

Neuropsychological Rehabilitation (PSYC33H3 S)
University of Toronto Scarborough
Winter 2013

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Office Hours: After class or by appointment

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Office Hours: By appointment (in person or online)

Course Websites: <https://portal.utoronto.ca>

Class Time and Location: Thursdays 9:00 am – 11:00 am; BV 361

Objective: In this course, methods of neuropsychological rehabilitation that are used to treat deficits in a variety of domains (e.g., behavioural, attention, memory, sensory-perception, & executive function) will be examined. The relevance of combining theory/research with clinical/functional outcome will be emphasized

Recommended Text: Publication Manual of the American Psychological Association, 6th Ed.

Evaluation:

Evaluation	Due dates	Content	Course weight (%)
Midterm exam	Feb 14	Lectures + required readings	25%
Reaction paper	Mar 7	Assigned article(s)	10%
Research paper	April 4	20 page (max) paper detailing the design and evaluation of an intervention to rehabilitate a neuropsychological deficit. This can be a case or group study from topics covered in class.	25%
Final exam	TBD	ALL lectures and readings	40%

Exam Format: Midterm and final examinations will include multiple choice & short answer questions. Information from lectures and readings will be tested equally on both midterm and final exams. The final exam is cumulative on ALL material covered in the course. However, for the final exam heavy emphasis will be placed on material covered since the midterm.

Missed Exam Policy: Students who miss the midterm exam will have their grade prorated over the research paper and final exam. The prorating option will NOT be granted unless the instructor(s) receives appropriate documentation, such as a signed medical certificate or college registrar's note within one week of the missed exam. Make sure to contact the instructor ASAP if you miss the midterm to discuss possible arrangements. There will be no make-up exam for missed midterms.

Penalty for lateness: The research paper is due on April 4. **Email the paper to the TA (Courtney) by 5 PM on the due date.** The penalty for lateness is 5% per day (weekends included).

Course Schedule

Date	Topic	Required Readings
Jan 10	Course overview: content, layout, marking scheme What is neuropsychological rehabilitation?	Taub (2002). New treatments in neurorehabilitation founded on basic research Wilson (2008). Neuropsychological Rehabilitation
Jan 17	Program Evaluation/research design & Methods of intervention	Cicerone (2005). Evidence-Based Cognitive Rehabilitation : Updated Review of the Literature From 1998 Through 2002 Perdices (2009). Single-subject designs as a tool for evidence-based clinical practice: Are they unrecognised and undervalued?
Jan 24	Visuospatial function	Singh-Curry & Husain (2010). Rehabilitation of neglect Powell et al., 2008 . Enhancement of face recognition in ABI using 3 treatment methods
Jan 31	Memory Systems	O'Connor (1995). Clinical Differentiation of Amnesic Subtypes. Moscovitch (2002). Amnesia
Feb 7	Memory Intervention – moderate to severe amnesia	Svoboda (2010). A theory-driven training program in the use of emerging commercial technology: application to an adolescent with severe memory impairment Ptak (2010). Cognitive rehabilitation of episodic memory disorders: from theory to practice.
Feb 14	MIDTERM EXAM	All lectures and readings to date
Feb 21	READING WEEK	Reaction paper: Owen et al (2010). Putting brain training to the test
Feb 28	Memory Intervention Programs for Older Adults & MCI Guest speaker: Dr. Susan Vandermorris, neuropsychologist, Baycrest	Troyer (2008). Changing everyday memory behaviour in amnesic mild cognitive impairment: A randomized controlled trial Glisky (2008). Memory rehabilitation in older adults.
Mar 7	Simple and Complex Attention <u>Reaction paper due!</u>	Petersen & Posner (2011). Attention system of the human brain Tang et al (2007).
March 14	Behaviour management/	Barrick (2006). Behavioural treatment of impaired functioning and behavioural symptoms Camp (2006). Spaced Retrieval: A model for dissemination of a cognitive intervention for persons with dementia
March 21	Executive Function Guest speaker: Dr. Nadine Richard	Turner & Levine (2004). Disorders of executive functioning and self-awareness Levine et al (2011). GMT and focal frontal brain lesions
Mar 28	Current & future rehabilitation: Technology & training	Nyberg et al (2012) Chen et al (2011)

Apr 4	EXAM REVIEW & PAPER DUE	Review of class materials and/or discussion about applying to graduate school, psychology, rehabilitation, careers in general ...
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*Readings will be posted online.

