



Course Syllabus: **Biomechanics & Analysis of Human Movement**  
**EXPH 2993**

**Spring 2025, MWF 11-11:50am, Ligon 111**  
**Department of Athletic Training & Exercise Physiology**

**Contact Information**

**Instructor:** Michael W. Olson, Ph.D.  
**Email:** michael.olson@msutexas.edu  
**Telephone:** 940-397-4053  
**Office:** Ligon Hall 215  
**Office Hours:** M/W: 10:00 -11:00 pm; T/TH 9:00-11:00am  
**Day and Time:** Monday/Wednesday/Friday: 11:00 - 11:50 am  
**Location:** Ligon 223

**Important Dates:**

First Day of Class	Wednesday January 22
Spring break	March 10-14
Last Day to Withdraw	Monday March 25
Easter Break	Thursday April 17 – Sunday April 20 (no class)
Exam I	Wednesday, February 26 (in class)
Exam II	Wednesday, April 9 (in class)
Final Exam	Monday, May 12 (in person): 10:30am-12:30pm

**Textbook:** *Biomechanics of Sport and Exercise 4<sup>rd</sup> Edition:* by Peter McGinnis, Springer, 2020, ISBN: 978-1-4925-7140-7

**Course objectives:**

- Introduction to biomechanical concepts of movement
- Be able to define the system being evaluated
- Provide tools necessary for biomechanical analysis of movement
- Provide the applicability of physics based concepts to real world situations
- Increase your cognitive awareness of biomechanical factors in daily activities
- Introduce qualitative and quantitative analyses of human movement

- Be able to integrate biomechanical information to other areas of the discipline (exercise physiology, athletic training, clinical settings, sport settings)

### **Attendance**

Attendance at class is **compulsory** if you intend on performing well in this course. Attendance will be taken for each class period. If you are not feeling well, I encourage you to stay away from the classroom. Lectures will not be recorded so it is your responsibility to get notes from fellow classmates. Remember, if you plan on doing well in this, or any other course, you need to study outside of class three (3) hours for each credit hour of a course. Since this is a 3-credit hour course, you should be studying this material outside of class for 9 hours during the week and staying current with the materials presented.

### **Study Hours and Tutoring Assistance**

There will be few study hall sessions prior to each EXAM by GA.

**\*\*If you attend the study hall, you will get one point from the scheduled EXAM.**

**\*\*Tutoring services are available in Moffett Library. Dr. Phillis Bunch ([phillis.bunch@msu.edu](mailto:phillis.bunch@msu.edu)) is available to answer any questions regarding tutoring.**

### **Student Handbook**

Refer to: [Student Handbook-2018-19](#)

### **Academic Misconduct Policy & Procedures**

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

### **Grading**

Course Grade - Grades will be based on your performance in the following areas:

Table 1: Percentages allocated to each assignment.

<b>Assignments</b>	<b>%</b>
Exams 1-3	3*15% 45
Quizzes	25% 25
Weekly assignments	15% 15
Outside Labs	15% 15
Total	100

Table 2: Total percentages for final grade.

<b>Grade</b>	<b>%</b>
A	90-100
B	80-89.99
C	69-79.99
D	58-68.99
F	< 57.99

**Class preparation:** Review questions and problems will be assigned for each chapter to facilitate discussion. **It is your responsibility to come prepared for class and ready to engage in the topic matter.** Reading the materials from the textbook will assist you in your preparation for the following class period. Material from these assignments may be used for quizzes or exams! As such, you will need to bring a scientific calculator during each class session. **Cell phones will NOT be adequate! DO NOT use cellular phones in this class.** The notes presented in class serve as an outline for the topics during that class period.

**Course Evaluation:** Each student will be evaluated on the following criteria:

1. **Online Quizzes 25%**

There will be at least one quiz per topic area given during the semester on Desire2Learn. You will be provided a 24-48 hour window to complete each quiz. Quizzes will not be given the first day of class or the first class after each exam. **No quizzes will be dropped** from the calculation of the final grade. If you fail to complete the quiz before the time period has expired you will not be able to receive credit for that quiz. The instructor will not accept emailed quizzes. ALL quizzes will be performed on the Desire 2 Learn (D2L) platform. Quiz notifications will be sent to your account calendars for EXPH 2993 once the quiz is available. Once you begin the quiz you will have two (2) hours in which to complete AND submit the quiz. When the 2 hour window is over you will not be allowed to access the quiz. You will have at least 24 hour notice before a quiz ends. Failing to complete and submit a quiz will result is a zero (0) for that quiz with no potential for a make-up quiz. Any computer issues, or software issues you may have with D2L regarding the notification of a quiz will not excuse you from this assessment or the grade which you may incur. It is your responsibility to check your accounts on a regular basis (at least 2 times per day).

