UEA Doctorate in Clinical Psychology

NEUROPSYCHOLOGY 1 (NEURO 1)

Module co-ordinator: Dr. Fergus Gracey
2016 Cohort
2016/17
Module: NEUROPSYCHOLOGY 1
Module co-ordinator: Fergus Gracey

Aims and Learning Objectives of the Module
By the end of the first year, trainees will have gained the knowledge required to conduct a valid applied neuropsychological assessment, develop neuropsychological formulations, link understanding of underlying brain function (and disorders) with clinical assessment, presenting problems and plan and devise interventions. Topics will include basic functional neuroanatomy, clinical interviewing, neuropsychological assessment and formulation, neuropathology of different disorders and rehabilitation, and will cover the role of neuropsychology in clinical psychology more broadly. It is expected that trainees develop specific competencies through placements across training in order to be proficient in test administration, interpretation, and feedback to others, and will be evaluated on this through the OSCEs. The module is based upon the application of neuropsychology to understanding both the objective and subjective aspects of neurological conditions and their interaction, with the aim of fostering a fuller appreciation of the possible influence of brain changes on day-to-day life and the lived experience of people affected by these conditions, both those accessing services as well as family members and carers. Perspectives of service users and carers will be represented through use of video clips and inclusion of people with lived experience in teaching sessions. This humanistic orientation of the module is consistent with NHS Values. The competencies gained are consistent with the guidelines indicated by Berger (2008) and also map onto specific aspects of the BPS Division of Neuropsychology (DoN) competency framework for the Qualification in Clinical Neuropsychology (DoN, May 2013).

Assessment:
To achieve this, the objectives of the module are to provide teaching on:
  o Historical and theoretical foundations of clinical neuropsychology
  o Introduction to functional neuroanatomy – trainees’ knowledge will be tested with a quiz on neuroanatomy during the session
  o Test theory, psychometrics and interpretation of test scores
  o Professional issues including report writing for different audiences and feedback, ethics and mental capacity
  o Approaches to assessment in clinical neuropsychology including clinical interviewing, rating scales, screening tools, use of standardised batteries and individual tests, CT and MRI scans
  o Trainees will set learning objectives regarding use of neuropsychological assessments (administration, scoring, interpretation, feedback, reporting), formulation and intervention during the first year placements
  o Technical competence in neuropsychological assessment and feedback will be formatively assessed at the second year OSCE

Formulation
To achieve this, the objectives of the module are to provide teaching on:
  o Cognitive neuropsychological models (including attention, memory, language, visuo-spatial processing and executive functioning)
  o Formulation and hypothesis testing in clinical neuropsychology
  o Applied clinical neuropsychology – disorder specific teaching covering neuropsychology of acquired and progressive conditions including ABI, epilepsy, stroke and dementia – each session to
Intervention
The objectives of the module are to provide teaching on:
  o Evidence based and theory based neurocognitive interventions applied across a range of disorders and mental health problems
  o Neurobehavioural approaches

Evaluation and Outcome Monitoring
The objectives of the module are to provide teaching on:
  o Application of the WHO International Classification of Functioning to rehabilitation outcome evaluation
  o Use and limitations of outcome measures in rehabilitation (covered within intervention teaching)
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| 1    | 0.5            | 1              | 1. Introduction to the neuropsychology module | Objectives  
|      |                |                |                        | o Understand the overarching objectives of the module with regard to knowledge and skills  
|      |                |                |                        | o Consider own learning needs with regard to clinical neuropsychology and which aspects of training can best meet them |
| 1    | 2.5            | 2              | 2. Introduction to functional neuroanatomy and classic cases in neuropsychology | Introduction to the history of neuropsychology, with a particular focus on classic case studies that demonstrate particular function/deficits related to brain regions and particular methods (e.g. double dissociation; qualitative assessment; single case designs)  
|      |                |                |                        | Objectives:  
|      |                |                |                        | o Understand the historical basis of approaches used in clinical neuropsychology  
|      |                |                |                        | o Revision of functional neuroanatomy  
|      |                |                |                        | o Introduce apps and web resources for learning neuroanatomy  
|      |                |                |                        | o Quiz to test knowledge of neuroanatomy including brain structures, circulation, neurotransmitters |
| 1    | 3              | 3              | 3. Neuropsychological clinical interviewing | This session provides an introduction to neuropsychological interview structure and techniques in the context of a broad and flexible framework for neuropsychological assessment. Role-play activities and small group work will be used.  
|      |                |                |                        | Objectives:  
|      |                |                |                        | o making sense of referral questions in neuropsychology  
<p>|      |                |                |                        | o Picking methods to address the question – psychometric, ecologically valid, cognitive model, qualitative, interviewing, self/other ratings |</p>
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|      |                | 4              | 4. Test theory, psychometrics and test interpretation | Objectives:  
|      |                |                |                         | o Familiar with the basis of and able to interpret commonly used metrics such as Z scores, T scores, percentiles, Wechsler scaled scores and Index scores, conversion of scores  
|      |                |                |                         | o Understanding of reliability and validity in test interpretation including confidence intervals, standard error of measurement  
|      |                |                |                         | o Understand meaning and limitation of age equivalent scores  
|      |                |                |                         | o Understand the base rate issues when multiple tests applied  
|      |                |                |                         | o Understand issues when attempting to measure change in test performance |
| 1    | 3              | 5              | 5. Formulation in neuropsychology | Objectives:  
|      |                |                |                         | o Gain familiarity with application of the WHO –International Classification of Functioning, and the Biopsychosocial model  
|      |                |                |                         | o Use of cognitive models and hypothesis testing approach in neuropsychology |

