MSC INVESTIGATIVE OPHTHALMOLOGY & VISION SCIENCES – SYLLABUS AND UNIT GUIDE 2014-2015

Aims

1. To give students a firm grounding in the knowledge, understanding and skills that they will need to pursue a higher research degree or to participate in research programmes. It recognises that undergraduate courses do not always provide these skills and that those considering research programmes can benefit from a period of structured training;
2. To provide those working within the ophthalmic professions (ophthalmologists, optometrists, orthoptists and ophthalmic nurses) with an opportunity for professional development;
3. To provide a programme whose curricula are informed by the research strengths of the University of Manchester and Manchester Royal Eye Hospital and which draws upon expertise from a wide range of disciplines that extends beyond the staff of the two institutions;
4. To continually develop the course in response to a) new developments within the field; and b) feedback from students;
5. To provide students with academic, career and pastoral support in addition to that provided by the University;
6. To meet a need for researchers who can form a bridge between basic research and applied clinical research.
7. To widen access to eye health and vision sciences research

Objectives

On completion of the course students will have:

1. Obtained the knowledge, understanding and skills needed to follow a research based career;
2. Gained an enhanced and more specialist knowledge in selective areas of ophthalmic research;
3. Experienced interdisciplinary learning and have a wider appreciation of the contributions that different subjects can make to the discipline;
4. Acquired skills in experimental design, statistics and the use of computers in research;
5. Demonstrated an ability to successfully complete a research project;
6. Learnt how to critically review the literature;
7. Acquired/developed oral and written presentation skills.

Course Structure and Credits

	Credits			
Course Units	**MSc Pathway 1**	**MSc Pathway 2** (optional units: choose 2 from 4)	**PG Diploma**	**PG Cert** (optional units: choose 4 from 6)
Macular Degeneration: Research, Investigations and Clinical Practice	15	15	15	15 option
Research Methods	15	15	15	15 option
Glaucoma	15	15 option	15	15 option
Genetics of Eye Disease and Development	15	15 option	15	15 option
Corneal Physiology and Contact Lenses	15	15 option	15	15 option
Physiology of Ocular Tissue in Health & Disease	15	15 option	15	15 option

Literature review (MSc pathway 2 and PG Diploma only)		30	30	
Main Project (MSc) Dissertation	90	90		
Total credits for MSc	**180**	**180**		
Total credits for PG Diploma			**120**	
Total credits for PG Certificate				**60**

Teaching & Learning Methods
The programme uses a range of different teaching methods. Lectures, tutorials, workshops, practicals, and self-directed learning will facilitate a more in depth understanding of the major concepts delivered via the compulsory core course units. Peer review discussions and opportunity for staff-student feedback will be provided during tutorials.

Teaching & Learning Resources (access to PCs, library, journals etc)
Ophthalmology is housed within the Manchester Royal Eye Hospital, which is located on the CMFT site at the southern end of the University of Manchester campus. Optometry is housed within the Carys Bannister Building. The two sites are few hundred yards apart.

Computing facilities are available within the large public clusters in easily accessible locations. Students are automatically registered on the University network when they formally register at the beginning of the programme. Once registered they can access a wide range of facilities including e-mail and the Internet.

Research Projects, Dissertations and Literature Reviews
Choosing the topic for your MSc dissertation (90 credits)
In January students will be given a list of dissertation titles that are available. Each dissertation will have a named supervisor and students are expected to discuss those they are interested in with supervisors prior to coming to an agreement with the supervisor on a topic. Once agreement has been reached students should notify the programme administrator of their dissertation title and supervisor. The final dissertation may be presented as a literature review followed by a report of the experimental work (which may take the form of a paper suitable for publication).Guidance for the word count of the dissertation is 10,000 to 15,000 words. Please expect to have marks deducted by your examiner if you do not remain within this range.

Location
Most dissertations are conducted within the confines of the University and the Manchester Royal Eye Hospital. Students may, however, embark on work outside these confines (e.g. an optometric practice or other hospital). This is contingent on the acceptance of the research proposal and the approval of suitable external and internal supervisors by the course director.

Timetable
Full-time students normally start their dissertations in January and are expected to have completed their introduction and gained any required permissions (ethical reviews, Trust approval) prior to starting their practical work in May. They then work full time on their dissertation through to September. To enable the Departments to nominate Examiners and to have these nominations approved by the Postgraduate Panel before the date of submission, a student is required to give notice to the Programme Administrator of his/her intention to submit a dissertation. Students will be contacted by the Graduate Office to confirm the process for notice of submission forms.

