

George Mason University
College of Education and Human Development
Masters in Kinesiology

KINE 615.001 – Advanced Technology to Measure Human Movement

3 Credits, Spring 2022

Thursday: 9-10:15 am -247 Katherine Johnson Hall – Science and Technology Campus

Faculty

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Prerequisites/Corequisites

Admission to the Kinesiology MS graduate program or approval of course instructor.

University Catalog Course Description

Explores common methods of measuring human movement and performance in Kinesiology.

Course Overview

The course will cover using equipment common in the fields of biomechanics, exercise physiology and motor control. The course will expose students to both theory and practical application of using equipment for the purpose of measuring human movement.

Course Delivery Method

This course will be delivered using lecture, lab, seminar formats and hybrid online formats.

Learner Outcomes or Objectives

This course is designed to enable students to do the following:

1. Describe and explain measurement techniques and instrumentation in the field of kinesiology.
2. Use state of the art technology and equipment in the field of kinesiology to measure biomechanical and physiology aspects of human movement.
3. Interpret biomechanical and physiological data collected from human subjects.
4. Design data collection protocols of data in kinesiology.
5. Apply current peer-reviewed evidence to modify data collection procedures for specific research and practical applications.
6. Evaluate peer-reviewed research related to measurement of human movement.

Required Texts

None.

Articles will be provided by the instructor.

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

- **Assignments and Examinations**

- **Mid-term Examinations**– Each student will be required to complete 2 mid-term exams. The format for all exams will be multiple choice, true/false, short essays, and problem-solving questions.
- **HW and Quizzes** – Homework assignments and quizzes will reinforce concepts and theory covered throughout the semester. They will prepare students for upcoming laboratory experiences.
- **Instrumentation Portfolio** – Students will be required to submit a portfolio at the end of the semester. The portfolio will include an overview of major instrumentation commonly used in the field of Kinesiology covered throughout the semester. For each type of equipment a description of basic underlying theory, standard data collection protocols and data interpretation will need to be described. Students will be provided a detailed description of the portfolio requirements. Important – *This is a Program Assessment*.
- **Professionalism & Participation**
 - Students are expected to be on time, attend all class meetings and be prepared for in class assignments and projects. Excused absences include the following: illness (must bring a receipt or note from a doctor), family death, athletic/academic event, and others at the discretion of the instructor. For known upcoming absences, students must contact the instructor at least one week in advance to the missed class to make up work. In the case of illness or some other unforeseen absence, the student must contact the instructor via e-mail or telephone. At the next attended class meeting the student will discuss material that is to be completed. It is the student's obligation to pursue any make-up work. Since this course requires significant active participation, students must be dressed in appropriate fitness wear during all class sessions. Attendance documented at the start of the class. Thus showing up late to class will also be counted as an absence. A student who has more than 3 unexcused absences will not pass the course.

Other Requirements

- **Attendance**
 - Students are expected to be on time, attend all class meetings and be prepared for in class assignments and projects. Excused absences include the following: illness (must bring a receipt or note from a doctor), family death, athletic/academic event, and others at the discretion of the instructor. For known upcoming absences, students must contact the instructor at least one week in advance to the missed class to make

up work. In the case of illness or some other unforeseen absence, the student must contact the instructor via e-mail or telephone. At the next attended class meeting the student will discuss material that is to be completed. It is the student's obligation to pursue any make-up work.

- **Classroom Behavior**

- MS Kinesiology students are expected to behave in a professional manner. Unprofessional behaviors include, but are not limited to: speaking out of turn, body language, inappropriate language, etc. If students engage in behavior that disrupts the learning of other students they will be asked to leave. Students repeatedly displaying disruptive behaviors (i.e. not demonstrating professional growth to improve) will not pass the course.

- **Alternate Schedule**

- This course may have professionals from the field as guest speakers. Due to their professional responsibilities, guest speakers may not be able to attend a scheduled class time. Therefore, this course may require meeting outside of regularly scheduled class times and/or travel to sites off campus. Students will be informed of such meetings one week in advance of the scheduled class meeting. Students will be expected to arrange transportation to and from the meeting site.

- **Academic Load**

- Although many students must work to meet living expenses, employment and personal responsibilities are not acceptable reasons for late arrivals, missed classes, or incomplete assignments. Employment must not take priority over academic responsibilities. For additional information on this subject, please see the GMU Academic Catalog (<https://catalog.gmu.edu/policies/academic/registration-attendance/#ap-1-2>). Students failing to observe these guidelines should expect no special consideration for academic problems arising from the pressures of employment.

- **Honor Code**

- Students are held to the standards of the George Mason University Honor Code (see <http://honorcode.gmu.edu> for details). Violations, including cheating and plagiarism, will be reported to the Honor Committee. Student assignments may be put through plagiarism detecting software.

