kevin Lindsay (Clinical Scientist)
Dr Mark Sullivan (Senior Lecturer)
Mr Roger White (Research Fellow)
Prof Catherine Williamson (Professor)
## KEY DATES

<table>
<thead>
<tr>
<th>Course component</th>
<th>Dates</th>
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<tbody>
<tr>
<td><strong>Introduction</strong> to Institute (IRDB), course content and facilities at Hammersmith Hospital (afternoon)**</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Oct 2012</td>
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<tr>
<td><strong>Basic topics in Reproductive &amp; Developmental Biology</strong></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; October – 14&lt;sup&gt;th&lt;/sup&gt; December</td>
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<tr>
<td>Initial teaching &amp; introduction</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; – 5&lt;sup&gt;th&lt;/sup&gt; October</td>
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<tr>
<td>Molecular Medicine</td>
<td>8&lt;sup&gt;th&lt;/sup&gt; – 26&lt;sup&gt;th&lt;/sup&gt; October</td>
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<tr>
<td>Laboratory week</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; Oct – 2&lt;sup&gt;nd&lt;/sup&gt; November</td>
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<tr>
<td>Reproductive endocrinology &amp; signalling</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; – 16&lt;sup&gt;th&lt;/sup&gt; November</td>
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<tr>
<td>Gametogenesis &amp; preimplantation development</td>
<td>19&lt;sup&gt;th&lt;/sup&gt; – 23&lt;sup&gt;rd&lt;/sup&gt; November</td>
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<tr>
<td>Class practical &amp; other skills</td>
<td>26&lt;sup&gt;th&lt;/sup&gt; – 30&lt;sup&gt;th&lt;/sup&gt; November</td>
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<tr>
<td>Basic pregnancy</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; – 14&lt;sup&gt;th&lt;/sup&gt; December</td>
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<tr>
<td><strong>Advanced topics in Reproductive &amp; Developmental Biology</strong></td>
<td>14&lt;sup&gt;th&lt;/sup&gt; Jan – 10&lt;sup&gt;th&lt;/sup&gt; Feb 2013</td>
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<tr>
<td>Revision</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; – 10&lt;sup&gt;th&lt;/sup&gt; January</td>
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<tr>
<td>Complications of pregnancy</td>
<td>14&lt;sup&gt;th&lt;/sup&gt; – 18&lt;sup&gt;th&lt;/sup&gt; January</td>
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<tr>
<td>Stem cell biology</td>
<td>21&lt;sup&gt;st&lt;/sup&gt; – 25&lt;sup&gt;th&lt;/sup&gt; January</td>
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<tr>
<td>Development</td>
<td>28&lt;sup&gt;th&lt;/sup&gt; Jan – 1&lt;sup&gt;st&lt;/sup&gt; February</td>
</tr>
<tr>
<td>Reproductive medicine</td>
<td>4&lt;sup&gt;th&lt;/sup&gt; – 15&lt;sup&gt;th&lt;/sup&gt; February</td>
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<tr>
<td><strong>REVISION &amp; EXAMINATIONS</strong></td>
<td>15&lt;sup&gt;th&lt;/sup&gt; Dec – 10&lt;sup&gt;th&lt;/sup&gt; Jan for Paper I on 11&lt;sup&gt;th&lt;/sup&gt; January</td>
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<td>18&lt;sup&gt;th&lt;/sup&gt; Feb – 4&lt;sup&gt;th&lt;/sup&gt; March for Papers II &amp; III on 5&lt;sup&gt;th&lt;/sup&gt; – 8&lt;sup&gt;th&lt;/sup&gt; March</td>
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<td>11&lt;sup&gt;th&lt;/sup&gt; March – 1&lt;sup&gt;st&lt;/sup&gt; September</td>
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<td><strong>PROJECT</strong></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; September 2013</td>
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<tr>
<td><strong>PROJECT SUBMISSION DEADLINE</strong></td>
<td>Late September (date to be confirmed)</td>
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<td><strong>VIVAS</strong></td>
<td>May 2014</td>
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<td><strong>GRADUATION</strong></td>
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Aims and Objectives of the MSc

AIMS
To provide an opportunity for clinicians and scientists to specialize in Reproductive and Developmental Biology, with emphasis on the interface between the basic science and clinical aspects of the subject.

OBJECTIVES
After completion of the initial five month taught course, the student will have a good understanding of reproduction and development: the process that regulate cell and tissue biology (including genetic and epigenetic regulation), reproductive endocrinology and its regulation, receptors and cell signalling, gametogenesis, pre-implantation development, implantation and early pregnancy, fetal & embryonic development and stem cell biology. Furthermore, complications of pregnancy and reproductive medicine (including infertility & assisted reproduction) will be covered in detail. In addition, the student will learn about the molecular and biochemical techniques currently used to elucidate the normal and abnormal developmental and pathological events involved. Subsequently, during the six month research project, the student will receive a thorough training in laboratory research, including design of a good research project, experimental design, trouble-shooting for experimental problems, data handling, analysis and interpretation, poster presentation and presentation of work for publication in the form of both a dissertation, and, for the ambitious student, a paper suitable for publication. However, it should be noted that students will not be given training in IVF.

For a future career in Reproductive Biology, the student will develop the ability to apply knowledge and skills to the solution of practical and theoretical problems. They will also develop transferable skills of value for a variety of other career avenues. The course will provide a skills and knowledge base from which students can proceed to further studies in specialized areas of reproduction and developmental biology.