RESEARCH METHODS MEDN69910

Course Unit Coordinator: Rachel Cowen
rachel.cowen@manchester.ac.uk

Introduction to the Course Unit

The Research Methods Course Unit is a 15 credit, interactive blended learning unit which will give you a comprehensive introduction to key information and skills required for the design, execution, interpretation and dissemination of medical, scientific and clinically-related research. The research methods course is an integral part of your research experience whilst undertaking your degree. It will help you produce a high quality dissertation and provide you with the strongest grounding possible to carry out successful research, whether in academia, industry or a medically-aligned profession.

The unit is a blended combination of lectures, workshops and on-line material designed to cover topics relating to critical analysis of scientific/medical research literature, information management, study design, basic statistical analysis, research integrity, research presentation skills, scientific writing and publishing skills.

Aims of the Course Unit

This unit aims to prepare you for postgraduate research. Specifically it will:

- Introduce you to the skills and knowledge required to critically design, effectively implement, ethically conduct and knowledgeably interpret research in medical, scientific and clinically related sciences.
- Provide you with life-long critical appraisal skills that you will be able to apply to any research evidence that comes before you.
- Develop your competence in key transferable skills, particularly written and oral communication of research and time and project management in the research setting.

Organisation and Intended Learning Outcomes (ILOs) of the Course Unit

The unit will begin with 5 taught introductory sessions run by the Faculty Graduate Training Team covering:

1. ***Unit Overview and How to Ensure Research Ethics/Integrity.***

   ILOs:
   - To be able to use blackboard and maximise your research methods knowledge/learning using the research methods online resources.
   - To fully understand how you will be assessed and what it takes to successfully complete the unit.
   - To understand the importance of research integrity and how to avoid plagiarism, fraud, and misconduct
   - To raise awareness of the research governance research has gone wrong.

2. ***Introduction to Statistics***

   ILOs:
   - To be able to appropriately describe and present quantitative data.
   - To understand the principles underlying hypothesis testing, sampling, estimation and confidence intervals.
   - To be able to carry out statistical analyses using statistical software.

3. ***Research Study Design***

   ILOs:
   - To understand the basic principles of project and time management.
   - To be able to apply project planning tools to establish and execute a successful research study with maximum research impact.

4. ***Dissertation Skills***

   ILOs:
   - To be able to critically analyse a research paper and prepare a well-structured research abstract.
   - To understand the principles of effective academic writing.
   - To be able to produce a high quality dissertation.

5. ***Research Communication Skills***

ILOs:

- To understand how to effectively communicate your research ideas and findings to a wide audience.
- To be able to produce an effective research poster with high visual impact.
- To be able to confidently deliver a research presentation and defend/field questions.

Timetable - Taught Introductory Sessions

Session	Date	Time	Location	Delivered by
Unit Overview and Research Ethics/Integrity	Mon 29 Sept	9.30 - 1pm	K3, Sackville Building	Rachel Cowen and Judy Williams
Introduction to Statistics	Tues 30 Sept	9.30 - 12.30 pm	K3, Sackville Building	Tanya Walsh
Research Study Design	Wed 1 Oct	9.30 - 1pm	Entrance Hall, Sackville Building	Rachel Cowen
Dissertation Skills	Thurs 2 Oct	9.30– 1pm	Entrance Hall, Sackville Building	Judy Williams
Research Communication Skills	Fri 3 Oct	9.30– 1pm	Entrance Hall, Sackville Building	Rachel Cowen

The unit will then run on-line in Blackboard. All of the face to face material including session slides will be available through blackboard. There will be a blackboard discussion board to support the summative assessment aspects of the unit and there may also be some in-programme taught consolidation sessions. Information will remain available in Blackboard for the whole academic year.

The Research Methods Online blackboard material is structured into 3 sections and includes multiple choice questions (MCQ's) to formatively assess your learning from the face to face training and online research methods resources.