This session will cover statistical theory underpinning standardised test development, the standardisation process and the derivation and interpretation of various standardised scores. The session will include worked examples and group work making use of Wechsler (WAIS, WASI, WMS) test manuals and materials.
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|      |                | 6              | 6. Test administration and selection        | o Understand integrated psychological formulations (e.g., CBT, systemic, incorporating neurocognitive, emotion, and adjustment)  
  o Practice formulation with case examples  
  o Understand the mental capacity act both with regard to consent to assessment and occasions when a neurocognitive assessment might contribute to the assessment of a mental capacity issue (signpost to specific teaching on MCA) |
| 1    | 3              | 6              | 6. Test administration and selection        | This session will cover clinical and psychometric considerations in the flexible approach to assessment, including screening tools (ACE-III; MoCA), and ecologically valid tests such as the BADS, TEA and RBMT  
  Objectives:  
  o Ability to select, use and interpret specific neuropsychological assessments when used in a flexible assessment approach  
  o Knowledge of common screening tools and understanding of psychometric strengths and limitations including sensitivity and specificity  
  o Understand practical issues regarding assessment procedures, and impact of conditions on assessment processes and outcomes (across all settings including mental health) |
| 1    | 6              | 7              | 7. Neuropsychology of Dementia              | Objectives  
  o Understand the nature of different types of dementia  
  o Gain knowledge of the neurocognitive profiles and neuroanatomy of types of dementia  
  o Practice application of learning through case examples of differential diagnoses |
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<td>8. Feeding back and report writing</td>
<td>Consider the subjective impact of dementia from the perspective of the person with dementia, family, carers and healthcare professionals</td>
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| 1    | 3              | 8              | 8. Feeding back and report writing | Objectives:  
  - Understand rationale of report writing  
  - Be familiar with examples of report style (guided reading) including feedback of effort testing.  
  - Apply to specific case examples (adult/older adult/dementia)  
  - Gain skills in feeding back neuropsychology assessment results through role play  
  - Understand approaches for testing for effort and reporting this |
| 1    | 3              | 9              | Cognitive Neuropsychological Models | Objectives:  
  - Gain knowledge of theoretical models of normal cognitive function in neuropsychology including attention, memory, executive functioning, visuo-spatial processing and language  
  - Understand how these models have been applied in making sense of the effects of specific lesions or disorders  
  - Understand the application of a bio-psycho-social framework for understanding presenting problems of those with cognitive impairment |
| 1    | 3              | 10             | 10. Neurocognitive interventions | Objectives – to gain knowledge of evidence based cognitive interventions across common disorders including dementia, stroke, TBI, eating disorders and schizophrenia) covering:  
  - Memory  
  - Executive function  
  - Attention  
  - Visual processing |
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<td>o Cognitive remediation in schizophrenia and eating disorders</td>
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<td>o Impact of social and emotional processes on cognition</td>
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<td>11a</td>
<td>11a. Neuroradiology and scan interpretation</td>
<td>Objectives:</td>
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<td>o Basics of how a CT scan works, what it is used for, and how to</td>
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<td>read the scan</td>
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<td>o Basic physics of different types of MRI scan including DTI, how</td>
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<td>each is used to show different structures or types of</td>
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<td>damage/change</td>
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<td>o Opportunity to rehearse neuroanatomy</td>
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<td>o Case examples illustrating specific disorders</td>
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<td>11b</td>
<td>11b. Acquired Brain Injury (including TBI and encephalitis)</td>
<td>Objectives:</td>
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<td>o Understanding the types and mechanisms of acquired brain</td>
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<td>injuries and neuroanatomical consequences</td>
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<td>o The neuropsychological consequences of different types of injury</td>
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<td>across the lifespan – opportunity to rehearse test selection in</td>
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<td>response to referral questions</td>
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<td>o Understanding core clinical information – how to read a referral</td>
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<td>letter or discharge report, opportunity to rehearse neuro</td>
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<td>assessment and formulation skills</td>
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<td>12. Neuropsychology of Stroke</td>
<td>Objectives:</td>
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<td>o Understand the nature of different types of stroke</td>
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<td>o Understand the neuropsychological consequences of different</td>
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<td>types of stroke</td>
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<td>o Rehearse cognitive models pertinent to understanding the</td>
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<td>specific consequences of stroke</td>
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<td>o Rehearse use of screening tools in identification of cognitive</td>
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<td>difficulties following stroke</td>
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|      |                |                | 13. Biological and Neuropsychological aspects of Epilepsy | o Rehearse neuroanatomy and circulation knowledge  
o Gain knowledge of interventions for psychological support after stroke (case example, psychological impact of stroke, clinical psychology input, stepped care in stroke psychology) and clinical guidelines |
| 1    | 3              | 13             | Biological basis of epilepsy (1 hr) | Biological basis of epilepsy  
Categorising and describing types of seizure  
Assessment and interventions |
|      |                |                | Neuropsychological aspects of epilepsy (2 hrs) | Neuropsychological aspects of epilepsy  
Acute and long term neuropsychological changes, including those related to medication  
Role of the clinical neuropsychologist in epilepsy surgery  
Psychological aspects of epilepsy and interventions |
| 1    | 3              | 14             | 14. The Assessment and Management of People with Disorders of Consciousness | Objectives:  
Understand the neuropsychological basis of disorders of consciousness (DoC)  
Be familiar with contemporary accounts of spared and impaired functions in DoC  
Be familiar with approaches to assessment and intervention  
Be aware of how assessment and formulation approaches can be applied across severe disability |
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<td>15. Neurobehavioural rehabilitation</td>
<td>Objectives</td>
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<td>o  Gain knowledge of neurobehavioural assessment approaches (e.g., functional analysis of behaviour)</td>
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<td>o  Practice formulation of neurobehavioural problems (case examples)</td>
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<td>o  Practice linking formulation with neurobehavioural interventions (case examples)</td>
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<td>o  Understand ethical issues with this group concerning consent, self-awareness, mental capacity and DOLS</td>
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Total = 45 hours
REFERENCES / READING LIST