In summary: for scientists, the course will provide a sound training for a career in research. Alternatively, the course will provide a thorough theoretical background as a step towards a career as an embryologist, andrologist, endocrinologist or technician in Assisted Reproduction. For clinicians, the course will allow specialization in Reproductive Medicine, and give training in laboratory-based research.
History of the MSc

The MSc in Reproductive & Developmental Biology (originally Human Reproductive Biology) has been running since 1993. So far, 198 students have taken the course. of whom 190 have passed. Of those who have passed, 43 (23%) students have achieved Distinctions and 93 (49%) a Merit mark. Students have come from countries all over the world, including Argentina, Barbados, Britain, Brunei, Bulgaria, China, Cyprus, Denmark, Finland, France, Ghana, Greece, India, Iran, Iraq, Ireland, Japan, Jordan, Kenya, Korea, Libya, Malaysia, Netherlands, Nigeria, Portugal, Qatar, Saudi Arabia, Singapore, Spain, Sudan, Taiwan, Thailand, Venezuela, USA and Zambia. Some have come to the course straight from university, while others (around 20%) have been mature students. Their reasons for wanting to do the course have been varied. Some students wanted to strengthen their academic background in reproductive biology before becoming IVF embryologists or andrologists, others used the experience to decide whether they were committed to a research career and wanted to do a PhD. Clinicians wished to strengthen their academic knowledge of reproductive biology before or during specialization, and also enjoyed the opportunity to gain basic laboratory training.

Complete information is not available, but we know that 56 (29%) of the past students have gone on to do a PhD, and some students from the early years of the course have now obtained academic posts, and are recommending their students to take the course. 41 (22%) have become clinical embryologists in London and other parts of Britain, Greece, the Middle East and America. Clinicians have returned to clinical practice, many going on to specialize in reproductive health. At least nine students have commenced medical training after completing the MSc. Other students have gone into teacher training, scientific publishing, and one has even become a pilot! Many students have kept in touch over the years, and told us how they and their colleagues on the course are getting on. This kind of feedback is very welcome, and is also an important measure of the success of the course.

The course provides detailed teaching on topics of greatest importance, including stem cell biology and molecular approaches to understanding the processes of reproduction and development, which will provide a deeper understanding of novel information.

Some students’ contribution to ongoing research in the laboratory where they carried out their project was such that they were authors on subsequent publications.
Environment

Students will be based within the Institute of Reproductive and Developmental Biology (IRDB) at the Hammersmith Campus of Imperial College London. This Institute was completed in 2001, and has brought together research groups of international repute. The building encompasses five purpose-built floors housing state-of-the-art laboratories fitted with modern equipment. The ground floor contains a seminar room, where the MSc lectures will take place, and a spacious coffee area, which will give students an opportunity to meet other students and members of staff in the Institute. The first to fifth floors house the research areas. The Institute provides a unique environment for students, where they will be taught by leading researchers, and given an opportunity to spend a significant amount of time carrying out research projects in their laboratories. The students will also be able to interact with other postgraduate students, both within the Institute and the Hammersmith Campus as a whole.

Hammersmith Hospital is a site with a number of different functions. First and foremost it is the leading postgraduate teaching hospital in London. On site there are also several large Medical Research Council units, including the MRC Clinical Sciences Centre. In addition a large section of The Faculty of Medicine, Imperial College London, is based at Hammersmith, mainly within the Commonwealth Building, but also within the Hospital itself and the IRDB.

The Institute of Reproductive and Developmental Biology was built with funds raised by Professor Lord Robert Winston and is under the directorship of Professor Phillip Bennett. Here there are opportunities to interact with staff carrying out research in contemporary areas of Reproductive & Developmental Biology. Current interests include the molecular endocrinology of hormone action, signalling mechanisms, ovarian function, gamete and embryo development, stem cell biology, uterine differentiation, maintenance of pregnancy, fetal growth and development and parturition. The practical elements of the course will be in association with each of these research groups while lectures and seminars will be given by staff involved in this work.

Links to useful information:

IRDB web-page:
http://www1.imperial.ac.uk/surgeryandcancer/divisionofcancer/reproductivebiology/irdb/

Imperial Study Guide for Master’s Students: http://www3.imperial.ac.uk/students/studyguide

“Our Principles” Student charter: http://www3.imperial.ac.uk/students/ourprinciples

Link to the Policy on employment during studies: https://workspace.imperial.ac.uk/registry/Public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Student%20Employment%20During%20Studies.pdf
College Procedures

LINKS:

The College’s Regulations for Students:
http://www3.imperial.ac.uk/registry/proceduresandregulations

Mitigation / extenuating circumstances policy and procedures:
http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/examinationassessment

Complaints and Appeals procedures:
http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/complaintsappeals

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

Cheating offences policy and procedures:
http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/disciplinary
Course Summary and Modules

MODULES

Basic module:
- Molecular Medicine (19 lectures)
- Class laboratory week
- Reproductive Endocrinology & Signalling (20 lectures)
- Gametogenesis and Pre-implantation Development (11 lectures)
- Basic Pregnancy (20 lectures)

Advanced module
- Advanced Pregnancy (9 lectures)
- Stem Cell Biology (11 lectures)
- Development (15 lectures)
- Reproductive Medicine (22 lectures)

There will in addition be seminars and tutorials within each topic of the teaching.

SUGGESTED GENERAL TEXT BOOKS
MOLECULAR MEDICINE
(Professor Catherine Williamson, Dr Nessa Carey, Dr Peter Dixon)
Learning Expectations
All students will be expected to
• have a fundamental grasp of the fields of core molecular biology and genetics;
• develop this knowledge to appreciate state of the art techniques and cutting edge research;
• understand its application to reproductive biology both at the diagnostic (clinical) and the research levels; and
• provide an introduction to genome-orientated bioinformatics.

REPRODUCTIVE ENDOCRINOLOGY
(Dr Mandy Donaldson & Professor Stephen Franks)
Learning Expectations
Students will be expected to understand
• the normal functions of the endocrine system, with particular reference to steroid and peptide hormones.
• the nature and mechanisms of action of hormones that control female & male reproduction
• the cellular and molecular regulation of ovarian, uterine, testicular and prostate function.

RECEPTORS AND CELL SIGNALLING
(Dr Nick Dibb and Dr Mark Christian)
Learning Expectations
Students will be expected to understand
• the principles by which signalling molecules and their receptors control cell biology
• the primary intracellular pathways involved, and their cross-talk.
• how these systems and pathways control reproduction in model organisms and in humans.