Timetable for submission and completion of assessments

Assessment task	Length	Submission/ completion date	Weighting within unit
Abstract writing assignment	250 words	4pm on Thurs 9 Oct	Summative (34%)
Self-assessment MCQs for: **- Library skills** **- Study design** **- Epidemiology**	1 hour per topic	4pm on Mon 17 Oct	Formative
Self-assessment online Critical appraisal exercise	1.5 hours	4pm on Mon 17 Oct	Formative
Ethics assignment	1000 word	4pm on Thurs 16 Oct	Summative (33%)
Statistical assignment	On-line MCQ unde exam conditions	9.15 – 10.15am, 11.30 – 12.30pm or 2.00 – 3.00pm on Fri 17 Oct Venue: Simon Building Computer Cluster	Summative (33%)

GENETICS OF THE EYE

Aims:

To provide an introduction into the genetics of eye development, disease and treatment.

Lectures will introduce the fields of DNA, genes, molecular genetics and protein characterization. Eye development and several forms of genetic eye disease will be then be covered in detail and will cover how particular genes were identified and how defects in them cause disease. The module will conclude with a review of ocular therapeutic intervention.

There will be two practical laboratory classes where some of the techniques discussed in the lectures will be put into practice.

Course Organisers:	Dr Forbes Manson, AV Hill Building, room 1.001. Tel: 275 1783 Email: forbes.manson@manchester.ac.uk
Basic Structure:	18 x 1 hour lectures, one tutorial, and two practical classes.
Credit rating:	15
Unit Code	MEDN70001
When:	Wednesdays 9:00-13:00. Specific times as indicated.
Where:	**Room 1.064, Stopford Building** Lab practicals will be in the AV Hill building first floor laboratory.

Week	Time	Title	Lecturer
1 24/9/14	0930-1000	Introduction	Dr Forbes Manson
	1000-1100	**L1** Introduction to DNA and genes (Part 1)	Dr Forbes Manson
	1100-1130	BREAK	
	1130-1230	**L2** Introduction to DNA and genes (Part 2)	Dr Forbes Manson
2 8/10/14	0930-1030	**L3** Determining gene function (Part 1)	Dr Forbes Manson
	1030-1100	BREAK	
	1100-1200	**L4** Determining gene function (Part 2)	Dr Forbes Manson
3 15/10/14	0930-1030	**L5** Developmental eye genetics	Dr Forbes Manson
	1030-1100	BREAK	
	1100-1200	**L6** Animal models	Dr Forbes Manson

4 22/10/14	0930-1030	**L7** Next generation sequencing and disease gene identification	Prof Graeme Black
	1030-1100	BREAK	
	1100-1200	**L8** miRNA in eye development and function	Dr Forbes Manson
5 29/10/14	0930-1030	**L9** Genetics of bestrophinopathies	Dr Forbes Manson
	1030-1100	BREAK	
	1100-1130	Tutorial planning session 1 (Group 1)	Prof Graeme Black
	1130-1230	**L10** Genetics of glaucoma	Dr Panos Sergouniotis
6 5/11/14	0930-1030	**L11** Genetics of vitroretinal disease	Professor Paul Bishop
	1030-1100	BREAK	
	1100-1130	Tutorial planning session 1 (Group 2)	Dr Forbes Manson
	1130-1230	**L12** Genetics of cataract	Prof Graeme Black
7 12/11/14	0930-1030	**L13** Genetics of retinal dystrophies	Prof Graeme Black
	1030-1100	BREAK	
	1100-1130	Tutorial planning session 2 (Group 1)	Prof Graeme Black
	1130-1230	**L14** Genetics of AMD	Dr Simon Clark
8 19/11/14	0930-1030	**L15 TBC**	Dr Forbes Manson
	1030-1100	BREAK	
	1100-1130	Tutorial planning session 2 (Group 2)	Dr Forbes Manson
	1130-1230	**L16** Therapeutic intervention in eye disease	TBC
9 26/11/14	0930-1030	**L17** Gene therapy for the eye	Prof Graeme Black
	1030-1100	BREAK	
	1100-1200	**L18** Brittle cornea syndrome	Dr Louise Porter
10 3/12/14	0930-1030	Group 1 tutorial presentation	
	1030-1100	BREAK	
	1100-1200	Group 2 tutorial presentation	
11 10/12/14	0930-1030	**L19** Stem cell therapy for the eye	TBC
	1030-1100	BREAK	
	1200-1300 **AV Hill 1.006**	**L20** TBC	TBC

Assessment:
Written examination (65 %)
Essay (15 %)
Lab practical write-up (10 %)
Tutorial presentation (10 %)

MACULAR DEGENERATION: RESEARCH, INVESTIGATIONS AND CLINICAL PRACTICE

Aims:

The unit aims to provide students with a core understanding of the basic pathophysiology of age-related macular degeneration, understanding the role of modern investigative techniques. They should understand latest research findings and apply evidence based care to patients with age related macular degeneration.

