

# KINE3080: Physiological Basis of Human Performance

**M: 3:30-4:50 PM**

**Room: Inspire Park Teaching Lab**

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## **Instructor:**

Dr. B. McFarlin, Associate Professor

Office Hours by Appointment (after class in Frisco, other times in Denton by appointment)

Use UNT e-mail

**Prerequisites (Recommended):** Junior Standing; 6 hrs of BIOLOGY or equivalent

**Text (Optional):** "Physiology of Sport and Exercise", 5<sup>th</sup> or 6<sup>th</sup> Edition. Kenney, Wilmore & Costill. Human Kinetics.

**Course Description:** Applied physiology course of study including bioenergetics, neuromuscular factors, and cardiovascular and pulmonary dynamics during exercise. Emphasis is placed on acute and chronic responses of human physiology to exercise stress.

**Learning and Engagement Outcomes:** This course uses a combination of traditional lecture, online lecture, and experiential learning components to complete following learning and engagement outcomes:

1. To integrate your expanding exercise physiology knowledge base into the design of an experiment to test a particular aspect of exercise physiology.
2. To be able to identify examples of research manuscripts that meet the guidelines of being a high-quality work based on a search of PubMed.
3. To be able to distill a given set of published research manuscripts into their basic components and use the components to design an exercise physiology experience.
4. To be able to explain and interpret exercise physiology data that you collect as part of the experiential learning components using knowledge obtained during the lectures.

**Role of Experiential Learning in this Course:** During the course of this semester you will have the opportunity to participate in a series of experiential learning activities. These will come in the form of research experiments that you will design and conduct while working in small groups of 4-5 students. Dr. McFarlin will help you develop your ideas, but this part of the class will be student driven based on the exercise physiology concepts that your group decides to focus on.

**How you will be Prepared for Experiential Learning in this Course:** During this semester we will complete a series of traditional and online lectures aimed at teaching you about basic research skills and how to identify good research studies in the field of exercise physiology. We will also build your knowledge base in the area of exercise physiology. The goal is that by the end of this course you will have a working understanding of exercise physiology and most importantly an ability to apply the concepts you learn in class. Team work is important for this project to succeed and for you to earn a good grade.

## **Course Expectations:**

1. **Lecture Attendance:**
  - a. **If you miss more than 2 days of class**, Dr. McFarlin reserves the right to drop you from the course without notice.
2. If you have special learning needs, please inform me immediately.
3. Please respect others in class by leaving your cell phones/pagers, etc turned off. Phone calls are not to be taken at any time during class.
4. Participate in weekly peer-mentoring activities with your assigned group.
5. If at any point during the semester you are unhappy with your performance in this class, please contact me **immediately**.
6. **Academic dishonesty** will not be tolerated (i.e., copying, plagiarism, cheating, using cell phone during exam, etc.); individuals found violating this policy will be reported to the KHPR department chair. Any

individual who commits academic dishonesty at any point during the semester will receive a zero for the assignment in question.

**Technical Skill Requirements:** Downloading and uploading files, sending and receiving emails, and/or using Canvas.

**Netiquette:** Because of how important communication is in the online environment, I will expect each of you to log in to the course at least 3 evenly spaced times a week. Please check the Announcements area first, since that is where I will put important information. Communication online is different than that of face to face classes. Try to use good "netiquette" when communicating with your classmates. Remember that your fellow students can't see your facial expression, hear you giggling, or notice your gestures. All of these elements add to our face to face communication every day without us really noticing it. So, please keep this in mind when you are commenting on others ideas, giving constructive criticism on a writing project, or just interacting with the class in general. I expect that everyone will treat the others in this class with the same respect that they would wish to be treated! However, I also have confidence from the start that this will happen. I have taught many classes, and I am usually the most surprised by how supportive of each other students can be. Realize that although you may never meet many of your classmates, you can still create lasting friendships in the online environment. You may also want to think about the fact that just because individuals take an online course, it doesn't mean that they are necessarily at a distance from each other. During your introductions, take a minute to let others know what town and state you live in. You may find that you actually have a classmate that you can meet at the local coffee shop and continue a conversation with. To learn more about online etiquette, visit the following Web site: <http://www.albion.com/netiquette/corerules.html>

**ADA Statement:** When possible, and in accordance with 504/ADA guidelines, we will attempt to provide reasonable academic accommodations to students who request and require them. Please call the UNT Office of Disability Accommodation (<http://disability.unt.edu/about>) for more details.