BASIC GAMETOGENESIS & PREIMPLANTATION DEVELOPMENT
(Prof Kate Hardy, Dr Kevin Lindsay, Mr Stuart Lavery)
Learning Expectations
In this topic students will be expected to understand:
• the origin and development of male and female gametes
• the key process that regulate gametogenesis
• how gametes become competent to undergo fertilisation
• the process of fertilisation and the key stages in preimplantation embryo development
PREGNANCY
(Dr Mark Sullivan)

Learning Expectations
This topic will be delivered in two parts, Basic and Advanced material.
The Basic material will introduce students to:
• the key topics of human pregnancy (mother, infant and placenta)
• the primary changes that occur as pregnancy proceeds
• the development and functions of the human placenta, and how this integrates the maternal and fetal systems in normal pregnancy
• the process of labour and delivery

The Advanced material will include
• the main complications of pregnancy
• the regulatory processes of normal and complicated pregnancy
• an introduction to the concept and implications of fetal programming.

STEM CELL BIOLOGY
(Dr Véronique Azuara, Dr Wei Cui and Dr Pascale Guillot)

Learning Expectations
This teaching covers the basics of stem cell biology, including both embryonic and somatic stem cells. Students will be expected to understand:
• the origins, properties and characteristics of each type of stem cells
• the most recent knowledge on molecular regulation of stem cell self-renewal and differentiation
• the epigenetic features and regulation of stem cells
• basic concepts of reprogramming somatic cells to generate pluripotent phenotype
• the potential therapeutic, biological and biomedical applications of stem cells

DEVELOPMENT
(Dr Pascale Guillot, Professor Kate Hardy, Dr Mark Sullivan)

Learning expectations
Students will be expected to understand:
• the key features of human development, and the basic mechanisms involved
• the main complications of human development, and the processes that may influence such complications
• the cell biology and mechanisms that co-operate in overall process of development
• the mechanisms that regulate the development of specific tissues
REPRODUCTIVE MEDICINE
(Professor Stephen Franks, Professor Kate Hardy & Mr Stuart Lavery)

Learning Expectations
In this topic the main clinical perspectives and complications of reproductive function are considered. The three main themes are gonadal function & malfunction; preimplantation development and assisted reproduction; altered endocrine functions with aging and the menopause.

Within each theme, the material will build on the basic material introduced earlier in the courses, and the students will be expected to integrate the content of this module with the previous teaching.
Pattern of Teaching

MODULES
The course is taught in two major modules, namely Basic and Advanced material. The former covers the materials essential for an understanding of Reproductive & Developmental Biology, and will be delivered before Christmas, while the latter includes more advanced material, and will be taught after Christmas.

This organisation allows us to develop the most logical teaching pattern. For example, an understanding of signalling pathways (Receptors and Cell Signalling), is essential to appreciate the processes of Reproductive Biology, so both these components contribute to this section of the teaching. The timing of teaching is shown in the ‘Key Dates’.

Assessment follows the pattern of teaching, with coursework and examinations linked specifically to both modules.

However, it be emphasised that material within the Advanced component builds on and extends material covered in the Basic component. It is therefore essential that students are familiar with all the material covered in the course.
Teaching Methods

LECTURES
Lectures last 45-60 minutes and are generally given between 9.00 and 16.00 in the Seminar Room, on the ground floor of the IRDB, unless otherwise specified. Lectures will be given by members of the Department of Reproductive Biology, experts from other Imperial College departments and from other London Institutions. Please be prompt. ALL the lectures must be attended. Lectures should only be missed for compelling reasons (such as personal illness). If you are absent for even a day, you must complete Self-Certificate Form "Students Statement of Sickness". If a student is absent for longer than seven days, they must obtain a letter from their GP. Attendance will be monitored. Most lecturers will have time for questions and discussion at the end of each lecture.
Lectures provide basic information on which you will be examined in January and in March. This information should be augmented by ‘reading round’ the subject and also by what you learn whilst writing your essays and preparing your presentation. This is particularly important for giving Merit and Distinction level answers.
Lectures are NOT to be recorded, unless you have the permission of the speaker for that particular lecture. It is expected that permission will not be given to record lectures.

PRACTICALS & WORKSHOPS
Practicals and workshops are an integral part of the teaching. Further details will be given in the module. Practicals will include problem-solving exercises important for learning how to analyse data, and in preparation for Paper III. ALL practicals and workshops should be attended.

PRIVATE STUDY AND ESSAYS
The course is full time. Students are expected to be well organised and to be prepared to undertake private study in addition to the formal teaching sessions. This will include research for essays, which contribute to your final mark, and reading round the areas covered in the lectures. Students are encouraged to read widely, using textbooks and journals (for reviews and original articles). Many journals are now available online, if accessed from an Imperial College computer. The Wellcome Library stocks a wide range of books and journals, and a tutorial on searching for relevant references is given early in the course. There is also a central library at the South Kensington Campus. Students have access to all Imperial College Libraries. The Science Library at University College London has journals in stock not available at Imperial College. The British Library in central London stocks every journal and book (information available from Wellcome Library).

It is strongly recommended that students have access to a personal computer and printer at home. Essays should be written using a word processing programme such as Word. Becoming familiar with a programme for handling references and inserting them into the text (such as Refworks) will be very valuable for writing your dissertation later in the year.

TUTORIALS
Tutorials will be included during each component to provide the opportunity for students to clarify points, obtain guidance and ask questions. Furthermore, exam tutorials are included during the course, where past examination papers are studied, to provide experience in answering essay questions. Students are encouraged to approach members of staff to
arrange additional tutorials where necessary, particularly during revision periods. At regular intervals the Course Director will hold a tutorial to provide an opportunity for students to discuss progress and provide feedback, and for the Course Director to inform students of any timetable changes.

STUDENT PRESENTATIONS
During the taught course, students will be expected to prepare and give a short oral presentation, providing an opportunity to both develop knowledge of reproductive biology and to learn presentation and speaking skills. Further information on the subject matter and format of this talk will be given in the relevant module. Students will also be expected to give a poster presentation on their projects in June, which will describe data collected, and outline future work.

