Course Code	HP4262
Course Title	Multisensory Integration
Pre-requisites	HP1000 Introduction to Psychology HP1100 Fundamentals of Social Science Research, or CS2008 Fundamentals of Research
No of AUs	4 AUs

Course Aims

The aim of this course is to introduce the basic findings and theories of research on vision, audition, and visual-auditory integration to the students. It'll focus on the brain mechanisms for the individual sensory systems and integrating the sensory systems, and its application in multimedia processing. The course is pitched on an advanced level so that students can broaden their knowledge of vision, audition, and multimedia perception for future research.

Intended Learning Outcomes (ILO)

By the end of this course, you (as a student) would be able to:

1. Describe the methodologies used in conducting research in vision, audition, and visual auditory integration
2. Evaluate the strengths and limitations of specific research methodologies
3. Design an experiment to test a specific research hypothesis
4. Report findings according to conventions in psychology

Course Content

This course introduces multisensory integration at an advanced level. In particular, it covers the topics on visual perception, auditory perception, visual auditory integration, and the underlying neural mechanisms.

The course is divided into lectures and presentations. The lectures focus on conceptual issues and cover the content materials that need to be understood in order to design any psychological study, interpret the findings and discuss the limitations of the studies and possible ways to address these limitations. The presentations are for students to present the particular research studies based on their reading and research, and discuss their understanding and interpretations.

Assessment

Component	ILO Tested	Related Programme LO or Graduate Attributes	Weight	Team/ Individual
1. Class participation and discussions	1, 2, 3, 4	Competence, Critical Thinking, Creativity, Oral and Written Communication	20%	Individual
2. Presentations	1, 2, 4	Competence, Critical Thinking, Creativity, Teamwork, Oral Communication	20%	Individual
3. Seminar participation and summary	2,4	Competence, Critical Thinking, Creativity, Written Communication	20%	Individual
4. Project paper	1, 2, 3, 4	Competence, Critical Thinking, Creativity, Written Communication	40%	Individual
Total			100%	

Formative feedback

Students will be provided feedback through the class discussions, class presentations, seminar participation and summary, and project paper. They will also be encouraged to meet with the professor and research assistant (if any).

You will receive verbal feedback on your presentations, weekly summary, and written feedback on Project paper, as I will return each project paper individually.

Learning and Teaching approach

Approach	How does this approach support you in achieving the learning outcomes?
Instructional Activities	Instructional activities consist of lectures, discussions, readings, presentations, written assignments, etc. (LO 1, 2, 4)
Project Discovery	"Project Discovery" approach focuses on proactive individual and collaborative learning. The research project provides you with a lot of discretion in topic, research question, approach, suggested analysis, and discussion. There will be class presentations presenting your understanding of the reading material, and your research to the class so you can receive feedback to refine the final proposal on project paper. (LO 1, 2, 3, 4)

Reading and References

Reading: Readings for each class should be completed before class. Discussion in class will be based on the assumption that you have read the materials. All readings are available in electronic form on NTUlearn. Please refer to list of assigned readings in "Reading List" at the end of this document.

Course Policies and Student Responsibilities

(1) General

Students are expected to complete all assigned pre-class readings and activities, attend all classes punctually and complete all scheduled assignments, presentations and project paper by due dates. Students are expected to take responsibility to follow up with course notes, assignments, and course-related announcements for classes they have missed. Participation is expected in all discussions and activities.

No extension will be given without a signed letter from a doctor or head of a university-sponsored extra-curricular program documenting illness.

As Psychology students, the guidelines of the American Psychological Association on referencing and citation are expected to be followed (see APA Publication Manual, 7th Edition).

(2) Late work

Grades for the assigned work will be reduced by ten percent, with an additional ten percent taken off for each additional day late (a day late is considered within 24 hours after the due date/ time, not midnight the following day). *Extensions must be requested before work is due, and will be granted only on the grounds of serious problems on a case-by-case basis.* Requests for extensions based on unexpected circumstances (e.g., health problems) must be substantiated in writing (e.g., a note from Student Health Services that verifies the need for an extension). The principle here is about fairness to other students.

(3) Absenteeism

Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter

from the relevant bodies. If you miss a seminar, you must inform the course instructor via email prior to the start of the class.

(4) Schedule for the Semester
Although I do not anticipate any major deviations from the schedule, all information is subject to change. There will also likely be a few additional readings and small homework exercises. I will give you plenty of notice when there are changes or additions to the schedule.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Planned Weekly Schedule

Week	Date	Topic	Readings	ILO	Due
1		The basic sensory systems Visual sensory system and its behavioral and neural experiment techniques	Ernst & Bulthoff (2004) Stein et al (2014)	1, 2, 3, 4	
2		Object perception and its brain mechanisms	Gauthier & Tarr (2016) Peissig & Tarr (2007)	1, 2, 4	
3		Motion perception and its brain mechanisms	Nishida et al (2018) Luo et al (2019)	1, 2, 4	
4		Spatial Perception	McNamara & Shelton (2003) Gepshtein & Snider (2019)	1, 2, 4	
5		Visual Attention	Maunsell (2015) Moore & Zirnsak (2017)	1, 2, 4	
6		Visual search	Eckstein (2011) Vo & Wolfe (2013)	1, 2, 4	
7		Vision loss and visual prosthesis	Ghezzi (2015) Niketeghad et al (2019)	1, 2, 4	
8		Auditory sensory system and its behavioral experiments	Oxenham (2018) Piazza et al (2017)	1, 2, 4	
9		Brain mechanisms for audition and auditory attention (part I)	Jaramillo & Zador (2011) Kerlin et al (2010)	1, 2, 4	
10		Auditory attention (part II) and Audition and hearing aid	Shamma (2008) Karawani et al (2019)	1, 2, 4	

11		Visual-auditory integration and multimedia processing	Covic et al (2017) Beer et al (2013)	1, 2, 4	
12		Other sensory modalities (e.g., rubber hand illusion)	Ward et al. (2015) Abdulkarim & Ehrsson (2016)	1, 2, 4	
13		Project paper preparation and draft outline	Stein & Stanford (2008)	1, 2, 3, 4	