**Academic Dishonesty Policy (copying, plagiarism, cheating) per UNT Policy 18.1.6:** Students are expected to conduct themselves in a manner consistent with the University's status as an institution of higher education. In the class setting, students shall follow their instructors' directions and observe all academic standards and requirements published in course syllabi and other course materials. A student is responsible for responding to an academic dishonesty report issued by an instructor or other University authority. If a student fails to respond after proper attempt at notification, the University may take appropriate academic actions in the absence of the student. Any student found to be in violation of the academic dishonesty policy will be given a grade of zero for the assignment in question and reported to the UNT administration through the reporting mechanism approved in UNT policy 18.1.6 (Office of Academic Integrity).

**Evaluation:** Final grades will be determined based on the total number of points that you accumulate during the semester.

<b>Component</b>	<b>Possible Points</b>
Online Research Training (3, 5 points each)	15
Topic/Reflection Discussions (3 total, 10 points each)	30
Group Article Review	50
Group Methods Submission	25
Group Data Collection / Submission	25
Group Slides	25
Group Presentation	25
Exam I	150
Exam II	150
<b>Total</b>	<b>495</b>

**Grade Scale:** A: 90-100%, B: 80-89%, C: 79-70%, D: 69-50%, F: <50%

**Note:** Students will not be allowed to take an Incomplete in this course due to poor planning on their part. If you find you do have a legitimate reason for an Incomplete, please talk with me as soon as possible to discuss the situation and to identify the documentation that will be required to support your request. Please consult the UNT catalog to review conditions under which an incomplete may be granted.

**Online Research Training:** As part of the first learning module in this course, you are required to complete online training for: CITI Human Subjects, UNT Biological Safety, and UNT Bloodborne Pathogens. In each of

these trainings you will learn about how to be safe when conducting research. You will submit proof of training via links in Canvas and be awarded 5 points for each training that you complete. In order to participate further in the course, **you have to complete the training, this is not optional.**

**Topic/Reflection Discussions:** In order to document your experiences with experiential learning and the research process in this class, you will be asked to complete a group discussion three times during the semester. The goal of this activity is to reflect on what you learned for the week using a supplied starter topic (refer to Canvas for the specific topic) and how you plan to use your new knowledge going forward. In addition to your post, you must reply to the posts of at least two classmates (Minimum of 3 posts) in order to receive full credit for the discuss. **If you miss a discussion, no make-up will be offered and you will receive a grade of zero for that discussion.**

**Reflection 1 = January 21<sup>st</sup> – January 28<sup>th</sup>**

**Reflection 2 = February 18<sup>th</sup> – February 25<sup>th</sup>**

**Reflection 3 = April 22<sup>nd</sup> – April 29<sup>th</sup>**

**Forming Lab Teams:** This class has been designed so that you will learn key facts about the field of exercise physiology, but also so you will have the opportunity to conduct your own exercise physiology research projects. At the end of the first-class meeting, you will mingle with your classmates and organize yourself into groups of 4-5 students. You will identify one student to be your “contact person.” Your group’s contact person will email Dr. McFarlin the names of the students in each group. Dr. McFarlin will then setup “groups” in Canvas to allow for you to communicate and share information as you develop your project. **It is very important that your group uses Canvas to log your communications. Do not use text messaging or any other communication form other than Canvas. Doing so may result in you losing points on your final project.**

**Group Article Review:** Your group will identify a specific topic within exercise physiology and present it to Dr. McFarlin by the 3<sup>rd</sup> week of class. Once Dr. McFarlin approved your topic, your group will select a minimum of 5 research articles from PubMed and/or the UNT library website that includes methods or outcomes related to the approved topic. You may only use published research articles as references. You may not use magazines, blog posts, health websites, or anything else considered to be non-scientific publications. If you are not sure about your references, please have them reviewed by Dr. McFarlin. As a group you will write a 500-word summary (1 page, 12pt Arial, 1” margins) of the key findings. You will use a 2<sup>nd</sup> page to include a bulleted list of the key methods used across the studies. A 3<sup>rd</sup> page will be used to cite your 5 references using APA format. Your group your also list the names of your group members on the top of the first page of your submission. Each member of the group will receive the same grade for the assignment. **If you fail to submit this assignment by the due date you will receive a grade of zero and no make-up will be possible.**

**Groups 1, 3, & 5 Article Review Due Date = February 11<sup>th</sup> by 11:59PM**

**Groups 2, 4, & 6 Article Review Due Date = February 18<sup>th</sup> by 11:59PM**

**Group Methods Submission:** Using the previously reviewed articles, the group will write a short proposal (1 page numbered list) indicating the following: 1) Question to answer, 2) What you want to measure (i.e. blood lactate, heart rate, RPE, etc.), 3) How you proposed to conduct the study (i.e. what type of exercise to use, when to make measures, etc.), and 4) The anticipated time needed to conduct the trial. Dr. McFarlin will meet individually with each group to discuss and finalize methods that will be used. Your methods will also be reviewed by one of Dr. McFarlin’s PhD students who will be assigned to assist your group during the data collection phase. Each member of the group will receive the same grade for the assignment. **If you fail to submit this assignment by the due date you will receive a grade of zero and no make-up will be possible.**

