Motor Learning and Performance

**Lecture Instructor:** Matt Miller, Ph.D.

**Email:** mwm0024@auburn.edu (I usually respond to email 8 AM – 3 PM on weekdays)

**Virtual Office Hours (when I will be in my Zoom Office Hours Meeting):**

Wednesday 12 – 2 PM and by appointment (Meeting ID: 858 7755 7935,

Passcode: KINE164)

**Office Location**:Kinesiology Building 164

**Meeting:** Tuesday and Thursday 11:00 AM – 12:15 PM, SAC 257

**Course Number:** KINE 3650-002

**Credit Hours:** 3.000

**Prerequisites:** None

**Texts/Resources:** e-Book (see information on Canvas)

**Course Description:** Understanding of the basic psychological processes in learning and control of skillful human movement.

**Learning Outcomes:** Students will be able understand to the psychological and neural basis of motor learning and performance as well as apply this knowledge to facilitate learning and performance.

**Learning Objectives:** Students will gain an understanding of how movements are performed and learned through lectures and textbook readings. Students will accrue an understanding of how knowledge about movement performance and learning is established by participating in research studies and/or reading primary research articles as well as engaging in motor learning and performance experimental tasks and analyzing task data.

**Course Content (*DATES ARE SUBJECT TO CHANGE*)**

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Topic | Readings | Assessments |
| 08/15 – 19 | Introduction | Chapter 1 |  |
| 08/22 – 26 | Processing Information and Making Decisions | Chapter 2 | 08/21: MotorLab- Hick’s Law-Choice Reaction Time  08/23: Chapter 1 Quiz |
| 08/29 – 09/02 | Processing Information and Making Decisions (continued) |  | 09/01: MotorLab-Probe Reaction Time |
| 09/05 – 09 | Attention and Performance | Chapter 3 | 09/06: Chapter 2 Quiz  09/06: MotorLab- Psychological Refractory Period |
| 09/12 – 16 | Sensory Contributions to Skilled Performance | Chapter 4 | 09/13: Chapter 3 Quiz  09/16: Must Have At Least 2 Credits Total of Experience of Human Research Participants |
| 09/19 – 23 | Motor Programs | Chapter 5 | 09/20: Chapter 4 Quiz |
| 09/26 – 30 | Review for Midterm Exam |  | 09/27: Chapter 5 Quiz  09/29: Midterm Exam |
| 10/03 – 07  No Class 10/06 | Principles of Speed, Accuracy, and Coordination | Chapter 6 | 10/02: MotorLab-Fitts’ Law-Speed Accuracy |
| 10/10 – 14 | Principles of Speed, Accuracy, and Coordination (continued)  Performance of Complex Movements | Chapter 7 | 10/13: Chapter 6 Quiz |
| 10/17 – 21 | Performance of Complex Movements (continued)  Introduction to Motor Learning | Chapter 8 | 10/20: Chapter 7 Quiz  10/21: Must Have At Least 4 Credits Total of Experience of Human Research Participants |
| 10/24 – 28 | Introduction to Motor Learning (continued)  The Motor Learning Process | Chapter 9 | 10/27: Chapter 8 Quiz |
| 10/31 – 11/04 | The Motor Learning Process (continued) |  |  |
| 11/07 – 11 | Organizing and Scheduling Practice | Chapter 10 | 11/08: Chapter 9 Quiz |
| 11/14 – 18 | Augmented Feedback | Chapter 11 | 11/13: MotorLab- Contextual Interference  11/15: Chapter 10 Quiz |
| 11/21 – 25  No Class |  |  |  |
| 11/28 – 12/02 | Review for Final |  | 11/29: Chapter 11 Quiz  12/02: Must Have At Least 6 Credits Total of Experience of Human Research Participants |
| 12/05 – 09 | Finals |  | Final Exam: TBD |

**Assessments:**

Quizzes

There will be 11 quizzes (no unannounced quizzes), one for each chapter/unit. All quizzes will be completed through Canvas in class, so ensure that you bring a device, such as a laptop, tablet, or smartphone, that you can use to complete a quiz when we have one. Attendance will be taken on the day of a quiz, and I will only accept quiz submissions from students who are present, meaning that you may not attempt to take the quiz from outside the classroom. Quizzes are closed source, meaning that you may not use anything other than what you have stored in your brain to complete them. Quizzes will be weighted based on the number of questions they contain, meaning that if Quiz 1 contains 10 questions and Quiz 2 contains 15 questions, then they will be worth 10 and 15 points, respectively. The time limit for the quizzes will be 1.5 minutes x the number of questions on the quiz, meaning that if Quiz 1 has 10 questions, then you will have 15 minutes to complete it. If you are late/absent from class the day on which a quiz is occurring for ‘unexcused reasons,’ then you may not have the opportunity to complete the quiz and, thus, could receive a grade of zero. If you have an excused lateness or absence, then you will be able to take a make-up quiz.