2. **Exam I 15%**

3. **Exam II 15%**

4. **Exam III 15%** (Final exam is NOT cumulative)

All exams will be in-person.

5. **Lab Activities 15%**

Laboratory activities will be assigned throughout the semester. The instructor will provide the labs on D2L. Students will have notification a week prior to the due date for completion of the lab. ALL laboratories will be initiated during class, usually on a Friday. These labs are to be completed outside of the allotted class period, if necessary. Students will upload their completed laboratory activities into an Assignment Box in D2L by the due date and time. You may work with others from the class on these labs, HOWEVER, EACH student will upload his/her OWN lab report. Please indicate who your lab partners were at the top of your lab report. No late laboratories will be accepted.

6. **Questions/Problems 15%**

At the end of each week, on Fridays, students will be provided questions or problems regarding that week's lecture material. These questions/problems are intended to supplement the lecture, and have students look further at the reading material and provided power point slides to enhance their studies. These questions/problems will be posted in D2L on Friday during the regularly scheduled lecture period. Students will be able to download these questions/problems. Once completed, the answers to these questions/problems can be uploaded into an assignment dropbox in D2L. These assignments will be due that night by 11 pm.

**Extra Credit**

There will be several impromptu activities related to our class or department throughout the semester. If you participate in those activities, you will receive extra credits to the EXAM point total from participating of **research project, conference/thesis presentation, or/and study halls, etc.**

**Late Work**

**Late assignments will not be accepted.**

**Make Up Work/Tests**

**No make-up exams/assignments** will be given for any personal reasons, except under medical/ religious/family emergency situations/ authorized participation in official school functions.

**Classroom Policies:** It is assumed that everyone enrolled in this course is here to pursue further knowledge in the area of human movement. The following list

provides what will be expected by the instructor and should also be expected by the students:

1. Attendance in class is expected. If you will not be able to participate in a class session please notify the instructor PRIOR to your absence in a timely manner. Only those with excuses that are related to University events (academic, athletic, etc.) or religious purposes may make-up work. If you have an excused absence and will not be available for an exam (EXCLUDING the FINAL EXAM) you must take the exam PRIOR to your absence (NO EXCUSES!!). Those individuals who do not have an excuse for an absence will receive a zero score for that day's evaluation.
2. Turn off all cell phones, pagers, and any other electronic devices before class begins. It is disrupting to other students, and disturbing to the instructor if these electronic devices are active during the class period.
3. Food is not permitted in the classroom. Bottled beverages (with caps/resalable tops) will be the ONLY beverage allowed in the classrooms.
4. If you have a question that was not answered during the class period please feel free to stop by my office or email me your question (see front page).
5. Neither academic dishonesty nor plagiarism will be tolerated and as such, disciplinary action will be issued in accordance with university guidelines ([Student Handbook-2018-19](#)).

### **Services for Students With Disabilities**

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to <http://www.mwsu.edu/student-life/disability>.

### **College Policies**

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

## Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

## Pregnant and Parenting Students

To support the academic success of pregnant and parenting students and students with pregnancy related conditions, the University offers reasonable modifications based on the student's particular needs. Any student who is pregnant or parenting a child up to age 18 or has conditions related to pregnancy, may contact MSU's designated Pregnancy and Parenting Liaison to discuss support available through the University. The Liaison can be reached by emailing [ruby.garrett@msutexas.edu](mailto:ruby.garrett@msutexas.edu) or calling 940-397-4500. Should a student communicate with me that they are pregnant or have a pregnancy related condition or may need additional resources related to pregnancy or parenting, I will communicate that student's information to the Title IX Coordinator, who will work with the student and others, as needed, to ensure equal access to the University's education program or activity.

