**Auburn University**

**College of Education**

**School of Kinesiology**

**Course Syllabus**

**Course Number:** KINE 3620

**Course Title:** Biomechanical Analysis of Human Movement

**Class Meeting Times:** MWF 10:00am – 10:50 Lab: M 12:00pm - 1:40pm

**Location:** COLSM, Room 2116 (Lecture), KINE Bldg Room 14 (Lab)

**Prerequisites:** KINE 3020

**Instructor:** Adam Jagodinsky

**Office:** KINE Bldg Rm#20 **Phone:** 334-844-1524 **Email:** aej0015@tigermail.auburn.edu

**Office Hours:** By appointment

**Text:** Hamilton, N. Weimar, W. & Luttgens, K. (2012) *KINESIOLOGY --- Scientific Basis of Human Motion*. Twelfth Edition, McGraw-Hill, New York, NY.

**Course Materials:** PowerPoint lectures and handouts will be uploaded onto Canvas.

**Course Description:** This course is designed to develop a fundamental understanding of the anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis covered in this course, will enable one to evaluate human movement and performance in greater detail.

**Course Objectives:** The students will:

1. Learn a systematic approach to the analysis of human motion

2. Understand the anatomical, neuromuscular, and biomechanical fundamentals of human motion

3. Apply anatomical and biomechanical analyses to the study and improvement of a broad spectrum of

movement activities.

**Course Requirements:**

Exams, quizzes, and presentations will be given during this course. In addition, laboratory assignments will be graded.

**There will be no make-up quizzes for missed quizzes unless an excused absence is pre-arranged.**

**Course Schedule (subject to change by instructor):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Topic** | **Chapter** |
| 1 | 18-Aug | Introduction/Syllabus |   |
| 20-Aug | The Musculoskeletal System - Skeletal | 2 |
| 22-Aug | The Musculoskeletal System - Skeletal | 2 |
| 2 | 25-Aug | The Musculoskeletal System - Skeletal | 2 |
| 27-Aug | The Musculoskeletal System - Muscle | 3 |
| 29-Aug | The Musculoskeletal System - Muscle | 3 |
| 3 | 3-Sep | The Musculoskeletal System - Muscle | 3 |
| 5-Sep | Neuromuscular Basis of Human Movement | 4 |
| 4 | 8-Sep | Neuromuscular Basis of Human Movement | 4 |
| 10-Sep | Neuromuscular Basis of Human Movement | 4 |
| 12-Sep | **Exam I** |   |
| 5 | 15-Sep | Terminology & Measurements in Biomechanics | 10 |
| 17-Sep | Description of Human Movement | 11 |
| 19-Sep | Linear Motion | 12 |
| 6 | 22-Sep | Linear Motion | 12 |
| 24-Sep | Linear Motion | 12 |
| 26-Sep | Linear Motion | 12 |
| 7 | 29-Sep | Linear Motion | 12 |
| 1-Oct | **Exam II** |   |
| 3-Oct | Rotary Motion | 13 |
| 8 | 6-Oct | Rotary Motion | 13 |
| 8-Oct | Rotary Motion | 13 |
| 10-Oct | Rotary Motion | 13 |
| 9 | 13-Oct | Rotary Motion | 13 |
| 15-Oct | Center of Gravity & Stability | 14 |
| 17-Oct | Fall Break |   |
| 10 | 20-Oct | Center of Gravity & Stability | 14 |
| 22-Oct | Center of Gravity & Stability | 14 |
| 24-Oct | **Exam III** |   |
| 11 | 27-Oct | Locomotion | 18 |
| 29-Oct | Locomotion | 18 |
| 31-Oct | Locomotion | 18 |
| 12 | 3-Nov | Instrumentation for Motion Analysis | 22 |
| 5-Nov | Instrumentation for Motion Analysis | 22 |
| 7-Nov | Instrumentation for Motion Analysis | 22 |
| 13 | 10-Nov | Law of Cosines |   |
| 12-Nov | Law of Cosines |   |
| 14-Nov | Law of Cosines |   |
| 14 | 17-Nov | Law of Cosines |   |
| 19-Nov | Law of Cosines |   |
| 21-Nov | **Exam IV** |   |
|   | 24-28 Nov | Thanksgiving Break |   |
| 15 | 1-Dec | Breaking Down a Movement |   |
| 3-Dec | Breaking Down a Movement |   |
| 5-Dec | Breaking Down a Movement |   |
| 16 | 8-Dec | Review |   |
| 10-Dec | Review |   |
| 12-Dec | **Final Exam** |   |