Learning Outcomes:

Category of outcome	*Students should/will (please delete as appropriate) be able to:*
Knowledge and understanding	- understand basic pathology - understand key epidemiological concepts - Understand latest research findings in experimental studies and those in clinical practice with critical appraisal of key papers. - Understand the role of investigations and tests in macular degeneration including imaging but also visual function tests - Understand the principles behind intravitreal injection
Intellectual skills	- Critical appraisal of relevant papers - The role of research in this field. - Assimilation of large amounts of information and research into a pragmatic management plan .
Practical skills	Be able to apply knowledge of principles of intravitreal injection to a safe and stable technique.
Transferable skills and personal qualities	- manage time; work to deadlines; use initiative when seeking information - use information technology to a high standard - apply skills for identifying, appraising, synthesising and applying evidence, in Macular degeneration

Course Organisers:	Mr Sajjad Mahmood Professor Tariq Aslam
Basic Structure:	Two to three hour sessions comprising lectures, tutorials and a practical session.
Credit rating:	TBC
Unit Code	TBC
When:	See individual lectures below
Where:	See individual lectures below

Session	**Time**	**Title**	**Speaker**	**Date**

No				
1	3 hrs	Pathophysiology of AMD Genetics of AMD Role of Complement in AMD	Prof Paul Bishop (paul.bishop@manchester.ac.uk) Simon Clark (Simon.Clark-3@manchester.ac.uk)	Friday 3rd October – 14:00-17:00 4.005 AV Hill
2	2 – 3 hrs	Imaging: Fundus Fluorescein angiography, autofluorescence and ICG in AMD patients	Prof Paulo Stanga (retinaspecialist@btinternet.com, Paulo.Stanga@manchester.ac.uk>	Tuesday 7th October – 14:00-17:00 1.063 Stopford
3	2 – 3 hrs	Imaging: Scientific basic of OCT, interpretation of retinal anatomy, clinical features of AMD	Prof Tariq Aslam (Tariq.Aslam@cmft.nhs.uk)	Tuesday 14th October – 14:00-17:00 1.064 Stopford
4	2 - 3 hours	Imaging: Observation session	TBA with Jane Gray imaging department MREH (Jane.Gray@cmft.nhs.uk)	TBC Clinic E, MRI
5	2 - 3 hours	Dry AMD. i) Macular carotenoids; measurement in AMD and effects of supplementation ii) Demonstration of Macular Pigment measurement iii) Functional consequences of drusen; link between AMD and rod vision	Ian Murray (ian.j.murray@manchester.ac.uk)	Monday 27th October – 15:00-18:00 Meeting Room C, 4.010 Carys Bannister
6	2 - 3 hours	Evidence based management of wet AMD. Current techniques and future development	Sajjad Mahmood	Friday 7th November - 10:00-13:00, G.050A Stopford
7	2 - 3 hours	AMD Treatment initiation and retreatment decision-making. Lecture and interactive worked examples	Sajjad Mahmood	Friday 14th November – 09:30-12:30 1.064 Stopford

		session.		
8	2 hours	The Intravitreal Injection Procedure: Evidence base and current best practice. To include dry lab practical	Konstantinos Balaskas (Konstantinos.Balaskas@cmft.nhs.uk)	Wednesday 19th November – 14:00-17:00, 2.064 Stopford
9	2 hours	Low Vision Rehabilitation To include modern approach to low vision aids, eccentric viewing and steady eye strategies. CVI Registration, Social Services for AMD patients	Jeremy Parkes Rosalind Creer (Jeremy.Parkes@cmft.nhs.uk, Rosalind.Creer@cmft.nhs.uk)	Wednesday 26th November – 14:00-16:00 G.054 Stopford

Assessment:

2 hour written exam

40% - MCQs set by lecturers

60% - Short answer questions set by lecturers

GLAUCOMA

Aims:

- To provide an understanding of changes that occur in the glaucomatous eye.
- To prepare healthcare professionals to participate in community or hospital-based schemes involving the detection and management of ocular hypertension (OHT) and chronic open angle glaucoma (COAG).
- To provide a comprehensive knowledge of the technologies used in the diagnosis and management of OHT and COAG.
- To provide an understanding of the approach to, and the various treatment modalities for, the management of glaucoma.

