### Short Course Schedule:

**New Approaches to Understanding Alzheimer's Disease**

**Fri 22\(^{nd}\) February 2013**  
**Venue: TCIN, Lloyd Institute, Trinity College Dublin**

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<td><strong>Morning Session:</strong></td>
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<td>9.00 – 9.30</td>
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<td>9.30 – 11.00</td>
<td>Session 1</td>
<td><strong>Neuroimaging in Alzheimer's Disease</strong>, Arun Bokde</td>
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<td>11.00 – 11.30</td>
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| 11.30 – 13.00 | Session 2                | **Do immune cells contribute to the pathogenesis of Alzheimer’s disease?**, Marina Lynch  
|               |                          | **β-amyloid targeting drugs in the therapy of Alzheimer’s disease**, Michael Rowan |
| 13.00 – 14.00 | Lunch: Sandwiches, Tea and Coffee |                                                          |
| **Afternoon Session:** |                          |                                                                          |
| 14.00 – 15.30 | Session 3                | **Mild cognitive impairment, prodromal Alzheimer's disease & pre-clinical Alzheimer's disease: emerging concepts & implications for research & clinical practice**, Brian Lawlor  
|               |                          | **Cognitive Reserve and Alzheimer's Disease**, Ian Robertson              |
| 15.30- 16.00 | Coffee/Tea Break         |                                                                          |
| 16.00- 16.45 | Session 4                | **The Neuropsychological Assessment of Alzheimer's disease**, Robert Coen |
| 16.45-17.00  | Questions & Wrap-up      |                                                                          |
Shortcourse Programme
CPD Short Course: New Approaches to Understanding Alzheimer’s Disease
Fri 22nd February, 2013 from 9:00am
Board Room/Theatre LB11, The Lloyd Building, Trinity College Dublin

Accredited for CPD by the Royal College of Physicians of Ireland
RCPI approval reference:
CPD credits allowed:
(I CPD Credit is equivalent to 1 hour of educational activity)
This CPD Recognition is accepted by all Irish Postgraduate Training Bodies

AD is a chronic and progressive neurodegenerative disorder set to become the developed world’s largest socioeconomic healthcare burden over the coming decades. Dementias and especially dementias of the Alzheimer’s type account for approximately 5 million cases in the EU 25 in any one year. This number is expected to double over the coming two decades. The total cost of brain disorders in 2004 was estimated by the European Brain Council at €386 billion.

This one day course will focuses on the latest approaches to understanding the psychological, social and biological aspects of Alzheimer’s disease. An appreciation of the changes occurring in the scientific and clinical environments may lead to better diagnostic and therapeutic approaches to AD.

Lecture 1. The course starts with a specific lecture on Neuroimaging in Alzheimer’s Disease (Arun Bokde) that will cover the changes in brain structure and function in the preclinical and early stages of Alzheimer's disease. It will examine which areas of the brain atrophy the earliest and how this information could be used for development of diagnosis markers. It will also cover the latest research on the changes in white matter as measured by diffusion tensor imaging. The brain functional material will discuss the changes in neural networks that support visual perception and memory, and how resting state functional MRI can be used to obtain an index of neuronal health. The lecture will also cover the recent development in amyloid imaging of the brain.

Lecture 2. The objective of the second lecture is to explore the potential triggers that contribute to the pathogenesis of Alzheimer’s disease and in particular the role of immune cells in contributing to the pathogenesis of Alzheimer’s disease (Marina Lynch). Specific objectives and knowledge to be acquired: (1) To assess the literature which suggests that neuroinflammatory changes might be an early trigger in Alzheimer’s disease. (2) To consider of infiltration of peripheral immune cells into the brain exerts a damaging effect on neuronal function. (3) To examine the possibility that inflammatory changes might provide the basis of an early biomarker of Alzheimer’s disease.

Lecture 3. Currently approved therapies (anticholinesterases and memantine) are of very limited benefit to most patients with clinical Alzheimer’s disease (cAD). Clinical trials of passive or active immunization against β-amyloid (Aβ) indicate that amyloid plaques can be cleared from the brain in cAD without significant improvement of disease symptoms. An alternative approach, focusing on non-fibrillar synaptotoxic assemblies of Aβ provides opportunities for novel interventions and potential early diagnostics/biomarkers of disease progression.

Lecture 4. New research criteria for Alzheimer’s disease have been published based on our improved knowledge of the biological processes underpinning the disease. This presentation will discuss the implications of these new criteria for the field and how the availability of diagnostic biomarkers is likely to change clinical and research practice (Brian Lawlor)

Lecture 5. The lecture will introduce the concept of cognitive reserve and Alzheimer's Disease, outlining possible theoretical and clinical implications of the fact that higher education and mental stimulation reduce the risk of diagnosis of AD (Ian Robertson). It will also outline the implications of this for the diagnosis, prevention and treatment of AD. Specific objectives and knowledge to be acquired: (1)
understand the concept of cognitive reserve (CR), (2) Be able to identify the key mechanisms that may underpin it, (3) Be aware of the implications of CR for the diagnosis of AD

**Lecture 6.** The presentation will provide a brief overview of neuropsychological functioning in Alzheimer's disease (AD) and focus on aspects of assessment that may assist in distinguishing AD from age related cognitive decline and differentiate AD from non-Alzheimer causes of memory impairment (Robert Coen).

**LECTURERS**

**Arun Bokde, Trinity College Institute of Neuroscience:** his research area is in neuroimaging and Alzheimer’s disease. His group investigates how large scale neural networks in the brain support cognitive function and how breakdown in such networks leads to cognitive impairment with particular focus on neurodegeneration.


**Marina Lynch, Trinity College Institute of Neuroscience:** her research is designed to examine the impact of aging on synaptic function with an emphasis on understanding the role of microglia.


**Michael Rowan, Trinity College Institute of Neuroscience:** his group studies the mechanisms underlying the regulation of synaptic plasticity during learning and in models of stress and Alzheimer’s disease.


**Ian Robertson, Trinity College Institute of Neuroscience:** his research focuses on identifying and remediating cognitive impairment in aging and other conditions using novel combinations of behavioural, brain stimulation and pharmacological therapies.


**Brian Lawlor, Trinity College Institute of Neuroscience:** his research focuses on improving our understanding of the psychological, social and biological aspects of Alzheimer's disease with a view to developing novel treatment strategies for this neurodegenerative disorder.


**Robert Coen, Memory Clinic in Mercer’s Institute for Research on Ageing, St. James's Hospital,** His current research interests include development of cognitive screening tests, the facilitation of cognitive functioning in dementia by non-pharmacological means, autobiographical memory, prospective memory, and managing the behavioural and psychological symptoms of dementia.