Name of course: MOTOR CONTROL AND LEARNING clinical aspects

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| **Course description**: The course in motor control and learning connects the knowledge gained in wide and developing research in recent years with the clinical applications mainly in the area of neurological rehabilitation but also touches on the area of orthopedic rehabilitation. The course lays emphasis on the importance of the connection between motoric skill, the learning person and the environment in which the skill is deployed. In the course we will discuss the principles and elements that encourage adaptation, learning and functioning in the daily environment of the recovering person.  **Learning outcomes:**  On successful conclusion of the course the student will be able to:   * Understand and make connections between the principles of motor control according to different models of functioning of a person with and without motor damage * Employ the accepted terminology in the literature relevant to the subject * Classify motor functioning in accord with various models * Assess and monitor the relation of the research to the understanding of the processes of motor control * Understand the principles of motor learning according to various models * Apply principles of motor learning in rehabilitation and physiotherapeutic treatment   Attendance management: Attendance is not obligatory  **Teaching method**: Frontal lectures, discussion and analysis of cases, demonstration and practice.  Students’ assessment of the course:   * 100% final examination |  | Credit points: 2  Academic year: Semester (2)  Semester: 2  Language of tuition: Hebrew, Slides & Literature in English  Grade: Master  Type of course: The course is theoretical and discusses clinical aspects of motor learning  Discipline: Neurology  Responsible department: Physiotherapy  Preparatory requirements: None  Key to credits: ( )  Name of lecturer: Dr Simona Bar-Haim  Office telephone:  Email: [adi-star@013.net](mailto:adi-star@013.net)  Reception hours: 9-11, by appointment  Assessment of course: On completion of the course the students will assess the course in order to reach conclusions for the purposes of the University  Approval of course: The course has been approved by the faculty tuition committee  Last update: The last update of the syllabus was in January 2015 |

Physical Therapy

Course outcomes:

The students will submit and demonstrate at mid-semester a project integrating the subjects studied, for clinical application to a patient.

Time required for independent homework: In addition to class work, each student is required to work and execute tasks with a duration of approximately two hours weekly.

Course content / course structure

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| Course subject | Secondary subject | Source |
| Theories of motor control |  | Motor Control – Translating Research into practice  Shumway-Cook, Woollacott  Lippincott, fourth edition 2012 |
| Introduction to Motor Learning |  |  |
| Stages of Motor Learning |  |  |
| Motor Learning – practice |  |  |
| Motor Learning – significance of the feedback |  |  |
| Assessment of the learning process |  |  |
| Gentile taxonomy |  |  |
| Generalisation of the acquired skill |  |  |
| Motor Imagery |  |  |
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Reading List:

Motor Control – Translating Research into practice

Shumway-Cook,Woollacott

Lippincott, fourth edition 2012

Mandatory Reading:

Krakauer JW. Motor Learning: its relevance to stroke recovery and neurorehabilitation. Curr Opin Neurol. 2006 Feb; 19(1): 84–90. Review

Wolpert DM, Diedrichsen J, Flanagan JR. Principles of sensorimotor learning. Nat Rev Neurosci. 2011 Oct 27;12(12): 739–51

Muratori LM, Lamberg EM, Quinn L, Duff SV, Applying principles of motor learning and control to upper extremity rehabilitation. J Hand Ther. 2013 Apr–Jun; 26(2): 94-102

Optional reading