# Course Syllabus

**Jump to Today**

|  | **Department of Kinesiology** |
|---|---|
|  | **KIN 3027L - Biomechanics Laboratory** |
|  | **Number of Units: 1** |

| **Fall 2020** |
|---|

| **Meeting days:** Asynchronous + Synced Meetings | **Instructor:** Arnel Aguinaldo, PhD, ATC ("Dr. A") |
|---|---|
| **Meeting times:** Asynchronous + Synced Meetings | **Phone:** 619-849-3007 |
| **Meeting location:** Online | **Email:** aaguinal@pointloma.edu   (https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=aaguinal@pointloma.edu) |

## PLNU Mission

## To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

## COURSE DESCRIPTION

This lab complements the Applied Biomechanics course (KIN 3027), which is designed to provide students with a mix of theoretical concepts and applied problem-solving in various biomechanical applications in human movement.  Through the core math, physics, kinesiology, and anatomy classes students have taken to this point, you have been provided a breadth of information that will serve you in learning and applying the basic concepts of kinematics and kinetics of whole body and joint movement.

## COURSE LEARNING OUTCOMES

At the end of this lab-based course, students will be able to:

1. Define the vocabulary, principles and relationships unique to the disciplines of applied biomechanics.
2. Apply the basic principles of kinematics in quantifying and describing joint movement.
3. Articulate the concepts of linear and angular kinetics and their effects on human movement.
4. Describe the various technology and methods employed to quantitatively measure joint kinematics and kinetics
5. Describe the processes of kinematic, kinetic, and muscle activation data collection using motion analysis, force platforms, and electromyography.
6. Analyze joint movement in clinical-decision making and human performance assessment using biomechanical techniques
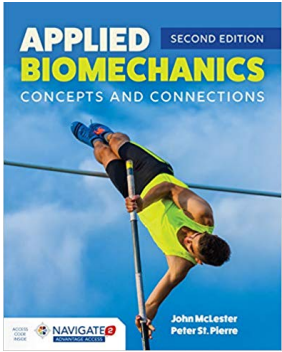7. Critically evaluate biomechanical research.

## REQUIRED TEXTS AND RECOMMENDED RESOURCES

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**Available on Amazon here**
**(https://www.amazon.com/dp/1284170047/ref=cm_sw_em_r_mt_dp_U_OdwIDbY93H9SJ%20)**

**NOTE:** Students are responsible to have the required textbooks prior to the first day of class. Students are also encouraged to begin reading the books in preparation for the class as soon as possible.

Since this lab-based course will be delivered fully online this semester, the following mobile apps will be required to perform the individual labs in this course. It is highly recommended that each member of your team purchases them. However, at the very least, one member of each team should have them. Alternatively, members can split them up by having each purchase an app.

**iNalyse** **(https://apps.apple.com/us/app/inalyse-precise-video-analysis/id940450024)** (free to download; $9 for a 6 month subscription)

Telestrating / video analysis app that allows you to annotate, draw, and measure planar (2D) angles on videos captured with your phone.

**My Jump 2** **(https://apps.apple.com/us/app/my-jump-2/id1148617550)** ($10)

This validated app allows you to analyze the jumping performance of athletes by measuring jump height, force, velocity, power, reactive strength index using your iOS device.

This app takes advantage of the slow motion recording capabilities of your iOS devices to accurately analyze your running and sprinting technique.

**ForceData** **(https://apps.apple.com/us/app/forcedata/id1315583528)** (free)

Simple app that uses the sensors of the iPhone, iPad or Apple Watch to measure acceleration, velocity and force.

This course also utilizes the following online tools (free of charge for students) to facilitate student engagement and enhance your learning experience:

- zoom - Zoom video conferencing will be used for synced meetings and virtual office hours
- playposit  - **PlayPosit (https://knowledge.playposit.com/article/260-the-student-experience-without-an-lms)** will be used for in-video quizzes and interactive video lectures/tutorials

## COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 1 unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

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| Category | Time Expectation in Hours |
|---|---|
| Online Participation in Discussions, Groups, etc. | 7 |
| Reading Assignments | 5 |
| Written Assignments | 8 |
| Other Assignments & Learning Activities | 10 |
| Quizzes, Surveys | 7.5 |
| Total Hours | 37.5 |

