UNSW Course Outline

PSYC3221 Vision and Brain - 2023

Course Code : PSYC3221
Year : 2023
Term : Term 2
Teaching Period : T2
Delivery Mode : In person
Delivery Format : Standard
Delivery Location : Kensington

General Course Information

Course Code : PSYC3221
Year : 2023
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : School of Psychology
Delivery Mode : In person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course provides an advanced treatment of theoretical, physiological, and computational approaches in the study of visual perception. It follows on, and assumes knowledge, from PSYC2071 Perception and Cognition or a similar introductory coverage of perception. The general orientation of the course is a theoretical one but applied aspects such as the role of

basic perceptual processes in disorders such as autism and schizophrenia, and the implications for the design of effective visual displays will be discussed as well. In addition to weekly lectures, the laboratory classes are designed to allow opportunities for in-depth and active learning of research methods in perception and development of oral and written presentation skills. All lectures and tutorials encourage an interactive style; engaging with the questions being asked and answered will promote problem-solving, reflective, active and cooperative learning.

Course Aims

The main objective of this course is to provide an advanced-level coverage of theoretical issues and research in visual perception with an emphasis on the interdisciplinary nature of the scientific study of perceptual processes. It will require students to critically evaluate theoretical claims and empirical evidence about perceptual processes and to develop skills to conduct research and communicate scientific information in visual perception.

Relationship to Other Courses

This is an advanced Level 3 course following on, and assuming knowledge, from PSYC2071 Perception and Cognition or a similar introductory coverage of perception.

Course Learning Outcome

Course Learning Outcomes
CLO1 : Describe and critically appraise the historical and modern theoretical advances in the study of vision and visual perception.
CLO2 : Design and conduct studies to address a theoretical problem in visual perception by applying advanced research methods.
CLO3 : Engage in effective teamwork to complete and communicate a research study in a conference context.
CLO4 : Communicate scientific information and research findings in written format.
CLO5 : Integrate and embed principles of perceptual processing in applied domains such as clinical disorders, social cognition, and artificial vision.

Course Learning Outcomes	Assessment Item
CLO1 : Describe and critically appraise the historical and modern theoretical advances in the study of vision and visual perception.	• Mid-term test • Final Exam
CLO2 : Design and conduct studies to address a theoretical problem in visual perception by applying advanced research methods.	• Novel research project group presentation • Novel research project individual research report
CLO3 : Engage in effective teamwork to complete and communicate a research study in a conference context.	• Novel research project group presentation

CLO4 : Communicate scientific information and research findings in written format.	• Novel research project individual research report
CLO5 : Integrate and embed principles of perceptual processing in applied domains such as clinical disorders, social cognition, and artificial vision.	• Mid-term test • Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

It is expected that students have read through the School of Psychology Student Guide – 2023.

All students must read the Course Outline.

It is expected that students are aware of UNSW Assessment policy and understand how to apply for special consideration if they are unable to complete an assignment/exam due to illness and/or misadventure.

Students registered with Equitable Learning Services must contact the course co-ordinator immediately if they intend to request any special arrangements for later in the course, or if any special arrangements need to be made regarding access to the course material. Letters of support must be emailed to the course coordinator as soon as they are made available.

All news updates and announcements will be made on the 'Announcements' forum on the Moodle page and/or by email. It is the student's responsibility to check Moodle and their student emails regularly to keep up to date.

Tutorial attendance is compulsory to ensure students are consistently working towards achieving the foundational graduate competencies required by the APAC Accreditation Standards. These Accreditation Standards are incorporated in Program and Course Learning Outcomes. You should make sure your name has been marked on the class roll for each class you attend. Failure to meet these specified attendance requirements may result in course failure. Explanations for an occasional absence from a class or requests for permission to be absent from a class should be discussed with the lecturer/tutor, and where applicable, accompanied by a medical certificate.

The APA (7th edition) referencing style is expected for the written assignment. Students should consult the publication manual itself (rather than third party interpretations of it) in order to properly adhere to APA style conventions. Students do not need to purchase a copy of the manual, it is available in the library or online. This resource is used by assessment markers and should be the only resource used by students to ensure they adopt this style appropriately: **APA 7th edition**.