LABORATORY-BASED RESEARCH PROJECT
The research project is central to the MSc. It provides an education in laboratory research and scientific ethos and method. In addition it gives training in many research techniques, and planning, conduct and reporting of project work. The project is written up as a dissertation, which is handed in by early September, and contributes 40% to the final mark. A member of academic staff supervises the project in the majority of cases. In many cases the day-to-day supervision will be undertaken by a post doc or other experienced member of staff working in the laboratory.

The project will not provide training in IVF.

INSTITUTE SEMINARS
There are a number of research seminars given each week, reflecting the broad range of interests of the research groups within the IRDB. External speakers and members of the IRDB will give talks about current research. In addition seminars occurring within other Departments are listed on the notice board adjacent to the coffee area. MSc students should also look out for notices of ad-hoc research presentations by post-docs and PhD students within the Institute. All students should attend to become familiar with the research activities of the IRDB. This will provide useful basis for selecting a research project. A timetable will be circulated.

TRANSFERABLE SKILLS
The teaching methods outlined above will provide the following transferable skills:

- communication - written and oral
- problem-solving
- numeracy and computational skills
- information retrieval skills
- IT skills (word processing, spreadsheet use, internet)
- interpersonal and team working skills
- time management and organisational skills
- study skills
Assessment Process

All work done for the MSc will be double-marked by independent assessors who contribute to the course.

The standards of the MSc are maintained by the external examiners, who also review the material taught and the assessments used.

The external examiners in 2012-13 will be Dr. M. Hemberger (Cambridge) and Prof. M. Luck (Nottingham).

Link to Academic and Examination regulations:
http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations

Link to religious obligations in assessments:
https://workspace.imperial.ac.uk/registry/Public/Exams/Exams%20and%20religious%20obligations.pdf

The generic marking scheme for the course is shown.

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<th>Grade</th>
<th>Description</th>
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<tr>
<td>&gt; 70% (Distinction)</td>
<td>An excellent, well-planned piece of work that is well set out, lucid, unambiguous and factually complete. Indicates that the student has a very good grasp of the literature, and of the concepts and mechanisms involved. Includes a critical or creative contribution. Good, original, diagrams where appropriate. Is scientifically concise, including ALL relevant information without being verbose.</td>
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<tr>
<td>60% - 69.9% (Merit)</td>
<td>As for ‘Pass’, but including a clear exposition that contains all of the appropriate facts including basic mechanisms, concepts and sufficient additional material to show that the student has a good understanding of the subject. Shows evidence of a sound knowledge of relevant primary publications in the area. Good diagrams where appropriate. Free from errors in reasoning.</td>
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<tr>
<td>50% - 59.9% (Pass)</td>
<td>An appropriately structured piece of work that includes all the information needed to address the question set. No major flaws or errors of fact.</td>
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<tr>
<td>40% - 49.9% (Fail)</td>
<td>The piece of work has major flaws indicating that the student does not understand the topic adequately. Significant components are absent or covered superficially.</td>
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<tr>
<td>&lt; 39.9% (Bad fail)</td>
<td>As for fail, but the piece of work itself is inadequate.</td>
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Variations in the scheme may be used for coursework essays, examinations and for project dissertations.
Assessment Methods

The Basic component of the course will be assessed by 3 pieces of coursework (1 oral presentation, 2 essays), which are to be completed during the first term. This material will also be assessed by examination (Paper I), which will be taken at the beginning of January. This will in total contribute 25% to the overall marks for the course, with each assessment (coursework or exam) contributing equally (6.25% each).

The Advanced component of the course will be assessed by 2 pieces of coursework (2 essays), which are to be completed during the second term. This material will also be assessed by examination (Papers II & III), which will be taken in March. This will in total contribute 25% to the overall marks for the course, with each assessment (coursework or exam) contributing equally (6.25% each).

At the end of August, upon completion of the research project, the student will submit a dissertation, and will be orally examined on both the taught work and the project. The dissertation contributes 40% of the final mark, and the oral examination (viva) contributes 10%.

In order to be awarded a pass, a student must normally obtain an overall average of 50% or above. The three individual elements are: 1) Basic Unit, 2) Advanced Unit, and 3) Project & viva. In order to be awarded a Merit or a Distinction, a student must normally obtain an overall average of 60% or above (Merit) or 70% or above (Distinction). A student may fall below this level in one element of the course only, and this must be within the next performance level down (e.g. to be awarded a Distinction, one component may have a mark of 60%-70%).

ASSESSED COURSE WORK

Oral Presentation requirements:
Students present a topic to a small audience from within the IRDB. Three assessors will be in the audience. They will be looking for:

- clear, simple slides with good use of colour and font size
- good use of diagrams and illustrations
- clear speaking style
- ability to keep to time
- ability to answer questions clearly and concisely

In order to achieve a merit or distinction in the presentation, students will need to show in addition:

- evidence of extra reading
- incorporation of this into the talk
- understanding of all aspects of the topic when questioned

In-course Essay requirements

To achieve a pass mark (50 – 59%), the markers will be looking for:

- Basic facts from textbooks and reviews
- Presentation and good use of diagrams
- Organisation
- English/spelling/grammar
- References
To achieve a Merit mark (≥60%), in addition the student will have to provide at least one of the following, and at least two of the following to achieve a Distinction mark (≥70%):

- Additional relevant information that demonstrates extra reading
- Excellent presentation with notable use of original diagrams
- Ability to resolve conflicting hypotheses or evidence
- Insight into fundamental concepts
- Original ideas
- Use of original source papers

**Examination requirements**

Written examinations are held in January and in March.

