

VISN3111

Development and Aging of Visual System

Course Outline
Term 1, 2023

School of Optometry and Vision Science
Faculty of Medicine & Health

Table of Contents

1. Staff	3
2. Course information	3
2.1 Course summary	3
2.2 Course aims	4
2.3 Course learning outcomes (CLO)	4
2.4 Relationship between course and program learning outcomes and assessments	4
3. Strategies and approaches to learning	5
3.1 Learning and teaching activities	5
3.2 Expectations of students	6
4. Course schedule and structure	6
5. Assessment	8
5.1 Assessment tasks	8
5.2 Assessment criteria and standards	9
5.3 Submission of assessment tasks	10
5.4. Feedback on assessment	10
6. Academic integrity, referencing and plagiarism	11
7. Readings and resources	11
8. Administrative matters	12
9. Additional support for students	12

1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
Course Convenor	Dr Revathy Mani	revathy.mani@unsw.edu.au	By appointment via email	By email
Lecturer	A/Prof. Michele Madigan	m.madigan@unsw.edu.au	By appointment via email	By email
Lecturer	A/Prof SieuKhuu	s.khuu@unsw.edu.au	By appointment via email	By email
Lecturer	Dr. Ingrid Jimenez Barbosa	ingrid.jimenezbarbosa@unsw.edu.au	By appointment via email	By email
Asso Lecturer	Azadeh Tavakkoli (T1 & T2 only)	Please contact via course convenor		

2. Course information

Units of credit: 6

Pre-requisite(s): VISN2211: Organisation and Function of the Visual System

Teaching times and locations: Online and face to face delivery

<http://www.timetable.unsw.edu.au>

Components	Hours per week	Day & Time	Location
Lecture	2 hours	Mon 9:00-11:00 am	Online
Lecture	2 hours	Tue 9:00-11:00 am	Online
Tutorials	2 hours (in weeks 3,4,5, 7 and 9)	Group A Wed: 2:00 - 4:00 pm Group B Wed: 4:00 - 6:00 pm Group C: Thu: 2:00 - 4:00 pm Group D: Fri: 11:00 am -1:00 pm	Quadrangle G040 (K-E15-G040)

2.1 Course summary

Objectives: An understanding of the development and aging of the visual system. The effect of disease on the visual system is briefly discussed.

Brief curriculum

- 1. Lifespan and development:** This section include defining normal ageing and senescence and the hallmarks of ageing human embryology and early years of life; key embryological periods for eye and neuronal development.

2. **Development of eye:** human embryology and early years of life; key embryological periods for eye and neuronal development
3. **Development of Refractive Errors:** the definition and process of emmetropisation; how myopia and hyperopia can develop; evidence-based approaches to managing refractive errors.
4. **Amblyopia development:** what is amblyopia and how it develops (including critical period and neuronal plasticity); evidence-based approaches to amblyopia treatment (including critical period, plasticity, and introduction to treatment strategies)
5. **Ageing eye and visual system:** normal age-related changes in the eye and visual system; how do age-related changes in cognitive and visual pathways interact and impact overall visual function. How to assess normal visual function child and elderly people; public health overview of ageing population, impact of visual impairment and vision loss, and introduction to low vision (geriatric optometry)

Evidence Based Practice: Ability to define a question, perform a search for answers, appraisal of the quality and applicability of search items and understanding of the information in the literature itself. Ability to communicate this information in written and oral means.

2.2 Course aims

The aim of this course is to develop an understanding of how the human visual system undergoes normal and abnormal age-related changes and the perceptual and functional consequences.

2.3 Course learning outcomes (CLO)

At the successful completion of this course you (the student) should be able to:

1. Identify the main concepts underlying our understanding of biological lifespan, ageing and senescence, and death.
2. Characterise the main processes involved in normal development of the human eye and visual system from the first years of life and the clinical implications for ophthalmic practice.
3. Review how disruptions of normal developmental processes can impede maturation of normal vision and visual function in children.
4. Describe the normal expected changes of the eye and visual system over time with ageing and how this leads to deterioration of functional vision in later life.
5. Describe the impact of limitations in cognitive or verbal ability, such as in the young, elderly or those with cognitive impairment, on clinical assessment and testing strategies.
6. Develop skills in teamwork, in finding and critically analysing information, and in writing and verbal communication to inform clinical and scientific decision-making process in an intra and inter-disciplinary context.

