MOTOR CONTROL AND LEARNING
KIN 312
Fall 2021
TR 10:00 – 11:15 am
Remote instruction

Instructor	**Gabriele Wulf, PhD** **UNLV Distinguished Professor**
Office	BHS 344
E-mail	gabriele.wulf@unlv.edu
Websites	https://faculty.unlv.edu/wpmu/gwulf/
Office hours	By appointment

Description   The course is designed to provide students with a basic understanding of motor control, performance, and learning. Topics include neuroscience of motor control, memory systems, processing of information, learning theories, and instructional and training procedures to optimize learning (e.g., feedback, practice organization, learning through observation). We will also discuss the role of the performers' focus of attention and motivational influences on learning, including performer confidence and autonomy.

Textbooks   Schmidt, R.A., & Lee, T.D. (2020). *Motor learning and performance* (6th ed.), Champaign, IL: Human Kinetics.

or:

Schmidt, R. A., Lee, T. D., Winstein, C. J., Wulf, G., & Zelaznik, H. N. (2019). *Motor control and learning: A behavioral emphasis* (6th ed.), Champaign, IL: Human Kinetics.

Course objectives and learning outcomes

Upon completion of the course, students will:

1. understand the basic concepts and terminology related to motor control and learning
2. understand the role of the central nervous system, information processing, and memory in the control and learning of movements
3. possess an understanding of research methodology for studying motor learning
4. understand how the performance and learning of motor skills is influenced by various factors, including different practice conditions and instructional methods
5. appreciate the influence of different types of instructions and feedback, movement observation, practice variability, attentional focus, and social-cognitive factors, and explain how they affect learning
6. be able to apply motor learning principles and current research findings to his or her field of interest.

Course requirements

Students are expected to:

1. Attend WebEx meetings (Canvas: WebEx) at the beginning of each class period
2. Download the handout for each lecture (Canvas: Files)
3. Watch recorded lectures (Canvas: Panopto Recordings); a minimum 80% is required for a passing grade
4. Complete reading assignments

5. Complete a short quiz (Canvas: Quizzes) at the beginning of each of 20 lectures; 15 points can be earned for each quiz (300 points)
6. Complete 2 unit exams (2 x 200 points) and 1 comprehensive final exam (300 points) (Canvas: Quizzes)

Student evaluation

Final grades will be determined according to the following scale:

Grade scale (points):	1,000-930 = A	929-900 = A-
899-870 = B+	869-830 = B	829-800 = B-
799-770 = C+	769-730 = C	729-700 = C-
699-670 = D+	669-630 = D	629-600 = D-

Attendance

Consistent attendance is expected of all students. Attendance will be recorded based on your being logged into Canvas during regular class times.

Exams

All exams consist of multiple-choice questions. <u>There will be a time limit on exams</u>. <u>Leaving the Quiz page during the exam will result in an F grade (0 points) for that exam</u>. Exams will cover material from lectures, notes, and assigned readings.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Work policy, under Registration Policies, on the Academic Policies webpage,
https://catalog.unlv.edu/content.php?catoid=29&navoid=7326.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the Student Conduct Code, https://www.unlv.edu/studentconduct/student-conduct.

Copyright

The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject

you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional copyright policy information is available at https://www.unlv.edu/provost/copyright.

Disability Resource Center (DRC)

The UNLV Disability Resource Center (SSC-A, Room 143, https://www.unlv.edu/drc, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to injury, disability, or due to pregnancy should contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours, so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Identity Verification in Online Courses

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the Student Academic Misconduct Policy, https://www.unlv.edu/studentconduct/misconduct/policy, which states that "acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment" is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the Acceptable Use of Computing and Information Technology Resources Policy, https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy, which prohibits sharing university accounts with other persons without authorization.

Diversity

As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to aspiring to maintain a Campus environment that values that diversity. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see University Statements and Compliance, https://www.unlv.edu/about/statements-compliance.

E-mails

https://marktomforde.com/academic/undergraduates/Email-Etiquette.html

You are encouraged to also visit the following websites:

Academic Policies
https://catalog.unlv.edu/content.php?catoid=29&navoid=7326

Student Services & Activities
https://catalog.unlv.edu/content.php?catoid=29&navoid=7331

University Policies
https://catalog.unlv.edu/content.php?catoid=29&navoid=7332

University Community & Libraries
  https://catalog.unlv.edu/content.php?catoid=29&navoid=7322

Course schedule

Date	Topic	Text reference	
		Schmidt & Lee (2020)	*Schmidt et al. (2019)*
August 24	Introduction		
August 26	Introduction to motor control and learning: History, skill classifications, stages of learning	p. 1-10, p. 203-210	Chapter 1, p. 23-26, p. 375-377
August 31	Neuroscience of motor performance and learning		
September 2	Memory systems: Short-term sensory store, short-term memory	p. 40-43	p. 88-93
September 7	Memory systems: Long-term memory	p. 40-43	p. 88-93
September 9	Stages of information processing	p. 21-40	p. 57-59
	Detecting relevant information: Stimulus identification	p. 21-40, Chapter 4	p. 59-64
September 14	Making a decision: Response selection	p. 21-40, p. 60-62	p. 64-75
	Planning the movement: Response programming	p. 102-115, p. 202-203	p. 75-78, p. 179-196
September 16	Learning styles? Motor learning: How do we measure it?	p. 10-17, Chapter 8	p. 28-39, p. 284-293
September 21	Motor learning theories	p. 115-127, p. 236-239	p. 197-209, p. 377-385, p. 388-390
September 23	*EXAM 1*		
September 28	Contextual interference: Random versus blocked practice	p. 239-247	p. 328-338
September 30	Feedback: Informational role	Chapter 11	p. 341-356
October 5	Feedback: Motivational role	Chapter 11, p. 226-227	p. 364-366, p. 369-372
October 7	Learning through observation	p. 228	p. 315-318
October 12	Autonomy support: Control over practice conditions	p. 226	p. 313-315, p. 364-365
October 14	Autonomy support: Giving choices		p. 313-315
October 19	Enhancing confidence		p. 309-312
October 21	Implicit learning		

	Review		
October 26	*EXAM 2*		
October 28	Social-cognitive-affective-motor behavior Choking under pressure	p. 66-67	
	Attention and motor learning: External versus internal focus		p. 119-124 p. 305-309
November 2	Attention and motor learning: Feedback, expertise	p. 227-228	p. 119-124
November 4	Attention and motor learning: Movement disorders, efficiency		p. 366-369, p. 372
November 9	Stereotype threat Abilities and Expertise	p. 152-156	
November 11	VETERANS DAY RECESS		
November 16	Conceptions of ability		p. 312-313
November 18	The OPTIMAL theory of motor learning		
November 23	Review		
November 25	THANKSGIVING DAY RECESS		p. 395-399
Nov. 30, Dec. 2	Study Week		
Dec. 7, 10:10am	*FINAL EXAM (COMPREHENSIVE)*		