

San José State University  
College of Applied Sciences and Arts  
Department of Kinesiology

**Principles and Concepts of Advanced Motor Learning**

Spring 2015, Mondays, 4:00-6:45 pm, YuH 236  
Kin 266, Section 1

**Contact Information**

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**Course Format**

This course adopts a hybrid delivery format. You must have access to the Internet and be able to transfer materials (upload and download) from and to Canvas. As well, electronic access is required to be a scholar and search the University databases for your scholarly essay assignments. You are responsible for submitting your assignments in an electronic format to Turnitin.com and that is accessible to the professor.

**Canvas and MYSJSU Messaging**

Course materials such as syllabus and major assignment handouts can be found on Canvas, the content management system we use here at SJSU. From the SJSU home page you can easily find the Canvas entry page. Your SJSU ID # and password will work with this account too. Upon arrival on your Canvas home page, change the settings so that your Canvas e-mail is forwarded to your regularly used e-mail account. Announcements will be posted on Canvas and should be checked on a regular basis; students may choose an option to be alerted that announcements have been made. Moreover, be sure to regularly check your MySJSU messaging system (or other communication system as indicated by your instructors).

**Course Description**

Motor behavior and the learning patterns developed in acquiring skill in a motor activity

**Kinesiology Program Learning Outcomes**

Students will

- Conduct and critique research using theoretical and applied knowledge
- Interpret and apply research findings to a variety of disciplines within kinesiology
- Effectively communicate essential theories, scientific applications, and ethical considerations in kinesiology
- Acquire skills to become agents of change to address issues in kinesiology through the application of knowledge and research

## Course Learning Outcomes (CLO)

The motor learning graduate course will prepare you to develop and conduct deep and rich scholarly approaches to the science of human motor behavior. Specifically, by the end of the semester you should expect to meet the following outcomes.

Upon successful completion of this course, students will be able to

- Develop in depth knowledge of motor learning and control through reading, writing, and discussion of selected current theoretical and empirical scholarship.
  - To meet this student learning outcome essays on the midterm and final will specifically address understanding of current theoretical and empirical knowledge of motor learning and control; further the assignment of a scholarly review of literature will require that students pick relevant topics and explore the literature contributing to them developing a deep and rich understanding of an issue in motor learning.
- Develop articulate thoughts and engage in critical thinking about motor learning and control problems through written and verbal assignments.
  - To meet this student learning outcome abstracts of required weekly readings and the specific course activities such as on-line reading discussion groups will measure how articulate and engaged students are with the material.
- Develop questions and problems in motor learning and control research.
  - To meet this student learning outcome a narrowly focused scholarly review of literature will be developed that could serve as a review for a research question or problem.
- Develop a base of knowledge from which to draw application for the workplace involving teaching, design, prevention, and rehabilitation of motor skills.
  - To meet this student learning outcome specific active learning environments will be used to make applications of knowledge to the workplace. Team presentations will require applications in human factors and ergonomics and kinesiology.

## Required Text/Readings

### Textbook

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6<sup>th</sup> ed.). Washington, DC: Author.

### Course Readings

Readings from the body of knowledge or subdiscipline of motor behavior are assigned on the Course Calendar and Readings handout (see Canvas, under Course Information). Readings are available full text from the Martin Luther King Jr. Library at San Jose State University and should whenever possible be downloaded in PDF format.

## Library Liaison (Optional)

Emily Chan is our library liaison. She can be reached at: [Emily.Chan@sjsu.edu](mailto:Emily.Chan@sjsu.edu) or by phone (408) 808-2044.

## Course Activities and Assignments

<i>Evaluation Tools</i>	<i>Points Assigned</i>	<i>Points Earned</i>
<p><i>Midterm exam</i></p> <p>The midterm exam is scheduled for Monday, March 16, 2015 from 4:00pm until 11:59pm and will be found on the Quizzes page of Canvas. The exam will be composed of 4 essay items.</p>	15	
<p><i>Final exam</i></p> <p>The final exam is scheduled for May 18, 2015 as determined by the university catalog. The exam will be available on Canvas from 4:00pm until 11:59pm. The final exam is cumulative including all work discussed in class, on-line, and in assigned readings. Students are expected to develop clear, logical, and scholarly arguments as well as applications of their newly acquired knowledge.</p>	20	
<p><i>Abstracts of readings</i> (submission as print copy); two abstracts written and presented according to format presented in class and APA guidelines</p> <p>Two abstracts using APA conventions will be submitted on any 2 of the readings required for class. The abstract should summarize one or more of the readings for a particular class and submitted on the day of that (those readings). Abstracts should be submitted in print form and should be no more than 250 words (see pages 27 and 41 of the APA manual).</p>	10	
<p><i>Scholarly review of literature</i> on a topic in motor learning (electronic submission on Canvas)</p> <ul style="list-style-type: none"> <li>• Topic submission (with 5 scholarly sources)</li> <li>• 2 page summary (with more than 5 scholarly sources; must conform to APA format and include appropriate citations to produce a scholarly paper)</li> <li>• Final paper</li> <li>• Oral presentation of review of literature (storyboard required)</li> </ul> <p>The final paper should reflect a well-focused scholarly review of the literature (see Writing Reviews of Literature Guidelines, posted on Canvas) on a current topic in motor learning and control. For this review of literature assignment, select a narrowly focused topic and develop a well written and integrated, extensively researcher review paper. To assist with the process of writing the paper the development will be evaluated and three intervals: the topical idea (due: February 23, 2015); a summary of the information (Due: April 6, 2015); the final scholarly review of literature (due: May 11, 2015).</p>	45 (5) (10)  (25) (5)	
<p><i>Participation on team in weekly on-line and in class activities as well as for presentation; overall participation</i> in course; rubric for assignment of grade is found here</p> <p>9-10 Often acted as team leader; considered a major player in developing ideas; made significant and meaningful contributions to teamwork and the class</p> <p>7-8 Participated in all aspects of the development and presentation of team activities; followed the will of the group and the class</p> <p>5-6 Participated in the project development and presentation as necessary; was often not available for teamwork; presented but was not really integrated into the whole</p> <p>&lt;5 Meager participation in the team project and the class</p>	10	
<p>All submissions must be double spaced and formatted according to APA conventions (Version 6). Submit all paper through Canvas. The file submission should be labeled as Firstname Lastname Review of Literature.</p>		

SJSU classes are designed such that to be successful, it is expected that students will spend a minimum of 45 hours for each unit of credit (normally 3 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>.

NOTE that [University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

## Grading Policy

<i>Grade Calculator</i>	
Points Earned	Grade Assigned
99-100	A+
93-98.99	A
90-92.99	A-
88-89.99	B+
85-87.99	B
80-84.99	B-
78-79.99	C+
75-77.99	C
70-74.99	C-
68-69.99	D+
65-67.99	D
60-64.99	D-
↓59.99	F

## Classroom Protocol

Students are expected to be courteous during class. Any student engaging in disruptive behavior will be asked to leave. 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) you may be asked to leave the classroom.

## University Policies

### General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU’s policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See [University Policy S90-5](http://www.sjsu.edu/senate/docs/S90-5.pdf) at <http://www.sjsu.edu/senate/docs/S90-5.pdf>. More detailed information on a variety of related topics is available in the [SJSU catalog](http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html), at <http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html>. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

## **Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](http://www.sjsu.edu/provost/services/academic_calendars/) at [http://www.sjsu.edu/provost/services/academic\\_calendars/](http://www.sjsu.edu/provost/services/academic_calendars/). The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

## **Consent for Recording of Class and Public Sharing of Instructor Material**

[University Policy S12-7](http://www.sjsu.edu/senate/docs/S12-7.pdf), <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course and the following items to be included in the syllabus:

- “Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”
- “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”
- Guests should be provided the same courtesies.

## **Academic integrity**

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>.

## **Campus Policy in Compliance with the American Disabilities Act**

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) at [http://www.sjsu.edu/president/docs/directives/PD\\_1997-03.pdf](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](http://www.sjsu.edu/aec) (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability.

## **Accommodation to Students' Religious Holidays**

San José State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to

make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See [University Policy S14-7](http://www.sjsu.edu/senate/docs/S14-7.pdf) at <http://www.sjsu.edu/senate/docs/S14-7.pdf>.

## **Student Technology Resources**

Computer labs for student use are available in the [Academic Success Center](http://www.sjsu.edu/at/asc/) at <http://www.sjsu.edu/at/asc/> located on the 1st floor of Clark Hall and in the Associated Students Lab on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library. A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include DV and HD digital camcorders; digital still cameras; video, slide and overhead projectors; DVD, CD, and audiotape players; sound systems, wireless microphones, projection screens and monitors.

## **SJSU Peer Connections**

Peer Connections, a campus-wide resource for mentoring and tutoring, strives to inspire students to develop their potential as independent learners while they learn to successfully navigate through their university experience. You are encouraged to take advantage of their services which include course-content based tutoring, enhanced study and time management skills, more effective critical thinking strategies, decision making and problem-solving abilities, and campus resource referrals.

In addition to offering small group, individual, and drop-in tutoring for a number of undergraduate courses, consultation with mentors is available on a drop-in or by appointment basis. Workshops are offered on a wide variety of topics including preparing for the Writing Skills Test (WST), improving your learning and memory, alleviating procrastination, surviving your first semester at SJSU, and other related topics. A computer lab and study space are also available for student use in Room 600 of Student Services Center (SSC).

Peer Connections is located in three locations: SSC, Room 600 (10th Street Garage on the corner of 10<sup>th</sup> and San Fernando Street), at the 1st floor entrance of Clark Hall, and in the Living Learning Center (LLC) in Campus Village Housing Building B. Visit [Peer Connections website](http://peerconnections.sjsu.edu) at <http://peerconnections.sjsu.edu> for more information.

## **SJSU Writing Center**

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the [Writing Center website](http://www.sjsu.edu/writingcenter) at <http://www.sjsu.edu/writingcenter>. For additional resources and updated information, follow the Writing Center on Twitter and become a fan of the SJSU Writing Center on Facebook. (Note: You need to have a QR



Reader to scan this code.)

## **SJSU Counseling Services**

The SJSU Counseling Services is located on the corner of 7<sup>th</sup> Street and San Fernando Street, in Room 201, Administration Building. Professional psychologists, social workers, and counselors are available to provide

consultations on issues of student mental health, campus climate or psychological and academic issues on an individual, couple, or group basis. To schedule an appointment or learn more information, visit [Counseling Services website](http://www.sjsu.edu/counseling) at <http://www.sjsu.edu/counseling> .

**Kin 266**  
**Principles and Concepts of Motor Learning**  
**Spring 2015, Mondays, 4:00- 6:45 pm**

**Course Schedule**

Date	Topics, Readings, Assignments, Deadlines
January 26	Introduction to motor learning; course introductions
February 2	Overview of motor learning and information processing approaches; definitions, models and relationships in motor learning and control; experimental procedures in motor learning and control
February 9	What about research?
February 16	Information processing; skill taxonomies: stages of learning and task classification systems
February 23	Task classification systems Topic Due
March 2	The nature of expertise
March 9	Schema theory
March 16	Midterm exam on Canvas available from 4:00-11:59pm
March 23	No class; spring break
March 30	Schema theory and practice scheduling 2 Page Summary Due
April 6	Contextual interference theory
April 13	Contextual interference theory and empirical research
April 20	Bernstein and dynamic systems perspectives
April 27	Implicit and explicit processing
May 4	Information feedback; knowledge of results Group presentation on some aspect of feedback in motor skill learning.
May 11	Presentation of individual review of Scholarly Literature Storyboard and Scholarly Review of Literature is Due
May 18	Final exam on Canvas available from 4:00-11:59pm



## Kin 266

### Principles and Concepts of Motor Learning Spring 2015, Mondays, 4:00- 6:45 pm

#### Course Calendar and Readings

Assigned weekly readings are to be completed by the dates listed below. With minimal flexibility we will adhere to the schedule provided. After reading the weekly assignment you should be prepared to contribute to in class and on-line discussions. Consider the following questions and activities while you read to critically analyze and think about motor learning: what kind of research does this article represent; how does the research support theory; in what ways can this area of research be expanded; what are some research questions emerging from these empirical studies; how does the research described fit with the movement focus from kinesiology and human factors/ergonomics approaches?

Readings are assigned by the course calendar below where you will find the full bibliographic references you need to obtain the readings for class. All readings can be retrieved from full text databases made available through the Martin Luther King Junior Library at San José State University. A PIN is required for remote access to the library. A PIN can be established on-line or at the circulation desk of the King Library. In most cases the required readings can be accessed through the university databases, e.g.,: *Academic Search Premier*, *Sport Discus*, and *PsycARTICLES*. Once you link to an article, chose download and if available print the paper in its PDF version. A PDF is an exact replica of a manuscript, as it appears printed in a journal. A PDF provides the best vantage point for conducting and viewing scholarly work. When a PDF is not available and you download an HTML version be aware when referring to page numbers from the original article, as these do not reflect the page numbers in the published version. Thus page numbers on the HTML version should not be referred to in this way. Reading assignments and due dates are provided on the course schedule. You are expected to come to class each week prepared to discuss topics in a seminar atmosphere and engage in critical thinking activities.

Each student is responsible for submitting a total of two original abstracts of the weekly readings. The abstract can summarize either one study or multiple studies from the assignments. Abstracts should contain original written material and they should conform to the conventions of the *American Psychological Association Manual*, 6<sup>th</sup> Ed.

Absences for midterm and final exams will be accepted only for serious and compelling reasons. No papers will be accepted late.

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**January 26, 2015** –Introduction to motor learning and control; course introductions

**February 2, 2015** – Overview of motor learning and information processing approaches

Park, R.J. (1994). A long and productive career: Franklin M. Henry – Scientist, mentor, pioneer. *Research Quarterly for Exercise and Sport*, 65, 295-307.

Fischman, M.G., Christina, R.W., & Anson, G. (2008). Memory Drum Theory's C movement: Revelations from Franklin Henry. *Research Quarterly for Exercise and Sport*, 79, 312-318.

**February 9, 2015** – What about research?

Vicente, K.J. (1997). Heeding the legacy of Meister, Bunswik, & Gibson: Toward a broader view of human factors research. *Human Factors*, 39, 323-328.

Payne, D.G., & Blackwell, J.M. (1997). Toward a valid view of human factors research: Response to Vicente (1997). *Human Factors*, 39, 329-331.

Jones, K.S., Derby, P.I., & Schmidlin, E.A., (2010). An investigation of the prevalence of replication research in human factors. *Human Factors*, 52, 586-595.

**February 16 and February 23, 2015** – Task classification systems

Gentile, A.M. (2000). Skill acquisition: Action, movement, and neuromotor processes. In J.J. Carr, R.B., Shepherd, J. Gordon, A.M. Gentile, & J.M. Held (Eds.), *Movement science: Foundations for physical therapy in rehabilitation*, 2<sup>nd</sup> Ed., (pp. 11-187). MD: Aspen.

**March 2, 2015** – The nature of expertise

Ericsson, K.A., & Ward, P., (2007). Capturing the naturally occurring superior performance of experts in the laboratory. *Current Directions in Psychological Science*, 16, 346-350.

Farrow, D. (2010). A multi-factorial examination of the development of skill expertise in high performance netball. *Talent Development and Excellence*, 2 (2), 123-135.

Le Runigo, C.J., Benguigui, N., Bardy, B.G. (2010). Visuo-motor delay, information-movement coupling, and expertise in ball sports. *Journal of Sport Sciences*, 28 (3), 327-337.

**March 9, 2015** – Schema Theory

Schmidt, R.A. (1975) A schema theory of discrete motor skill learning. *Psychological Review*, 82, 225-260.

**March 16, 2015** – Midterm Exam on Canvas which must be completed by midnight tonight

**March 23, 2015** – No Class; Spring break

**March 30, 2015** – Schema Theory and practice schedule

Schmidt, R.A. (2003). Motor schema theory after 27 years: Reflections and implications for a new theory. *Research Quarterly for Exercise and Sport*, 74, 366-375.

Sherwood, D.E., & Lee, T.D. (2003). Schema theory: Critical review and implications for the role of cognition in a new theory of motor learning. *Research Quarterly for Exercise and Sport*, 74, 376-382.

Newell, K.M. (2003). Schema theory (1975): Retrospectives and prospectives. *Research Quarterly for Exercise and Sport*, 74, 383-388.

### **April 6** – Contextual Interference Theory

Battig, W.F. (1979). The flexibility of human memory. In L.S. Cermak & F.I.M. Craik (Eds.), *Levels of Processing in Human Memory*. New Jersey: Lawrence Erlbaum Associates Publishers.

### **April 13, 2015** – Contextual Interference Theory

Gudagnoli, M.A., & Lee, T.D. (2004). Challenge point: A framework for conceptualizing the effects of various practice conditions in motor learning. *Journal of Motor Behavior*, 36, 212-224.

Goettl, B.P., The spacing effect in aircraft recognition. *Human Factors*, 38, 34-49.

Russell, D.M., & Newell, K.M. (2007). How persistent and general is the contextual interference effect? *Research Quarterly for Exercise and Sport*, 78, 318-327.

Hodge, N.J., Edwards, C., Luttin, S., & Bowcock, A. (2011). Learning from experts: Gaining insights into best practice during the acquisition of three novel motor skills. *Research Quarterly for Exercise and Sport*, 82 (2), 178- .

### **April 20, 2015** – Bernstein and Dynamic Systems Perspectives

Bongaardt, R., Meijer, O.G. (2000). Bernstein's theory of movement behavior: Historical development and contemporary relevance. *Journal of Motor Behavior*, 32, 57-71.

Gentile, A.M. (2000). Skill acquisition: Action, movement, and neuromotor processes. In J.J. Carr, R.B., Sherpherd, J. Gordon, A.M. Gentile, & J.M. Held (Eds.), *Movement science: Foundations for physical therapy in rehabilitation*, 2<sup>nd</sup> Ed., (pp. 11-187). MD: Aspen.

Karwowski, W. (2013). A review of human factors challenges of complex adaptive systems: Discovering and understanding chaos in human performance. *Human Factors*, 54, 983-995.

### **April 27, 2015** – Implicit and Explicit Processing

Magill, R.A. (1998). 1997 C.H. McCloy research lecture: Knowledge is more than we can talk about: Implicit learning in motor skill acquisition. *Research Quarterly for Exercise and Sport*, 69, (2), 104-110.

Masters, R.S.W., Poolton, J.M., Maxwell, J.P., & Raab, M. (2008). Implicit motor learning and complex decision making in time-constrained environments. *Journal of Motor Behavior*, 40 (1), 71-79.

### **May 4, 2015** – Information feedback and Knowledge of Results

Student team project presentations

### **May 11, 2015** – Presentation of Individual Projects

### **May 18, 2015** – Final Exam on Canvas must be submitted by midnight tonight