A pregnant student, a parenting student, or a student with pregnancy related conditions may be provided with supportive measures, based on the student's individualized needs, analogous to those provided to a student with a temporary medical condition, and provided such supportive measures do not fundamentally alter the nature of an education program or activity. Such supportive measures may include, but are not limited to:

For pregnant students:

- (1) Providing breaks during class to express breast milk, breastfeed, or attend to health needs associated with pregnancy or related conditions, including eating, drinking, or using the restroom;
- (2) Excusing intermittent absences to attend medical appointments;
- (3) Providing access to online or homebound education, including the providing of access to instructional materials and video recordings of lectures (to the extent such materials, recordings are made available to any student with an excused absence);
- (4) Facilitating changes in schedule or course sequence, including extensions of time for coursework and rescheduling of tests and examinations and/or providing opportunity to make up missed assignments/assessments (such time extensions

shall be applied in the same manner as the University grants and provides ADA/504 accommodations for additional time);

- (5) Allowing a student to sit or stand, or carry or keep water nearby;
- (6) Offering counseling;
- (7) Facilitating changes in physical space or supplies (for example, access to a larger desk or a footrest);
- (8) Allowing the student to maintain a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals or unborn children;
- (9) Providing elevator access;
- (10) Facilitating a voluntary leave of absence from the University if the student is in good academic standing at the time the student takes a leave of absence, and facilitating a return to the student's degree or certificate program without being required to reapply for admission if the student remains in good academic standing; or
- (11) Making other necessary changes to policies, practices, or procedures.

For Parenting Students:

- (1) Facilitating priority registration to the extent the University provides early registration for any other group of students; or
- (2) Facilitating a voluntary leave of absence from the University if the student is in good academic standing at the time the student takes a leave of absence, and facilitating a return to the student's degree or certificate program without being required to reapply for admission.

**Obligation to Report Sex Discrimination under State and Federal Law**  
Midwestern State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. State and federal law require University employees to report sex discrimination and sexual misconduct to the University's Office of Title IX. As a faculty member, I am required to report to the Title IX Coordinator any allegations, personally observed behavior, or other direct or indirect knowledge of conduct that reasonably may constitute sex discrimination or sexual misconduct, which includes sexual assault, sexual harassment, dating violence, or stalking, involving a student or employee. After a report is made, the office of Title IX will reach out to the affected student or employee in an effort to connect such person(s) with resources and options in

addressing the allegations made in the report. You are also encouraged to report any incidents to the office of Title IX. You may do so by contacting:

Laura Hetrick  
 Title IX Coordinator  
 Sunwatcher Village Clubhouse  
 940-397-4213  
 laura.hetrick@msutexas.edu

You may also file an online report 24/7 at

[https://cm.maxient.com/reportingform.php?MSUTexas&layout\\_id=6](https://cm.maxient.com/reportingform.php?MSUTexas&layout_id=6)

Should you wish to visit with someone about your experience in confidence, you may contact the MSU Counseling Center at 940-397-4618. For more information on the University's policy on Title IX or sexual misconduct, please visit <https://msutexas.edu/titleix/>

### **Tentative Course Schedule:**

Week	Dates	Content	Reading
1	Jan 22-24	Welcome, Introduction, What is Biomechanics?	pp.2-16
2	Jan 27-31 Jan 31	Math Review (textbook and handout) Lab #1 - Finding Literature	pp. 31-37
3	Feb 3-7 Feb 7	Linear Kinematics Linear Kinematics Questions Lab #2	pp. 51-86
4	Feb 10-14	Angular Kinematics Angular Kinematics Questions	pp. 167-194
5	Feb 17-21 Feb 21	Linear Kinetics Linear Kinetics Questions Lab #3	pp. 19-50/87- 113
6	Feb 24 Feb 26 Feb 28	Review Day EXAM I Balance/Stability/Equilibrium	pp. 133-178
7	Mar 3-7 Mar 7	Lever Systems Lever system Questions	
8	Mar 17-21 Mar 21	Torque/Moment of Force Torque Questions Lab #4	pp. 133-178
9	Mar 24-28 Mar 28	Angular Kinetics Angular Kinetics Questions Lab #5	pp. 133-178
10	Mar 31- Apr 4	Work/Energy/Power Work/Energy/Power	pp. 115-132



	Apr 4	Questions; Lab #6	
11	Apr 7 Apr 9 Apr 11	Review Day EXAM II Anatomy Review	pp. 179-189
12	Apr 14-16 Apr 16  Apr 17-18	Anatomy Review Anatomy Questions Lab # 7  Easter Break	
13	Apr 21-25  Apr 25	Mechanics of Biological Materials Biological Materials Questions	pp. 239-262
14	Apr 28-30 May 2	The Muscular System Muscle Questions Lab #8	pp. 277-298
15	May 5-9 May 9	The Nervous System/Control Questions	pp. 299-308
16	May 12	FINAL EXAM 10:30am- 12:30pm	