To achieve a pass mark (50 – 59%), the student will have to provide:

- Basic facts that answer the question
- Good presentation and appropriate use of diagrams
- Organisation
- Legibility
- Good English/spelling/grammar

To achieve a Merit mark (≥60%), in addition the student will have to provide at least one of the following, and at least two of the following to achieve a Distinction mark (≥70%):

- Ability to draw together ideas from different course modules into a coherent and logical argument.
- Ability to resolve conflicting evidence.
- Insight into fundamental concepts.
- Original ideas.
- Additional relevant information that demonstrates extra reading.
- Good structure and organisation of the essay to provide a clear argument.

**PROJECT DISSERTATION**

The marking scheme is that shown previously, with particular emphasis on the depth and breadth of understanding of the literature, placing the data obtained in the correct context, and appreciation of ethical and statistical elements of the project.

To achieve a Merit or Distinction, the dissertation must show critical, creative and independent thought, and also be able to show insight in discussing the next stage or stages of the research.

**VIVA**

Vivas are held in September for all students. Each student will have an oral examination of 25-30 minutes, with two assessors. One assessor will be external, and the other internal. The viva will concentrate on the dissertation, but will not necessarily be limited to what is written. Students will be expected to demonstrate a clear understanding of what they have learnt, to discuss their dissertation in an intelligent manner and to speculate about the significance of their results. Students should consider whether the approach taken was optimal, what the alternatives might be, and the wider impact of their findings on topics covered within the MSc course.
Student Support and Guidance

PERSONAL TUTORS
Each student will have a personal tutor. A list of tutors will be provided at the start of the year when student numbers have been finalised. The personal tutor will be available to assist with any personal or work-related problems which may arise. There is an opportunity to meet your tutor and other members of the Institute during the “Introduction to the MSc”.

It is very important that you see your tutor soon if you are finding a particular module too challenging, are struggling to meet an essay deadline, are worried about accommodation or finances, or are having to deal with unexpected events at home. If your tutor knows early on about any problems, they can provide help and support (or alternatively direct you to trained specialists who can help you). Tackling a problem early on can provide important support for you, help alleviate stress and anxiety and reduce any adverse effects on your progress. Your conversations with your tutor will, of course, remain confidential, although they may suggest that it is in your best interests to meet with the Course Director to discuss certain issues, especially in situations where your academic progress could be adversely affected.

If you need to see your tutor either contact them directly, or ask the Course Administrator to arrange a meeting for you.

There is a Postgraduate Tutor who will see MSc students, who you can contact if you require further advice or assistance.

STUDENTS WITH DISABILITIES
Students with disabilities should inform the Course Director as soon as possible after the start of the course, so that any appropriate arrangements may be made. Such students should also contact the Disability Advisory Service: http://www3.imperial.ac.uk/disabilityadvisoryservice

TUTORIALS
Tutorials from Module Organisers provide an opportunity to raise issues about each module, or to discuss interesting papers and topics or any difficulties in understanding lectures. Module Organisers may also hold exam tutorials to provide practice with past examination papers and give advice on examination technique. If students would like additional tutorials, please ask the Module Organisers.

There is a session timetabled at the end of each week, where all the students can gather together with the Course Director and discuss aspects of the course, and any problems that arise. These will provide an opportunity for timetable updates and any other useful information to be handed out.

PROJECT SUPERVISOR
When you start your project, the focus of your working life will shift from the ground floor seminar room of the IRDB, to one of the laboratories. During this time, you will interact mainly with your lab colleagues and your supervisor. If you have any work-related problems, i.e. if you feel you need more supervision or help, or that you are getting stuck, it is best to first talk to your supervisor. If you feel that the problems have not been fully resolved, go and see your tutor, or the Course Director.
STUDENT - COURSE DIRECTOR LIAISON

Students are asked to elect two representatives to liaise between the students and the Course Director, and act as representatives on the MSc (RDB) Organising Committee. They will be expected to attend one MSc Committee meeting a term, and present to the Committee any concerns and feedback from their fellow students. This will allow general problems to be raised and solved with the Course Director and also provide a rapid means of communication.

Please see the official regulations for all students who attend courses at Imperial College London, which are provided on the next pages.
Imperial College London Information for Students

REGULATIONS FOR STUDENTS

1. All registered students of the College are subject to the provisions of these Regulations for Students, the College Academic Regulations, the Regulations of the University of London as appropriate and such other Regulations and Instructions for Students as the College may from time to time approve.

2. Any student whose sessional fees or whose residence charges* have not been paid in full will not be allowed to proceed to the next year of the course and will be required to withdraw from the College. If any fees or charges are still unpaid at the time when a student enters for the last examination necessary to qualify for the award of a degree/diploma, the award will not be conferred and no certificate in respect of the award will be issued until the debt has been paid in full.

3. Any student wishing to occupy residential accommodation provided by, or on behalf of, Imperial College will be required to abide by the terms and conditions of the Licence. Acceptance of an offer of accommodation will signify acceptance of such terms and conditions.

4. Every registered student of the College is automatically a member of Imperial College Union unless, under the provisions of the Education Act 1994, a student has formally opted out of student union membership by recording that decision with the Academic Registrar in the manner prescribed.

5. Student disciplinary offences of a non academic nature are dealt with under a code of procedure agreed by Imperial College Union and approved by the Governing Body. In the case of serious offences, this may involve the suspension and/or expulsion of the student from the College. Students must not engage in any conduct which causes harm or unreasonable disturbance to students, staff, neighbours or visitors to the College, or damage to any property of the College or its students, staff, neighbours or visitors, or engage in any activity or behaviour which is likely to bring the College into disrepute. Illegal acts on or near College may also constitute offences under these College Regulations for students.

6. Candidates for the PhD or MPhil degrees are required by the University regulations to give conditional authority for their dissertation or dissertation to be made available for public reference. Candidates who wish to retain personally, for a limited period, the sole right to grant permission to consult, borrow or copy their work must obtain the agreement of their supervisor and the appropriate College Graduate School Committee. Approval will be given only in special circumstances and for a period not exceeding two years. Acceptance of a place as a research student at the College is deemed to imply acceptance of these conditions.

