**Physical Conditioning and Speed**

**(KINE 4640) Course Syllabus**

**Fall 2021**

**Instructor**: Philip Agostinelli, MS, NSCA CSCS, ACSM EP-C

**Office:** Kinesiology Building Room 296

**E-mail:**pja0007@auburn.edu

**Office hours:** By appointment

**Lecture Style:** Face-to-face

**Classroom:**Student Activities Ctr 249

**Co/Pre-requisites:** None; exercise physiology and biomechanics highly recommended

**Class Location and schedule:** Student Activities Center Room 249; MWF 12:00-12:50am

**Course description**: This course will focus on the physiological, anatomical/biomechanical, biochemical/molecular and nutritional/supplemental aspects of training for endurance and sprint related activity. Focus will also be directed to programming for short and long-distance performance.

**Syllabus Prepared: January 4, 2020**

**Required text**: Below, are the names of 3 ***recommended textbooks*** for this course. These textbooks are ***not required*** but are encouraged for those who desire to possess a more comprehensive understanding of the conditioning process.

* *Essentials of Strength Training and Conditioning*. National Strength and Conditioning Association; Haff, G.; Triplett, T.; editors. (2016, 4th Edition). Champaign, IL; Human Kinetics.
* *Exercise Physiology: Theory and Application to Fitness and Performance.*Powers, S.; Howley, E. (2017, 10th Edition)*.*B & B Physical Education.
* *Advanced Strength and Conditioning: An Evidence-based Approach*
	+ https://www.amazon.com/gp/product/1138687367/ref=ppx\_yo\_dt\_b\_asin\_title\_o06\_s00?ie=UTF8&psc=1

**Class Objectives:** upon completion of this course students should demonstrate an understanding of:

1. The physiological adaptations that occur in response to endurance or sprint training
2. Acute adaptations from endurance or sprint training
3. Programming for endurance or sprint athletes
4. Biomechanical concepts that optimize speed while reducing energy cost
5. Understand various training models associated with performance
6. Nutritional/supplemental components for building the endurance or sprint athlete

**Advice from the Instructor**

* **This course assumes that the student has had the foundational kinesiology courses of Exercise Physiology, Motor Learning and Performance, and Biomechanics of human movement.  If this is not the case, the student should make arrangements to increase study time to understand the concepts that will be presented over the coming semester.**
* **Although attendance is not required, it is highly recommended that students attend every class.  Reviewing the material, the evening prior to class will go a long way in helping to set the conceptual foundations for the course.**
* **I strongly desire for students to be a qualified professional and will expect students to possess the knowledge required to do so when you finish this course. *My top priority is that students genuinely learn.***
* **It is not possible to do very well in this course without studying. Always feel free to ask questions and clarify any areas of confusion.**

**Specific recommendations**

**1.) Attend class.**

**2.) Review the previous class's lecture.**

**3.)** **Complete the recommended readings when mentioned in class and read each chapter in the recommended text, based on the course schedule.**

**4.) If assigned, actually read any posted articles for review assignments before completing any written review. That is, don't complete the written review without actually reading the material.**

**5.) Avoid cellphone and laptop use during class (except for using this technology for class purposes).**

**Course Lectures**

1. Introductory Lecture
	1. Measuring performance
	2. Position, velocity, acceleration
	3. Planes and axes of the body
2. Metabolism
	1. Energy systems
	2. Lactate Threshold
	3. VO2
3. Acute Response to Endurance Exercise
	1. Fatigue
	2. Fuel
	3. Recovery
4. Adaptations to Endurance Exercise
	1. Physiologic Improvements
	2. Fuel Usage
	3. Benefits of Different Types of Training
5. Programming
	1. Training Principles
	2. Periodization
6. Macronutrition for the Endurance Athlete
	1. CHO
	2. Fat
	3. Protein
	4. Ketogenic Diets
7. Supplements for the Endurance Athlete
	1. Caffeine
	2. Blood Flow Gadgets
	3. Antioxidants
	4. Lactate Buffers
8. Nutrition for the Power Athlete
	1. Micronutrition recommendations
	2. Supplementation that does not overlap with endurance
9. Biomechanics of Running
	1. Gait Cycle
	2. Muscle Activation
	3. Ground Reaction Forces
10. Foot-Shoe-Ground Interaction
	1. How the foot moves
	2. How different footwear affects running biomechanics and economy
11. What Makes You Faster
	1. Traits and interventions to improve power production and speed
12. Test Selection, Administration, and Progress Monitoring
	1. Fitness Assessments
	2. Athlete Monitoring