Key references will also be provided for each lecture in the module.


Classic texts and case histories


Links for human brain anatomy websites and apps

Cerebrii - iOS compatible app - 3D rotatable pictures of brain structures including grey matter, white matter, circulation – can search for terms, label and also has a quiz. https://itunes.apple.com/gb/app/cerebrii/id309653027?mt=8

Brain areas (3D, rotatable) labeled with links to information about that brain region

http://www.healthline.com/human-body-maps/brain

Navigable brain atlas – good for identifying specific brain areas and understanding scans

Information about major areas of the brain and their function:
http://biology.about.com/od/humananatomybiology/a/anatomybrain.htm

Followed by a brain anatomy quiz!
http://biology.about.com/od/gamesandquizzes/a/aa092107a.htm

E-learning course for clinical neurosciences – multiple modules on specific disorders and rehabilitation
http://www.ebrainjnc.com/index.html

Online tool for training in the administration of the ACE III by John Evans and colleagues https://www.fom.gla.ac.uk/aceiitrainer/

An IPad version of the ACE II
http://www.cnpsychology.co.uk/

Underpinning knowledge and skills – neuropsychological competencies (books that cover a range of learning objectives/competencies)


Chapters cover a range of issues in sections relating to assessment, intervention, patient groups, theory etc


Covers domains of cognitive functioning and interventions/rehabilitation, outcome measurement and TBI in childhood and older adults


Conceptual approaches adopted in clinical neuropsychology & their historical foundations


Practically helpful paper covering aspects of the ICF and its application in assessment and rehab in a systematic way


Clinical work – neuropsychological competencies

- Assessment


- **Profiles of specific disorders**


- **Formulation and intervention / rehabilitation**

Karnac – The Brain Injury Series:


Sets out a radical systemic and relational perspective on brain injury and rehabilitation, including case illustrations and descriptions of intervention approaches.

There are other books on rehabilitation in this Karnac series.


Description of holistic neuropsychological rehabilitation including theory, information on group interventions and individual case studies

**Evidence base for cognitive rehabilitation**

- **Adults**


- **Children**

- **Professional Practice**

- NSF for long term conditions

  World Health Organisation, International Classification of Functioning, Disability, and Health
  [http://www.who.int/classifications/icf/training/icfbeginnersguide.pdf](http://www.who.int/classifications/icf/training/icfbeginnersguide.pdf)

  British Society of Rehab Medicine – guidance for commissioners – describes service, structures, needs and evidence-based interventions for acquired and progressive neuro conditions.
  [http://www.bsrn.co.uk/publications/NeuroRehabBriefing%20Paper-Revised-nov09June10%20_2_.pdf](http://www.bsrn.co.uk/publications/NeuroRehabBriefing%20Paper-Revised-nov09June10%20_2_.pdf)

  The National Dementia Strategy (2009).


  NSF for long term conditions
The teaching on this module will contribute to trainees learning the following standards of proficiency in line with the HCPC (2015) standards:

1. Be able to practice safely and effectively within their scope of practice
2. Be able to practice within the legal and ethical boundaries of their profession
3. Be able to maintain fitness to practice
4. Be able to practise as an autonomous professional, exercising their own professional judgement
5. Be aware of the impact of culture, equality and diversity on practice
6. Be able to practice in a non-discriminatory manner
7. Understand the importance of and be able to maintain confidentiality
8. Be able to communicate effectively
9. Be able to work appropriately with others
10. Be able to maintain records appropriately
12. Be able to assure the quality of their practice
13. Understand the key concepts of the knowledge base relevant to their profession
14. Be able to draw on appropriate knowledge and skills to inform practice