7. Undergraduates must inform their Senior Tutor and postgraduates their Postgraduate Tutor if they are absent from College for more than three days during term. If the absence is due to illness a medical certificate must be produced after seven days. If an examination is missed on account of illness a medical certificate must be produced immediately.

* to include charges by the Ducane Housing Association
8. A student who contracts an infectious or contagious disease may be required to present a medical certificate acceptable to the College Health Service, indicating freedom from infection, before resuming attendance at the College.

9. The College may require a student to be assessed by the College Health Service, or other appropriate medical practitioner approved by the Health Service, if there is reason to believe that the student’s state of health makes him/her unable to pursue his/her studies, or causes disruption to other members of the College, or causes or has the potential to cause harm to him/herself or others. If the medical assessment confirms that it is not in the interests of the student or the College that the student should continue his/her programme of study the Head of Department shall consult the College Tutors and, taking into account their advice, may suspend the student until he/she is fit to continue his/her studies or require the student to withdraw from the College. A student who refuses to undergo assessment may be suspended until such time as a medical practitioner acceptable both to the student and the College has assessed the student and confirmed in writing that the student is fit to resume study.

A student who is required to withdraw has the right to appeal against the withdrawal decision but not against the results of the medical assessment on which the decision is based. The student may, however, request that a second medical assessment be obtained from a medical practitioner approved by the College Health Service. The responsibility for hearing and deciding upon appeals is vested in the Senate and is delegated by the Senate to Appeal Committees, whose decisions are final.

A student who is suspended will be regarded as having taken an interruption of studies, and will be required to provide medical evidence as to fitness to return to study in accordance with the conditions attached to the granting of interruption of studies.

10. No work involving ionising radiation may be carried out in any part of the College except in accordance with the current edition of the Imperial College Local Rules for Safe Working Practices with Ionising Radiation (Second Edition Spring 1991).

11. Students who make use of University or College Computing facilities are required to familiarise themselves with and to abide by the current edition of the Imperial College Information Systems Security Policy and Codes.

12. Computer misuse will be regarded as a serious offence and will be dealt with under the College Disciplinary Procedure or, where appropriate, under the provisions of the Computer Misuse Act 1990.

13. Students who are authorised, as part of their studies, to make use of ‘data’ and ‘personal data’ as defined under the Data Protection Act 1998 are required to familiarise themselves with, and to observe the provisions of, the Act. Further details are available from the College Data Protection Officer.

14. All students must familiarise themselves and comply with the College Policy on Student Derived Intellectual Property Rights.

15. Students must notify the Academic Registrar of any change in their home or lodgings address.
SUPPORT SERVICES AND RELATED INFORMATION:

Personal Tutor system, links to Roles and Responsibilities of Personal Tutors: http://www3.imperial.ac.uk/registry/proceduresandregulations/qualityassurance/goodpractice

Information for students with disabilities, including the Disability Advisory Service: http://www3.imperial.ac.uk/disabilityadvisoryservice

Other welfare and pastoral care/support resources both Departmental and College-wide (e.g. College Tutors, Dean of Students, Counselling Service, Health Centre, NHS Dentist, Student Hub, Chaplaincy, support for International Students inc. ELSP): http://www3.imperial.ac.uk/humanities/englishlanguagesupport http://www3.imperial.ac.uk/students/welfareandadvice http://www3.imperial.ac.uk/students/international

Information about the Library: http://www3.imperial.ac.uk/library

ICU: http://www.imperialcollegeunion.org/

For Master’s courses - GSA: https://www.imperialcollegeunion.org/faculty-unions/gsaweb/index,457,ICS.html

Student representation – how to become a student representative: https://www.imperialcollegeunion.org/representation

Details of departmental/College Committees, including Staff-Student Committees. (The College’s Staff-Student Committee Good Practice Guidelines are available at: http://www3.imperial.ac.uk/registry/proceduresandregulations/qualityassurance/goodpractice)

The importance of students providing feedback to the College – SOLE, PG SOLE, NSS Other support services (e.g. Registry, Careers Advisory Service): http://www3.imperial.ac.uk/registry http://www3.imperial.ac.uk/careers

Information about the Graduate School: http://www3.imperial.ac.uk/graduateschools

Transferable Skills Training: http://www3.imperial.ac.uk/graduateschool/transferableskillsprogramme

Opportunities for further study
Feedback

Feedback is a very important part of the MSc. At its best it provides a framework for a two-way flow of information, and ensures that communications between students and teachers remain as open as possible.

Rapid and detailed feedback from the teachers to the students is crucial, providing information on progress. Firstly it can provide both encouragement and motivation. Secondly, feedback can provide information on strengths and weaknesses and, importantly, alert both the student and the tutors to any problems there may be with the course. Early diagnosis of a problem means that a solution can be found quickly, helping the student to remedy the situation early on so that their course-work is not compromised over a long period of time, having a possibly detrimental effect on their results.

It is also very important that ALL the students provide feedback to the staff when requested. The course is constantly evolving in response to past feedback from students, and it is important that the staff know whether new lectures, or new lecturers, are successful or not. Furthermore, student feedback on our teaching plays an important role in our own career review and progression.

FEEDBACK FROM TEACHERS TO STUDENTS

**Essays:** every attempt is made to return marked essays within 3 weeks of submission. Essays will be returned with a grade, where the grades have the following meanings: A ≥ 70%; B = 60% - 69.9%; C = 50 - 59.9%; D = 40 - 49.9%; E ≤39.9%. The essays will also be returned with comments, either written directly on the essay or on a separate sheet. The comments will provide further information on what were the strengths and weaknesses of the essay. If you do not understand the comments, or why you were awarded a particular grade, you are strongly encouraged to make an appointment to see the teacher who set the essay, to discuss it. If you don’t find this helpful, arrange to meet your personal tutor.

**Examinations:** A grade for each exam paper, and an overall grade for the exams will be provided, using the same grading system as above. The Course Director will meet with each student individually after the grades from essays and exams are available, to discuss progress with the course so far, and any issues the student may wish to raise.