Additional Course Information

The School of Psychology Student Guide contains School policies and procedures relevant for all students enrolled in undergraduate or Masters psychology courses, such as:

- Attendance requirements
- Assignment submissions and returns
- Assessments
- Special consideration
- Student code of conduct
- Student complaints and grievances
- Equitable Learning Services
- Health and safety

It is expected that students familiarise themselves with the information contained in this guide

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Mid-term test Assessment FormatIndividual	20%	Start Date27/06/2023 12:00 PM Due Date27/06/2023 12:00 PM Post Date27/06/2023 12:00 PM
Novel research project group presentation Assessment FormatGroup	15%	Start DateWeek 10 Tutorials Due DateWeek 10 Tutorials Post Date01/05/2023 12:00 AM
Novel research project individual research report Assessment FormatIndividual	25%	Start DateNot Applicable Due Date07/08/2023 11:59 PM
Final Exam Assessment FormatIndividual	40%	Start DateUNSW Examination Period Due DateUNSW Examination Period

Assessment Details

Mid-term test

The mid-term test will examine your knowledge and understanding of content covered in Weeks 1-3 lecture and tutorials.

The duration of mid-term test will be 1 hr and it will consist of 30 multiple-choice questions and two short essay questions. It will be typically administered in Tuesday lecture slot in Week 5 - Tuesday 27/06/2003, 12-1pm, MAT B.

Practice questions will be provided to you in the weeks leading up to the exam. Marked exams scripts will be returned to you for review in tutorials once the marks are released (i.e. within 10 working days of the due date).

Assessment Length

1 hour: 30 Multiple choice questions, plus 2 short essay questions.

Submission notes

N/A

Assignment submission Turnitin type

This is not a Turnitin assignment

Novel research project group presentation

The rationale for this task is to develop your ability to design and conduct study to address a theoretical problem in visual perception. You will have the freedom to choose a research question and the study will be designed and carried out in small groups. Each group will be closely supervised and supported by academic staff involved in this course (lecturers and tutors). The preparation for the novel research group project will start in the first tutorial (Week 2) and will be carried through the entire term.

After the completion of your project, you will be asked to make a poster summary of your research projects with a short oral presentation (10 minutes) on your project (worth 15%). This presentation will take place as a part of mini research conference that will be held in Week 10. All members of the research group are required to take part in these presentations as you will be awarded a single mark for the poster and its presentation as a group.

Marks and feedback will be returned to you within 10 working days of the presentation date.

Assessment Length

10 minutes presentation length.

Submission notes

Group presentation (In person)

Assignment submission Turnitin type

Not Applicable

Novel research project individual research report

The rationale of this assessment is to assess your ability to communicate in-depth scientific information and research findings in written format.

The topic of your individual research report will be the same as the research question addressed in the novel research project that you conducted throughout the term.

Written research reports (individual mark worth 25%) on this project are expected to be individually written and checked with plagiarism detection software. The report should be formatted as a research report for the journal Psychological Science and should be approximately 2000 words in length.

The teaching staff will be available to advise you during all stages of your project and all aspects of this assignment. Detailed instructions for this assignment, including the marking rubrics will be released in Week 2. Your individual written report will be due at the beginning of study week. Marks and feedback will be returned to students within 10 working days of the due date.

Assessment Length

2000 words

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Final Exam

The final exam is designed to summarise your learning and problem-solving skills on topics not examined in the mid-term test and delivered in Weeks 4-10.

The final exam will contain approximately 10 short essay questions, out of which students will need to choose and answer 6 questions.

The exam duration is typically 2hrs and the examination will occur during the official university examination period. Further details regarding the exact time and location of the exam will be released on myUNSW as they become available.

Feedback is available through inquiry with the course convenor.

Assessment Length

2 hours

Assessment information

Further information on the final exam will be provided closer to the final exam date.