Reading List

January 10

Taub, E., Uswatte, G. & Elbert T. (2002). New treatments in neurorehabilitation founded on basic research. *Nature Reviews: Neuroscience*, 3, 228-235

Wilson, B.A. (2008). Neuropsychological Rehabilitation. *Annual Review of Clinical Psychology*, 4, 141-62

January 17

Cicerone, K. D., Dahlberg, C., Malec, J.F., et al., (2005). Evidence-Based Cognitive Rehabilitation : Updated Review of the Literature From 1998 Through 2002. *Archives of Physical and Medical Rehabilitation*, 86, 1681-1692.

Perdices, M., & Tate, R.L. (2009). Single-subject designs as a tool for evidence-based clinical practice: Are they unrecognized and undervalued? *Neuropsychological Rehabilitation* 19(6), 904–927.

January 24

Singh-Curry, V. & Husain, M. (2008). Rehabilitation of neglect. In D. T. Stuss, G. Winocur & I. H. Robertson (Eds.). *Cognitive Neurorehabilitation: Evidence and Application* (2nd Ed.). (pp. 449-463). New York: Cambridge University Press.

Powell, J., et al (2008). Enhancement of face recognition learning in patients with brain injury using three cognitive training procedures. *Neuropsychological Rehabilitation*, 18, 182-203.

January 31

O'Connor, M., Verfaellie, M. & Cermak, L.S. (1995). Clinical Differentiation of Amnesic Subtypes. In A.D. Baddeley, B.A. Wilson & F.N.Watts (Eds.) *Handbook of Memory Disorders*. (pp. 53-80) Cambridge: John Wiley & Sons Ltd.

Moscovitch, M (2002). *Amnesia*. In N.J. Smelser and P.B. Baltes (Eds.) *The International Encyclopedia of Social & Behavioral Sciences* (1st edition)

February 7

Svoboda, E., Richards, B., Polsinelli, A., & Guger, S. (2010). A theory-driven training program in the use of emerging commercial technology: application to an adolescent with severe memory impairment. *Neuropsychological Rehabilitation*, 20(4), 562–586.

Ptak, R., Van der Linden, M., & Schnider, A. (2010). Cognitive rehabilitation of episodic memory disorders: from theory to practice. *Frontiers in Human Neuroscience*, 4, 1-11.

February 14

Owen, A., et al. (2010). Putting brain training to the test. *Nature*, 465, 775-79.

February 28

Troyer, A. K., Murphy, K.J., Anderson, N.D., Moscovitch, M., & Craik, F.I.M. (2008). Changing everyday memory behaviour in amnesic mild cognitive impairment: A randomised

controlled trial. *Neuropsychological Rehabilitation*, 18(1), 65-88.

Glisky, E.L. & Glisky, M.L. (2008). Memory rehabilitation in older adults. In D.T. Stuss, G. Winocur and I.H. Robertson (Eds.). *Cognitive Neurorehabilitation: Evidence and Application* (2nd ed.). (pp. 541-561). New York: Cambridge University Press..

March 7

Petersen, S. E., & Posner, M. I. (2012). The attention system of the human brain: 20 years after. *Annual Review of Neuroscience*, 35, 73-89.

Tang, Y. et al (2007). Short-term meditation training improves attention and self-regulation. *PNAS*, 104(43), 17152-56.

March 14

Camp, C.J. (2006). Spaced Retrieval: A model for dissemination of a cognitive intervention for persons with dementia. In D. K. Attix, K. A. Welsh-Bohmer (Eds.). *Geriatric Neuropsychology* (pp. 275-292). New York: Guilford Publications

Barrick, A.L. (2006) Behavioral treatment of impaired functioning and behavioural symptoms. In D. K. Attix, K. A. Welsh-Bohmer (Eds.). *Geriatric Neuropsychology* (pp. 367-393). New York: Guilford Publications

March 21

Turner, G.R. & Levine, B. (2004). Disorders of executive functioning and self-awareness. In Ponsford, J. (Ed) *Cognitive and Behavioral Rehabilitation: From Neurobiology to Clinical Practice*. (pp. 224-268). New York: Guilford Press

Levine, B., et al (2011). Rehabilitation of executive functioning in patients with frontal lobe brain damage with goal management training. *Frontiers in Human Neuroscience*, 5, 1-9.

March 28

Nyberg, L., et al (2011). Memory aging and brain maintenance. *TICS*, 6(5), 292-305.

