

Course Code	HP4021
Course Title	Laboratory in Human and Animal Neuroscience
Pre-requisites	HP1000 Introduction to Psychology HP1100 Fundamentals of Social Science Research HP2200 Biological Psychology
No of AUs	4

Course Aims

The main purpose of this Laboratory course is for students to acquire knowledge and skills in the field of Human and Animal Neuroscience. A secondary aim of the course is for students to develop their critical appraisal of how Human and Animal Neuroscience can be applied to study the mechanisms behind typical and atypical development. The course focuses on practical application with weekly opportunities to apply some of the techniques introduced in class. Students will collect and analyze data, write up a research paper, and present the results in class.

Intended Learning Outcomes (ILO)

By the end of this course, you should be able to:

1. Conduct experiment in the field of human/animal neuroscience
2. Compare and discriminate between different experimental techniques
3. Interpret the results of a scientific paper
4. Communicate competently to an academic or professional audience via both written and oral presentation.

Course Content

- Current paradigms in neuroscience
- Fundamental questions in neuroscience
- Ethical issues in human and animal neuroscience
- Designing neuroscience experiments
- Learning the theory and protocols of ECG, fNIRS, EEG, fMRI, MEG

Assessment (includes both continuous and summative assessment)

Component	ILO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/Individual
1. CA1: Group Initial Presentation	1, 2, 4	Communication, Civic-mindedness, and Creativity & Competence	20%	Team
2. CA2: Theory-Practice-Test (TPT) (10% each, total of five TPTs)	2, 3	Civic-mindedness, and Creativity & Competence	50%	Individual
3. CA3: Individual Project Presentation	1, 2, 3, 4	Communication, Civic-mindedness, and Creativity & Competence.	30%	Individual
Total			100%	

Formative feedback

Describe how you would be giving feedback to students on how they are learning in this course.

Feedback is central to this course. You will receive both written and verbal feedback from me about your assignments and presentations respectively. As each proposal will be returned individually, you will also receive personalized written feedback in response to your proposals. I will also receive digital copies of your final essays so that extensive feedback on both grammar, style and content can be provided using the “Track Changes” feature of Word. There will also be summative group feedback following the conclusion of the module.

Learning and Teaching approach

Approach	How does this approach support you in achieving the learning outcomes?
Project Discovery	The course adopts the “Project Discovery” approach, which focuses on inculcating a culture of proactive individual and collaborative learning. The roles of the instructors are to facilitate discussion and to guide you to acquire fundamental concepts and theories, based on previously assigned papers to be read before class. You are expected to adopt, adapt and synthesise the acquired concepts and theories into practice. Consistent with the “Project Discovery” approach, self-practice questions will be made available during Theory-Practice-Test sessions in order to clarify your understanding. The self-practice questions not only help to build the fundamental technical knowledge required for this course, but also help to develop your individual learning abilities and attitudes toward active learning. You may attempt the self-practice questions anytime, anywhere, and you can revisit the self-practice questions as many times as you want.

Reading and References

No textbooks will be required. Students will be introduced a series of reading that address the basic steps involved in the Human and Animal Neuroscience approach and substantive research reports that employed this approach.

Course Policies and Student Responsibilities

You are expected to complete all assigned pre-class readings and activities, attend all classes punctually and take all scheduled assignments and tests by due dates. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for sessions that you have missed. You are expected to participate in all discussions and activities.

Absence from class without a valid reason will affect your overall course grade and no makeup/extensions will be given unless there is a valid reason. 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.

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	Topic	ILO	Readings/Activities
1	Introduction - Current Paradigms in Neuroscience	1, 2, 3	No Reading
2	The ten fundamental questions in Neuroscience - Multilevel approach to hypothesis testing and results interpretation in Neuroscience	1, 2, 3	No Reading
3	Ethical issues in human and animal Neuroscience	1, 2	No Reading
4	TPT (Theory-Practice-Test) – Design your own experiment	2, 3	No Reading
5	Consultation for Group Initial Presentation with Instructors	1, 2, 4	No Reading
6	Group Initial Presentation - Ask a Fundamental Question	1, 2, 4	No Reading
7	TPT (Theory-Practice-Test) - Measuring Physiological Parameters – Electrocardiogram (ECG)	2, 3	No Reading
8	Lab Visit - Using functional Near-infrared Spectroscopy (fNiRS)	1, 2	No Reading
9	TPT (Theory-Practice-Test) - fNiRS	2, 3	No Reading
10	TPT (Theory-Practice-Test) - EEG	2, 3	No Reading
11	Lab Visit – CoNIC Center fMRI and MEG TPT (Theory-Practice-Test) – functional Magnetic Resonance Imaging (fMRI)	2, 3	No Reading
12	Individual Presentations (3 minutes - 3 slides: 1 Question/Impact; 2 Methodology; 3 So What)	1, 2, 3, 4	No Reading
13	Individual Presentations (3 minutes - 3 slides: 1 Question/Impact; 2 Methodology; 3 So What)	1, 2, 3, 4	No Reading