

Exercise & Metabolism Laboratory (BIOL 1107)

The University of Texas at El Paso

Fall 2018

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Instructor:	Dr. Sudip Bajpeyi; sbajpeyi@utep.edu
Meeting Time:	MW 8-10:20am (Room 136 HSSN)
Offices:	Jasmin Jenkins, HSSN 471 Michelle Galvan, HSSN 471 Dr. Sudip Bajpeyi, HSSN 445

Office Hours: Jasmin- F 10-12pm (by appointment or through Online Office Hours/ Blackboard)

Course Description: This course will describe basic concepts in exercise physiology with a focus on skeletal muscle metabolism. The course will discuss the theoretical and methodological approaches for assessment of whole-body substrate metabolism, cardiorespiratory fitness and insulin sensitivity. This research-driven course will teach the fundamentals of exercise physiology while providing students with hands on experience in collecting, analyzing and discussing data.

Course Objectives: Upon completion of this course, students will have developed a practical understanding of:

- Fundamentals of Laboratory Safety and Human Research Ethics
- Fundamentals of Energy Metabolism and Clinical Laboratory Techniques
- Hands on experience on Human Research
 - Learn clinical assessments of anthropometry, substrate utilization, physical activity level, calorie intake/expenditure, cardiorespiratory fitness, muscle strength and insulin sensitivity
- Learn and demonstrate scientific data collection and data interpretation.

Evaluation and Grading Scheme: Student performance will be evaluated based on:

- | | |
|--|-------------------|
| • Attendance/Participation (10%) | Grading Scheme: |
| • Lab Notebook (20%) | A ($\geq 90\%$) |
| • Quizzes <i>Individual</i> (30%) | B (80-89.9%) |
| • Article Discussions/ Summary | C (70-79.9%) |
| <i>Individual/Group</i> (40%) | D (60-69.9%) |
| | F ($< 60\%$) |

NOTE:

- You are required to work with class members for data collection.
- You are required to come and participate in data collection outside of scheduled class time (some measurements requires participants to fast).
- You must be present to take the quizzes during class.
- Cell Phones should be OFF and should not be seen during data collection (contact me in advance if you must take a call in case of an emergency)

Extra Credit: Students are expected to spend the required 4 hours and 40 minutes on class related time per week (can be inside and outside of the scheduled class time). Class will not always last the scheduled time, to allow for outside of class activities in assisting/collecting scientific data. Students investing a significant amount of time, assisting in data collection beyond the weekly required time may receive Extra Credit. The specific expectations will be explained during the semester.

Required Materials: Class lectures and reading materials will be available on Blackboard. Students will be provided with a lab notebook to document experiments and data collection (Blackboard may also be used as a tool for such upon occasion).

Students will also be using a cloud-based student response software by iClicker in class. This will help understand what you know, give everyone a chance to participate in class, and allow you to review the material. This software will be used to keep track of attendance/participation; please refer to the attendance policy on page #2 of this syllabus. In class participation will account for **10%** of your final grade.

You will need to create an iClicker Reef Student account to participate in class using your laptop, smart phone, or tablet connected to the university's Wi-Fi (UTEPSecure) or to your mobile data plan. *[You may also use an iClicker remote in combination with your Reef Student account.]*

Creating Your iClicker REEF Student Account through Blackboard

Sign in to Blackboard and click my course [Fall 2018 – Topics in Study of Life I (BIOL-1107-988) (15046.201910)]. Search for the iClicker REEF icon, this should be on the Home Page. Click this link to launch a special instance of REEF, then log in or create a new REEF account if you don't already have one. You should use your university email address (username@miners.utep.edu) when creating your account. If you need to change your email address or password, edit your REEF account profile. Signing into REEF through the link in Blackboard will automatically add you to my course. When asked to register a remote device, see instructions below or choose not at this time.

Note: You will not need to purchase a subscription to use iClicker REEF this semester because it is provided to you for free.

Attendance/Participation: Students are responsible for screening a minimum of 2 participants and following the participant from the beginning of research project to the end of post testing. Students will be required to come and participate in data collection outside of scheduled class time on assigned days. Each research experience must be documented in the lab notebook, by taking detailed notes (points will be deducted from an incomplete lab notebook entry).

