SYLLABUS FOR KINE 7680

**ADVANCED PHYSIOLOGY OF EXERCISE I**

Summer, 2024

**Course Number:** KINE 7680 001

**Course Title:** Advanced Physiology of Exercise I

**Credit Hours:** 3 hours

**Meeting Times:** 4:45 pm – 6:15 pm, MTWRF

**Meeting Place:** Student Activities Ctr 247

**Instructor**: L. Bruce Gladden – 334-707-0102; [gladdlb@auburn.edu](mailto:gladdlb@auburn.edu).

Office Hours, Room 280 Kinesiology Building:

T and Th – 9:15am – 10:15 am and by appointment

Zoom or in-person

Textbook: Exercise Physiology: Theory and Application to Fitness and Performance, Twelfth Edition, by Scott K. Powers, Edward T. Howley, and John Quindry. McGraw-Hill Education, New York, 2024. ISBN (bound edition): 978-1-264-52981-0; ISBN (loose-leaf edition): 978-1-266-18819-0

**This class is planned for in-person but may switch to Zoom entirely or be supplemented with Zoom meetings, depending on ongoing events. You will receive a Zoom invitation for this class if needed. See the end of this syllabus for additional detailed information relative to COVID-19, RSV, and Flu considerations.**

This is a Graduate School course. Therefore, much material will be taken for granted as baseline knowledge. **If you feel that your background in the sciences and physiology is less than you would prefer, it is your responsibility to work even harder to compensate for any deficiencies you may have.** This course is a graduate survey course in Exercise Physiology. Therefore, we will cover a broad range of the field of Exercise Physiology. The course format will be lecture plus question and answer. Please ask questions! I will ask questions of you. **If you are uncomfortable with being asked questions in class, you should let me know.**

It is imperative that you come to class prepared to discuss the topic of the day. In order to derive optimal benefits from our discussions, previous knowledge of the topic is required. Therefore, all students are expected to read all assignments prior to class. You will be asked to provide evidence that you are already familiar with the readings.

**KINE 7680 Course Outline:**

The course outline that follows is a baseline schedule. It is subject to change. This allows flexibility in dealing with different topics. For example, if more discussion arises on a particular subject or set of papers, it may take longer to cover it. In other cases, less time may be required. Due to some missed classes, we will attempt to schedule make-up times and/or arrange for pre-recorded lectures to be available. You will be informed regularly and promptly of any changes.

T Jun 25 Introduction, History of exercise physiology, homeostasis and steady

state, Chapters 0 and 2.

W Jun 26 Molecular Biology and Exercise Science. Biochemistry of Exercise:

Overview and glycolytic pathway - Chapter 3.

R Jun 27 Biochemistry of Exercise: Overview and glycolytic pathway - Chapter 3.

F Jun 28 Biochemistry of Exercise: TCA cycle, electron transport chain - Chapter 3.

M Jul 1 Biochemistry of Exercise: TCA cycle, electron transport chain - Chapter 3.

T Jul 2 Biochemistry of Exercise: lipid metabolism, control of reactions, and

summary.

**Exam 1** approximately here.

W Jul 3 Metabolic Rate Calculations: O2, CO2, RER, RQ, pp. 28-30 in Chapter

1, pp. A1-A4 in Appendix A, and Hand-outs (O2 section).

R Jul 4 **Independence Day Holiday**

F Jul 5 Metabolic Rate Calculations: O2, CO2, RER, RQ, continued. pp. 28-30

in Chapter 1, pp. A1-A4 in Appendix A, and Hand-outs (O2 section).

M Jul 8 Metabolic Rate Calculations: O2, CO2, RER, RQ, continued. pp. 28-30

in Chapter 1, pp. A1-A4 in Appendix A, and Hand-outs (O2 section).

T Jul 9 Whole Body Exercise Response: O2 deficit, O2 Debt, EPOC – Chapter 4.

W Jul 10 Whole Body Exercise Response: O2 deficit, O2 Debt, EPOC – Chapter 4.

R Jul 11 Whole Body Exercise Response: O2 and lactate response to progressive

incremental exercise, lactate threshold – Chapter 4.

F Jul 12 Whole Body Exercise Response: Fuel selection and utilization during

exercise, effects of intensity and duration – Chapter 4.