**All Groups Methods Due Date = March 21<sup>st</sup> by 11:59PM**

**Group Data Collection:** During the class you will be working with your group, Dr. McFarlin, and one of his PhD students to collect your desired exercise physiology data using members of your group for the testing. In order for this process to be effective, your group needs to develop a plan of action before your day of data

collection. Dr. McFarlin and his PhD students will be present to advise and assist you, but it is the responsibility of your group to complete your project. Being organized will make this process more effective and enjoyable. This data will be collected in a “field setting” at the UNT Inspire Park Campus. Your group will be expected to submit an excel spreadsheet of your final data for approval by Dr. McFarlin.

**Groups 1, 2 Data Collection Spreadsheet Review Due Date = March 29<sup>th</sup> by 11:59PM**

**Groups 3, 4 Data Collection Spreadsheet Review Due Date = April 7<sup>th</sup> by 11:59PM**

**Groups 5, 6 Data Collection Spreadsheet Review Due Date = April 14<sup>th</sup> by 11:59PM**

**Group Presentation:** You will be provided a PowerPoint template for creating your presentation. Each member of the group will be expected to contribute to the development of the slides for the presentation and speak during the presentation. Each group will be allotted 20-min to present on **May 6th**. Your grade on this project will be determined by evaluations submitted by other members of the class and Dr. McFarlin. Your group will be asked to submit your slides for review in advance of the presentation.

**All Groups Slides Due Date = May 3<sup>rd</sup> by 11:59PM**

**Examinations:** Exam I will cover the topics 1-3 (Research Methods, Bioenergetics, and Exercise Metabolism) and Exam II will cover topics 4-6 (Muscle Physiology, Neuromuscular adaptations to resistance training, and Sport Nutrition/Metabolism). You will be taking your exams on a Canvas using a laptop provided by UNT. The exams will be composed entirely of short-answer questions. More detail on exam structure will be presented before Exam I. **Please be in class to take examinations. If you are late or do not show up, NO make-up exam will be offered.**

**How do I get answers to my Questions?** Dr. McFarlin is here to help you achieve success in this class. Unfortunately it is very difficult from a time perspective for me to reply to individual e-mail questions about course content. Also, there is a good chance that several of your classmates may have a similar question as you. Thus, if you have a question concerning lecture material, please post these in the discussion forum on Canvas. This will allow all students in the course to view my responses. If you prefer to ask a question in person, feel free to ask Dr. McFarlin after class or schedule an appointment to meet him in his office. If you have a grade related question, you are welcome to e-mail Dr. McFarlin directly via Canvas e-mail.

## Tentative Order of Topics:

Week	Topic	In-class	Online
1/14	Syllabus & Course Overview	X	
1/14	Research Methods	X	X
1/21	Holiday, No Class	Holiday, No Class	
1/28	Bioenergetics & Exercise Metabolism	X	X
2/4	Groups 1, 3, & 5 Meet with Dr. McFarlin	X	**
2/11	Groups 2, 4, & 6 Meet with Dr. McFarlin	X	**
2/18	Energetic Metabolism	X	X
2/25	All Groups Develop Methods with Dr. McFarlin	X	
<b>3/4</b>	<b>Exam 1 (Research Methods, Bioenergetics, and Exercise Metabolism)</b>	<b>X</b>	
3/18	All Groups Finalize Methods with Dr. McFarlin	X	
3/18	Muscle Physiology		X
3/25	Data Collection Groups 1 & 2	X	
3/25	Neuromuscular Adaptations to Strength Training		X
4/1	Data Collection Groups 3 & 4	X	
4/1	Basic Sport Nutrition		X
4/8	Data Collection Groups 5 & 6	X	
4/15	Work with your Group on Presentation Slides		X
<b>4/22</b>	<b>Exam 2 (Muscle Physiology, Neuromuscular Adaptations to Strength Training, and Basic Sport Nutrition)</b>	<b>X</b>	
4/29	Work on Presentation Slides with Dr. McFarlin	X	
5/6	Groups 1, 2, 3, 4, 5, & 6 Present (20-min per group maximum) * <b>PLEASE NOTE THIS IS A 3-hour class meeting</b>	X	

\*\* You may need to work with your group outside of class to finalize

**Note:** The following information is designed to help the class run smoothly. The instructor reserves the right to make additions and adjustments as necessary. Some of the writings, lectures, films, or presentations in this course may include material that conflicts with the core beliefs of some students. Please review the syllabus carefully to see if the course is one that you are committed to taking. If you have a concern, please discuss it with me at your earliest convenience.