**Projects:** during the course of the project, the student should have regular meetings with their supervisor to discuss and plan experiments, talk about their results in progress and plan how to write up their dissertation. During these meetings the supervisor will give informal feedback on progress in the lab, and discuss ways in which progress can be improved, if at all! Students will also get immediate feedback from the students and post-docs that they are working with in the lab on a day-to-day basis. Further feedback will be given by the examiners at the viva, when the dissertation is discussed.

If you feel that you are not getting sufficient feedback – see your personal tutor

FEEDBACK FROM STUDENTS TO TEACHERS

Input from students is recorded anonymously on forms provided at the beginning of each week of teaching. The data is numerical (4 = excellent quality, down to 1 = poor quality), and space is also provided for free-text comments. These are collected and collated to provide summary data for each piece of teaching on the course.
For this handbook we provide summary numerical data on the main modules of the course.

<table>
<thead>
<tr>
<th>Module</th>
<th>Clarity/delivery</th>
<th>Content</th>
<th>Relevance</th>
<th>Interest</th>
<th>Handouts</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to the MSc</td>
<td>3.4</td>
<td>3.3</td>
<td>3.4</td>
<td>3.3</td>
<td>Yes</td>
<td>3.3</td>
</tr>
<tr>
<td>Molecular Medicine</td>
<td>3.4</td>
<td>3.5</td>
<td>3.4</td>
<td>3.4</td>
<td>Yes</td>
<td>3.4</td>
</tr>
<tr>
<td>Reproductive Endocrinology &amp; Signalling</td>
<td>3.1</td>
<td>3.4</td>
<td>3.4</td>
<td>3.0</td>
<td>Yes</td>
<td>3.2</td>
</tr>
<tr>
<td>Gametogenesis and Preimplantation Development</td>
<td>2.7</td>
<td>3.0</td>
<td>3.0</td>
<td>2.9</td>
<td>Yes</td>
<td>3.0</td>
</tr>
<tr>
<td>Pregnancy &amp; Fetal Development</td>
<td>3.6</td>
<td>3.4</td>
<td>3.6</td>
<td>3.5</td>
<td>Yes</td>
<td>3.6</td>
</tr>
<tr>
<td>Reproductive Medicine</td>
<td>3.4</td>
<td>3.5</td>
<td>3.6</td>
<td>3.5</td>
<td>Yes</td>
<td>3.5</td>
</tr>
<tr>
<td>Stem Cell Biology</td>
<td>3.4</td>
<td>3.6</td>
<td>3.5</td>
<td>3.5</td>
<td>Yes</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Scoring scheme: 4 = excellent, 3 = good, 2 = adequate, 1 = poor.

This shows that most modules achieved average marks between good and excellent. The teaching on Gametogenesis and Preimplantation development was modified in 2011-12, in response to this feedback.

Free text comments:

‘Excellent lecturer. Very well prepared and delivered, I learnt a lot of things that I did not know – thank you!’

‘I really appreciate these beautiful lectures and the substantial lists of recommended reviews and papers.’

“Embryo development was presented brilliantly.’

‘A really good module with great lectures and well organised.’

‘Excellently delivered lectures, well understood and concise.’

‘A very hard topic that was difficult to follow completely – I know more than I did at the beginning!’
Essays

During the taught course, students are expected to complete four essays (titles and deadlines below). All essays should be produced on a computer.

Essays can be any length, but must not exceed 2500 words. This is equivalent to approximately 15 sides of A4 paper, typed double-spaced with 2.5 cm margins using 12 point font size. This word limit excludes figures and tables (and their legends) and references. It must be adhered to, and essays that are longer than this will be penalised, losing 2% for every extra 250 words of main text. Please print the word count on the front cover, bottom right hand side. All word processing programmes allow you to give a word count, and usually have a spelling checker.

Essays should be bound simply, either with a simple staple in the top left hand corner, or using the ring binding system of the type available in the library.

ESSAY TITLES

<table>
<thead>
<tr>
<th>TOPICS</th>
<th>DEADLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Linked to Cell signalling &amp; reproductive endocrinology</td>
<td>November 2012</td>
</tr>
<tr>
<td><em>Set by Dr Nick Dibb and Mr Roger White</em></td>
<td></td>
</tr>
<tr>
<td>• Linked to Gametogenesis &amp; preimplantation development</td>
<td>December 2012</td>
</tr>
<tr>
<td><em>Set by Prof Kate Hardy and Dr Kevin Lindsay</em></td>
<td></td>
</tr>
<tr>
<td>• Linked to Pregnancy</td>
<td>January 2013</td>
</tr>
<tr>
<td><em>Set by Dr Mark Sullivan</em></td>
<td></td>
</tr>
<tr>
<td>• Linked to Stem cell biology</td>
<td>February 2013</td>
</tr>
<tr>
<td><em>Set by Dr Pascale Guillot and Dr Wei Cui</em></td>
<td></td>
</tr>
</tbody>
</table>

SUBMISSION OF ESSAYS

Essays MUST be submitted by the deadline.

*Essays submitted late will be penalised*, losing 10% of the mark for the first day late, and a further 1% for each day thereafter. For example, if an essay is given a mark of 60%, but is handed in a day late, it will be penalised by 10% of the mark (6%), giving a corrected mark of 54%. For each subsequent day late, a further 0.6% will be lost. In cases of personal illness contact the Course Director and bring a letter from your GP.

One copies of the essay should be submitted to the Course Director or another nominated person. This will be marked and returned to you with a grade and comments: a copy of this will kept to be seen by the examiners.