**Grading and Evaluation Procedure:**

Labs: 20% 90 – 100% --- A

4 Exams: 60% 80 - 89 --- B

Final Exam: 20% 70 - 79 --- C

 60 - 69 --- D

Under 60 --- F

Extra credit opportunities will be given throughout the semester. Every student will have equal opportunity to earn the credit. Points earned from quizzes will be applied as extra credit to the upcoming exam. Students must be present in class to earn extra credit points from quizzes. A grade will be given based on the accumulation of the exams, quizzes, lecture and lab assignments, presentations and extra credit.

**Class Policy Statements:**

Participation: Students are expected to participate in all class discussions and participate in all laboratory exercises. It is the student’s responsibility to contact the instructor **PRIOR** to class if an illness or emergency requires the student to miss class. Any missed work due to a University approved excuse MUST be made up within 5 days.

Laboratory Activities and Exams: Labs are due one week after the date of lab activity unless an excused absence is pre-arranged. No late work will be accepted. Students not turning in work by the scheduled start of class time will received a “0” grade on the lab activity. The students must be present during the lab activity. If not, the student will not be allowed to perform the activity unless an excused absence is pre-arranged. Students are asked to review exams after they are returned and look up missed questions. If the answer is still unclear, please make an appointment to review the question and I’d be happy to go over any remaining questions you may have.

Attendance/Absences: Attendance is required at each class meeting. If an exam is missed, a make-up exam will be given only for University-approved excuses as outlined in the Tiger Cub**.** Arrangements to take the make-up exam must be made in advanceand the exam taken within 5 days of the missed exam. Students who miss an exam because of illness should inform the instructor prior to the missed class if possible. A doctor’s statement for verification of sickness is required and should clear the absence with the instructor the day they return to class. Other unavoidable absences from campus must be documented and cleared with the instructor in advance.

Questions/help: Students are encouraged to ask questions and seek extra help on a regular basis. Please do not waituntil the day before an exam or laboratory is due. The goal is to keep up and enjoy the material!

Accommodations: Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. 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).

Honesty Code: The University Academic Honesty Code and the Tiger Cub Rules and Regulations pertaining to Cheating will apply to this class.

Classroom/laboratory Policies:

• All electronic devices must be turned off during classroom or laboratory periods, with the exception of laptops – which may be used for note taking only. No phones or texting during class is allowed. All phones and electronic devices must be put away prior to the start of class. If these are found out – the student will be asked to leave the class.

• Students are expected to arrive to class on time. Those arriving late will not be permitted to hand in homework. Likewise, classes will end promptly at the scheduled time.

• Students are expected to come to class having completed the reading and prepared to discuss them.

• While laboratory sessions are more relaxed, students are expected to conduct themselves in a professional and safe manner. Students are not permitted to ‘play’ with laboratory equipment.

• Lab attire consists of loose fitting gym shorts, t-shirt and sneakers for easy movement. In order to participate in laboratory sessions students must arrive to class in appropriate attire.Those not properly attired will be asked to leave and will not be allowed to make up the assignments.

• No food or drinks are permitted in the laboratory.

Professionalism : As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College’s conceptual framework. These professional commitments or dispositions are listed below:

• Engage in responsible and ethical professional practices

• Contribute to collaborative learning communities

• Demonstrate a commitment to diversity

• Model and nurture intellectual vitality