



A GIAN course on The Science and Significance of Attention

Overview

Neglected by western psychological science during the first half of the 20th century, attention, in its various guises, is at the foundation of awareness, memory and the organization of behavior. By one taxonomy, its components: orienting, alertness and executive control, have been conceptualized as isolable subsystems mediated by overlapping neural networks. Whether we work within, or seek to improve upon this taxonomy, achieving a basic science understanding of attention is a crucial goal for contemporary cognitive neuroscience. Moreover, the prudent application of this understanding offers hope for improvements in human education, health, safety and welfare.

The course will begin with an historical overview of ideas about attention and a survey of the variety of methods for studying it. The course will then explore how these tools have been applied within studies of attention implemented within Posner's seminal taxonomy (epitomized by the Attention Network Test, the ANT) and its outgrowths. Throughout the course the students will be encouraged to connect the basic concepts and research methods with practical questions such as: How dangerous is texting while driving? Can video-game training remediate the effects of normal aging? Are billboards road hazards? What networks of attentions are affected in different neurological disorders and can these be remediated?

Objective

Upon completion of the course, successful students will have: an appreciation of the historical evolution of scientific ideas about attention, a rudimentary ability to employ some of the methods for exploring attention, current knowledge about the cognitive neuroscience of attention, and the significance of this knowledge for generating real-world improvements.

This course will be interesting for all participants regardless of their profession or goal. Moreover, it will be professionally useful for individuals planning to work in or consult for companies or government agencies (or already doing so) interested in education, marketing, equipment design, policy making and many other fields.

The course will also include laboratory session in which the participants will be trained on using stimuli presentation and analysis software such as Experiment builder, Psychopy, Dataviewer and R/SPSS. This is aimed at enhancing the analytical abilities of the participants. The tasks and the paradigms we have chosen for the lab sessions are used in cognitive therapies, military psychology, child learning and development research and so on. They have implications for the neuroplasticity resulting out of meditation, video game playing and other cognitively demanding tasks. Apart from hands-on training, participants will also learn how to use the theories of attention in innovative entrepreneurial initiatives and startups related to cognitive science.

Course details

Dates	August 5 to August 15, 2019
Host Institute / Venue	C V Raman Auditorium, Science complex, University of Hyderabad, Telangana-500046
Participants	Limited to 30
Who Should Attend	Student at all levels (BTech/MSc/MTech/PhD), Faculty from academic institutions and technical institutions, employees from industry who are interested in human attention and performance.
Course Registration Fees	The participation fees for taking the course is as follows: 1)Students (University of Hyderabad): ₹ 2000 2)Students (External): ₹ 5000 3)Faculty: ₹ 7000 4)Industry professionals: ₹ 12000

	The above fees includes the use of all instructional materials assigned for the course, lunch and snacks. The participants can be provided with accommodation at University of Hyderabad on payment basis (based on availability).
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Registration Process	<p>Step 1: Register in the GIAN portal and pay the required fees. Please note that course fee is separate.</p> <p>Step 2: Login to the GIAN portal with the registered User ID and Password. Choose for the Course registration option. Select the course titled “The science and significance of attention” from the list and click the “Save” option. Confirm your registration by clicking the suitable option.</p> <p>Step 3: Course Shortlisting: Candidates will be intimated through email regarding their selection.</p> <p>Step 4: Course Fee Remittance: Once you receive the intimation from the Course Coordinator, the fee (as applicable) need to be paid.</p> <p>Step 5: Mode of payment:</p> <p>Step 6: Fill up the registration form (Given in Page no. 7 of this brochure), by providing details of the bank transaction. Send the scanned copy of registration form to the Course coordinator at before 20th July, 2019</p>
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Tentative Lecture Schedule				
	Day	10.30 – 11.30	11.30 – 13.30	14.30 – 16.30
	1	Inaugural ceremony	Lecture (RMK). Attention: Yesterday, today and tomorrow	Laboratory (RKM): Designing Posner cueing task using Experiment builder/Psychopy
	2	Lecture (RMK). Tools for exploring attention	Tutorial (RMK). Student discussion/reports on neuroscientific tools (selected from: Single unit recording, EEG, fMRI, TMS, neuropsychology, computational modeling, pharmacological manipulations, etc.)	Laboratory (RKM): Designing Posner cueing task using Experiment builder/Psychopy
3	Lecture (RMK). Searching in space and time (2 model behavioral tasks)	Tutorial (RMK). Student discussion/reports on behavioral tools (selected from: Blink, Search, Spatial cuing, VWM, Warning signal, Vigilance, N-Back, Stroop	Laboratory (RKM): Sample data collection and analysis of the Posner cueing task	