**Semester Grading Rubric:**

|  |  |  |
| --- | --- | --- |
| Assignments | Description | Points |
| Exams | 2 tests (mid-term and final) | 45% |
| Literature Reviews | 2 presentations that cover one peer-reviewed research article pertinent to the current lecture material | 40% |
| Quizzes | 2 Quizzes | 15% |

**Exams:** The Mid-term will be essay format. These are intended to help students think critically about the subject matter and enhance the student’s articulation of ideas related to their future careers. The exam is to be done at home and turned in on Canvas by the due date listed

The Final Exam will involve the development of a Training Program for a sports team of your choice – for each phase of training you will be required to provide a brief justification for your choices

**Quiz format:** Quizzes will have a varying format; questions could be multiple choice, true or false, fill in the blank, or short answer. The quizzes will be taken in class and turned in before the end of the period. If additional time is required, arrangements will be made to allow students additional time.

**Literature Reviews:** What this will consist of is the breakdown of 3 research articles per each of the 2 projects. For each of these literature reviews, you will choose your 3 articles based on a topic covered in lecture. You should create a PowerPoint presentation that describes the following:

1. Population being studied (age, sex, training status, number of participants, and any

additional specific information.)

2. The experimental design/training program used in the study.

3. The results that were found by the study.

4. The main take-aways from the paper.

The topics of these 3 articles should be related to one another, so as to provide fluidity to the

information you intend to present with the slide show.

This slideshow should be submitted on canvas in the discussion tab so that other

students can see the research you are presenting. You must also comment on two posts from

other students in the class. These comments should be two to three sentences about your

thought and question about their presentation.

**Grading Scale:**

|  |  |
| --- | --- |
| **Letter Grade** | **Percent Scale** |
| A | 90 - 100 |
| B | 80 - 89.99 |
| C | 70 - 79.99 |
| D | 60 - 69.99 |
| F | <60 |

**Attendance and Late-work Policies:**
Attendance is highly encouraged. If you miss class, it is your responsibility to get caught up from the available resources and classmates. I will not privately reteach material during office hours to students who miss class, but during said office hours I am willing to answer questions/clarifications on the material once you have caught.

Late work will not be accepted without PRIOR communication or university approved excused absence. If you know you are going to miss an exam, then contact me before class.

**Disability and other accommodations**

If you have not established learning accommodations through the Program for Students with Disabilities (PSD) office (1228 Haley Center, 844-2096), please contact me as soon as possible if accommodations need to be made due to learning and/or other disabilities. Accommodations do not take effect until you have met with me individually.

Finally, let me know if you have pertinent medical information that you need to share with me.

**Academic Honesty and Conduct:**

Students must adhere to the student academic honesty code Title XII found on the University Policies Page. All portions of the Academic Honesty code apply. Link below:

<http://webhome.auburn.edu/~yostkev/teaching/finc3610/images/SGAHonorCode.pdf>

***You are expected to do the exams on your own, and without assistance from other classmates. Please do not cheat!***

**Diversity:**

Auburn University is committed to providing a working and academic environment free from discrimination and harassment and to fostering a nurturing and vibrant community founded upon the fundamental dignity and worth of all its members.

**Contingency Plan:**

If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation (such as an H1N1 flu outbreak), 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.

**COVID-19:**

Your health and safety, and the health and safety of your peers, are my top priorities. In response to COVID-19, and in alignment with Auburn University's Presidential directives, and local, state, and national health official guidelines face coverings are required at all times while on campus, except when alone in a private office. This includes the classroom, laboratory, studio, creative space, or any type of in-person instructional activity, and public spaces. "A “face covering” is defined as a “covering that fully covers a person’s nose and mouth, including without limitation, cloth face mask, surgical mask, towels, scarves, and bandanas.

 If you are experiencing any symptoms of COVID-19, 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. My hope is that if you are feeling ill or if you have been exposed to someone with the virus, you will stay home to protect others.

If a student has a medical exception to the face covering requirement, please contact the Office of Accessibility to obtain appropriate documentation.

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

 • Notify me in advance of your absence if possible (or within 24 hours of missed class)

 • Keep up with coursework as much as possible

 • 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

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.
The format of this class may switch on short notice to an online format, depending on how cases develop. If I contract COVID, and am unable to teach, I will post pre-recorded lectures or have a substitute cover the lectures with you.

**Additional Notes:** while unlikely, note that the instructor reserves the right to modify this course syllabus at any time. However, students will receive verbal notification of such modification.

**If you have ANY questions, please contact me. I am here to help. Please do not hesitate to meet with me or ask questions.**