San José State University  
Department of Kinesiology  
KIN 257, Biomechanics, Fall 2019

Course and Contact Information
Instructor: Dr. JJ Hannigan  
Office Location: Spartan Complex 173G  
Telephone: (408) 924-3014  
Email: jj.hannigan@sjsu.edu  
Office Hours: Thursdays 1-3pm in Spartan Complex 173G or by appointment  
Class Days/Time: Thursdays 4-6:45pm  
Classroom: Spartan Complex Central 153  
Prerequisites: Undergraduate course in Biomechanics

Course Format

Course Description
Principles and laws of physics and mechanics as applied to analysis of human movement activities. Critical evaluation of current research findings in sport biomechanics.

Course Learning Outcomes (CLO)
Upon successful completion of this course, students will be able to:

1. Use professional biomechanical and anatomical terminology appropriately and accurately.
2. Determine the appropriate method and equipment to be used for evaluation of movement.
3. Demonstrate the ability to conduct qualitative and quantitative biomechanical analysis using tools including 2D and 3D motion analysis, force plates, EMG, and accelerometry.
4. Accurately measure kinetic and kinematic variables using the available biomechanical equipment.
5. Clearly present a final project demonstrating an improved understanding of how to prevent injury or maximize performance based on the biomechanical concepts learned in class.
6. Discuss current trends and appraise peer-reviewed evidence of biomechanical concepts.

Required Technology
A computer is recommended to be successful in this class, as well as access to Excel. Microsoft Office 365 is available to SJSU students via the Microsoft site for students. Microsoft Office 2013 is also available at a discounted rate.

Canvas
Course materials such as the syllabus, announcements, lecture notes, or assignments can be found on Canvas. You are responsible for regularly checking both Canvas and your email for class updates.
Required Texts/Readings

Textbook
There is no required textbook for this course.

Other Readings
The current undergraduate textbook (KIN 158) may be helpful for this class:

In addition, an anatomy textbook, atlas, or alternate study aid may be helpful to review relevant anatomy.

Library Liaison
Adriana Poo
(408) 808-2019
adriana.poo@sjsu.edu

Course Requirements and Assignments

Components of Final Grade
1. Weekly Assignments (40% of final grade)
There will generally be homework assigned weekly, consisting of either an article critique or lab-based assignment. These assignments will be due at the beginning of class the following week.

2. Final Project (30% of final grade)
During the latter third of the class, pairs of students will answer a research question by collecting data using at least one biomechanical tool they learned during the semester. Pairs will write-up and present their findings to the class on the last day of class.

3. Final Take Home Exam (30% of final grade)
There will be one take home exam in this class. The exam will demand students critically synthesize and apply the material learned throughout the course.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Grading Information

Determination of Grades
A+ = 97 – 100%  B+ = 87 – 89.99%  C+ = 77 – 79.99%  D+ = 67 – 69.99%  F = Below 60%
A  = 93 – 100%   B  = 83 – 86.99%  C  = 73 – 76.99%  D  = 63 – 66.99%
A− = 90 – 92.99% B− = 80 – 82.99% C− = 70 – 72.99% D− = 60 – 62.99%

Late Work
The penalty for a late assignment is a 25% deduction for each day the assignment is late.
Extra Credit

No formal extra credit is offered; however, final grades will be rounded up to the nearest whole number if lecture attendance is >90%.

Classroom Policies

- **Learning environment**: My aim for this course is to create an inclusive learning environment where all students feel welcome to participate and are free from judgment. To help create this learning environment, all students are asked to bring a positive attitude to class, be respectful and kind to classmates, and keep an open mind. Students can expect the instructor will do the same.

- **Missed Class**: While attendance is not required, there is an incentive to attend (see extra credit policy). In addition, several assignments require you to analyze and evaluate data collected during class, meaning that missing class will negatively affect your grade. If you do miss class, you are encouraged to chat with your instructor during scheduled office hours or by appointment to avoid falling behind.

- **Technology**: Computers are only allowed during lecture as a means to take notes or during in-class activities when instructed. Using computers to browse the internet or work on assignments during class is prohibited. Using cell phones during class is only allowed during specified labs. Students improperly using wireless devices will first be given a warning, and then asked to leave class.