Chen, A. J-W., et al. (2011). Training of goal-directed attention regulation enhances control over neural processing in individuals with brain injury. *Brain*, 134, 1541-54

Research Papers

Objectives

Writing a research paper will help you achieve three important objectives: (1) To expand your knowledge of neuropsychological intervention by focusing on an area that is of particular interest to you, (2) To further develop your skills as a critical reader of psychological research, (3) To develop your scientific writing skills.

Research Paper 1: Design a neuropsychological intervention

General Requirements

In the research paper you should review critically an area of neuropsychological rehabilitation with respect to interventions designed to treat a neuropsychological deficit covered in the course. Choose from the general topics of attention, memory, behavioural, language, motor, executive, perceptual, etc. and decide on a deficit within one of these domains to address with a neuropsychological intervention. You will design an intervention to rehabilitate the neuropsychological deficit of interest, evaluate the efficacy of your intervention (in which you will generate mock data) and critically discuss your findings in the context of the current literature in the field. A list of research topics chosen by prior students is provided.

Specific Requirements

- The research paper should be a maximum of 20 double-spaced pages in length (not including references, tables or figures generated)
- Use 12 point font, Times New Roman.
- You must have a minimum of 10 primary sources (journal articles) in your reference section. The references should be mainly from the 1990s and 2000s.

Required Sections of the Research Paper

The research paper should be written as if it were a peer-reviewed journal article, in proper APA format.

Abstract. One paragraph, approximately 120 words in length, that briefly describes the area of investigation, type of participant(s), the presenting problem, the nature of the intervention and lastly the results and the significance of those results. Put the abstract on a separate page immediately following the title page.

Introduction. This section should describe the research area and findings from previous studies. The literature review should also discuss an issue or question that needs to be addressed in that area and provide a clear rationale for the proposed study. It should also include generally the theory behind the rehabilitative approach that is used in the study.

Methods: This section should include a description of the participant(s) and their presenting problem, a description of any equipment and how it was used, as well as a description of how the intervention was applied and specific description of the independent and dependent variables measured.

Results (mock data you generate). This section should describe your findings. You will generate mock data based upon what you might reasonably expect to have happened. Provide a table or a graph to represent the data along with a verbal explanation of the results.

Discussion. Discuss and review your findings in the context of what is currently known in the field. Include an explanation of how well the results fit the specific hypotheses, limitations of the study, and other theoretical issues. Try to highlight the significance / contribution of your research to the field and suggest future investigations.

References. You must have at least 10 primary sources (journal articles). The references should be mainly from the 1990s and 2000s.

Use APA Format

You should use the guidelines for scientific writing that have been developed by the American Psychological Association (APA). It is recommended that you consult the Publication Manual, 6th edition of the APA to determine the appropriate methods for citing research in your research paper and for creating your list of references.

Neuropsychological Rehabilitation**Some suggestions of research topics chosen by previous students**

Multiple Sclerosis and Attention: A Computer Training Program for Sustained Attention Deficits in Multiple Sclerosis Patients

Improving memory in old age by positive self stereotyping

The Effect of Constraint-induced Movement Therapy and Limb Activation Training on Adolescent Patients with Motor Neglect

Treatment of Attention Deficit Hyperactivity Disorder through Cognitive Rehabilitation

Hemineglect: Experimental Alert Study Design

Motor Error Awareness Therapy and Goal Management Training in Early-stage Huntington's Disease Patients: A Novel Approach to Motor Disturbances

The Efficacy of Limb Activation Training for the Treatment of Upper-Body Hemiplegia Associated with Unilateral Visual Hemineglect

Antioxidants and Focused Memory Training: An Attempt to Impede the Progression from MCI to Alzheimer's Disease

Visual Restitution Training with Attentional Cueing Causes Restoration of Vision in Patients with Visual Defects

Increasing the Autonomy of Amnesic Individuals: An Errorless Learning/Vanishing Cues Rehabilitation Program

Memory and Lifestyle Intervention in MS Patients

A multifaceted approach to rehabilitation for MCI patients

Employing Video Games to Maximize Spontaneous Recovery of Cognitive Functions in Traumatically Brain Injured Individuals

The effects of education, concentration and motivation in the cognitive rehabilitation of elderly with late-life depression

Parkinson's Disease and Freezing of Gait Phenomenon

Effect of stress on cognitive functions and stress management in patients with cognitive disorders

Naturalistic neuropsychological rehabilitation of the Traumatically Brain-Injured Individuals