

Language and Brain

Programme(s) in which it is offered: All UG programmes

Course Category: Minor	Schedule of Offering: Even
Course Credit Structure: 3	Course Code: LL173
Total Number of Hours: 45	Contact Hours Per Week: 3
Lecture: 3	Tutorial: 0
Practical: 0	Medium of Instruction: English
Date of Revision: 31-12-2020	Skill Focus: Employability
Short Name of the Course: LAB	Course Stream (Only for Minor Courses): Literature and Linguistics
Grading Method: Regular	Repeatable: Credit/Audit/Non Repeatable
Course Level: Beginner	

Course Description

This course will try and explore the various ways in which language is processed and produced by the brain. It will look at the structure of the brain and also certain cognitive aspects of language acquisition.

Course Introduction

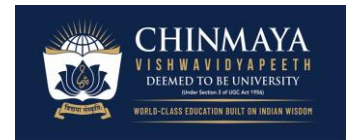
This course looks at language processing from a biological point of view, i.e., how language is processed in our brain. It studies the different parts of the brain, which are activated for various language functions, thus making it possible for a person to understand the language but unable to produce it or else, being able to produce it correctly but unable to comprehend the language. Brain is such a fascinating subject where a lot is left unexplored. This course aims to introduce the students to the basics of language acquisition, its processing and memory. The final part of the paper will be looking at some such case studies, which have contributed immensely to our knowledge about the workings of our brain.

Course Objective

1. To familiarize students with language processing in the brain.
2. To identify the various areas of the brain, related to language processing.

Version No:

Approval Date:



3. To identify various speech and communication disorders.
4. To know about different types of aphasias and case studies related to it.

Course Outcome

At the end of this course, learners will be able to:

1. Understand how the brain processes the various components of language, namely production and comprehension.
2. Identify the different regions in the brain involved in specific language related functions.
3. Discuss the major speech and communication disorders that occur due to damage to the brain.
4. Differentiate between the types of aphasias.
5. Analyse the case studies related to aphasias.

PO-CO Mapping

PO-CO Mapping Matrix

CO/PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6
CO1						
CO2						
CO3						
CO4						
CO5						

Prerequisites

No prerequisites essential.

Pedagogy

The teaching in this course will be mostly through lectures and classroom discussions. The instructor's role will be primarily to introduce concepts and generate questions of interest.

Case studies would be focussed to provide a better understanding of the subject.

Presentations at the end of the discussions would also be a main component of the course.

Suggested Reading:

1. Yule, George: The Study of Language (5th Edition) (Cambridge University Press: New Delhi, 2014)
2. Fromkin, Victoria, Robert Rodman, and Nina Hyams: An introduction to language (Wardsworth, 2014).
3. Opler, L. K., & Gjerlow, K. (1999). Language and the Brain. Cambridge University Press.
4. Angell, C. A. (2009). Language development and disorders: A case study approach. Jones & Bartlett Publishers.
5. Vygotsky, L. S. (1964). Thought and language. Annals of Dyslexia, 14(1), 97-98.
6. Baddeley, A. (2003). Working memory and language: An overview. Journal of communication disorders, 36(3), 189-208.
7. Anderson, J. R. (2013). Language, memory, and thought. Psychology Press.
8. Galotti, Kathleen. (2017). Cognitive Psychology. Sage Texts: New Delhi
9. Jackendoff, R., & Pinker, S. (2005). The nature of the language faculty and its implications for evolution of language (Reply to Fitch, Hauser, and Chomsky). Cognition, 97(2), 211-225.

Evaluation Pattern

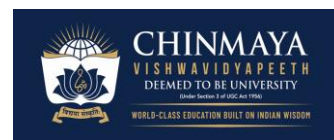
Individual progress will be measured through assignments, presentations, quizzes and written exams.

Evaluation Matrix

	Component Type	Weightage Percentage	Total Marks	Tentative Dates	Course Outcome Mapping
Continuous Internal Assessment (CIA) Components*	Quizzes (5x)	17 % Of CIA Marks	10	End of each module	1, 2, 3, 4
	Individual Presentation (1x)	17 % of CIA Marks	10	Week 7	3, 5
	Assignments (2x)	33 % of CIA Marks	20	Week 3, Week 5	2, 3, 4
	Mid-semester exam	33 % of CIA Marks	20	Week 4	1, 2, 3

Version No:

Approval Date:



	CIA Marks	100 % (To be converted to 60% of course total)	60	---	---
	ESE	40% of course total	40	End of the Semester	1, 2, 3, 4, 5

* The assignments involved in CIA will be subject to plagiarism checks. A submission with unexplained similarities exceeding 30% for Undergraduate courses, 20% for Postgraduate courses and 10% for PhD courses will be reverted for resubmission. The final submission is subject to score penalization as defined by the course instructor at the start of the course, with a clear communication of the same to all the registered candidates.