2.4 Relationship between course and program learning outcomes and assessments

Course Learning Outcome (CLO)	LO Statement	Related Tasks & Assessment

CLO 1	Identify the main concepts underlying our understanding of biological lifespan, ageing and senescence, and death	Quizzes Final exam
CLO 2	Characterize the main processes involved in normal development of the human eye and visual system from the first years of life and the clinical implications for ophthalmic practice	Quizzes Final exam
CLO 3	Review how disruptions of normal developmental processes can impede maturation of normal vision and visual function in children.	Quizzes Final exam
CLO 4	Describe the normal expected changes of the eye and visual system over time with ageing and how this leads to deterioration of functional vision in later life	Quizzes Final exam
CLO 5	Describe the impact of limitations in cognitive or verbal ability, such as in the young, elderly or those with cognitive impairment, on clinical assessment and testing strategies.	Quizzes Final exam
CLO 6	Develop skills in teamwork, in finding and critically analysing information, and in writing and verbal communication to inform clinical and scientific decision-making process in an intra and inter-disciplinary context.	Group presentation Written assignment

3. Strategies and approaches to learning

3.1 Learning and teaching activities

INCLUDE OPTIONAL ACTIVITIES

- Teaching strategies: lectures, readings, group discussion activity that includes tutorial group presentation and discussion, and a written assignment.
- This course is part of a suite of Vision Science courses and provides the opportunity to delve more deeply into different aspects of the ageing and developing visual system, and so requires a greater level of independence in learning than previously.
- Lectures and face-to-face tutorials are important for students to think about course material and formulate and ask questions (on-line or in real time). The lecturers will guide the depth of knowledge required in the course. This course also draws on learning from other courses, such as anatomy and physiology, cell biology, genetics and vision science courses, and these courses will support your learning.
- Readings from peer-reviewed sources are an essential part of the course.
- The Group Presentations activity involves group discussion and group presentation. Students will be allocated into groups and given a video or research article each week related to topics on development and ageing of the visual system for critical analysis and group presentation at each tutorial. To support their analysis, students will access other sources including podcasts. Students will be required to participate in discussion, and answer questions guided by the lecturer and their peers. The group discussion and written assignments are supported through a small group tutorial (from 4 to 6 students per group) during the scheduled on-line other class sessions.

- There are online quizzes to assist in reviewing course materials and helps preparation for the final examination. There are review sessions before the quizzes and final examination.
- The written assignment is an opportunity for each student to further develop critical scientific writing skills. The assignment will be a (400 words +/- 10%) review of a topic related to development and/or aging of the visual system. Each student will be required to submit a review assignment during Week 9. The feedback will be provided with in week 10.
- The final exam will assess knowledge of all course materials including lectures, tutorials, group and on-line discussions, and required readings during week 1-10. The final exam may include MCQs, short answer questions and extended answer questions. Feedback will be provided as the final course mark.
- There is an emphasis on communication skills in this course. Good clear communication ensures: 1) the community can understand what we learn, 2) new discoveries are conveyed in clear language by scientists to the public (and peers) for comment and action, and 3) assist research discoveries to be translated by policy makers or stakeholders in industry into real life outcomes.

3.2 Expectations of students

Students are reminded that UNSW recommends that a 6 units-of-credit course should involve about 150 hours of study and learning activities. The formal learning activities total approximately 50 hours throughout the term and students are expected (and strongly recommended) to do at least the same number of hours of additional study.