- **Email**: I am often not able to respond to emails immediately – please expect 12-24 hours response time during weekdays. If you email over the weekend, I will likely not be able to respond until Monday.

University Policies

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant information to all courses, such as academic integrity, accommodations, dropping and adding, consent for recording of class, etc. is 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/”. Make sure to visit this page, review and be familiar with these university policies and resources.

Additional Information

**Plagiarism**

Plagiarism is using someone else's words, data, or ideas and passing them off as your own. Consequences range from failing an assignment, receiving a lower course grade, failing a course, or expulsion from the university. Plagiarism in this course will not be tolerated. If you are not sure what constitutes plagiarism, you are encouraged to take this [15-minute training](http://www.sjsu.edu/senate/docs/S16-9.pdf). Do not hesitate to consult your instructor with further questions.

**Religious Holidays**

If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

**Accessible Education Center**

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. Accessibility Services is available to facilitate the reasonable accommodations process. They can be reached by phone at 408-924-6000 or by email: aec-info@sjsu.edu. For more information about the University’s program supporting the rights of our students with disabilities see: [http://www.sjsu.edu/aec/](http://www.sjsu.edu/aec/)
Diversity Statement
The College of Health and Human Sciences strives to create an affirming climate for all students including underrepresented and marginalized individuals and groups. Diversity encompasses differences in age, color, ethnicity, national origin, gender, physical or mental ability, religion, socioeconomic background, veteran status, sexual orientation, and marginalized groups. We believe diversity is the synergy, connection, acceptance, and mutual learning fostered by the interaction of different human characteristics.

Campus Emergency Information
California San Jose State University is committed to being a safe and caring community. Your appropriate response in the event of an emergency can help save lives. Emergency procedures may be found at: http://www.sjsu.edu/emergency/ Please be familiar with these procedures. Information on this page is updated as required. Please review the information on a regular basis. The campus emergency phone is 911. For UPD, call (408) 924-2222.

Earthquake & Fire Preparedness
Earthquake: Duck and Cover until the shaking stops. Use desks, tables and protect your head and neck. Only after the shaking stops should you attempt to leave the building.

Fire: Exit the building rapidly, but calmly. Do not use elevators. Know where your nearest exit is before an emergency occurs.

*Tentative* Course Schedule

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<th>Week</th>
<th>Date</th>
<th>Lecture</th>
<th>Assignment Due</th>
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<tbody>
<tr>
<td>1</td>
<td>8/22</td>
<td>Course Introduction</td>
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<td>2</td>
<td>8/29</td>
<td>2D Motion Analysis</td>
<td>Course Intake Packet</td>
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<td>3</td>
<td>9/5</td>
<td>3D Motion Analysis</td>
<td>Lab Assignment</td>
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<td>4</td>
<td>9/12</td>
<td>3D Motion Analysis</td>
<td>Article Assignment</td>
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<td>5</td>
<td>9/19</td>
<td>Force Plates</td>
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<td>6</td>
<td>9/26</td>
<td>Force Plates</td>
<td>Article Assignment</td>
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<td>10/3</td>
<td>EMG</td>
<td>Lab Assignment</td>
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<td>8</td>
<td>10/10</td>
<td>EMG</td>
<td>Article Assignment</td>
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<td>9</td>
<td>10/17</td>
<td>Accelerometry</td>
<td>Lab Assignment</td>
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<td>10</td>
<td>10/24</td>
<td>Accelerometry</td>
<td>Article Assignment</td>
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<td>10/31</td>
<td><em>Happy Halloween</em> – Group Project Prep</td>
<td>Lab Assignment</td>
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<td>11/7</td>
<td>Project Data Collection</td>
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<td>11/14</td>
<td>Project Data Collection</td>
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<td>11/21</td>
<td>Project Data Analysis</td>
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<td>15</td>
<td>11/28</td>
<td><em>Happy Thanksgiving</em> – No Class</td>
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<td>16</td>
<td>12/5</td>
<td>Project Presentations</td>
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<td></td>
<td>12/12</td>
<td>Take Home Exam due Thursday 12/12 at 5:15pm</td>
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*Instructor reserves the right to make changes to the syllabus at any time with notice to students.