San José State University
CHHS/Kinesiology
KIN 166-06, Motor Learning, Spring 2022

Course and Contact Information

Instructor:	Masaaki Tsuruike, PhD, ATC
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Office Hours:	Mon: 1:30 - 2:30 PM Wed: 2:00 – 2:40 PM or by appointment and email
Class Days/Time:	Online synchronous class Mon and Wed: 9:00-9:50 AM
Classroom:	Fully Virtual Class with Synchronous Component (On Line) until February 9, Wednesday. SPX 160 from February 14, Monday
Prerequisites:	KIN 070 for major/minors only or instructor consent; BIOL 066 with a grade of 'C-' or better

Course Format

Course materials, such as syllabus, handouts, notes, assignment instructions, etc. can be found on the Canvas learning management system used at SJSU. You are responsible for changing the settings so that e-mail that is sent to your Canvas account is forwarded to your regularly used email account. Announcements will be posted on Canvas and should be checked on a regular basis; students may choose to be alerted via text or email that announcements have been made.

Course Description

This course covers: concepts, principles, and theories of motor learning with application to movement and physical activity. Kin 166 introduces concepts of learning, remembering, and performing of motor skills.

Kinesiology Undergraduate Program Learning Outcomes (UPLO)

(Key principles: critical understanding and application of research and scholarship in the field of kinesiology; communication skills; movement competence; sustainability; diversity and social justice) Upon completion of a Bachelor of Science degree program in the Department of Kinesiology students will be able to:

- Explain, identify, and/or demonstrate the theoretical and/or scientific principles that can be used to address issues or problems in the sub-disciplines in kinesiology (UPLO1)
- Effectively communicate in writing (clear, concise and coherent) on topics in kinesiology (UPLO2)

- Effectively communicate through an oral presentation (clear, concise and coherent) on topics in kinesiology (UPLO3)
- Utilize their experiences across a variety of health related and skill-based activities to inform their scholarship and practice in the sub disciplines in kinesiology (PLO4)
- Identify and analyze social justice and equity issues related to kinesiology for diverse populations (UPLO5)

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:
- Explain in writing on a narrowly focused and significant topic identified in the scholarly discipline of motor learning (CLO1)
  - Specifically, this outcome will be met through the development of an essay integrating primary and scholarly source materials to provide a deep understanding of the complexity of human performance and information processing. Through critical analyses and interpretation strategies you will learn to recognize theoretical and scientific knowledge in the motor learning literature.
- Explain orally on a focus related to a significant topic narrowly identified in the scholarly discipline of motor learning (CLO2)
  - Specifically, this outcome will be met through the group presentation made on the day of lab class; as well, oral contributions will be required throughout group activities.
- Solve hypothetical problems by making applications of motor learning theoretical and empirical knowledge to practice as teachers, developers, managers, and rehabilitation specialists (CLO3)
  - Specifically, this outcome will be demonstrated by responding to reflective items presented each week in the Motor Learning Laboratory Works and through the lab weekly assignments. These items will be discussed during each laboratory session. The final lab work will be measured at the end of the semester. Feedback will be provided each week on short assignments assigned during the lab session and due by the opening of lab in the following week.
- Describe concepts, principles and theories of motor learning in the context of kinesiology (CLO4)
  - Specifically, two regularly scheduled exams will measure through writing assignments your understanding of motor learning concepts, principles, and theories. Further, reflections required in the Motor Learning Lab Works are expected to assist students' integration of motor learning into the field of kinesiology.
- Explain how recognizing bias in science is a form of social justice (CLO5)
  - Specifically, the idea of social justice will be measured by an item on one of two exams.
- Demonstrate use of technology integrated into motor learning (CLO6)
  - Specifically, this outcome will be met by activities where you will be asked to use scholarly information found by searching in the scholarly databases; as well you will be asked to use computers of some type during every session of the laboratory to conduct, analyze, and present results of scientific data.

Required Readings

Textbook

Magill, R., & Anderson, D. (2021). Motor Learning and Control. Concepts and Applications (12th Edition). NY: McGraw Hill. ISBN 9781260240702.

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five (45) hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Each student will be required to the following activities:
1. Exam 1
2. Exam 2
3. Exam 3
4. Final Exam
5. Laboratory Grade (includes Motor Learning Laboratory Works)
   1) Submission of weekly lab assignments
   2) Submission of lab works
   3) Presentation of group project

Grading Information

- Exam 1: 15%
- Exam 2: 15%
- Exam 3: 15%
- Final Exam: 15%
- Lab Assignments: 40%

Determination of Grades

The course is based on a percentage scale (100%). The breakdown is as follows:

A+: 100-97	A: 96.99-93%	A-: 92.99-90%	
B+: 89.99-87%	B: 86.99-83%	B-: 82.99-80%	
C+: 79.99-77%	C: 76.99-73%	C-: 72.99-70%	
D+: 69.99-67%	D: 66.99-63%	D-: 62.99-60%	F: <59.99%

Exam1: <u>February 16 Wednesday</u>

Exam2: <u>March 14 Monday</u>

Exam3: <u>April 18 Monday</u>

Exams include content discussed in class, on-line, in textbook and other assigned readings (such as discussion threads) and from the motor learning laboratories. Exams consist of essay items testing your motor learning knowledge. Exams 1 will be constructed to test short term information, while the final examination will be constructed to be comprehensive. The 1st, 2nd, and 3rd exams will be administered for the first 50 min during the time of the regularly scheduled lecture class. **The final exam will be administered through Canvas on May 20, Friday from 7:15-9:30 am**. No exceptions will be made from taking exams on the assigned test dates. Times and dates will be changed only for serious and compelling reasons.