## ASSESSMENT AND GRADING

- **Lab Assignments:** There will be seven lab assignments worth 15 points each to be scheduled throughout the quad. Each lab will require students to collect and/or analyze data biomechanics data and write up an abstract. All lab write-ups must be submitted via Canvas on the respective due dates. (105 pts total)
- **Quizzes:** There will be six quizzes that act as "pre-lab" assessments to prepare students for labs 2-7. Each quiz is worth 10 points each and will consist of multiple choice and T/F questions and may be embedded in a video using PlayPosit (bulbs). (60 pts total)
- **Article Reviews:** Each student will write two article reviews worth 15 points each that utilize biomechanical tools discussed and used in this course. Each article review will be at least 2 pages (double spaced, 12-point font) and consist of a summary of the introduction, methods, results, and discussion sections of the article. (30 pts total)
- **Team Pilots:** You will be assigned to a team of 3-4 students, with whom you will collaborate on a research pilot. The pilot will involve collecting data with the systems in the Biomechanics Lab as well as data analysis, interpretation, and write-up. Topics may include, but not limited to, gait analysis, throwing, footwear testing, and kicking. Each team will be required to submit a written manuscript and present a brief talk on your pilot on the date stated below. (50 pts)
- **Participation:** In addition to the live lab sessions, participation will be measured using lab and pilot discussions as well as attending the oral presentations of the pilots. Discussions require you to post a response to the prompt and replies to at least two of your peers. Your posts should be substantive in nature and foster a healthy dialogue between peers about the material. Your initial post should be at least 250 words while replies to peers should be at least 100 words. In some cases, video responses will be welcomed. (55 pts)

| ASSESSMENT | POINTS | COURSE OBJECTIVES |
|---|---|---|
| Lab Assignments | 105 | 1,2,3,4,5,6 |
| Quizzes | 60 | 1,23,5,6 |
| Article Reviews | 30 | 1-7 |
| Pilot | 50 | 1-7 |
| Participation | 55 | 1-7 |
| ------------------ | ------- | |
| Total | 300 | |

| POINTS | GRADE | POINTS | GRADE |
|---|---|---|---|
| 279-300 | A | 219-227 | C |
| 270-278 | A- | 210-228 | C- |
| 258-269 | B+ | 198-209 | D+ |
| 249-257 | B | 189-197 | D |
| 240-248 | B- | 180-188 | D- |
| 228-239 | C+ | 0-179 | F |

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students.  If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state.  It is the student's responsibility to notify the institution of any change in his or her physical location.  Refer to the map on **State Authorization (https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures)** to view which states allow online (distance education) outside of California.

## INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas.  Incompletes will only be assigned in extremely unusual circumstances.

## PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

## PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See **Academic Policies (http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278)** for definitions of kinds of academic dishonesty and for further policy information.

## PLNU ACADEMIC ACCOMMODATIONS POLICY

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students

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policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act.  Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities.  After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs.  The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester.  The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course.  PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

## PLNU ATTENDANCE AND PARTICIPATION POLICY

### Hybrid Format

At Point Loma Nazarene University, attendance is required at all scheduled classes. Adult Degree Completion courses are taught in the hybrid format, which means some class meetings will be face-to-face and some will be online.

Attendance in the face-to-face classes is to be for the entire time of the class. Arriving late or leaving early will be considered a partial absence. A day of attendance in an online class is determined as contributing a substantive note, assignment, discussion, or submission that adds value to the course as determined by the instructor. Three days of attendance are required each week. (It may be any three days during the week.)

#### Face-to-face Portion of the Hybrid course

In blended or hybrid courses, if a student misses one face-to-face class then the faculty member will send an email to the student and the Director of Student Success warning of attendance jeopardy. There are no exceptions to this policy.

If a student misses two face-to-face classes, the faculty member or Vice Provost for Academic Administration (VPAA) will initiate the student's de-enrollment from the course without further advanced notice to the student. If the date of de-enrollment is past the last

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If a student misses two online classes (fails to contribute to a discussion board) during the course, then the faculty member will send an email to the student and the Director of Student Success warning of attendance jeopardy. There are no exceptions to this policy.