Expectations of Students	<p>Some components of this course are compulsory, and you are expected to attend.</p> <p>Attendance at compulsory course components will be monitored by taking a roll / asking attendees to sign an attendance register.</p> <p>The compulsory course components, and the justification for their compulsory nature, are as follows: Tutorial classes in this course must be attended in-person. These groups will help in developing critical thinking, research study design and discussion skills.</p> <p>The University uses email as an official form of communication for students. All UNSW students have their own email account. The School of Optometry and Vision Science will also make use of this form of communication.</p> <p>It is extremely important that you know how to use your Zmail and ensure that you check it regularly. You are advised to link your official UNSW email address to your habitual email address (e.g. hotmail). You will miss out on vital information from the School and University if you do not check your Zmail.</p> <p>For more information or if you are having connection or access problems, see:</p> <p>IT Service Centre https://www.myit.unsw.edu.au/</p> <p>Telephone: 02 9385 1333</p> <p>Contact Us: https://www.myit.unsw.edu.au/contact-us</p>
---------------------------------	---

4. Course schedule and structure

This course consists of two, two hour lectures every week, one hour of online discussion in weeks 2-5, 7 and 8 and 2 hours of tutorial contact hours in weeks 3-5,7 and 9.

Week [Date/Session]		Topic [Module]	Activity [Learning opportunity]	Related CLO
Week 1	Mon 13 Feb 9:00-11:00	Lecture 1: Introduction to the course by <u>Dr. Revathy Mani</u> (Online-Collaborate Ultra)	-	CLO1
	Tue 14 Feb 9:00-11:00	Lecture 2: Development of the eye – Overview Lifespan by <u>A/Prof Michele Madigan</u> (Online-Collaborate Ultra)		
Week 2	Mon 20 Feb 9:00-11:00	Lecture 1: Development of refractive errors by <u>Dr. Revathy Mani</u> (Online-Collaborate Ultra)	-	CLO6
	Tue 21 Feb 9:00-11:00	Lecture 2: Development of refractive errors by <u>Dr. Revathy Mani</u> (Online-Collaborate Ultra)		
Week 3	Mon 27 FEB 9:00-11:00	Lecture 1: Development of the eye by <u>A/Prof Michele Madigan</u> (Online-Collaborate Ultra)	Tutorials	CLO2 CLO6
	Tue 28 FEB 9:00-11:00	Lecture 2: Amblyopia by <u>A/Prof. Sieu Khuu</u> (Online-Collaborate Ultra)		
Week 4	Mon 6 MAR 9:00-11:00	Lecture 1: Amblyopia by <u>A/Prof. Sieu Khuu</u> ((Online-Collaborate Ultra))	Tutorials	CLO2 CLO3 CLO6
	Tue 7 MAR 9:00-11:00	Lecture 2: Revision for Quiz (including practise questions)		
Week 5	Mon 13 MAR 9:00-11:00	Lecture 1: Quiz 1 on Mon 9:00-11.00 in Inspira	Tutorials	CLO2 CLO3 CLO6
	Tue 14 MAR 9:00-11:00	Lecture 2: Amblyopia Evidence -Treatments by <u>Dr. Revathy Mani</u> (Online- Collaborate Ultra)		
	Week 6	Flexibility week, no classes		
Week 7	Mon 27 MAR 9:00-11:00	Lecture 1 Eye and Visual System - The Ageing eyes by <u>A/Prof Michele Madigan</u> (Online-Collaborate Ultra)	Tutorials – Group presentation	CLO1 CLO3 CLO5 CLO6
	Tue 28 MAR 9:00-11:00	Lecture 2: Eye and Visual System-The Ageing Visual System by <u>Dr. Ingrid Jimenez</u> (Online-Collaborate Ultra)		
Week 8	Mon 3 APR 9:00-11:00	Lecture 1: Quiz 2 on Mon 9:00-11.00 in Inspira	Tutorials	CLO4 CLO5 CLO6
	Tue 4 APR 9:00-11:00	Lecture 2: Assessing Visual Functions (young and elder people) by <u>Dr. Ingrid Jimenez</u> (Online-Collaborate Ultra)		

Week 9	Tue 11 APR 9:00-11:00	Lecture 1: Age-related changes in cognition and impact on overall visual function by A/Prof Sieu Khuu (Online-Collaborate Ultra) Lecture 2: Geriatric Optometry successful stories by Dr Ingrid Jimenez	Written Assignment- deadline to submit: 11 Apr Tue 11.59 pm. Tutorials	CLO1 CLO6
Week 10	Mon 17 APR 9:00-11:00 Tue 18 APR 9:00-11:00	Lecture 1 Public health ageing population/ impact of visual impairment and vision loss by Prof Lisa Keay - (Online-Collaborate Ultra) Lecture 2: Final exam overview, Review on some topics and sample questions revision. (Online-Collaborate Ultra)		