Module Sessions

Module 1: Introduction (9 sessions)

(9 hours)

- Core properties of human language
- Critical period hypothesis
- Language Acquisition stages
- Innate Hypothesis
- Sign Language

Reading:

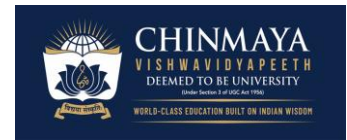
1. Opler, L. K., & Gjerlow, K. (1999). Language and the Brain. Cambridge University Press.
2. Pinker, S. (2003). The language instinct: How the mind creates language. Penguin UK.
3. Yule, George: The Study of Language (5th Edition) (Cambridge University Press: New Delhi, 2014)
4. Jackendoff, R., & Pinker, S. (2005). The nature of the language faculty and its implications for evolution of language (Reply to Fitch, Hauser, and Chomsky). Cognition, 97(2), 211-225

Activities:

- a) Discussion 1: Stages of Language Acquisition.
- b) Quiz

Version No:

Approval Date:



Module 2: Brain

(9 Hours)

- Structure and Evolution of Brain
- Phrenology
- Localization and Lateralization
- Language areas in Brain
- Plasticity
- Brain Mapping Studies

Reading:

1. Hagoort, P. (2005). On Broca, brain, and binding: a new framework. *Trends in cognitive sciences*, 9(9), 416-423.
2. Friston, K. (2002). Beyond phrenology: what can neuroimaging tell us about distributed circuitry? *Annual review of neuroscience*, 25(1), 221-250.
3. Franz, S. I. (1912). New phrenology. *Science*, 35(896), 321-328.
4. Finlay, B. L., Darlington, R. B., & Nicastro, N. (2001). Developmental structure in brain evolution. *Behavioral and Brain Sciences*, 24(2), 263-278.
5. Obler, L. K., & Gjerlow, K. (1999). *Language and the Brain*. Cambridge University Press.
6. Binder, J. R., Frost, J. A., Hammeke, T. A., Cox, R. W., Rao, S. M., & Prieto, T. (1997). Human brain language areas identified by functional magnetic resonance imaging. *Journal of Neuroscience*, 17(1), 353-362.

Activities:

- a) Discussion on Brain Plasticity and Language areas of Brain
- b) Quiz
- c) Assignment

Module 3: Language Disorders

(8 Hours)

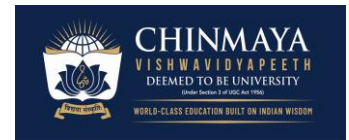
- Dyslexia
- Dysgraphia
- Speech disorders
- Communication Disorders

Reading:

1. Bernstein, D. K., Tiegerman-Farber, E., & Tiegerman-Farber, E. (1993). *Language and communication disorders in children*. Merrill.
2. Deacon, T. W. (2000). *Evolutionary perspectives on language and brain plasticity*.

Version No:

Approval Date:



Journal of Communication Disorders, 33(4), 273-291.

3. Catts, H.W (1989). Defining Dyslexia as a Developmental Language Disorder. Annals of Dyslexia. Vol.39, pp 50-64. Springer

Activities:

- a) Quiz
- b) Discussion on Language disorders
- c) Assignment
- d) Presentation

Module 4: Aphasia

(8 Hours)

- Causes
- Types
- Hemispherectomy
- Case Studies

Reading:

1. Coppens, P. (2016). Aphasia and related neurogenic communication disorders. Jones & Bartlett Publishers.
2. Clark, D. G., & Cummings, J. L. (2003). Aphasia. In Neurological Disorders (pp. 265-275). Academic Press.
3. Thulborn, K. R., Carpenter, P. A., & Just, M. A. (1999). Plasticity of language-related brain function during recovery from stroke. Stroke, 30(4), 749-754.

Activities:

- a) Quiz
- b) Presentation

Module 5: Memory

(7 Hours)

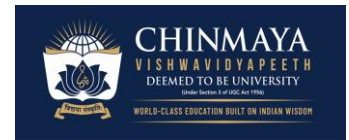
- Language and Memory
- Memory organization in brain
- Memory and thought

Reading:

- Galotti, Kathleen. (2017). Cognitive Psychology. Sage Texts: New Delhi
- Vygotsky, L. S. (1964). Thought and language. Annals of Dyslexia, 14(1), 97-98.
- Baddeley, A. (2003). Working memory and language: An overview. Journal of

Version No:

Approval Date:



communication disorders, 36(3), 189-208.

- Anderson, J. R. (2013). Language, memory, and thought. Psychology Press.

Activities:

- a) Quiz
- b) Presentation

Module 6: Conclusion and review

(4 Hours)

- Revision of Language Acquisition Studies
- Revision of Speech and Communication Disorders
- Revision of Aphasic studies

Reading:

- Opler, L. K., & Gjerlow, K. (1999). Language and the Brain. Cambridge University Press.

Activities:

- a) Discussion on Language Acquisition and processing by Brain.