Lab Notebook: Students will be required to document their research experience in the lab notebook as a group by taking detailed notes (points will be deducted from an incomplete lab notebook entry). All entries **must be made in Pen** and dated at the top. You may begin each new entry on the same page, taking obvious care to make it readable and neat. Keep in mind all entries should be detailed enough to be able to replicate the **exact** same experiment (including mistakes). Students will be graded on

the thoroughness in lab notebook entries for each research experience (scientific data collection) including a detailed description of each of the following points:

- Date and Time
- Names (Including Responsibility; Ex: Jane Doe – Note Taker)
- Title
- Hypothesis/Goal: Give a brief description of purpose the activity
- Observations:
 - Instruments Used: Type; Location; Name
 - Supplies/Consumables: Type, Amount, Storage Location
 - All that Happens (planned or unplanned)
 - Time between/during steps
- Blackboard Bi-Weekly Self-Reflection: These reflections will be due at the end of each module (Every two weeks on blackboard). Please provide CONSTRUCTIVE feedback to your classmates or answer any questions you may know the answer too. Each person must start an individual new blog entry for their reflection.

For full credit, it is the students' responsibility to obtain a signature from teaching assistants/instructor at the end of each lab notebook entry.

Quizzes: Students will be tested on the materials presented **in the class as well as materials provided on blackboard as an assignment** in the form of lectures, journal articles, discussions, and hands on experiences. Quizzes will be given in the form of iClicker Responses, Quizzes on Videos, and end of Module/Units Quizzes. Each student **MUST** complete quizzes during the designated class period. Students will not be allowed to make-up a missed quiz without **prior** arrangements made in case of emergency. Quizzes will be given unannounced throughout the semester during class and you will not be allowed to make up for the quiz if you come late/leave early. Quizzes will be given in the form of written question/answer style and/or practical application of concepts learned (Ex: equipment set up). Grading for practical application quizzes will be determined by key items that need to be performed as per provided standard operating procedures/protocols.

Article Discussion/Summary: Each student will bring a brief (approx. one page) summary of the assigned relevant article to class, summarizing the main findings of the article in your own words (2 Sentences on Introduction, 2 Sentences on Methods, 1-2 Paragraphs on Results/Data Interpretation, 2 Sentences on Conclusion). In class, as a group you will come together to create a one page overall summary of the article and present your conclusions to the class. *Grading Rubric can be found on page #9.*

Research Topics/Methods: Students will be allowed to choose/assigned one of the following topics/procedures related to measuring metabolism in exercise physiology. It is the responsibility of each student to learn ALL of the methods presented in addition his/her assigned topic. The underlined topics are acceptable research topics:

- Participants Screening/Eligibility/Health Screening/Questionnaires (Obesity, T2D, Physical Inactivity)
- Physical Activity Level
- Calorie Intake and Expenditure (Diet, Accelerometer)
- Body Composition (DXA, Anthropometrics)

- Aerobic Fitness (VO_{2max} , Lactate Production)
- Anaerobic Fitness (Isokinetic Dynamometer, 1RM)
- Resting Energy Expenditure (Resting Metabolic Rate, Respiratory Quotient)
- Insulin Sensitivity (Oral Glucose Tolerance Test)
- Endocrinology/Blood Markers (Myokine, Cytokine, Proteins, Thyroid Hormones, Metabolic Panel, CBC)

Class Policies

Syllabus Changes: The instructors reserve the right to make changes to the syllabus and will notify students accordingly.

Late Assignments: Any assignment that is not turned at the beginning of the class period on the day it is due will be considered late. **NO LATE** work will be accepted.

Attendance and the Drop Deadline: Students who miss more than three classes risk being withdrawn from class with a grade of W if absences occur prior to the first eight weeks or an "F" if the total of class sessions missed exceeds three after the first four weeks of the course. Students wishing to drop a course and receive a grade of W must do so prior to the Drop Date. Dropping a course after that time will result in an automatic grade of F.