Exam Period: 28 April – 11 May

School managed supplementary exams period:

FOR TERM 1:

- STAGE 1-4* COURSES: WEDNESDAY, 17 MAY 2023 – FRIDAY, 19 MAY 2023
- THERE WILL BE NO SUPPLEMENTARY EXAMINATIONS FOR STAGE 5 STUDENTS IN TERM 1 2023

Supplementary examinations will be held at the scheduled time only. If students who are granted supplementary examinations do not attend, a failure will be recorded for that course. **Students should not make travel arrangements, or any other commitments, before establishing whether or not they have supplementary examinations. Ignorance of these procedures, interstate, overseas or any other absence will not be accepted as an excuse. But usual Special Consideration still applies.**

If additional assessment is not scheduled, this does NOT indicate whether or not a student has passed or failed the course. Results will be received in the usual way. Please do not contact the School in this regard.

Please note the above applies to OPTM and VISN courses only. Any information on supplementary examinations for servicing courses (e.g. CHEM****) is the responsibility of the School conducting the course.

* Stage 4 includes courses in the first year of the MClin Optom program.

5. Assessment

5.1 Assessment tasks

Task	Length	Weight	Due date and time
------	--------	--------	-------------------

1.Group Presentation	Each group will make a face to face 15 min presentation (10 min presentation + 5min question-answer session).	20%	Week 7
2.Quiz	Two online quizzes each 15% weight of total mark conducted in Inspira. The quiz in week 5 will cover course content from weeks 1-4 and the quiz in week 8 will cover from week 5-7.	30%	Week 5, 13 Mar Mon: 9:00-11:00 Week 8, 3 Apr Mon 9:00-11:00
3.Written Assignment (individual)	A critical review of 400 ±10% words of the research article presented in tutorial must be submitted in Moodle in Week 9 Mon 11.59pm. See instructions and rubric criteria in Moodle site.	10%	Week 9, 11Tue 11.59 pm
4.Final examination	The format will be MCQs, short and extended answer questions, which will assess your understanding and your ability to clearly explain topics presented in the course.	40%	TBA

Further information

UNSW grading system: <https://student.unsw.edu.au/grades>

UNSW assessment policy: <https://student.unsw.edu.au/assessment>

5.2 Assessment criteria and standards

1. Group presentation (20%):

Each tutorial session will have 6 groups, each group made of 5-6 students. Each group in the specific tutorial session will be given a research article/video related to one of the five topics on development and aging of the visual system. Depending on the topic selected which aligns with the topics covered in the course, a 15-minute presentation will be made in week 7 Tutorial class. The presentation will be for 10 minutes + 5 minutes of question-answer session followed by open discussion of the article by all students and answering questions guided by the lecturer moderating the session. Students will use the online group discussions and other tutorial sessions to prepare for the presentation and discuss with the lecturers. List of students in each group in specific tutorial session, allotted article for each group, instructions for presentation, and marking criteria will be in Moodle site.

2. Quizzes (30%):

Quizzes will assess course material covered in weeks 1-7. Two online quizzes in week 5 and in week 8 each 15% weight of total marks will be conducted via Inspira. Quiz in week 5 will cover course content from weeks 1-4 and quiz in week 8 will cover from weeks 5-7. The format will be MCQs, drag and drop, and/or match the following.

3. **Written assignment (10%):**

Each student must perform a critical analysis of research article/video that was presented during the tutorial. A critical review document of 400±10% words and submit in week 9 Mon 11.59 pm. Please use Vancouver or APA referencing style for this assignment. The instructions, and rubric criteria, will be in Moodle site.

4. **Final examination (40%):**

The final exam will assess knowledge of all course materials including lectures, tutorials, group and on-line discussions, and required readings. The final exam may include MCQs short and extended answer questions.