Lab Assignments:

<u>A completed electronic Motor Learning Laboratory</u> is required due on **May 9, 2022, no later than 11:59 pm**. Completed means you have responded to all parts of the lab for each week, including: the responses to questions, data, charts, and reflections. You are expected to participate regularly in laboratories on the day assigned by the schedule of classes. Lab reflections will be assigned each week but should also be accumulated in the Motor Learning Lab Works and submitted at the end of the semester. Late Motor Learning Lab Works will not be accepted except for serious and compelling reasons. Within each lab section students will be assigned to a lab group for working cooperatively throughout the semester; as well, the group will create a project and an oral presentation on a topic assigned by the instructor. Technology is required for the presentation. Groups will be assigned; groups may communicate virtually through Google docs, Zoom, and in person to complete group assignments. A draft of the grading rubric for the Motor Learning Lab Works is available at the end of the electronic shell provided.

Final Declaration

All exams must be taken, and all assignments must be submitted; a missing exam or lab works will result in 0 points for that assignment. An in class final exam will be given on **Friday, May 20 from 7:15 to 9:30 am**.   Please organize your calendars now.

Make-up exams are permitted only for illness and emergency. The student is responsible for notifying the instructor at the earliest possible time. In most cases, exams must be completed before the next class meeting. All requests for make-up exams will be evaluated on an individual basis.

Library Liaison

Adriana Poo is our library liaison. She can be reached at: adriana.poo@sjsu.edu or by phone (408) 808-2019.

Classroom Protocol

Students are expected to be courteous during class. Any student engaging in disruptive behavior will be asked to leave the Zoom. This includes regularly arriving more than 10 minutes late to lecture and lab classes. The use of anything that beeps or vibrates during class is disruptive and will not be tolerated. Please silence your phone. If you are caught using a phone for unrelated activities (even silently, e.g., texting, shopping), you may be asked to leave the classroom.

University Policies (Required)

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at http://www.sjsu.edu/gup/syllabusinfo/"

Calendar

Assignments and readings are due on the day assigned according to the calendar presented here. Any changes will be determined by class discussion and reflected on updated versions made available through Canvas. Pop quizzes are not announced on the schedule. White (or no) shading means the lecture class is online; blue shading means the lecture class is live and then posted as a recording.

KIN 166, Motor Learning, Spring 2022

Tentative Course Schedule (Subject to change with advance notice) 9:00 am-9:50 am

Week	Date	Topics	Reading
1	Jan 26	Introduction to Motor Learning	Chapter 4
2	Jan 31, Feb 2	Neuromotor Basis for Motor Control 1 Sensory neurons Motor neurons in the spinal code Central nervous system Cerebral cortex Frontal lobe Pyramidal cells Primary motor cortex Premotor and supplementary motor area Parietal lobe Neuromotor Basis for Motor Control 2 Basal Ganglia Diencephalon Cerebellum Brainstem Limbic system	Chapter 4
3	Feb 7, 9	Neuromotor Basis for Motor Control 3 Spinal Cord Sensory Neural Pathways Motor Neural Pathways The Neural Control of Voluntary Movement Corticospinal (pyramidal) Track vs. Extrapyramidal track Motor unit The neural control of voluntary movement	Chapter 4
4	Feb 14, **16**	The Measurement of Motor Performance Reaction, movement, and response time Error measures *Review for Exam 1on Feb14* **Exam 1 (9:00-9:50) on Feb 16**	Chapter 2
5	Feb 21, 23	Motor Abilities General vs specificity of motor ability Balance Perceptual motor abilities and physical proficiency ability Motor Control Theories Open- and closed-loop control system	Chapter 3 Chapter 5
6	Feb 28, Mar 2	Motor program vs generalized motor program Schmidt's schema theory	Chapter 5
7	Mar 7, 9	Sensory Components of Motor Control	Chapter 6

Week	Date	Topics	Reading
		Proprioception and motor control Vision and motor control Central and peripheral vision Two visual systems for motor control *Review for Exam 2 on Mar 9*	
8	**Mar 14**, 16	**Exam 2 (9:00-9:50) on Mar 14** Performance and Motor Control Characteristics of Functional Skills Fitts' law Prehension Vision of the object and catching Tau and catching Locomotion	Chapter 7
9	Mar 21, 23	Vision of the object and catching Tau and catching Locomotion Action Preparation Hick's law Movement complexity Postural preparation	Chapter 8
10	*Mar 28, 30*	*Spring Recess*	
11	Apr 4, 6	Attention and Memory Central-resource capacity theories Kahneman's attention theory Multiple-resource theories Focusing attention Visual search and motor skill performance	Chapter 9
12	Apr 11, 13	Memory Components, Forgetting, and Strategies Working memory Long-term memory The causes of forgetting Strategies that enhance memory performance *Review for Exam 3 on Apr 13*	Chapter 10
13	**Apr 18**, 20	**Exam 3 (9:30-10:20) on Apr 18** Defining and Assessing Learning Improvement, consistency, stability, persistence, adaptability	Chapter 11
14	Apr 25, 27	The Stages of Learning Bernstein's description of the learning process Transfer of Learning Positive vs negative transfer Bilateral transfer Symmetric vs asymmetric transfer	Chapter 12 Chapter 13
15	May 2, 4	Demonstration and Verbal Instructions Augmented Feedback	Chapter 14 Chapter 15

Week	Date	Topics	Reading
16	May 9, 11	Practice Variability and Specificity The Amount and Distribution of Practice	Chapter 16 Chapter 17
17	May16	Whole and Part Practice *Review for Final Exam on May 16*	Chapter 18
	May 20	**Final Exam 7:15 am-9:30 AM**	