



MAUD 209: Vestibular-Balance Assessment & Management

Medical Audiology Sciences Program
FHS-FM Division of Health Professions
American University of Beirut

Course Syllabus – Fall 2019

INSTRUCTOR INFORMATION:

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COURSE INFORMATION:

Days / Time: Monday 2:00 – 2:50 p.m., Wednesday, 11:15 a.m. – 1:00 p.m.
Place: MAS Laboratory
Level/Credits: Undergraduate / 3 semester hours
Prerequisites: MAUD 201; ORLG 230
Moodle Site: [MAUD 209 Moodle Site](#)

REQUIRED COURSE TEXTBOOK AND READINGS:

Readings:

Book chapters and articles selected from several sources will be used in this course, in lieu of a textbook. All reading materials will be accessible via the [MAUD 209 Moodle Site](#).

COURSE DESCRIPTION:

The goal of the course is to provide you with a concise overview of the theory behind vestibular and balance testing and practical ways to assess and manage patients who have vestibular/balance problems. As a foundation, the course begins with an overview of neural control of eye movements, a review of vestibular system anatomy and physiology, and a synopsis of vestibular impairment. The remainder of the course follows the same thought processes used when approaching a patient who comes to you with a complaint of “dizziness”. First, we discuss the importance of pretest procedures (case history, eye movement exam and otoscopy). Then, we cover how to perform and interpret vestibular and balance tests, to include: videonystagmography (VNG), computerized dynamic posturography (CDP), vestibular evoked myogenic potentials (VEMP), rotational testing and video head impulse test (vHIT). You will learn how to identify whether or not the vestibular system is involved and, if so, determine the possible location of dysfunction. Finally, we will outline management of vestibular/balance disorders. The course ends with each student presenting a common vestibular/balance disorder. The content of the presentation should demonstrate the student’s integration of course information.

COURSE FORMAT:

MAUD 209 will be taught in a traditional format, with classroom lectures given on a weekly basis. Lectures will be enhanced through models, demonstrations, activities, and the use of audiovisual supporting materials.

STUDENT LEARNING OBJECTIVES/OUTCOMES:

1. Demonstrates a practical understanding of the purpose, characteristics, and general pathways of the ocular motor systems.
2. Demonstrates a working knowledge of the anatomy and physiology of the peripheral and central vestibular system.
3. Understands the value of a thorough case history.
4. Demonstrates an understand of theoretical aspects and procedures involved in videonystagmography (VNG) assessment, including ocular motor tests, gaze test, spontaneous nystagmus test, positional/position tests, and caloric tests.
5. Able to correlate bedside tests with diagnostic tests of vestibular and balance function.
6. Shows a working knowledge of the theoretical aspects and procedures involved in vestibular-evoked myogenic potential (VEMP) testing, computerized dynamic posturography (CDP), and video head impulse test (vHIT).
7. Demonstrates ability to differentiate between vestibular and non-vestibular diseases / deficits.
8. Shows a working knowledge of treatment options for dizzy patients.
9. Able to analyze case history information and interpret clinical test results to classify patients' responses/symptoms into vestibular and non-vestibular categories.
10. Demonstrates oral and written communication skills (class participation and project).

ASSESSMENT METHODS AND GRADING CRITERIA:

The table below summarizes the ways in which your learning will be assessed throughout this course. Specifically, the table lists the assessment methods, along with the percentage contributed to the final grade. A description of each assessment method is provided in the paragraphs that follow the table.

ASSESSMENTS	% OF GRADE	LINKED TO OBJECTIVE
Exam 1	15%	1 - 2
Exam 2	25%	3 - 7, 9
Final Exam (<i>Cumulative</i>)	30%	1 - 9
Project	20%	3 – 10
Participation/Professionalism	10%	10
TOTAL	100%	

N.B: Passing grade for this course is 60

Exams:

Three exams will be given during the semester: Exam 1 (15% of grade), Exam 2 (25% of grade) and Final Exam (30% of grade). Exams will consist of multiple choice, true/false, short answer and/or case interpretation questions. Students will be given 50 minutes to complete Exams 1 and 2, and 90 minutes to complete the Final Exam. Please note that the Final Exam will be cumulative.