5.3 Submission of assessment tasks

Late Submission

UNSW has standard late submission penalties as outlined in the UNSW Assessment Implementation Procedure, with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per day (including Saturday, Sunday and public holidays). For example, if an assessment task is worth 30 marks, then 1.5 marks will be lost per day (5% of 30) for each day it is late. So, if the grade earned is 24/30 and the task is two days late the student receives a grade of 24 – 3 marks = 21 marks.

Late submission is capped at 5 days (120 hours). This means that a student cannot submit an assessment more than 5 days (120 hours) after the due date for that assessment.

Special Consideration

If you experience a short-term event beyond your control (exceptional circumstances) that impacts your performance in a particular assessment task, you can apply for Special Considerations.

You must apply for Special Consideration **before** the start of your exam or due date for your assessment, except where your circumstances of illness or misadventure stop you from doing so.

If your circumstances stop you from applying before your exam or assessment due date, you must **apply within 3 working days** of the assessment, or the period covered by your supporting documentation.

More information can be found on the [Special Consideration website](#).

5.4. Feedback on assessment

Task	Feedback		
	WHO	WHEN	HOW
Group presentation	Course Convenor	Week 9	Marks and general feedback
Quiz	Course Convenor	Week 7 & 10	Marks and general feedback
Written Assignment	Course Convenor	Week 10	Marks and written feedback
Final Exam	Course Convenor	End of Term	Final Marks

6. Academic integrity, referencing and plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at

<https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.¹ At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and **plagiarism** can be located at:

- The Current Students site <https://student.unsw.edu.au/plagiarism>, and
- The ELISE training site <https://subjectguides.library.unsw.edu.au/elise>

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>.

7. Readings and resources

The course readings ('must-read' and optional) and recommended textbook chapters and other resources are accessible via VISN3111 Moodle and Leganto (UNSW Library) (Moodle link).

This will be a useful resource for all vision science and clinical optometry studies and beyond. Available via the UNSW Library (eBook) or at the UNSW Bookshop.

Suggested Useful Books:

1. Forrester JV, Dick AD, McMenemy PG, Lee, WR (2016) The Eye: Basic Sciences in Practice, W.B. Saunders, 4th edition. Available as an eBook via the UNSW Library or at the UNSW Bookshop.
2. Remington, LA (2012) Clinical Anatomy & Physiology of the Visual System, 3rd edition. Elsevier. VISN2111 Textbook; available as an eBook via the UNSW Library or at the UNSW Bookshop.
3. Rosner, J and Rosner J (1990). Pediatric optometry 2nd edition Butterworths; available as an via the UNSW Library or at the UNSW Bookshop
4. Cavallotti, Carlo AP and Luciano Cerulli, Age-Related Changes of the Human Eye (Humana Press, 2008). Available as an eBook via the UNSW Library or at the UNSW Bookshop

Required (mandatory) readings: may comprise chapters from textbooks or key articles and are indicated clearly on Leganto, or in lectures.

¹ International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

Recommended internet website: <https://www.babycenter.com/pregnancy> is an excellent resource starting from embryology, as you can track what else is developing along-side the eye and visual system.

8. Administrative matters

Student enquiries should be submitted via student portal <https://portal.insight.unsw.edu.au/web-forms/>

9. Additional support for students

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- *Student Wellbeing and Health* <https://www.student.unsw.edu.au/wellbeing>
- UNSW IT Service Centre: <https://www.myit.unsw.edu.au/services/students>
- *UNSW Student Life Hub*: <https://student.unsw.edu.au/hub#main-content>
- *Student Support and Development*: <https://student.unsw.edu.au/support>
- *IT, eLearning and Apps*: <https://student.unsw.edu.au/elearning>
- *Student Support and Success Advisors*: <https://student.unsw.edu.au/advisors>
- *Equitable Learning Services (Formerly Disability Support Unit)*: <https://student.unsw.edu.au/els>
- *Transitioning to Online Learning* <https://www.covid19studyonline.unsw.edu.au/>
- *Guide to Online Study* <https://student.unsw.edu.au/online-study>