

Movement Disorders (APK 6145)

David E.Vaillancourt, PhD

Time and Place: T, Period 2-4 (8am – 11am), McKnight Brain Institute, FL-GYM 235

Text Book: Lecture notes only

Instructor Contact: email: vcourt@ufl.edu, office: 170I FL-GYM, phone: 4-1770

Course objectives:

The course covers the sensory and motor systems of the nervous system responsible for regulating movement in movement disorders. We cover movement disorders including Parkinson's disease, tics, Huntington's disease, dystonia, tremor, spinal cord injury, spasticity, cerebellar disorders, and speech and language disorders. Students will be asked to attend the weekly clinical meetings at McKnight Brain Institute to see a first-hand clinical perspective of movement disorders. The course integrates motor neurons, upper motor neurons, cortical physiology of movements, basal ganglia physiology, cerebellar physiology, posture, and eye movements. We will also discuss techniques used to measure movement and brain structure and function.

In addition to lectures, students will be given primary literature to read and present. Students will be expected to lead a discussion of a research article on the movement disorder discussed each week. A class research project will be completed by each student, using available data on a movement disorder to test a hypothesis of interest to each student.

Evaluation:

Article Presentation (20%)

Attendance (30%)

In-class Discussion (20%)

Class Project (30%)

Attendance:

It is expected that students will attend all classes regularly.

Grades:

Grading scale will be consistent with the scale below.

<http://www.isis.ufl.edu/minusgrades.html>

| | |
|-----------|---------------|
| A (4.0) | 93 – 100% |
| A- (3.67) | 90 – 92.99% |
| B+(3.33) | 87 – 89.99% |
| B (3.00) | 83 – 86.99% |
| B- (2.67) | 80 – 82.99% |
| C+(2.33) | 77 – 79.99% |
| C (2.00) | 73 – 76.99% |
| C- (1.67) | 70 – 72.99% |
| D+(1.33) | 67 – 69.99% |
| D (1.00) | 63 – 66.99% |
| D- (0.67) | 60 – 62.99% |
| E (0.00) | less than 60% |

Student Learning Objectives:

At the end of this course the student will be able to demonstrate mastery of the following learning objectives:

- 1) Be conversant in movement disorders research.
- 2) Understand the prevalence, pathophysiology, motor deficits, cognitive deficits, and treatments of each disorder.
- 3) Understand the most up to date research studies from major journals about each disorder.
- 4) Observe and participate with practicing physical therapists, neurologists, neurosurgeons, and occupational therapists who treat and care for patients with movement disorders.
- 5) Understand the clinical database for the Parkinson's Progressive Marker Initiative

Policy for Make-up exams and other work:

Make-up exams and other work can be requested given that there is a medical, family, or other emergency that deems the need for a make-up.

Policy on disabilities:

The course will provide accommodations to students with disabilities. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

University Policy on Accommodating Students with Disabilities: Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

University Policy on Academic Misconduct: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at <http://www.dso.ufl.edu/students.php>.

Getting Help:

For issues with technical difficulties for E-learning in Sakai, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

** Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help> for:

- Counseling and Wellness resources

- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit <http://www.distance.ufl.edu/student-complaints> to submit a complaint.

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Articles:

- Select a clinical topic related to the course.
- Lead a discussion of the article for the class. Using power point is preferred.

Weekly Outline:

Week 1: Jan 9

Clinical: McKnight Brain Institute (8-9am)

Lecture: Brain Anatomy 1

Lecture: Brain Anatomy 2

Week 2: Jan 16

Clinical: McKnight Brain Institute (8-9am)

Lecture: Methods 2: PET, MRI and fMRI, DTI, TMS, EEG

Articles for Week 3: Karl Friston Papers of Recent in Science; Ogawa Paper; Biswall paper; Vaillancourt paper; Vaillancourt Okun Review; TMS Methods paper

*presentations: power point, 15-20 minutes

Week 3: Jan 23

Clinical: McKnight Brain Institute (8-9am)

Presentations: Karl Friston Papers of Recent in Science; Ogawa Paper; Biswall paper; Vaillancourt paper; Vaillancourt Okun Review; TMS Methods paper

Articles for Week 4: Vaillancourt 2009; Du 2011; Castellanos et al. 2015

Week 4: Jan 30

Clinical: No clinical meeting

Lecture: Diagnosis of Parkinson's Disease

Presentations: Vaillancourt 2009; Castellanos 2015; Du 2011

Articles for Week 5: Delong science 1990; Kordower Brain Paper

Week 5: Feb 6

Clinical: McKnight Brain Institute (8-9am)
Lecture: Pathophysiology of Parkinson's Disease
Presentations: Delong science 1990; Kordower Brain 2013
Articles for Week 6: DBS Krack NEJM; Disease modifying NEJM

Week 6: Feb 13

Clinical: McKnight Brain Institute (8-9am)
Lecture: Treatments for Parkinson's Disease
Presentations: DBS Krack NEJM; Disease modifying NEJM
Articles for Week 7: Corcos Strength Paper; Li Tai Chi NEJM
Articles for Week 7: levodopa vs agonist study
Articles for Week 7: Herz dyskinesia and Exenatide Study

Week 7: Feb 20

Presentations: Corcos Strength Paper; Li Tai Chi NEJM
Presentations: levodopa vs agonist study
Presentations: Herz dyskinesia and Exenatide Study
Article for Week 8: Smith (motor control) and Rosas (Brain cortex) papers

Week 8: Feb 27

Clinical: McKnight Brain Institute (8-9am)
Lecture: Huntington's Disease
Presentation: fMRI and Huntington's disease
Article for Week 9: Cerebellar tremor and Essential tremor neuroimaging

Week 9: Mar 13

Clinical: McKnight Brain Institute (8-9am)
Tremor (Cerebellar Tremor, Essential Tremor, Psychogenic Tremor Only)
Presentations: Cerebellar tremor and Essential tremor neuroimaging
Article for Week 10: Dystonia DTI and PET studies by Eidelberg

Week 10: Mar 20

Clinical: McKnight Brain Institute (8-9am)
Lecture: Dystonia
Presentations: Dystonia DTI and PET studies by Eidelberg
Article for Week 11: fMRI and PET studies of Tourette's

Week 11: Mar 27

Lecture: Tics and Tourette syndrome
Presentations: fMRI and PET studies of Tourette's
Article for Week 12: Jacobi Lancet and Reetz Brain Atrophy

Week 12: April 3

Clinical: McKnight Brain Institute (8-9am)
Lecture: Cerebellum and Cerebellar Ataxia
Presentations: Cerebellum Ataxia and Neuroimaging
Article for Week 14: Plasticity papers

Week 13: April 10

Clinical: McKnight Brain Institute (8-9am)

Lecture: Plasticity Lecture

Presentations: Plasticity papers

Articles for Week 15: Plasticity and Motor Recovery 4 Presentations

Week 14 and 15: April 17 and 24 Class Project Presentations

Class votes and top 3 present May 1 to Movement Disorders Group in McKnight Brain Institute