

**WAYNE STATE  
UNIVERSITY**  
COLLEGE OF EDUCATION

**Division:** Kinesiology, Health, and Sport Studies  
**Program Area:** Exercise and Sport Science  
**Course Ref. #:** 32984  
**Course Title:** KIN 3580 - Biomechanics  
**Section #:** 001  
**Term/Year:** Spring/Summer 2014  
**Course Location:** 0260 APHS  
**Day:** Mon and Wed **Time:** 1:00 PM – 4:00 PM  
**Instructor:** Dr. Amanda Esquivel  
**Office Address:** 2339 Eugene Applebaum  
**Office Hours:** Mon 10:00 am - 12:00 pm, Wed 4 pm – 6 pm, by appointment  
**Office Phone #:** 313-577-9301  
**E-mail:** [aoe@wayne.edu](mailto:aoe@wayne.edu) **Website:** <http://coe.wayne.edu/kinesiology/index.php>

**Course Description:**

Prereq: BIO 2870 with grade of C or above. Application of knowledge of human physical structure and function in the analysis and appreciation of human movement; theory and practice of human movement analytic techniques.

**Topics Covered:**

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

**Course Objectives/Outcomes:**

At the completion of this course, students will be able to:

1. Demonstrate an understanding of human physical structure and function related to movements.
2. Apply kinematic and kinetic concepts to human motion analysis
3. Demonstrate an understanding of human bone growth and development biomechanics.
4. Demonstrate an understanding of human skeletal muscles and joints.
5. Understand the appropriate biomechanical principles and methods to analyze human movement.

**Instruction:**

Lecture, in class discussion, lab

**Required Text(s):**

Hall, S.J. (2012). *Basic Biomechanics (6th ed.)*. New York: McGraw-Hill.

**Course Assignments:**

Two lab assignments and four homework assignments are required for grading in addition to examinations. The lab grades will be determined by lab participation and reports. Course assignments will be discussed in class.

**Course Examinations:**

Three exams will be scheduled during the semester. Each exam will cover 4-5 chapters. All the questions for exams are based on lectures and textbook.

**Class Policies:**

(1) 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.

(2) You must bring a **calculator** to class each day.

(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.  
There will be no extra credit assignments for this course:

Exams	70% (20%, 25%, & 25%)
Homework Assignments	20% (4 x 5%)
Labs	10% (2 x 5%)
<b>TOTAL</b>	<b>100%</b>

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 Sunday, June 8, 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](http://www.success.wayne.edu) for schedules and information on study skills, workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).

Mathematics Resource Center - The Mathematics Resource Center is a free tutoring service provided by the Department of Mathematics for all Wayne State University students. Location: 1198 Faculty/Administration Building. Please send any questions or comments to the Mathematics Resource Center Coordinator, Tiana Fluker - [tiana@math.wayne.edu](mailto:tiana@math.wayne.edu).

**KIN 3580 CLASS SCHEDULE section 001 – Spring 2014 (subject to change)**  
**Dr. Amanda Esquivel**

Date	Content
5/5	Class Orientation Chapter 1 Introduction/What Is Biomechanics Chapter 2 Kinematic Concepts
5/7	Chapter 3 Kinetic Concepts <b>Lab 1</b> <i>Assignment 1</i>
5/12	Chapter 4 Biomechanics of Human Bone Growth and Development <b>Assignment 1 due</b>
5/14	Chapter 6 Biomechanics of Skeletal Muscle and review
5/19	<b>Exam 1 (Chapters 1-4 and 6)</b>
5/21	Chapter 5 Biomechanics of Human Skeletal Articulations Chapter 7 Biomechanics of the Human Upper Extremity <i>Assignment 2</i>
<b>5/26</b>	<b>Memorial Day – University Closed</b>
5/28	Online - Chapter 7 Biomechanics of the Human Upper Extremity (cont) <b>Assignment 2 due</b> <i>Assignment 3</i>
5/30	Online - Chapter 8 Biomechanics of the Human Lower Extremity <b>Assignment 3 due</b>
6/2	Chapter 9 Biomechanics of the Human Spine and review
6/4	<b>Exam 2 (Chapters 5, 7-9)</b>
6/9	Chapter 10 Linear Kinematics of Human Movement <b>Lab 2</b>
6/11	Chapter 11 Angular Kinematics of Human Movement Chapter 12 Linear Kinetics of Human Movement
6/16	Chapter 13 Equilibrium and Human Movement <i>In class assignment 4</i>
6/18	Chapter 14 Angular Kinetics of Human Movement and review <i>Assignment 4 due</i>
6/23	<b>Exam 3 (Chapters 10-14)</b>