Americans with Disabilities Act (ADA)

If you have or believe you have a disability that may impact your ability to succeed in a class, whether it be online or face-to-face, you may wish to contact the Center for Accommodations and Support Services (CASS) to show documentation of a disability or to register for testing and services. Students who have been designated as disabled must reactivate their standing with the CASS yearly.

If you feel that you may have a disability requiring accommodations and/or modifications, contact CASS at 915-747-5148.

You also can visit the CASS website at <http://sa.utep.edu/cass/> or the CASS office in Room 108 East Union Building.

Academic Integrity

"Scholastic dishonesty--which includes the attempt of any student to present the work of another as his or her own, or any work which s(he) has not honestly performed, or attempting to pass any examination by improper means is a serious offense and will subject the student to disciplinary action. The aiding and abetting of a student in any dishonesty is held to be an equally serious offense. All alleged acts of scholastic dishonesty will be reported to the Dean of Students for disposition. It is the Dean of Students' responsibility to investigate each allegation, dismiss the allegation, or proceed with disciplinary action in a manner, which provides the accused student his or her rights of due process.

The International Center for Academic Integrity, comprised of a consortium of universities worldwide, defines academic integrity as "a commitment to fundamental values: honesty, trust, fairness, respect, and responsibility. From these values flow principles of behavior that enable academic communities to translate ideals into action." As they relate to students, these values can be defined as follows:

- **Honesty:** “adhering to standards of truthfulness and integrity”
- **Trust:** participating in “an environment of confidence”
- **Fairness:** abiding by the “standards, practices, and procedures” outlined by your instructors and institution
- **Respect:** “encouraging a wide range of opinions and ideas”
- **Responsibility:** assuming personal accountability and accepting sanctions in cases of misconduct.

Students are responsible for adhering to the above standards in all academic activity and refraining from all forms of academic dishonesty. According to the UTEP Handbook of **Operating Procedures**, academic dishonesty includes committing (or attempting to commit) the following:

- **Plagiarism** – taking credit for work that is not your own (e.g., copying and pasting from the internet, failing to cite sources of information, failing to attribute direct quotes to their original author, or submitting your work from another course without prior permission).
- **Cheating** – This includes copying another student’s work during an exam; using notes, books, or electronic devices during an exam without prior permission; taking an exam for another student; and communicating with or helping another student during an exam.
- **Collusion** – any collaboration with another student without the permission of the instructor.

Professional Conduct

During this course you will be expected to deal with participants, your colleagues, and yourself as a professional. You are expected to approach learning with offensive strategies rather than with defense and evasion. Demonstrate pride in your chosen profession through both your actions and your attitude. This includes being on time for class, be respectful during the class/data collection and coming prepared. You will be provided with the appropriate training on research ethics, human subjects research, and, laboratory safety. If you are found acting inappropriately during class/data collection/participant interaction you will be asked to leave and will lose participation credit for that day. **Attendance is expected. Contact the instructor if you are going to miss a class.**

Communicating Effectively:

Learning is not a spectator sport. It is everyone's responsibility to participate as fully as they can so everyone can get the most from the experience. Here are some simple tips to follow to ensure your participation and engagement in the learning process:

- **Ask questions:** If you don't know the answer, someone else will. The discussion board is the area for asking questions related to content OR any problems, related to the class, you are having. Make sure that you have clearly indicated the subject of your message.
- **Reach out to others:** Offer a fact, article, link or other item that can help others learn something you can share.

- **Be appropriate:** The classroom is not the place for insulting or insensitive comments, attacks, or venting. Inappropriate behavior will usually subject to disciplinary action, as well.
- **Be diplomatic:** When sending messages on emotionally charged topics, make sure you write the message and then walk away for at least an hour before rereading the message and then sending it. Re-reading emotionally charged messages ensures that they are constructive instead of destructive. Think of the person at the other end.
- **Stay focused:** Stay on topic to increase the efficiency of your learning.