Exams

There will a midterm and final exam, which will ask questions related to material covered after the midterm. The exams will be completed through Canvas in class, so ensure that you bring a device, such as a laptop, tablet, or smartphone, that you can use to complete an exam when we have one. Attendance will be taken on the day of an exam, and I will only accept exam submissions from students who are present, meaning that you may not attempt to take the exam from outside the classroom. Exams are closed source, meaning that you may not use anything other than what you have stored in your brain to complete them. Exams will be weighted based on the number of questions they contain, meaning that if the midterm contains 50 questions and the final contains 55 questions, then they will be worth 50 and 55 points, respectively. You will have 75 minutes to complete the midterm, and 2 hours and 30 minutes to complete the final. If you are late/absent from class the day on which an exam is occurring for ‘unexcused reasons,’ then you may not have the opportunity to complete the exam and, thus, could receive a grade of zero. If you have an excused lateness or absence, then you will be able to take a make-up exam.

Experience of Human Research Participants

The only way that research in motor learning and performance moves forward is by the voluntary participation of human research participants. Participants are key stakeholders in the research process who sacrificed their time and, in some cases, put their health/safety at varying degrees of risk to advance scientific knowledge. As such, a key part of this lab is to give students a deeper appreciation of the value and experience of human research participants. For our lab, this understanding of the human research experience can be gained in two ways: (1) active participation in research and/or (2) reading about published experiments and writing papers explaining the experience of participants in those studies. Each research participation is worth a particular number of credits, and each paper is worth up to 2 credits. You must accumulate 6 credits. So, you could, for example, earn your 6 credits by participating in 4 credits of research and writing 1 paper (assuming you earned all 2 credits for the paper). Your grade will be based on how many credits you complete (e.g., if you complete 3 credits, then you will receive a 50%). You must complete *at least* 2 credits every 5 weeks. If you complete fewer than 2 credits for a 5-week period, you may not be able to make up the missed credits. (See the course content section of this syllabus for dates when credits are due.)

1. Participation in research
   1. You should have received an email from the College of Education’s SONA system, which coordinates human subjects research. PLEASE MAKE SURE THAT YOU ARE ON THE COLLEGE OF EDUCATION’S SONA SYSTEM (The Department of Psychology also has a separate SONA system.) The email contained a temporary password, which you can use to log on to SONA: <https://auburn-education.sona-systems.com/Default.aspx?ReturnUrl=%2f> . If you cannot locate this email, please visit the SONA website (see link above) and request a new password. If you are continuing to have difficulty logging on to SONA, please contact the SONA administrator at [sona@auburn.edu](mailto:sona@auburn.edu) .
   2. Once logged on to SONA, you can sign up for studies worth varying amounts of credit.
   3. There are also studies that are being conducted that are not posted on SONA. You may complete these studies. If you complete one of these studies, please have the experimenter email me reporting: (i) your name, (ii) the number of hours and minutes you spent participating in their study, and (iii) the date(s) you participated in their study. Each half-hour of participation is equal to 1 credit.
   4. If a study is posted on SONA, you must register for it through SONA. That is, you *cannot* have the researcher email me.
   5. You cannot use research participation for more than one course. That is, you cannot participate in research and apply the credit to this course and another course. Make certain you choose to assign the SONA credits to this course (KINE 3650).
   6. All six of your participation credits must come from laboratory-based studies (as opposed to online surveys).
2. Write a brief research paper that describes the research methods of a primary research article (ask your lab instructor if you are unsure whether an article is ‘primary’) published in one of the following journals: [*Human Movement Science*](https://www.journals.elsevier.com/human-movement-science/); [*Journal of Experimental Psychology: Human Perception & Performance*](http://www.apa.org/pubs/journals/xhp/); [*Journal of Motor Behavior*](http://www.tandfonline.com/loi/vjmb20); [*Journal of Sport and Exercise Psychology*](http://journals.humankinetics.com/journal/jsep); [*Psychology of Sport and Exercise*](https://www.journals.elsevier.com/psychology-of-sport-and-exercise/); [*Sport, Exercise, and Performance Psychology*](http://www.apa.org/pubs/journals/spy/). In your paper, you must clearly explain the following: (1) What was the goal of the research? (2) Who were the participants and how were they selected? (3) What were the experimental methods (make sure that you focus on the participants’ experience with the methods (e.g., How long were participants in the lab? Were any of the procedures invasive? Did any of the procedures place the participants at risk?) (4) Do you believe the benefits of the study (the information gained from the study) outweighed the costs to the participants (the time and effort put forth by participants as well as the risk they took by participating). Each of the four requirements in the paper is worth 0.5 credits. So, if you successfully meet all four requirements, then you will earn 2 credits.