Learning Outcomes:

- An understanding of the relevant anatomy and physiology of the normal eye and the changes that occur in glaucoma.
- A comprehension of the different types of glaucoma; a knowledge of the prevalence of, and risk factors for, the glaucomas and an understanding of the associated visual impairment.
- An ability to interpret images of the optic nerve head and visual field charts.
- An ability to make appropriate management decisions based upon clinical guidelines e.g. NICE.
- An understanding of the principles and application of the techniques used in the diagnosis and management of COAG.
- A comprehensive knowledge of the rationale for, and mechanism of, the current therapeutic options in the management of COAG.

Course Organisers:	Professor David Henson david.henson@manchester.ac.uk
Basic Structure:	10 x 3 hour sessions comprising lectures, tutorials and workshops.
Credit rating:	15
Unit Code	MEDN70352
When:	**TBC**
Where:	**TBC**

Session	**Time**	**Title**	**Presenter**	**Date**	Location
1		Introduction to the course	David Henson	**TBC**	
		Accessing Blackboard	David Henson		
		Classification of the glaucomas	David Henson		
		Definition of Glaucoma	David Henson		
		Epidemiology of primary open angle glaucoma and Risk Factors	David Henson		
2		Pathophysiology of the optic nerve head and nerve fibre layer	David Henson	**TBC**	
		e-learning evaluation of optic nerve head-GONE	David Henson		
		Pathophysiology of anterior chamber and aqueous circulation	David Henson		
3		Imaging of the optic nerve head (SLO, HRT, GDx, OCT, Multispectral)	David Henson	**TBC**	
		e-learning evaluation of optic nerve head-DISCUS			
		Structure function relationship	David Henson		
4		An introduction to Visual Fields	David Henson	**TBC**	
		Visual field loss in glaucoma	David Henson		

		Interpreting the visual field chart	David Henson		
5		Visual Field Tests	David Henson	**TBC**	
		Reliability indices	David Henson		
		Screening for glaucoma	David Henson		
6		Quantification of field loss	David Henson	**TBC**	
		Analysis of progression rates in Manchester Royal Eye Hospital	Emmanouil Tsamis		
		Practical- visual field tests	David Henson		
7		Glaucoma trials	David Henson	**TBC**	
		The optic nerve head in glaucoma	Fiona Spencer		
		Medical and surgical treatment	Cecilia Fenerty		
8		Measurement of the IOP, factors affecting IOP and review of new instruments	Aachal Kotecha	**TBC**	
		Testing the visual field of children	Marco Miranda		
		Other examination techniques Multifocal VEPs, pupillometry.	David Henson		
9		Referral refinement schemes	David Henson	**TBC**	
		NICE Workshop	David Henson		
		Gonioscopy	Leon Au		
10		Visual electrodiagnosis in glaucoma screening	Neil Parry	**TBC**	
		Co-management HES based schemes	Rob Harper		

(Presenters and order of presentations subject to change and confirmation)

Course work

The course includes five summative assessments of learner's management/diagnostic skills when provided with clinical data (optic nerve head images, visual field charts and IOP data).

Assessment

Course work (20%)
2 hr Written Examination (80%) (May 2015)

CORNEAL PHYSIOLOGY AND CONTACT LENSES

Aims and Objectives:

The aims of these sessions are:

a) to acquire important new information in the field of corneal physiology and contact lenses
b) to encourage critical evaluation of the literature
c) to foster the development of articulate scientific communication

Content:

This unit consists of 10 sessions which each focus on a specific aspect of corneal physiology and contact lenses. The first hour of each session an overview lecture of the topic under discussion by the session leader to provide a background to the paper presentations which comprise the second hour.

The paper presentations are 15 minute presentations given by a student who is expected to critically analyse a paper which is assigned at the start of the module. This presentation should provide an overview of the work and then a critical assessment of the methods and results of the work, in addition to the style of the paper and the validity of any conclusions. The presentation will be given using Microsoft Powerpoint (or other, similar presentational software) delivered through a data projector. After completion, there will be a discussion and questions from the other students and the session leader.

The remainder of each session will be devoted to a practical session. This will be directly related to the lecture and paper reviews and will either feature a demonstration or hands-on experience in a clinic or laboratory.