Project:

At the beginning of the semester, you will be assigned a disorder/condition that may affect the balance system. Throughout the semester, you will research the disorder/condition and prepare a **15-minute PowerPoint presentation (PPT)** that you will give at the end of the semester. The following sections must be included in your slides:

1. Definition and site of lesion/disorder
2. Epidemiology (prevalence, age, gender, ear affected, race, geographic location, etc.)
3. Typical pre-test results (case history, eye movement exam, otoscopy)
4. Typical audiologic test results (pure tone and speech audiometry, immittance, OAE, ABR)
5. Typical vestibular and balance test results (ocular motor, spontaneous nystagmus, gaze, VAST, positioning, positional, head shake, VIN, caloric, CDP, VEMP, rotary chair, and vHIT)
6. Management options
7. References (list of 5 – 10 references in APA format)

It is extremely important to work on the project throughout the semester. The most efficient manner is to work on sections 1, 2, and 4 during the first four weeks of the semester. Then, complete the remaining sections after each topic has been presented in class. The project is worth 20% of your grade, divided as follows: thorough and accurate content (10%), slides (5%), and oral presentation (5%). ***All students must submit the final version of his/her PPT slides by Friday, November 22, 2019; the submitted version must be used during the scheduled presentation.***

Participation and Professionalism:

Active participation and professionalism are valued in this course. Points can be earned if you demonstrate the following:

- Interest in learning the course material
- Responsibility for your own learning
- Active classroom engagement (answer or ask questions)
- Preparation (e.g., review of previous information / familiarity with assigned reading)
- Visits to the course website in *Moodle* at least 1 time per week
- Communication with your instructor when needed (in person, via e-mail or telephone)
- Treatment of your classmates/instructor with respect and tolerance, understanding that everyone learns differently and may make mistakes (including the instructor).

OTHER IMPORTANT INFORMATION:

Attendance:

Attendance will be taken in this course. You are expected to attend and participate in classroom activities. If you miss a class, it is your responsibility to make up for the material missed and inquire about any announcements made. As per [AUB General Regulations](#), students who miss more than one-fifth of the sessions of any course in the first ten weeks of the semester are dropped from the course.

Missed Exams:

All exams must be completed on the date specified. *(The only delays that will be considered by the instructor are for documented illness, death in the family, and personal/family emergency).*

Moodle Support:

Moodle will be used in this course. Students should check the *Moodle* course site at least once per week for announcements, guidelines, resources, and assessment instructions/due dates. Should you have any difficulty with *Moodle*, you can consult [Moodle for Students](#).

Cell Phones:

The use of cell phones is **prohibited in the classroom**, even when set to vibrate. Cell phones are extremely disruptive to your classmates and to the instructor. Please make a point to turn off your cell phone before entering class. **All cell phones must be placed on your desk face down during class.**

Students with Disabilities:

AUB strives to make learning experiences accessible for all. If you anticipate or experience academic barriers due to a disability (such as ADHD, learning difficulties, mental health conditions, chronic or temporary medical conditions), please do not hesitate to inform the Accessible Education Office. In order to ensure that you receive the support you need and to facilitate a smooth accommodations process, you must register with the Accessible Education Office (AEO) as soon as possible: accessibility@aub.edu.lb; +961-1-350000, x3246; West Hall, 314.

Student Code of Conduct:

Any dishonesty related to academic work or records constitutes academic misconduct. Academic misconduct is a serious ethical violation and will not be tolerated. If you're in doubt about what constitutes plagiarism, ask your instructor because it is your responsibility to know. The American University of Beirut has a strict anti-cheating and anti-plagiarism policy. Penalties include failing marks on the assignment in question, suspension or expulsion from University and a permanent mention of the disciplinary action in the student's records. Penalties may range from loss of credit for a particular assignment to dismissal from the University. Kindly, review AUB's [Student Code of Conduct](#) about plagiarism.

Non-Discrimination – Title IX - AUB:

AUB is committed to facilitating a campus free of all forms of discrimination including sex/gender-based harassment prohibited by Title IX. The University's non-discrimination policy applies to, and protects, all students, faculty, and staff. If you think you have experienced discrimination or harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the

attention of the University's Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find information and contacts at www.aub.edu.lb/titleix. To report an incident, contact the University's Title IX Coordinator Ms. Mitra Tauk at 01-350000 ext. 2514, or titleix@aub.edu.lb. An anonymous report may be submitted online via EthicsPoint at www.aub.ethicspoint.com.

