

## Indian Institute of Technology Kanpur

### New Course Proposal

**Course Code:** CGS610

**Course Name:** Experiment Design and Analysis

**Proposing Department:** Department of Cognitive Science

**Duration:** Modular

**Credits:** 3L-1L-0D-0T (5)

**Pre-requisites:** None

**Who can take this course:** PG students from department of Cognitive Science

**Proposer:** Devpriya Kumar

**Other instructors interested in taking the course:** Narayanan Srinivasan, Ark Verma, Nisheeth Srivastava

### Course Description

**Course Outcome:** By the end of the module student should be able to (a) read an experimental paper and understand the theoretical research question, critically evaluate validity of the method in answering the question. (b) Be able to present empirical work both orally as well as in form of written report. (c) should be able to understand how choice of stimuli and response method can influence an experiment.

S.No.	Topic	Lecture hours
1	Science, Assumptions of Science, Goals of Science, The scientific method	1
2	Science II: Theory (Processes, Mechanisms, Hypothesis) Importance of control, causality, isolating causal relationship	1
3	Generating hypothesis, Variables and Controls	2
4	Reliability and Validity	1
5	Types of Research Designs: Descriptive, Correlation, Surveys	2
6	Ethical Consideration, Validity of Research Design	1
7	Reading, Reviewing, and Critically evaluating research	1
8	Designing an Experiment	4
9	Reaction Time Methods	1
10	Sampling, Importance of equivalence, Matched-Pairs, Within and Mixed Design	2
11	Writing, Presentation and Visualization	3
	Total Lecture Hours	20

Reference Material

- Mitchell, M. & Jolley, J. (2010) Research Design Explained
- Kantowitz, Roedeiger, Elmes (2009) Experimental Psychology
- Stanger, C. (2011) Research Methods for Behavioural Science