The submitted essay should be accompanied by the form entitled “Receipt for Submission of MSc Coursework”, which should be completed, signed and dated. This form has two roles. Firstly the form states that you have submitted the essay by the deadline, and is countersigned by the person accepting the essay to confirm this. Secondly, the form declares that the work in the essay is your own work, and that you have not copied it from any other source. The signed forms are kept by the Course Director.
Check list for submitting your essay:

☐ One copy of your essay, with your name on
☐ An identical electronic copy of the essay submitted the Course Director
☐ Word count on front cover
☐ Completed, signed and dated “Receipt for Submission of MSc Coursework” form

PLAGIARISM

You are reminded that all work submitted as part of the requirements for any examination of Imperial College 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 and words as though they were your own, must be avoided, with particular care in coursework, essays and reports written in your own time. Direct quotations from the published or unpublished work of others must always be clearly identified as such by being placed inside quotation marks, and a full reference to their source must be provided in the proper form. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as a long quotation from a single source. Equally, if you summarise another person’s ideas or judgements, you must refer to that person in your text, and include the work referred to in your bibliography. Finally, a copying long piece of text, which contains limited word changes, is plagiarism even if the source is quoted. Failure to observe these rules may result in an allegation of cheating. You should therefore consult your tutor or the course director if you are in any doubt about what is permissible.

The rationale is that we have to know what YOU understand about a topic, and this is what is being marked.
Presentations

ORAL PRESENTATION
In late October you will be expected to give a short oral presentation on a subject covered in the Molecular Medicine module to your fellow students and three assessors. Titles for the presentations will be allocated at random by the Module Organisers one week prior to the presentations.

The talk should be prepared in PowerPoint, and will be given in the Seminar Room, on the ground floor of the IRDB. Talks will last five minutes with five minutes for questions and will be timed. Ensure that your presentation is loaded on the computer from a USB stick at least ten minutes before the start of the session.

The computer is dual boot (MAC + Windows), so use whichever system you prefer.

Presentation style: In general allow a minute per slide

Remember
- Keep slides simple
- Use headings
- Use a font size of point 32 or more.
- Lower case is easier to read THAN UPPER CASE (remember road signs!)
- Arial can be easier to read than times
- Photos and pictures are interesting

Avoid
- Fussy or fancy backgrounds and templates (distracting)
- Unnecessary and distracting animations and special effects
- Fancy fonts and effects
- 3D graphs and any extraneous words or distracting images
- Too many different colours throughout the presentation
- Too many words on a slide, which take ages to read and don’t give any useful information, but distract the audience from what you are saying because they are concentrating so hard on reading all the text and not listening to what you are saying.........that they miss the point altogether.........and get lost..................................and bored.................................................zzzzzzzzzz

When presenting
- Talk to the audience
- Do not read your slides

The presentation should not simply recount what you have heard in one of the lectures, so you will be expected to research your subject thoroughly and present novel information.
Examinations

The course includes two three-hour written papers and one four-hour practical/data handling examination.

| PAPER I | Written paper: Molecular Medicine. Reproductive Endocrinology & Cell signalling, Gametogenesis and Pre-implantation Development (Basic concepts), Pregnancy (Basic concepts) |
| PAPER II | Written Paper: Pregnancy and fetal development (Advanced concepts) Stem Cell Biology, Reproductive Medicine, Preimplantation development & ART (Advanced concepts) |
| PAPER III | Practical Paper: Data handling questions |

PAPERS I AND II

- Each examination is three hours long
- For each paper, you are expected to answer four essay questions.

PAPER III

- The practical paper is **four** hours long.
- You are expected to attempt four questions from a choice of five.

Paper I will be taken in January, and Papers II and III in March.
Projects

THREE COPIES OF THE DISSERTATION MUST BE SUBMITTED
BEFORE OR ON SEPTEMBER 1st 2013.

Projects are normally available in the following areas: molecular endocrinology of human and animal tissues, signalling pathways, follicle growth and maturation, the biology of tissues from the feto-maternal interface, stem cell biology, neonatal physiology. Projects do not provide training in IVF.

All potential supervisors will be asked to describe the research interests of their group late in 2012, and likely project topics that may be available. You can then ask any questions about the project or topic that you wish. Students will be asked to decide which projects they are interested in, and present the Course Director with their 1st – 5th choices by a deadline. Allocation of projects and supervisors will take place during February. Projects will be allocated by the Course Director taking the personal preferences, academic interests and career aspirations of the individual student into account, although it cannot be guaranteed that the first choice will be available. Projects shall begin in March, after the written examinations, and the dissertation must be submitted by the 1st of September.

Research projects are designed to take full advantage of local interests and expertise, thus giving students experience of internationally competitive research.

External projects.
In the rare event that a student is doing their project in a laboratory outside the I.R.D.B. (e.g. a sponsoring laboratory), it is compulsory for a co-supervisor from the I.R.D.B. be appointed, and meet regularly with the student and other supervisors.

PROJECT DESCRIPTIONS

All supervisors who wish to offer a project (or projects) to be done during 2012, will present an outline of their research interests, and the type of project or projects that may be available within their group. Some examples of project titles are shown below, but please note that this list is not exhaustive.

Supervisor          Title of projects completed in 2009
Stephen Franks &   Immunohistochemical localisation of cell adhesion molecules in the human
Kate Hardy         ovary
Jan Brosens &      hCG signalling in human endometrium is impaired in recurrent pregnancy
Aylin Hanyaloglu   loss
Pascale Guillot    Evolution of stemness of human fetal stem cells from fetal membranes
during fetal development
Charlotte Bevan    Characterisation of repressors important in prostate cancer
Wei Cui           Investigation of molecular mechanisms regulating the differential expression
telomerase during neural differentiation of hESCs.
Health and Safety Instructions

The Institute Safety Coordinator is Mr. Roger White who will arrange Safety Induction for students before the laboratory work begins.

Health and Safety information will be provided in 3 stages:
1. A generic introduction to the IRDB on the first day of term
2. Laboratory safety details before the week of class laboratory practicals
3. Detailed and specific information related to each project, at the start of the projects in March. This will include techniques and specific equipment that is to be used.

Risk assessments will be provided for all laboratory work.

Health and safety information:
http://www3.imperial.ac.uk/facilitiesmanagement/healthandsafety

All students should be seen by occupational health and should take advantage of their free immunisation service. It is your responsibility to ensure that you are adequately protected against possible sources of infection.