Assignment submission Turnitin type

This is not a Turnitin assignment

General Assessment Information

Special Consideration: Students who experience circumstances outside of their control that prevent them from completing an assessment task by the assigned due date due can apply for Special Consideration. Special Consideration applications should include a medical certificate or other documentation and be submitted via myUNSW within 3 days of the sitting/due date.

Important note: UNSW has a “fit to sit/submit” rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination

or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Once your application has been assessed, you will be contacted via your student email address and advised of the official outcome. If the special consideration application is approved, you may be given an extended due date, or an alternative assessment/supplementary examination may be set. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration.

Alternative assessments: will be subject to approval and implemented in accordance with UNSW Assessment Implementation Procedure and Psychology Student Guide.

Supplementary examinations: will be made available for students with approved special consideration application and implemented in accordance with UNSW Assessment Policy and Psychology Student Guide.

All course assessments have been designed and implemented in accordance with UNSW Assessment Policy.

Final examinations: Students should not arrange travel during the UNSW exam period until the date of the final exam has been released. Students who arrange travel prior to the release of the final exam date will not be granted consideration in the event they are scheduled to be out of country when the final exam is to occur. This is especially important for study abroad students – do not arrange travel home until the final exam date has been released.

Grading Basis

Standard

Requirements to pass course

In other to pass this course, students need to achieve a composite mark of at least 50 out of 100.

Course Schedule

Teaching Week/ Module	Activity Type	Content
Week 1 : 29 May - 2 June	Lecture	TUE (12-1pm, MAT B): The nature of perceptual processing and fundamental challenges (Branka S.) WED (2-3pm MAT D): Why do things look the way they do? - Theoretical approaches to perception- Part 1 (Branka S.)
	Tut-Lab	No tutorials this week!
	Online	

	Activity	Supplementary Video: Sebastian Seung: I am my connectome TED talk – TED.com Revision Material: Week 1 Quiz
	Reading	von Tonder, G. & Ejima, Y. (2000) Bottom-up clues in target finding: Why a Dalmatian may be mistaken for an elephant? Perception, 29, 149-157 Mather,G. (2011) Perceptual Inference (ch.7), In Essentials of Sensation and Perception, Routledge, London and New York, pp--109--128
Week 2 : 5 June - 9 June	Lecture	TUE (12-1pm, MAT B): Why do things look the way they do? - Theoretical approaches to perception- Part 2 (Branka S.) WED (2-3pm, MAT D): Vision and the Coding of Natural images: Part 2 (Branka S.)
	Tut-Lab	Choosing and developing a research project
	Online Activity	Supplementary Video: In Conversation with Daniel Kersten Donald Hoffman: Do we see reality as it is? TED talk – TED.com Revision Material: Week 2 Quiz
	Reading	Gilchrist, A. (2006) Seeing in Black and White Accessibility score: Medium Click to improve . Scientific American (Mind), 42-49. Olshausen, B. & Field, D. (2003) Vision and the coding on natural images. Accessibility score: Low Click to improve American Scientist, 88,238-245.
Week 3 : 12 June - 16 June	Lecture	TUE (12-1pm, MAT B): Scale-Specific Visual Processing Part 1 (Branka S.) WED (2-3pm, MAT D): Scale-Specific Visual Processing Part 2 (Branka S.)
	Tut-Lab	Project development and preparing for group proposal presentations