If a student misses three online classes (fails to contribute to a discussion board by the due date) during the course, then the faculty member or Vice Provost for Academic Administration (VPAA) will initiate the student's de-enrollment from the course without further advanced notice to the student. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of "F" and there will be no refund of tuition for that course.

1 missed F2F class = warning

2 missed F2F classes = de-enrollment

2 missed online classes = warning

3 missed online classes = de-enrollment

## Online Format

Students taking online courses are expected to attend each week of the course. Attendance is defined as participating in an academic activity within the online classroom which includes posting in a graded activity in the course. (Note: Logging into the course does not qualify as participation and will not be counted as meeting the attendance requirement.)

Students who do not attend at least once in any 3 consecutive days will be issued an attendance warning. Students who do not attend at least once in any 7 consecutive days will be dropped from the course retroactive to the last date of recorded attendance.

## SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.
 If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the **Office of Spiritual Development** **(https://www.pointloma.edu/offices/spiritual-development)**

## DIVERSITY AND INCLUSION STATEMENT

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benefit. It is my intent to present materials and activities that are respectful of diversity: disability, age, socioeconomic status, ethnicity, race, nationality, religion, gender, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups. To help accomplish this:

- If you have a name and/or set of pronouns that differ from those that appear in your official PLNU records, please let me know!
- If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.

## USE OF TECHNOLOGY

In order to be successful in the online environment, you'll need to meet the minimum technology and system requirements; please refer to the *Technology and System Requirements*    (https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349) information.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

## ASSIGNMENTS AT-A-GLANCE

The table below lists our assignments and their due dates. Click on any assignment to review it.

# Course Summary:

| Date | Details | |
|---|---|---|
| Mon Aug 17, 2020 | 📄 **Lab 1 Overview** | to do: 11:59pm |
| Tue Aug 18, 2020 | 📅 **Live Lab Meeting** (https://canvas.pointloma.edu/calendar? event_id=48641&include_contexts=course_51971) | 2:30pm to 3:30pm |

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| Date | Details | |
|------|---------|--|
| Sun Aug 23, 2020 | 📝 **Quiz 1** (https://canvas.pointloma.edu/courses/51971/assignments/541732) | due by 11:59pm |
| | 📝 **Lab 1 Report** (https://canvas.pointloma.edu/courses/51971/assignments/541738) | due by 11:59pm |
| Mon Aug 24, 2020 | 📄 **Lab 2 Overview** | to do: 11:59pm |
| Thu Aug 27, 2020 | 📅 **Lab 2 Discussion Initial Post Due** (https://canvas.pointloma.edu/calendar? event_id=50763&include_contexts=course_51971) | 11:59pm |
| Sun Aug 30, 2020 | 📝 **Lab 2 Discussion** (https://canvas.pointloma.edu/courses/51971/assignments/545167) | due by 11:59pm |
| | 📝 **Lab 2 Report** (https://canvas.pointloma.edu/courses/51971/assignments/541739) | due by 11:59pm |
| | 📝 **Quiz 2** (https://canvas.pointloma.edu/courses/51971/assignments/541728) | due by 11:59pm |
| Mon Aug 31, 2020 | 📄 **Lab 3 Overview** | to do: 11:59pm |
| Thu Sep 3, 2020 | 📅 **Lab 3 Discussion Initial Post Due** (https://canvas.pointloma.edu/calendar? event_id=50764&include_contexts=course_51971) | 11:59pm |

| Date | Details | |
|------|---------|---|
| | 📝 **Quiz 3** (https://canvas.pointloma.edu/courses/51971/assignments/541729) | due by 11:59pm |
| | 📝 **Lab 3 Report** (https://canvas.pointloma.edu/courses/51971/assignments/541740) | due by 11:59pm |
| Mon Sep 7, 2020 | 📄 **Lab 4 Overview** | to do: 11:59pm |
| Thu Sep 10, 2020 | 📅 **Lab 4 Discussion Initial Post** (https://canvas.pointloma.edu/calendar? event_id=50765&include_contexts=course_51971) | 11:59pm |
| Sun Sep 13, 2020 | 📝 **Lab 4 Discussion** (https://canvas.pointloma.edu/courses/51971/assignments/545169) | due by 11:59pm |
| | 📝 **Quiz 4** (https://canvas.pointloma.edu/courses/51971/assignments/541730) | due by 11:59pm |
| | 📝 **Article Review 1** (https://canvas.pointloma.edu/courses/51971/assignments/541736) | due by 11:59pm |
| | 📝 **Lab 4 Report** (https://canvas.pointloma.edu/courses/51971/assignments/541741) | due by 11:59pm |
| Mon Sep 14, 2020 | 📄 **Lab 5 Overview** | to do: 11:59pm |
| Tue Sep 15, 2020 | 📅 **Live Lab Meeting** | |