MotorLab Data Upload

There will be five MotorLab activities that you must complete. You must upload the .txt file available at the end of the activity to the appropriate assignment on Canvas. The due dates for the uploads can be found on Canvas and in the course content section of the syllabus.

**Grading:**

Assignments contribute as follows to final class grade:

Quizzes 50%

Exams 35%

Experience of Human Research Participants 10%

MotorLab Activities 5%

Percentages will be associated with the following letter grades:

A: 90.0% ≤

B: 80.0% ≤

C: 70.0% ≤

D: 60.0% ≤

F: 60.0% >

Students may withdraw without grade penalty until the 15th class day, and until mid-semester (although a W will appear on the student’s transcript if the student withdraws between the 16th and 36th class day).

Students who withdraw from the course between the 6th class day and the 15th class day will pay a course drop fee of $100.

**Class Policies:**

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: Illness of the student or serious illness of a member of the student’s immediate family, death of a member of the student’s immediate family, trips for student organizations sponsored by an academic unit, trips for University classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance and religious holidays. Students who wish to have an excused absence from this class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required.

Make-Up Policy: Arrangements to make up missed major examination (e.g. hour exams, mid-term exams) due to properly authorized excused absences. Except in unusual circumstances, such as continued absence of the student or the advent of University holidays, a make-up exam will take place within two weeks from the time the student initiates arrangements for it. Except in extraordinary circumstance, no make-up exams will be arranged during the last three days before the final exam period begins. The format of the make-up exam will be (as specific by the instructor).

Academic Honesty Policy: All portions of the Auburn University Student Academic Honesty code (Title XII) found in the [Student Policy eHandbook](http://www.auburn.edu/student_info/student_policies/)will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to make an individual appointment with the instructor during the first week of classes – or as soon as possible if accommodations are needed immediately. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

Class Communication: Communication will occur via Canvas. If you are new to Canvas, please see this link to a 7 minute: [“Getting Started with Canvas” video (and transcript)](https://vimeo.com/74677642). Communication via Canvas will appear in your Auburn email and on Canvas. You are responsible for regularly checking class emails and Canvas.

Emergency Contingency: If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

Professionalism: The Auburn University Classroom Behavior Policy is strictly followed in the course; please refer to the [Student Policy eHandbook](http://www.auburn.edu/student_info/student_policies/) for details of this policy.

**Mental Health:**

If you are experiencing stress that feels unmanageable (personal or academic) during the semester, Auburn University’s Student Counseling & Psychological Services (SCPS) offers a variety of services to support you. The mission of SCPS is to provide comprehensive preventative and clinical mental health services to enhance the psychological well-being of individual students, as well as the broader campus culture. As an instructor, I am available to speak with you regarding stresses related to your work in this course, and I can assist in connecting you with the SCPS network of care. You can schedule an appointment yourself with the SCPS by calling [(334)844-5123](tel:+13348445123) or by stopping by their offices on the bottom floor of Haley Center or the second floor of the [Auburn University Medical Clinic.](http://auburn.edu/map/?id=150)

If you or someone you know needs to speak with a professional counselor immediately, the SCPS offers counseling during both summer term as well as the traditional academic year. Students may come directly to the SCPS and be seen by the counselor on call, or you may call [334.844.5123](tel:+13348445123) to speak with someone. Additional information can be found at [http://wp.auburn.edu/scs](http://wp.auburn.edu/scs/).