FAS2882D: An Introduction to Psychology Through Illusion
FASStrack 2025

Schedule: AM Session (9.30am-1.30pm, Singapore Time)
Tuesday, Wednesday, Thursday, and Friday

Course Description

This course will explore how we see, hear, feel and understand the world around us. Lectures will be interactive and involve fun illusions and surprising biases to show how our senses, mind, and culture shape perception.

You will learn:

- **How our senses work to create our experience of the world**. If you cross your fingers and touch the inside part of your crossed fingers with a small spherical object, such as a marble or frozen pea, you might feel two objects instead of one. Try it. The effect is often stronger if you close your eyes. This happens because the sphere touches the "outside" of both your fingers, which typically occurs when you touch two objects. Does your brain "assume" there are two objects?

- **How our knowledge influences what we perceive**. Many people experience "hearing" the wrong lyrics in a song. For example, the lyric "I'm friends with the monster [怪物] under my bed" from Eminem's song *Monster* (featuring Rhianna) is often misheard as "I'm friends with the mustard [芥末] under my bed"… You probably have your own favourite, embarrassing example. We can perceive what we believe is true, at least until we find out the truth, and maybe even after.

- **How our social and cultural background affects our perception**. Native English and Mandarin speakers see the same colours but place the boundaries between colours differently. What English speakers describe as yellow might be called green by Mandarin speakers. Does this mean colour perception is partly cultural?

The course includes many visual, auditory, and tactile examples to help everyone understand how and why we perceive the world the way we do.

Preclusion/ Prerequisite
Nil

Lecturer
Stuart Derbyshire, Associate Professor, psydswg@nus.edu.sg

Course Assessment

Assessments		***Assessment deadlines***
Participation	20%	Every class
MCQ	20%	Following classes 2-7
Online illusion review	20%	Following or before classes 1-8
Reflective Essay (2,000 words)	20%	July 26
Project Report (2,000 words)	20%	July 19
Total for CA:	**100%**	

- Participation (20%): Students are graded for the frequency and content of their contributions to class. Most contributions will involve questions and comments from the floor, but there will also be group exercises where students complete an experiment or a task together.

- MCQ (20%): There are ten MCQs that cover the lecture material.

- Online illusion review (20%): Students will engage with a relevant illusion online for the next class and will have an opportunity to read about and discuss the illusion with their peers.

- Reflective essay (20%): A 2,000-word essay reflecting on what the student learnt from the course and how the project developed their understanding of illusion and psychology. This will be submitted the week after the course ends (deadline July 23).

- Project report (20%): A 2,000-word project report describing the background of the experiment, the justification for the tests chosen, the methods used, the results obtained with simple statistical analysis, and a discussion of the findings. Full references to sources used to be included at the end. This will be submitted after the final class (deadline July 18).

Course Topics

Week	Day	Topic	Session Activities
1/2	1	Course introduction.	Introduction to the role of illusions and biases in psychology. Outline of the field project and how it will be organized.
	2	False memories.	In class demonstration of a false memory and other memory biases. Discussing illusions and biases in memory. Introduction to research methods. Designing a method to test memory and attention. Implementing the method.
	3	The eye and the visual system.	Lecture and discussion on the physiology of the eye. Discussion - Seeing without cones. Lecture and discussion on the visual brain.
2/3	4	Visual illusions based in the physiology of the eye.	Demonstration – Herman grill illusion & black dot illusion. Demonstration – Colour after effect. Designing a method to test reaction time. Implementing the method.
	5	Visual illusions based in brain heuristics.	Demonstration – Colour constancy; light constancy; future drafting; the Asahi illusion; retinex afterimage; colour without colour.
	6	Field Trip to The Science Museum Mind's Eye	Examine the illusions and implement sensible tests of how the illusions work. Apply principles learned in class to explain the illusions. Choose four illusions to write up (~500 words each).
3	7	Auditory, tactile, and chemical senses.	Lecture and discussion on the senses beyond vision. Demonstration – Sine wave sounds; phoneme restoration effect; the McGurk effect; lateral

			inhibition in touch; the lost finger; Aristotle's illusion; the rubber hand illusion; cutaneous rabbit illusion.
	8	Illusions in mental health Reflecting on the project and the course.	Introduction to mental illness. Exercise – what illusions would we expect to fail in patients with schizophrenia, depression, or other mental illness? What illusions might we expect to be enhanced? Discussion – what did we learn from the project?
	9	Wrap up and time to complete and submit research report, or begin reflective essay, or both.	Q&A, what have we learned?

Reading List

Quesque F, et al. Learning from illusions: From perception studies to perspective-taking interventions. *Neuroscience Research* 2023; 195: 9-12.

Lavalle SM. The physiology of human vision. 2019: http://vr.cs.uiuc.edu/

Spillmann L. The Hermann grid illusion: a tool for studying human perceptive field organization. *Perception* 1994; 23: 691-708.

Lederman SJ, Jones LA. Tactile and haptic illusions. *IEEE Transactions on Haptics* 2011; 4: 273-294.

Costa ALL, et al. Systematic review of visual illusions in schizophrenia. *Schizophrenia Research* 2023; 252: 13-22.