	Online Activity	Supplementary Video: Understanding visual scenes: Where are we? Revision Material: Week 3 Quiz
	Reading	Kauffmann L, Ramanoël S and Peyrin C (2014) The neural bases of spatial frequency processing during scene perception.Accessibility score: High Click to improve *Front. Integr. Neurosci.* **8**:37. Oliva, A., & Torralba, A. (2007). The role of context in object recognition. Accessibility score: Low Click to improve Trends in Cognitive Sciences, vol. 11(12), pp. 520-527.
Week 4 : 19 June - 23 June	Lecture	TUE (12-1pm, MAT B): Adaptation Part 1 - Perceptual Aftereffects (Colin C.) WED (2-3pm, MAT D): Adaptation Part 2 - Physiology & Function (Colin C.)
	Tut-Lab	Group research project proposal presentations
	Reading	Webster, M.A. (2011) Adaptation and visual coding . Journal of Vision, 11(5):3, 1-23. Clifford, C.W.G. (2014) The Tilt Illusion: phenomenology and functional implications . Vision Research 104, 3-11.
Week 5 : 26 June - 30 June	Assessment	Mid-term exam, Tuesday 27 June, 12-1pm, MAT B.
	Lecture	TUE (12-1pm, MAT B): In- class Mid-term exam WED (2-3pm, MAT D): Motion Processing Part 1 – Detection (Colin C.)
	Tut-Lab	Group research project fine tuning
	Reading	Mather, G. (2009) Foundations of Sensation and Perception, 2nd Ed.: Chapter 11 , Psychology Press, Taylor & Francis Group, UK Movshon, J. A. et al. (1985). The analysis of moving visual pattern In C. Chagas et al. (Eds.) Pattern Recognition Mechanisms, pp. 117-151. Springer-Verlag, New York
Week 6 : 3 July - 7	Other	

July		FLEXIBILITY WEEK!
Week 7 : 10 July - 14 July	Lecture	TUE (12-1pm, MAT B): Motion Processing Part 2 – The Aperture Problem (Colin C.) WED (2-3pm, MAT D): Motion Processing Part 3 – from Single Neurons to Population Codes (Colin C.)
	Tut-Lab	Group Research Project Experiment Deployment & Data Collection
	Reading	Movshon, J. A. et al. (1985). The analysis of moving visual pattern In C. Chagas et al. (Eds.) Pattern Recognition Mechanisms, pp. 117-151. Springer-Verlag, New York Salzman, C. D., Britten, K. H. & Newsome, W. T. (1990). Cortical microstimulation influences perceptual judgements of motion direction . Nature 346, 174-177.
Week 8 : 17 July - 21 July	Lecture	TUE (12-1pm, MAT B): Mapping Visual Cortex with fMRI (Colin C.) WED (2-3pm, MAT D): Resolving Perceptual Ambiguity (Colin C.)
	Tut-Lab	Group Research Project Analysis & Interpretation
	Online Activity	Revision Material Weeks 4-8 Quiz
	Reading	Blake R. & Logothetis N. K. (2002). Visual competition. Nature Reviews Neuroscience 3, 13-21. Clifford, C.W.G. (2009) Binocular rivalry . Current Biology 19 (22) R1022-R1023 Treue S. (2001) Neural correlates of attention in primate visual cortex . Trends in Neuroscience 24(5): 295-300.
Week 9 : 24 July - 28 July	Lecture	TUE (12-1pm, MAT B): Object Vision (Erin G.) WED (2-3pm, MAT D): Vision and Attention (Erin G.)
	Tut-Lab	Group Research Project Poster Design & Preparation
	Online Activity	Revision Material Week 9 Quiz

	Reading	Wardle SG and Baker CI. Recent advances in understanding object recognition in the human brain: deep neural networks, temporal dynamics, and context. *F1000Research* 2020, 9(F1000 Faculty Rev):590 Vision and Attention: Visual Attention in the Prefrontal Cortex. Julio Martinez-Trujillo. Annual Review of Vision Science 2022 8:1, 407-425
Week 10 : 31 July - 4 August	Assessment	Group research project presentations will be held in Week 10. Further details will be announced closer to the assessment date.
	Lecture	TUE (12-1pm, MAT B): Vision in Autism (Branka S.) WED (2-3pm, MAT D): Vision in Schizophrenia (Branka S.)
	Tut-Lab	Group Research Project Poster Presentations
	Online Activity	Revision Material Week 10 Quiz
	Reading	Robertson, CE, & Baron-Cohen, S. (2017). Sensory perception in autism . *Nature Reviews Neuroscience*, 18(11), 671-684. Butler, PD, Silverstein, SM, & Dakin, SC. (2008). Visual perception and its impairment in schizophrenia. *Biological Psychiatry*, 64, 40–47.