COURSE SCHEDULE:

Day	Date	Topic(s)	Reading(s)	Course Objectives
Mon	Sept 2	NA	NO CLASS – AUB Opening Ceremony	N/A
Wed	Sept 4	Syllabus & Neural Control of Eye Movements	MAUD 209 Syllabus	1
Mon	Sept 9	Nystagmus Types	McCaslin D.L. (2013). Neural Control of Eye Movements. In <i>Electonystagmography and Videonystagmography</i> (pp 1-14).	
Wed	Sept 11	Review of Vestibular System Anatomy & Physiology	McCaslin D.L. (2013). Anatomy and Physiology of the Vestibular System. In <i>Electonystagmography and Videonystagmography</i> (pp 15-37).	2
Mon	Sept 16		MAUD 201 SLIDES: Peripheral and Central Vestibular System	
Wed	Sept 18	Peripheral Vestibular Impairment & Central Compensation	McCaslin D.L. (2013). Peripheral Vestibular Impairment and Central Nervous System Compensation. In <i>Electonystagmography and Videonystagmography</i> (pp 39-47).	1 - 2
Mon	Sept 23	EXAM 1		
Wed	Sept 25	Pretest Procedures	McCaslin D.L. (2013). Pretest Procedures for VNG. In <i>Electonystagmography and Videonystagmography</i> (pp 53-72).	3
Mon	Sept 30	Ocular Motor Studies	Ruckenstein M.J, Davis S. (2015). Ocular Motor Studies. In <i>Rapid Interpretation of Balance Function Tests</i> (pp 27-36).	1, 4
Wed	Oct 2			
Mon	Oct 7	Positioning Testing & VAST	McCaslin D.L. (2013). Positional and Positioning Testing. In <i>Electonystagmography and Videonystagmography</i> (pp 105-146).	4
Wed	Oct 9			

Day	Date	Topic(s)	Reading(s)	Course Objectives
Mon	Oct 14	Caloric Testing	McCaslin D.L. (2013). The Caloric Test. In <i>Electronystagmography and Videonystagmography</i> (pp 147-174).	4
Wed	Oct 16			
Mon	Oct 21	Bedside Assessment	Jacobson G.P., Shepard, N.T (2008). The Bedside Assessment of the Vestibular System. In <i>Balance Function Assessment and Management</i> (pp 63-97).	5
Wed	Oct 23	Case Studies		9
Mon	Oct 28	EXAM 2		
Wed	Oct 30	Postural Control Studies	Ruckenstein M.J, Davis S. (2015). Postural Control Studies. In <i>Rapid Interpretation of Balance Function Tests</i> (pp 111-130).	8, 9
Mon	Nov 4			
Wed	Nov 6	Otolithic Function	Ruckenstein M.J, Davis S. (2015). Tests of Otolithic Function. In <i>Rapid Interpretation of Balance Function Tests</i> (pp 131-143). https://pdfs.semanticscholar.org/dbb7/b1c19d6b129f9e318df04a26efaff5e75ffa.pdf http://www.canadianaudiologist.ca/update-on-cvemp-and-ovemp-testing-in-superior-canal-dehiscence/	6, 9
Mon	Nov 11			
Wed	Nov 13		CATCH-UP SESSION	6, 9
Mon	Nov 18	vHIT	Curthoys I.S., Manzari L. (2017) <i>Clinical application of the head impulse test of semicircular canal function</i> , Hearing, Balance and Communication, 15:3, 113-126. http://canadianaudiologist.ca/video-head-impulse-test-feature/ https://otometrics.natus.com/products-services/vhit	6, 9
Wed	Nov 20	Management	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3259492/	8

Day	Date	Topic(s)	Reading(s)	Course Objectives
Fri	Nov 22	ONLINE SUBMISSION OF PRESENTATION		
Mon	Nov 25	Student Presentations		3 – 10
Wed	Nov 27	Student Presentations (<i>continued</i>)		3 – 10
Mon	Dec 2	Student Presentations (<i>continued</i>)		3 – 10
TBD		FINAL EXAM		