		task, Filtering, Psychological Refractory Period	
4	Lecture (RMK). Control of attention	Lecture (RMK). On the relations between overt and covert orienting	Tutorial (RMK): Discussion of Posner cueing task data
5	Lecture (RKM). Revealing the language-attention interface with eye movements	Tutorial (RKM). Student discussion/reports on visual world paradigm.	Laboratory (RKM): Introduction to Eye tracking. Measuring eye movements: Fixations, saccades and pupil size
6	Lecture (RMK). Taxonomy(s) of attention	Tutorial (RMK). Student discussion/reports cross-cultural differences in attention	Laboratory (RKM): Introduction to Eye tracking. Measuring eye movements: Fixations, saccades and pupil size
7	Lecture (RMK). Does bilingualism exercise and therefore improve executive control?	Tutorial (RMK). Student discussion/reports on bilingualism and attention research	Laboratory (RKM): Sample eye tracking data collection. Analysing eye movements using data viewer.
8	Lecture (RMK). Inhibitions of return (IOR): Two effects that might facilitate foraging	Tutorial (RMK). Student discussion/reports on studies of IOR using neuroscientific and behavioral tools described earlier (see Days 2 & 3).	Tutorial (RMK): Discussion of tracking data.
9	Lecture (RMK). Attention and the automobile	Tutorial (RMK). Student discussion/reports on self-selected real-world consequences of attention	Laboratory (RKM): Examples of practical applications of attention research.
10	Lecture (RMK). Methods for improving attention?	Tutorial (RMK). Student discussion/reports on studies exploring drugs, video-gaming, mindfulness meditation, etc.	Tutorial (RMK): Discussion of practical applications of attention research

Accommodation	<p>The student participants will be provided with hostel accommodation (based upon availability).</p> <p>The faculty & working professional will be provided with guest house accommodation. (based upon availability)</p>
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The Faculty



Prof. Raymond M. Klein is a Professor Emeritus, Department of Psychology & Neuroscience, Dalhousie University, Halifax, Nova Scotia. Since his graduate training with Michael Posner, his research interests have been primarily focused on basic cognitive science research on attention. He has also recently been interested in applying the methods and findings of human experimental psychology to real-world problems of individuals such as those suffering from dyslexia, attention deficit/ hyperactivity disorder (ADHD), Parkinson's disease, problem gambling, and brain damage because of stroke; and to real-world issues such as counterfeit detection, eyewitness testimony, air, road and offshore safety. He has published more than 300 research articles in international peer-reviewed journals and supervised more than 50 masters and doctoral theses. He has been conferred several

distinguished awards such as the D. O. Hebb Distinguished Contribution Award (2008) by the Canadian Society for Brain, Behavior and Cognitive Science, The Richard C. Tees Distinguished Leadership Award (2012) by the Canadian Society for Brain, Behavior and Cognitive Science among others. He is a fellow of the American Psychological Society and the Royal Society of Canada.



Prof. Ramesh Kumar Mishra teaches at the Center for Neural and Cognitive Sciences, University of Hyderabad, a major research university of India. His professional expertise dwell in the field of cognitive sciences and allied disciplines. He has published widely in the areas of attention, visual processing, bilingualism and language processing, literacy and its influence on cognition, among others. He has edited, and authored several books in these areas. He is the Editor-in-Chief of the *International Journal of Cultural Cognitive Science* (Springer) and is a fellow of the Psychonomic Society. He is also on the editorial boards of *Bilingualism: Language and Cognition*, *PLOS One*, and *Frontiers in Cognition* among others. He has visited/ taught/been a visiting scientist at NTNU, Norway, Dalhousie University, Canada, Institute for Cognitive Science Studies, Tehran, Jawaharlal Nehru University, Delhi, Max Planck Institute for Psycholinguistics, Nijmegen, University of Birmingham, the UK, among others. He has previously taught at the Center for Behavioural and Cognitive Sciences, University of Allahabad.

Course Coordinator

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GIAN COURSE REGISTRATION FORM

(5th August 2019 to 15th August 2019)

NAME:

DESIGNATION:

ORGANIZATION:

ADDRESS:

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EMAIL ID:

MOBILE NO.

TRANSACTION NO.

DEMAND DRAFT NO.(If paid by Demand Draft).....

Place :

Date :

Signature of the Applicant:

