

WAYNE STATE
UNIVERSITY
COLLEGE OF EDUCATION

Division: Kinesiology, Health, and Sport Studies
Program Area: Exercise and Sport Studies
Course Ref. #: 27058
Course Title: KIN 7580 – Biomechanical Analysis of Motor Activity
Section #: 001
Term/Year: Winter 2014
Course Location: 0520 APHS
Day: Thursday **Time:** 5:30 PM – 8:15 PM
Instructor: Dr. Amanda Esquivel
Office Address: 2339 Eugene Applebaum
Office Hours: Mon 2:00-4:00 pm, Wed 10 am – 12pm, Thursday 3:15-5:15 pm
Office Phone #: 313-577-4246
e-mail: aoe@wayne.edu **Website:** <http://coe.wayne.edu/kinesiology/index.php>

Course Description:

Principles and practice in the analysis of human movement. Selected methods of analysis are used in demonstrations and lab experiences. Students complete a biomechanical analysis project on an appropriate human motor skill.

Topics Covered:

Topics covered include kinematics and kinetics of human motion and movement; biomechanics of bone, skeletal articulations and muscle biomechanics of the upper and lower extremity and spine, sport injury and sport equipment.

Course Objectives/Outcomes:

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

- 1) Demonstrate an understanding of kinematic and kinetic principles for human movement.
- 2) Demonstrate an understanding of human motor system structures and functions.
- 3) Demonstrate an understanding of sport injury and sports equipment
- 4) Analyze human locomotion and various movements.
- 5) Develop the skills to propose hypotheses and problem solution to the analysis of human movements.
- 6) Analyze and compare current literature in sport and movement biomechanics

Instruction:

Lecture and in class discussion

Required Text:

Hamill, J., & Knutzen, K.M. (2009). *Biomechanical basis of human movement (3rd ed.)*. Baltimore, MD: Lippincott, Williams & Wilkins.

Additional Texts:

Mow, V & Huiskes, R (2005). *Basic Orthopaedic Biomechanics and Mechano-Biology (3rd ed)*. Lippincott Williams & Wilkins

Nordin, M & Frankel, V (2001). *Basic Biomechanics of the Musculoskeletal System (3rd ed)*. Lippincott Williams & Wilkins

Course Assignments:

Two quizzes, two in class lab assignments and a research report are required for grading in addition to exams. Class quizzes involve questions from class lectures and discussion. The research assignment will involve a written paper with extensive literature review and verbal presentation on a current topic in biomechanics. The evaluation of the research assignment will focus on the qualities of paper and presentation.

Course Examinations:

Two exams will be scheduled during the semester. The exams will cover the first half or second half of the materials for the semester, respectively. See the attached class schedule for the tests.

Class Policy:

(1) All students are asked to participate in classes. Class attendance is recorded. Prompt attendance is expected. More than two unexcused absences and more than three late arrivals to class will result in point deductions in overall final grade on a case-by-case basis.

(2) Every home assignment should be submitted on time. Late submission is acceptable within one week after the deadline but with 75% maximum possible points. Nothing will be accepted after one week, no exceptions.

(3) A make-up can be provided for exams and labs only for medical (or family) emergency or car accident on road to school. It is the student's responsibility to contact the instructor immediately to schedule a make-up.

(4) **No text messaging or cell phone usage allowed during the class at all.** Netbooks, tablets, iPads, and laptop computers are allowed for note taking and PPT viewing purposes only. Students that are found using electronic devices for non-class purposes will be restricted from using devices from that point forward.

(5) **All communication from me will be sent to your WSU email account. Be sure that your WSU email is your primary email or change your settings so that your WSU emails are forwarded your most utilized email address. It is strongly recommend that you regularly check your WSU email and verify its capacity limit and settings.**

(6) In addition, be sure to set the WSU Broadcast Messaging Service so that you receive text messages for campus emergencies and the course. When you are logged into WSU Pipeline, just click the 'Broadcast Messaging' link on the My Pipeline tab, under 'WSU Resources'. First, register your cell phone number and carrier then click 'Submit Changes'. Under 'Manage Your Preferences', select all three options: 'WSU E-mail', 'Text Message', 'WSU Instant Message'. Click 'Update Preferences' to finish.

Class Schedule:

See separate page

Grading System:

The following will be used to determine grades in this course:

Exams	50% (2 x 25%)
Quizzes (2 x 5%)	10%
Labs (2 x 5%)	10%
Research Paper	20%
Research Presentation	10%

TOTAL

100%

Grades will be determined on a straight scale:

A = 93 – 100% (4.00)	A- = 90 – 92.9% (3.67)
B+ = 87 – 89.9% (3.33)	B = 83 – 86.9% (3.00)
B- = 80 – 82.9% (2.67)	C+ = 77 – 79.9% (2.33)
C = 73 – 76.9% (2.00)	C- = 70 – 72.9% (1.67)
D+ = 67 – 69.9% (1.33)	D = 63 – 66.9% (1.00)
D- = 60 – 62.9% (0.67)	F < 60% (0.00)

Religious Holidays:

Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

Student Disabilities Services:

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student's accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

Academic Dishonesty:

Plagiarism and Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (<http://www.doso.wayne.edu/student-conduct-services.html>). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

o Cheating: Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student's test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.

o Fabrication: Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.

o Plagiarism: To take and use another's words or ideas as one's own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.

o Other forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student's access to educational resources, or any attempt to alter equipment so

as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

Course Drops and Withdrawals:

In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. **Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. The last day to withdraw is Saturday, March 22, 2014.** More information on this can be found at: <http://reg.wayne.edu/pdf-policies/students.pdf>

Student Services:

The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit www.success.wayne.edu for schedules and information on study skills, workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).

The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit <http://clasweb.clas.wayne.edu/writing> to obtain information on tutors, appointments, and the type of help they can provide.

KIN 7580 CLASS SCHEDULE section 001 – Winter 2014 (subject to change)

Dr. Amanda Esquivel

Date	Content	Reading
1/9	Class Orientation and Introduction Bone	Chapters 1 and 2
1/16	Articular Cartilage, Tendons and Ligaments Skeletal Muscle	Chapters 2 and 3
1/23	Neurological Considerations	Chapter 4
1/30	Upper Extremity Lower Extremity	Chapters 5 and 6
2/6	Lower Extremity continued Trunk and review Quiz 1 due Lab 1 – in class	Chapters 6 and 7
2/13	Exam 1	
2/20	Biomechanics of Fracture Fixation and Healing Biomaterials / Arthroplasty	
2/27	Linear Kinematics Angular Kinematics	Chapters 8 and 9
3/6	Linear Kinetics	Chapters 10 and 11

	Angular Kinetics Quiz 2 due	
3/13	No class (Spring Break)	
3/20	Sport Equipment (Guest Speaker Jeremy Murray) Human Locomotion Lab 2 – in class Research Papers due	
3/27	Sport Injuries Concussion	
4/3	Exam 2	
4/10	Student Presentations	
4/17	Student Presentations	