- **Written Assignments**

- All assignments must be typed in Microsoft Word, and formatted as follows (*unless otherwise specified*): double spaced, 12 point Times New Roman font, 1 inch margins, your name and title in the running header at top left hand corner, continuous line numbers on left margin, and page numbers centered in footer. Failure to comply with any or all parts of this format will result in an unacceptable assignment, which corresponds to zero (0) points.
- Pay close attention to spelling and grammar as these will count towards your grade on written assignments. American Medical Association Manual (AMA) of Style (10th

edition) format must be used for all written work in this class (e.g., in referencing, creation of tables, and formatting headers for paper sections).

- Assignments must be turned in on Blackboard/MyMason Portal by the beginning of class on the specified date due (*unless otherwise specified*). No late assignments will be accepted. It is recommended that students keep copies of all submitted work.

- **Technology Use During Class**

- As per GMU policy, all sound emitting technology is required to be turned off during the class meeting time. No sound emitting technology (e.g., cell phones, smart phones, iPads, Tablets, pagers, etc.) is allowed at any time during the class period. Students who are observed using any form of technology inappropriately (e.g., sending text messages from cell phones, visiting social networking sites from laptops, etc) will be dismissed from class for the day, counted as an absence, and not permitted to make up missed assignments. Additionally, no laptop computers (e.g., netbooks, notebooks, etc.) will be permitted for use during class time unless with permission from the instructor.

- **E-mail Correspondence**

Only messages that originate from a George Mason University address will be accepted. Please address the subject line for all email pertaining to this course as: *KINE 615: Last Name – purpose of email*. The following is an appropriate professional format:

Subject: KINE 615: Help with (fill in blank)

Dear Dr. Name, (*Introductory salutation*)

I have a question regarding one of the assignments. (*Text body*)

Regards, (*Ending Salutation*)

Mr./Mrs. Student (*Your name*)

Note: All email will be responded to in the order in which it is received. Students should allow 48 hours for a response.

- **Grading**

This course will be graded on a point system, with a total of 100 possible points.

Item	Assessment Method	Number	Points Each	Total Points
#1	Examinations	2	10	20
#2	HW and Quizzes	TBD	Averaged	30
#3	Instrumentation Portfolio	1	40	40
#4	Professionalism and Participation	1	10	10
TOTAL				100

Course Grading Scale

The student's final letter grade will be earned based on the following scale:

Grade	Percentage
A	94 – 100%
A-	90 – 93%
B+	88 – 89%
B	84 – 87%
B-	80 – 83%
C	70 – 79%
F	0 – 69%

Note: * Although a B- is a satisfactory grade for a course, students must maintain a 3.00 average in their degree program and present a 3.00 GPA on the courses listed on the graduation application.

Professional Dispositions

See <https://cehd.gmu.edu/students/polices-procedures/>

Class Schedule

Week / Date	Topic	Chapter/Assignment Due Date
1 / Jan 27	Course Overview	Articles on Blackboard
2 / Feb 3	Electromyography measurement	Articles on Blackboard
3 / Feb 10	Electromyography measurement	HW 1 Due February 13 @ Midnight
4 / Feb 17	Force Measurement – Force Plates	Articles on Blackboard
5 / Feb 24	Force Measurement - Force Plates	HW 2 Due February 27 @ Midnight
6 / Mar 3	Isokinetic and isometric testing	Articles on Blackboard
7 / Mar 10	Isokinetic and isometric testing	Mid-Term Exam 1 HW 3 Due March 13 @ Midnight
8 / Mar 17	Spring Break	

9 / Mar 24	Motion Analysis	Articles on Blackboard
10 / Mar 31	Motion Analysis	HW 4 Due April 3 @ Midnight
11 / Apr 7	Metabolic Testing	Articles on Blackboard
12 / Apr 14	Metabolic Testing	HW 5 Due April 17 @ Midnight
13 / Apr 21	Wearables - Actigraphy	Articles on Blackboard
14 / Apr 28	Wearables- Actigraphy	HW 6 Due May 1 @ Midnight
15 / May 5	Mid-term 2 / Make-up day	
Finals	Instrumentation Portfolio	Portfolio Due Midnight May 12

Note: Faculty reserves the right to alter the schedule as necessary, with notification to students.

Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

GMU Policies and Resources for Students

Policies

- Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/>).
- Students must follow the university policy for Responsible Use of Computing (see <https://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).

- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students **solely** through their Mason email account.
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <https://ds.gmu.edu/>).
- Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to VIA should be directed to viahelp@gmu.edu or <https://cehd.gmu.edu/aero/assessments> . Questions or concerns regarding use of Blackboard should be directed to <https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/>.
- For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking:

As a faculty member, I am designated as a “Responsible Employee,” and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason’s confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance from Mason’s Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

For additional information on the College of Education and Human Development, please visit our website <https://cehd.gmu.edu/students/> .