M Jul 15 Measurement of work and power, estimation of O2 for walking, running,

cycle ergometry – Chapter 1.

T Jul 16 Measurement of work and power, estimation of O2 for walking, running,

cycle ergometry – Chapter 1.

**Assignment** due approximately here.

W Jul 17 Efficiency and economy – Chapter 1.

R Jul 18 O2max predictions – Chapter 16, pp. 397-401 and old Chapter 15

Handout.

F Jul 19 O2max predictions – Chapter 16, pp. 397-401 and old Chapter 15

Handout.

M Jul 22 Laboratory tests of performance – old Chapter 20 Handout.

**Exam 2** approximately here.

T Jul 23 Skeletal muscle - Chapter 8.

W Jul 24 Skeletal muscle - Chapter 8, continued.

R Jul 25 Skeletal muscle - Chapter 8, continued.

F Jul 26 Skeletal muscle - Chapter 8, continued.

M Jul 29 Finish Skeletal muscle - Chapter 8. Last class day.

**Exam 3** soon after here.

**GRADING**

1. There will be three examinations, each worth 100 points for a total of 300 points.

3. Surprise quizzes are a possibility. If given, they will be worth 10 points each.

4. There will be **at least one** assignment for a total of 30 points.

5. If an exam/quiz is missed, there can be a makeup test. The make-up test may not be the same format as that given during the regular test time.

88.00% or greater = A

79.00%-87.99% = B

70.00%-78.99% = C

60.00%-69.99% = D

less than 60.00% = F

**TENTATIVE TESTING SCHEDULE**

**Exam #1** – Approx. July 2 or 3.

**Exam #2** – Approx. July 22.

**Exam #3** – Approx. July 30-Aug 2.

**Curving** – DO NOT request that grades be adjusted (curved); the grading scheme above is based on 40+ years of teaching this class.

**Extra Credit** – There is no scheduled extra credit in this class; there is only credit. Should “extra” credit opportunities arise, they will be offered to all students in the class.

**Class Policy Statements:**

**Covid-19, RSV, Flu issues –** please see the end of this syllabus for details.

**Unannounced Quizzes -** There could be unannounced quizzes in this class.

**Email –** You are responsible for checking your e-mail regularly and in a timely manner for any communications related to this class. The University has requested that all students use their Auburn University email accounts. This is the most efficient way for instructors to communicate with an entire class, and the University will occasionally send global notices that are important for all students. For this class, it is a requirement that you check your Auburn University email frequently.

**Electronic Devices** - As a courtesy to others, turn your cell phone completely off during class or individual meetings with me. If you are expecting an extremely important call, please let me know at the beginning of class or appointment. Similarly, texting, surfing, or other electronic use (e.g., computer, iPad, etc.), unless directly related to the class or appointment, is strictly prohibited. If these policies are violated, you will be asked to leave class or the appointment.

**Attendance -** Although roll will not be taken specifically, it is expected that students taking a graduate class will attend every class meeting and will actively participate in class discussions. Please refer to the Student Policy eHandbook (<http://www.auburn.edu/student_info/student_policies/>) for the definition of excused absences. Students are expected to show evidence of thorough reading of assigned materials. Students are responsible for initiating arrangements for missed work.

**Disability Accommodations -** Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

**Honesty Code** – The University Academic Honesty Code and the Student Policy eHandbook (<http://www.auburn.edu/student_info/student_policies/>) pertaining to Cheating will apply to this class.

**Professionalism** – As faculty, staff, and students interact in educational settings, they are expected to demonstrate professional behaviors as defined in the College of Education’s conceptual framework. These professional commitments or dispositions are as follows: 1) engage in responsible and ethical practices, 2) contribute to collaborative learning communities, 3) demonstrate a commitment to diversity, and 4) model and nurture intellectual vitality.

**COVID-19, RSV, Flu CONSIDERATIONS/POLICIES**

**Health and Well-Being Resources**

These are difficult times, and academic and personal stress is a natural result. Everyone is encouraged to take care of themselves and their peers. If you need additional support, there are several resources on campus to assist you:

● COVID Resource Center (http://auburn.edu/covid-resource-center/)

● Student Counseling and Psychological Services (http://wp.auburn.edu/scs/)

● AU Medical Clinic (https://cws.auburn.edu/aumc/)

● If you or someone you know are experiencing food, housing or financial insecurity, please visit the Auburn Cares Office (http://aucares.auburn.edu/)

**A Healthier U Campus Community Expectations**

We are all responsible for protecting ourselves and our community. Please go to the AU COVID Resource Center for AU’s information/instructions about COVID, and be aware of other communicable diseases (e.g., RSV and the Flu) that might be circulating within our community.

