



Course Syllabus: **Biomechanics & Analysis of Human Movement**
EXPH 2993-101
Fall 2021, MWF 11-11:50am, Ligon 223
Department of Athletic Training & Exercise Physiology

Contact Information

Instructor: Michael W. Olson, Ph.D.
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Office: Ligon Hall 215
Office Hours: M/W: 1:00-2:00 pm; T/TH 11:00 am -1:00pm
Day and Time: Monday/Wednesday/Friday: 11:00 - 11:50 am
Location: Ligon 223

TAs: Kanksha Bhatta
Himadri Patel
Ross Dalton
Anoud Al-Awamleh

Important Dates:

| | |
|--------------------|--------------------------------------|
| First Day of Class | Monday, August 23 |
| Last day to Add | Thursday August 26 |
| Last day for "W" | Monday October 25 (4pm) |
| Labor day | Monday September 6 (no class) |
| Exam I | Wednesday, September 22 |
| Exam II | Wednesday, October 27 |
| Final Exam | Monday, December 6 (10:30am-12:30pm) |

Textbook: *Biomechanics of Sport and Exercise 4th Edition (epub):* by Peter McGinnis, Springer, 2020, ISBN: 9781492592297

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 each class period.

While in the classroom, social distancing will be practiced Wearing masks is not mandatory/required while in the classroom or the building. 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.

Study Hours and Tutoring Assistance

There will be a 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.

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Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given).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.

| Assignments | | % |
|--------------------|-------|----------|
| Exams 1-3 | 3*20% | 60 |
| Quizzes | 10*2% | 20 |
| Weekly assignments | 10% | 10 |
| Labs | 10% | 10 |
| Total | | 100 |

Table 2: Total percentages for final grade.

| Grade | % |
|--------------|----------|
| A | 90-100 |
| B | 80-89.99 |
| C | 70-79.99 |
| D | 60-69.99 |
| F | < 59.99 |

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 e-book 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 20%**

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 20%**

3. **Exam II 20%**

4. **Exam III** **20%** (Final exam is NOT cumulative)

5. **Lab Activities 10%**

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 are to be completed outside of the allotted class period. 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** **10%**

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 before 11 am on the following Monday.

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.

Tentative Course Schedule:

| Week | Dates | Content | Reading |
|------|---|--|-------------------------|
| 1 | Aug 23-27 | Welcome, Introduction, What is Biomechanics? | Introduction (xiv) |
| | Aug 27 | Questions/problems (Introduction) | |
| 2 | Aug 30- Sept 1 | Math Review (e-book and handout) | pp. 24-47; 403 |
| | Sept 3 | Math review problems | |
| 3 | Sep 8-10 | The body as a Machine | |
| | Sep 10 | Questions (Levers) | |
| 4 | Sep 13-15 | Anatomical descriptions | pp. 166-177; 242-254 |
| | Sept 17 | Questions (Anatomy review) | |
| 5 | Sep 20-24 | Mechanics of Biological Materials, Exam I Exam I: Wednesday Sep 22 | pp. 218-241 |
| 6 | Sep 27-29 | Mechanics of Biological Materials (continued) | |
| | Oct 1 | Questions (Deformable body mechanics) | |
| 7 | Oct 4- 6 | The Muscular System | pp. 256-277 |
| | Oct 8 | Questions (Muscles) | |
| 8 | Oct 11-13 | Nervous System/Control | pp. 278-288 |
| | Oct 15 | Questions (Motor Control) | |
| 9 | Oct 18-20 | External Forces | pp. 16-47 |
| | Oct 22 | Questions/problems (Forces) | |
| 10 | Oct 25-29 | Linear Kinematics, Exam II Exam II: Wednesday Oct 27 | pp. 48-77 |
| 11 | Nov 1-3 | Linear Kinematics continued | |
| | Nov 5 | Questions/problems (Linear Kinematics) | |
| 12 | Nov 8-10 | Linear Kinetics | pp. 78-104 |
| | Nov 12 | Questions/problems (Linear Kinetics) | |
| 13 | Nov 15-17 | Work, Energy, & Power | pp. 105-122 |
| | Nov 19 | Questions/problems (Work, Energy, Power) | |
| 14 | Nov 22 | Angular Kinematics; Angular Kinetics | pp. 152-177 |
| 15 | Nov 29- Dec 3 | Angular Kinetics (cont'd) Questions/problems (Angular Kinetics) | pp. 178-197 |
| 16 | Final Exam Monday December 6 (10:30am-12:30pm) | | |