Students will be required to prepare a critical appraisal and a summary handout of their assigned papers. The presentation should give a brief background, present the aim, methods, results and your view on the meaning and/or clinical relevance of the work. You must also offer a critical appraisal of the paper. It is important to practice your presentation and ensure that it is tailored to the allocated time.

To aid your presentation you are expected to construct a PowerPoint presentation (Microsoft software) and present this from your own laptop computer via a computer/data projector, which will be available during the seminars. If you do not have a laptop computer one will be available for you to use, but you must of course bring your presentation on a CD-ROM or USB memory stick.

You are required to prepare a printed handout to supplement your formal presentation. This should be a printout of the PowerPoint captions, formatted for six frames per page. Twelve handout copies should be prepared. If you give a hard-copy to Optometry secretary Joanne Cohen by 10.00 am on the Wednesday prior to your seminar, Joanne will print off the handouts for you. You must then collect the handouts from Joanne at an agreed time. If you miss the Wednesday 10.00 am deadline, you are responsible for producing the copies yourself. Distribute these handouts immediately prior to your presentation.

It is advisable for all candidates to read the papers to be presented (a full list will be provided in due course) prior to each seminar. This will enable you to critically evaluate the reports and to play a more active role in the discussions.

Course Organisers:	Dr. Philip Morgan (philip.morgan@manchester.ac.uk, x64441)
Basic Structure:	**Lecture presentation:** 14.00 – 15.15 **Paper reviews:** 15.15 – 16.15 **Practical/demonstration:**16.30 –18.00
Credit rating:	15
Unit Code	MEDN70352
When:	**TBC**
Where:	**TBC**

Session 1: **TBC**	Introduction to seminar series **Design of clinical studies** *Paper review* Epstein 2006:	Dr. Philip Morgan
Session 2: **TBC**	**Contact lens oxygen performance** *Paper reviews* Efron et al 2007: Brennan 2001: Brennan 2005:	Dr. Philip Morgan Dr. Michael Read
Session 3: **TBC**	**Soft contact lens materials** *Paper reviews* Maldonado-Codina et al 2004: Read et al 2004: Subbaraman et al 2006:	Dr. Carole Maldonado-Codina Dr. Michael Read
Session 4: **TBC**	**Soft contact lens manfacturing** *CooperVision Limited.* *Meet 7.45am at Stopford Building*	Dr. Philip Morgan
Session 5: **TBC**	***In vivo* confocal microscopic examination of the cornea**	Mr. Ioannis Petropoulos Dr. Philip Morgan
Session 6 **TBC**	**Orthokeratology** *Paper reviews* Nichols et al 2000: Lum and Swarbrick 2011:	Mr. Nick Howard Dr. Philip Morgan
Session 7: **TBC**	**Contact lens associated keratitis** *Paper reviews* Chang et al. 2007: Stapleton et al. 2008: Dart et al. 2008:	Dr. Philip Morgan Dr. Curtis Dobson
Session 8: **TBC**	**Keratoconus** *Paper reviews* Mannion et al 2011: Kymionis et al 2009: Zadnik et al 2005:	Dr. Amit Jinabhai
Session 9: **TBC**	**Contact lens solutions and compliance** *Paper reviews* Jones et al 2002: Carnt et al 2007: Tchao et al 2002:	Dr. Philip Morgan Mr. Neil Chatterjee
Session 10 **TBC**	**Ocular aberrations** *Paper reviews* Parker at al 2009: López-Gil et al 2009: Sabesan et al 2007:	Dr. Hema Radhakrishnan Ms. Ithar Beshtawi

Assessment

2 hr Written Examination (60%) (May 2014) and scores from seminar presentations (40%)
The written examination will be based on information presented during the seminars. The seminar presentations will be assessed in terms of evidence of preparation, grasp of the material reviewed and the quality of the your presentations (including timing).The marks for the seminar presentations will be apportioned as follows:

Understanding 10; quality of slides 10; delivery 10

PHYSIOLOGY OF OCULAR TISSUES IN HEALTH AND DISEASE

Aims and objectives:

- To further understanding of mechanisms underlying ocular disease processes and how this understanding can provide a rationale basis for treatments.
- To learn how to critically evaluate research papers
- To develop skills in oral presentation

