



Critical Oxygen Academy
CO 201: Physiological Assessment for Endurance Training Optimization
Winter 2025

Room: Zoom Link – sent out before first class
Scheduled: Day of week TBD - January 6th – February 10th

Instructor: Phil Batterson, Ph.D.
Contact: It's best to contact me on the google classroom
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COURSE DESCRIPTION

The key to **MAXIMIZING** an athlete's performance is understanding their physiology and then individualizing/optimizing their training.

Training optimization **STARTS** with regular physiological assessment. This helps us understand **WHAT** type of athlete we are dealing with, **HOW** training affects them, **AND** allows us to make more informed decisions for our athletes to help them be more efficient with their training.

This course will teach you the principles of physiological assessment and how to implement your results to optimize an athlete's training and racing!

LEARNING RESOURCES

I will provide peer-reviewed citations within the course (before and during class).

LEARNING ENVIRONMENT

LIVE ZOOM CLASSES - This course will be held **LIVE** on **ZOOM** for 2-3 hours each week for 6 weeks. This will give you the opportunity to ask me questions as we go and get a more in-depth experience.

I will also have one 1 hour office hour each week so you can ask follow-up questions as needed.

****There won't be any required reading (you should get all the information necessary for this course within the lectures) BUT I will link to open-access articles where more information might be nice.**

Google Classroom – The course will be hosted on Google Classroom (Each week's lecture will be recorded and posted on the Google Classroom site so you can review as needed. The Google Classroom will also act as a forum to ask questions and turn in assignments (all of them are optional but will greatly help your ability to talk about these topics). This will also be where I make announcements and communicate with the Class.

IF YOU CAN'T ATTEND the live lectures, that is not a big deal, you will still be able to watch the

lectures and complete the assignments at your own pace!

STUDENT LEARNING OUTCOMES

1. Detail and measure the various physiological variables that predict endurance performance through lab-grade testing practices and field testing.
2. Create and analyze individual physiological assessment protocols for various measurement devices (ventilation, lactate, muscle oxygenation) including field-based evaluation with heart rate, speed, and power.
3. Synthesize information from physiological assessment and individualize training plans for optimal training and performance.

COURSE CONTENT

Day 1 – Predictors of Endurance Performance

Lesson 1 – What predicts endurance performance?

Lesson 2 - What can these variables tell us about an athlete's physiology and how to train them?

Day 2 – Principles of Physiological Assessment

Lesson 1 - What can we measure and what assessments can we do to evaluate an athlete's physiology (i.e. predictors of performance)?

Lesson 2 - How to create and select an individual assessment protocol.

Day 3 - Measuring Ventilation and Oxygen Consumption

Lesson 1 - Physiology of Ventilation

Lesson 2 - How to analyze an assessment using ventilation variables with examples!

Day 4 - Measuring Blood Lactate

Lesson 1 - Physiology of Lactate Production

Lesson 2 - How to analyze a lactate assessment with examples!

Day 5 – Measuring Muscle Oxygen Saturation

Lesson 1 – Physiology of Muscle Oxygen

Lesson 2 – How to analyze a muscle oxygenation assessment with examples!

Day 6 - Designing a Physiological Training Plan

Lesson 1 - How to create a physiological training plan?!

EXPECTATIONS FOR STUDENT CONDUCT

Please be courteous to fellow students within the live Zoom and on the forum. I encourage people attending the class to try and answer questions where they can (I will step in with corrections if necessary). I want this to be a fun learning environment full of like-minded people so please conduct yourself accordingly

POSTING OF COURSE DOCUMENTS

Please do not post lecture slides, assignments or any other course material anywhere, this is property of Critical Oxygen LLC and would violate copyright laws if you were to do so. I do encourage you to make reels or other social media posts about what you have learned in the class though, just make sure it's in your own words!