Attendance Requirements

Students are required to attend all tutorials in order to be able to carry out the required novel group research project.

General Schedule Information

Each week there are two one hour lectures (delivered in-person and recorded) and 2 hours of tutorials (in-person).

Lectures start in Week 1 (first lecture on Tuesday 30/05/2023) and finish in Week 10 (last lecture on Wednesday 02/08/2023) with NO lectures in Week 6.

Laboratory/tutorial classes run from Week 2 until Week 10, with NO classes in Week 6.

Students are expected to take an additional 5-7 hours of study per week to engage in other self-determined study to complete assessments, readings, optional activities, exam preparation/ revision and engage with their research group.

Course Resources

Prescribed Resources

This course does not have a prescribed textbook. Instead, there are weekly readings available for download via the UNSW Library holdings or the course Moodle page.

Recommended Resources

UNSW Library

UNSW Learning centre

ELISE

Turnitin

Student Code of Conduct

Policy concerning academic honesty

Email policy

UNSW Anti-racism policy

UNSW Equity, Diversity and Inclusion policy

Additional Costs

Nil.

Course Evaluation and Development

At the end of term students are strongly encouraged to complete the myExperience survey to provide feedback on the course and teaching. This feedback is used to improve the learning experience of future students.

Overall, this is a small course with a great sense of community and personal interaction among students and staff. It is fair to say that this course is demanding as we expect our students to design, conduct and report on a high quality research project in the area of visual perception. However, the students are well supported and the outcomes achieved at the end are extremely rewarding for everyone involved. Typically, the overall satisfaction rate with this course is high

(T2 2022 overal satisfaction rate of 100 and average satisfactin score of 5.17/6). This is something that we are very proud of and motivated to keep.

Previous students told us:

- The tutorials really helped me develop my knowledge and skills in conducting my own research. It helped me understand the ins and outs of what it takes to conduct a research experiment and as a science major this helped me gain skills I didn't have before.
- The professors and tutor were very accessible and wanted all students to succeed.
- Interesting, engaging and thought–provoking, very hands on kind of work even though we spend 2 hours every week working on one thing, they all felt like so much progress and there was never a time we were lost as the teachers are always there to help;
- We were offered very detailed feedback in the tutorials.
- The group project was the best assessment task I've ever done in any course. Being so in control of the process from forming the research question to designing the experiment, then running it with real people and getting the results was so much fun. I loved it.
- it would really help if there were more resources, especially with the assessment tasks, and more questions to help us prepare for mid–sem or finals. The individual report would have helped lots if there was a guide an information pdf form of the assessment brief and what is expected. Maybe more information about writing reports in general.

We have responded to this feedback by:

We agree that the timing of assessments is tight and each year we try to adjust the support and the timing of the activities so that progress with the research project is continual and the stress minimised. Last year we have already improved online resources to support mid-session exam and research report writing and we will continue to do so this year.

Staff Details

Position	Name	Email	Location	Phone	Availability	Education Learning Support Contact	Primary Contact
Convenor	Colin Clifford	colin.clifford@unsw.edu.au	Mathews 1013	Please contact via email!	Monday-Friday	Yes	Yes
Lecturer	Branka Spehar	b.spehar@unsw.edu.au	Mathews 715	Please contact via email!	Monday-Friday	No	No
	Erin Goddard	erin.goddard@unsw.edu.au	Mathews 1014	Please contact via email.	Monday-Friday	No	No
Tutor	Shally Zhou	shally.zhou@unsw.edu.au	Please contact via email!	Please contact via email!	Monday-Friday	No	No

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

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. 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 http://subjectguides.library.unsw.edu.au/elise/presentation

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

Submission of Assessment Tasks

Penalty for Late Submissions
UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- The Current Students Gateway: https://student.unsw.edu.au
- Student support: https://www.student.unsw.edu.au/support
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing
- Equitable Learning Services: https://student.unsw.edu.au/els
- UNSW IT Service Centre: https://www.myit.unsw.edu.au

School Contact Information

School of Psychology

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