Organiser: Dr Chantal Hillarby chantal.hillarby@manchester.ac.uk
Structure:
11 x 3½ hour sessions of lectures (L), tutorials (T) and student seminars (S)
Credit rating: 15
Unit Code **MEDN70342 (MSc) and MEDN31132 (MOptom)**
When: 2nd Semester, **TBC**.
Where: **TBC**

Date		
	Week 1	**An Introduction to Ocular Immunology. Dr Chantal Hillarby**
	9.15 - 10.15	L Basic Immunology (Dr C Hillarby)
TBC	10.15 – 10.45	S Paper presentation
	11.15 - 12.15	L Immune Privilege (Dr C Hillarby)
	Week 2	**Autoimmune Eye Disease. Dr Chantal Hillarby**
TBC	9.15 - 10.15	L Autoimmunity (Dr C Hillarby)
	10.15 – 10.45	L Dry Eye (Mrs Fiona Carley)
	11.15 - 11.45	S Paper presentation
	11.45 - 12.45	L Uveitis (Mrs Romi Chhandra)
	Week 3	**Corneal Transplantation. Dr Chantal Hillarby**
	915 – 10.15	L Eye Banking (Dr Isaac Zambrano)
TBC	10.15 – 10.45	L Keratoplasty (Corneal fellow)
	11.15 - 11.45	S Paper presentation
	11.45 - 12.45	*L* Corneal Transplant Rejection (Dr C Hillarby)
	Week 4	**Corneal Maintenance and Repair. Dr Chantal Hillarby**
	9.00 - 10.00	L Stem Cells (Prof Giorgio Terenghi)
TBC	10.00 – 11.00	S Paper presentation
	11.15 – 11.35	S Paper presentation
	11.35-12.00	L The Limbus and Wound Healing (Dr C Hillarby)
	Week 5	**Basic Principles.**
	9.15 - 10.15	L Proteins, glycoproteins and proteoglycans (Dr M Le Goff)
TBC	10.15 – 11.15	*T* **Growth factors and cytokines (Dr M Le Goff)**
	11.15 - 11.45	*S* Paper presentation
	11.45 - 12.45	*L* Angiogenesis and eye disease (Dr M Le Goff)
	Week 6	**Vitreous.**
	9.15 - 10.15	L Biochemistry and physiology of the vitreous (Prof P Bishop)
TBC	10.15 - 10.45	S Paper presentation
	11.15 - 11.45	S Paper presentation

	11.45 - 12.45	L	Opticin inhibits angiogenesis (Dr M. Le Goff)
TBC	Week 7	**Retina I.**	
	9.15 - 10.15	L	The retina – structure, function and pathology (Prof P Bishop)
	10.15 - 11.15	L	Pathophysiology of retinal detachment (Prof P Bishop)
	11.45 - 12.45	L	Pathophysiology of diabetic retinopathy ()
TBC	Week 8	**Retina II**	
	9.15 - 10.15	L	Retinal pigment epithelium and PVR (Dr C Sheridan)
	10.15 – 10.45	S	Paper presentation
	11.15-11.45	S	Paper presentation
	11.45 - 12.30	T	Critical analysis of manuscripts and publishing
TBC	Week 9	**Retina III.**	
	9.15 - 10.15	L	Non-rod non-cone photoreceptors (Prof R Lucas)
	10.15-10.45	S12	Paper presentation
	11.15 – 11.45	S13	Paper presentation
	11.45 - 12.45	L	Clinical investigation of retinal pathologies (Mr P Stanga)
TBC	Week 10	**Retina IV**	
	9.15 - 10.15	L	Age-related macular degeneration – overview (Prof. P. Bishop)
	10.15 - 10.45	T	Complement Factor H (CFH) and AMD (Dr. S. Clark)
	11.15 - 11.45	S	Paper presentation
	11.45 - 12.45	L	Dry age-related macular degeneration (Mr T. Aslam)
TBC	Week 11	**Cornea disease**	
	9.15 - 10.15	L	Pathology of the Cornea (Dr Luciane Irion)
	10.15-10.45	S	*Paper presentation*
	11.15-12.15	L	*Keratoconus (Dr Chantal Hillarby)*
TBC	Week 12	**Question and Answer Session.**	
	9.15-10.30	Tutorial questions and answers about MO7 topics	

ASSESSMENT

1 x 2 hr written examination (80%) in May 2015- choice of (3 from 5) questions

1 x paper presentation (10%)

1 x Essay (10%)