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| Date | Details | |
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| | 📝 **Live Lab Meeting: Lab 5 Discussion** (https://canvas.pointloma.edu/courses/51971/assignments/545170) | due by 11:59pm |
| Sun Sep 20, 2020 | 📝 **Quiz 5** (https://canvas.pointloma.edu/courses/51971/assignments/541733) | due by 11:59pm |
| | 📝 **Lab 5 Report** (https://canvas.pointloma.edu/courses/51971/assignments/541743) | due by 11:59pm |
| Mon Sep 21, 2020 | 📄 **Lab 6 Overview** | to do: 11:59pm |
| Thu Sep 24, 2020 | 📅 **Lab 6 Discussion Initial Post** (https://canvas.pointloma.edu/calendar?event_id=50766&include_contexts=course_51971) | 12am |
| | 📝 **Lab 6 Discussion** (https://canvas.pointloma.edu/courses/51971/assignments/545171) | due by 11:59pm |
| Sun Sep 27, 2020 | 📝 **Quiz 6** (https://canvas.pointloma.edu/courses/51971/assignments/541731) | due by 11:59pm |
| | 📝 **Lab 6 Report** (https://canvas.pointloma.edu/courses/51971/assignments/541742) | due by 11:59pm |
| Mon Sep 28, 2020 | 📄 **Lab 7 Overview** | to do: 11:59pm |
| | 📅 **Lab 7 Discussion Initial Post** | |

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| Date | Details | |
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| Sun Oct 4, 2020 | 📝 **Lab 7 Discussion** **(https://canvas.pointloma.edu/courses/51971/assignments/545172)** | due by 11:59pm |
| | 📝 **Lab 7 Report** **(https://canvas.pointloma.edu/courses/51971/assignments/541744)** | due by 11:59pm |
| Tue Oct 13, 2020 | 📅 **Live Lab Meeting** **(https://canvas.pointloma.edu/calendar?** **event_id=48643&include_contexts=course_51971)** | 2:30pm to 3:30pm |
| | 📝 **Live Lab Meeting: Pilot Study Overview** **(https://canvas.pointloma.edu/courses/51971/assignments/545175)** | due by 11:59pm |
| Sun Oct 25, 2020 | 📝 **Article Review 2** **(https://canvas.pointloma.edu/courses/51971/assignments/541737)** | due by 11:59pm |
| Thu Oct 29, 2020 | 📅 **Pilot Study Discussion 1** **(https://canvas.pointloma.edu/calendar?** **event_id=50768&include_contexts=course_51971)** | 11:59pm |
| Sun Nov 1, 2020 | 📝 **Pilot Discussion 1** **(https://canvas.pointloma.edu/courses/51971/assignments/541735)** | due by 11:59pm |
| Tue Nov 10, 2020 | 📅 **Live Lab Meeting** **(https://canvas.pointloma.edu/calendar?** **event_id=48644&include_contexts=course_51971)** | 2:30pm to 3:30pm |
| | 📝 **Live Lab Meeting: Pilot Study Discussion 2** | due by 11:59pm |

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| Date | Details | |
|------|---------|---|
| Tue Dec 1, 2020 | 🗓 **Pilot Study Presentations (https://canvas.pointloma.edu/calendar?event_id=48730&include_contexts=course_51971)** | 2:30pm to 3:30pm |
| | 📝 **Live Lab Meeting: Pilot Study Presentations (https://canvas.pointloma.edu/courses/51971/assignments/545313)** | due by 2:30pm |
| Fri Dec 4, 2020 | 📝 **Pilot Study (https://canvas.pointloma.edu/courses/51971/assignments/541745)** | due by 11:59pm |

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