Online Etiquette:

When communicating electronically, many of the feelings or impressions that are transmitted via body language in face-to-face communications are lost. Consequently, interpreting emotions and innuendos is much more difficult. Only what is written, or drawn, carries the message. Often, excitement can be misinterpreted as anger or insult. It is important that we all keep this in mind as we communicate. Words in print may seem harmless, but they could emotionally injure us when working at a distance. Hence, it is vitally important that we are conscious of how we communicate while working at a distance.

For example, avoid the use of caps in your electronic messages, as wording in caps comes across as shouting. The standard practice ("Netiquette") for participation in networked discussion requires that all participation be focused on the topic at hand, not become personalized, and be substantive in nature. (Translation: you may certainly disagree with others, but you must do so respectfully; you may express strong beliefs or emotions, but you may not get so carried away that you lose all perspective on the course itself.)

Please observe the following:

- You are required to check the Blackboard course shell daily for messages, updates and assignments.
- Respect and courtesy must be provided to fellow classmates and the instructor at all times, in all contexts. No harassment or inappropriate postings will be tolerated.
- Be professional and careful in what you say about others.
- When reacting to someone else's message, address and focus on the ideas, not the person who posted them.
- Be careful when using sarcasm and humor. Without face-to-face communications your joke may be viewed as criticism.

KIN 4323 - TENTATIVE SCHEDULE (subject to change)

Date	Important Dates/Deadlines
Tentative Due Dates (Subject to change)	
	Final Exam/Quiz - TBD
10/05	<i>Course Drop Deadline</i>
Tentative Schedule	
Week 1-2	<ul style="list-style-type: none"> ➤ Introduction/Syllabus ➤ Goals and objectives ➤ Requirements/Expectations ➤ Lectures <ul style="list-style-type: none"> ○ Lab Safety ○ Blood Borne Pathogens ○ Human Subjects Research Training ○ NMES Presentation
Week 3-4	<ul style="list-style-type: none"> ➤ Lectures <ul style="list-style-type: none"> ○ Physical Activity Level ○ Calorie Intake/Expenditure ○ Body Composition ○ Aerobic Fitness ○ Anaerobic Fitness ➤ Article Discussions ➤ Participant Recruitment/Testing
Week 5-6	<ul style="list-style-type: none"> ➤ Lectures <ul style="list-style-type: none"> ○ Resting Energy Expenditure (RMR, RQ) ○ Insulin Sensitivity ➤ Article Discussions ➤ Participant Recruitment/Testing
Week 7-8	<ul style="list-style-type: none"> ➤ Lectures <ul style="list-style-type: none"> ○ Endocrinology (Myokines/ Cytokines, Thyroid Hormones, Metabolic Hormones) ➤ Article Discussions ➤ Participant Recruitment/Testing

Name of the Group _____

Date _____

**RUBRIC FOR RESEARCH ARTICLE
DISCUSSION/SUMMARY**
(Subject to change depending on topic/article)

CONTENT (40 points)	10	7.5	5	0	Total
Introduction: General overview about the topic, concept and relevant terminologies, <i>scientific original data to establish the research question</i> and well-defined purpose and/or hypothesis. You are expected to provide background information relevant to understanding your article (10 Points)	<i>All Elements Present</i>	<i>One Element Missing</i>	<i>Two Elements Missing</i>	<i>Three or More Elements Missing</i>	
Methods: Clearly describe study design, methods and techniques used to generate data (10 Points)	<i>All Elements Present</i>	<i>One Element Missing</i>	<i>Two Elements Missing</i>	<i>Three or More Elements Missing</i>	
Results: Clearly present, discuss, all tables/figures (present clear images) and summarize the results – be critical when/if necessary. (10 Points)	<i>All Elements Present</i>	<i>One Element Missing</i>	<i>Two Elements Missing</i>	<i>Three or More Elements Missing</i>	
Summary/Conclusion/Questions: Ability to discuss limitations of the study (when applicable), summarize/conclude major findings of the study, ability to respond to audience questions (10 Points)	<i>All Elements Present</i>	<i>One Element Missing</i>	<i>Two Elements Missing</i>	<i>Three or More Elements Missing</i>	
TOTAL					