BRAIN CONNECTIVITY & GRAPH THEORY APPLICATIONS



Training, Research Center & Core Lab

INFORMATION BOOKLET

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DAY 1

Foundations of Brain Connectivity

Time	Session	Format
09:00 - 09:30	Welcome & Course Overview	Opening Remarks
09:30 – 10:15	Principles of Structural and Functional Brain Connectivity	Lecture
10:15 – 11:00	Overview of Neuroimaging Techniques for Connectivity Analysis (DTI, fMRI, MEG, EEG)	Lecture
11:00 – 11:15	Coffee Break	Networking
11:15 – 12:00	Introduction to Graph Theory Concepts (Nodes, Edges, Networks)	Lecture
12:00 – 13:00	Live in Box: Demonstration – Building Brain Connectivity Maps from fMRI Data	Live in Box
13:00 – 14:00	Lunch Break	Networking
14:00 – 15:00	Brain Network Metrics: Degree, Centrality, Modularity & Small-Worldness	Lecture
15:00 – 16:00	Simulation Session: Constructing and Visualizing Brain Networks Using Python (Nilearn, NetworkX)	Simulation
16:00 – 16:45	Clinical Implications of Network Analysis in Neurological Disorders	Lecture
16:45 – 17:00	Wrap-Up & Open Discussion	Moderation



DAY 2

Advanced Network Modeling & Clinical Applications

Time	Session	Format
09:00 - 09:30	Recap & Key Concepts	Discussion
09:30 – 10:15	Dynamic Functional Connectivity: Temporal Network Analysis	Lecture
10:15 – 11:00	Multimodal Integration: Combining fMRI, DTI, and EEG Data	Lecture
11:00 – 11:15	Coffee Break	Networking
11:15 – 12:15	Live in Box: Case Demonstration – Graph Analysis in Cognitive and Psychiatric Disorders	Live in Box
12:15 – 13:00	Machine Learning Approaches for Brain Network Classification	Lecture
13:00 – 14:00	Lunch Break	Networking
14:00 – 15:30	Simulation Session: Hands-On Network Analysis & Feature Extraction	Simulation
15:00 – 15:45	Applications of Graph Theory in Stroke, Epilepsy, and Neurodegeneration	Lecture
5:45 – 16:30	Interpreting Connectivity Findings for Clinical Decision- Making	Lecture
16:30 – 17:00	Certification & Closing Remarks	Wrap up



VENUE

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Useful Information



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Training Location

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