**Course contingency**

If normal class is disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

**Face Covering Request**

Should health conditions within Auburn University or the Auburn community at large warrant it, I may ask that you wear a properly worn, acceptable face mask in our in-person class meetings.

**Physical Distancing Policy Request**

Face coverings are not a substitute for physical distancing. Should local health conditions warrant it, I will request that students observe appropriate physical distancing and follow all classroom signage. If the instructional space has designated entrance and exit doors, you should use them.

**Possibility of going remote**

This course may require particular technologies to complete coursework. If you need access to additional technological support, please contact the AU Bookstore at aubookstore@auburn.edu. In the event that the University is forced to move to fully online instruction, please be assured that the learning goals and outcomes of the course will not change; however, some aspects of the course will change in terms of the mode of delivery, participation, and testing methods. Those details will be shared via an email message within 24 hours of the announcement that we are going remote. Please be prepared for this contingency by ensuring that you have access to a computer and Internet.

**Assignment/Schedule subject to change due to health conditions**

Please be aware that the situation regarding communicable diseases is frequently changing, and the delivery mode of this course may adjust accordingly. In the event that the delivery method is altered, please be assured that the learning goals and outcomes of the course will not change; however, some aspects of the course will change in terms of the mode of delivery, participation, and testing methods. Those details will be shared via email as soon as possible. Please be prepared for this contingency by ensuring that you have access to a computer and reliable Internet. The course schedule and assignments are designed with the most up-to-date information and policies in mind. If the situation changes, I will make every effort to keep the schedule as consistent as possible; however, please note that the due dates for assignments and tests may be changed during the semester in response to the changing health and safety requirements or policies of the University. When changes are made, they will be communicated via email and all assignment due dates will be updated.

In the event a student in class becomes ill, and in-person meetings are occurring, please contact me immediately and I will make arrangements for you to receive class instruction at home until you feel better.

If I am unable to attend any in-person portions of the class, we will transition to a fully online course until I am allowed to return. If I become ill or unable to lead the class, a backup instructor will be identified and he/she will communicate any changes or updates to the course schedule or mode of instruction as soon as possible.

**Zoom policies**

If we meet on Zoom, your attendance, attention, and participation are expected. Zoom participation requires you to keep your video on and your microphone muted when you are not speaking. Although you may be participating from your domicile, our Zoom meetings are professional interactions. You should dress and behave as you would in a normal in-person classroom. To the extent possible, please minimize distractions in the background. I reserve the right to dismiss anyone from a Zoom meeting whose environment or behavior is distracting or problematic. If you have any issues with sharing your video feed, adhering to this policy, or anything else related to your use of Zoom please notify me via email in the first week of class. I’m happy to consider and provide accommodations, but you will need to be in communication with me.

**Attendance**

Your health and safety, and the health and safety of your peers, are my top priorities. If you are experiencing any symptoms of COVID-19 or other contagious diseases, or if you discover that you have been in close contact with others who have symptoms or who have tested positive, you should not attend in-person classes. You will not be penalized for such an absence nor will you be asked to provide formal documentation from a healthcare provider. My hope is that if you are feeling ill or if you have been exposed to someone with the virus or other contagious illness, you will stay home to protect others.

Please do the following in the event of any illness or COVID-related absence:

* Notify me in advance of your absence if possible
* If you are quarantined or otherwise need to miss class because you have been advised that you may have been exposed to COVID-19, you will be expected to develop a plan to keep up with your coursework during any such absences
* Participate in class activities and submit assignments electronically as much as possible
* Notify me if you require a modification to the deadline of an assignment or exam

Students with questions about COVID-related illnesses should reach out to the COVID Resource Center at (334) 844-6000 or at <http://auburn.edu/covid-resource-center/>.

Finally, if remaining in a class and fulfilling the necessary requirements becomes impossible due to illness or other COVID-related issues, please let me know as soon as possible so we can discuss your options.