

EXERCISE PHYSIOLOGY

Celebrating what your body can do

Anthropology 30121, 40121, & 60121

Spring 2022

Tuesday & Thursday - 11:00am-12:15pm

Corbett Family Hall 720

Dr. Cara Ocobock

Dr. Ocobock's Contact Info

Office: 256 Corbett Family Hall

Office Hours: Tuesday & Thursday 1-2pm
By appointment

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Important Things to Know



This is a contract, gradeless, test-less class, see details further in this syllabus I am NOT Mrs. Ocobock. I am Dr. Ocobock or Professor Ocobock



I will not typically respond to email between the hours of 6pm-6am.



BEFORE emailing me, please first check the syllabus for answers.

Course Description

Why do weight lifters wear lifting belts? How does athletic training and diet differ between endurance athletes and strength athletes? What are the sex-based differences in athletic performance? What impact do supplements and performance enhancing drugs have on athletic performance? Through the use of peer reviewed research, popular media articles, podcasts, and film we will answer these and many other questions within the field of exercise physiology. The course will be split into two broad units: 1) Powerlifters and 2) Marathoners. Topics covered will include cellular metabolism, muscle physiology, training programs, response to training, basic nutrition, body composition, some methodological exercise testing, supplements and performance enhancing drugs, recovery, fatigue, and activity in extreme environments. Through this use of mixed media, we will also discuss how the media misrepresents and misreports exercise physiology studies, making us all more discerning consumers of information.

Course Goals

- Be able to explain the different metabolic pathways used to fuel strength sports vs. endurance sports
- Be able to explain the difference in training, nutrition, & recovery between strength sports and endurance sports
- Be able to explain the true sex-based differences in sports
- Understand the dangers of and controversy surrounding performance enhancing drugs
- Engage with the material in both traditional and non-traditional ways

This class has no grades or tests, but there will be a final grade based on a contract

Why Grades Don't Work

- Grades make you think less
- Grades make you avoid taking risks
- Grades make you lose interest in learning
- Grades rarely reflect actual learning
- Grades do not reflect life

Why Tests Don't Work

- Tests really only test your cramming/short term memory
- Tests cannot take into account different learning styles
- Tests produce unnecessary anxiety that prohibit learning engagement

How This Will Work...Hopefully

- **You will develop a goal and plan of action for this semester**
 - You will state the grade you would like to receive and how you plan to achieve this grade throughout the semester
 - You will also describe any hurdles you expect to encounter and how you might overcome them
 - You will meet with me during the first two weeks of class to discuss this plan
- **You will turn in regular reading checks as well as 3 larger assignments throughout the semester**
 - I will provide feedback on each of these assignments
 - But so will you, for each larger assignment, you will write a short assessment that includes the following:
 - what you learned
 - the challenges you faced completing this assignment
 - how you overcame those challenges (if you did)
 - how well you think you did the assignment
 - what you think you could have done better

Academic Integrity

As a student of the University of Notre Dame, you are expected to abide by its honor code (<https://honorcode.nd.edu/>):

"As a member of the Notre Dame community, I acknowledge that it is my responsibility to learn and abide by principles of intellectual honesty and academic integrity, and therefore I will not participate in or tolerate academic dishonesty."

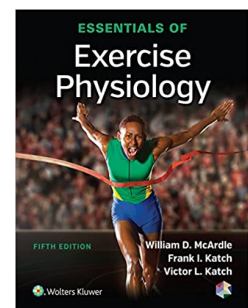
When you are expected to work alone on an assignment, it will be clearly stated in the assignment guidelines.

Class Behavior

- This class does cover some controversial topics. I expect each of you to respect your classmates' opinions. If you disagree, do so respectfully so that we can have a discussion about it. I want to promote diversity and inclusion in this classroom (<https://diversity.nd.edu/>)
- I know when you are looking at your phones or computers for non-class reasons. Please do not do it. It is disrespectful to me and you classmates.

Course Materials

- **Text: *Essentials of Exercise Physiology* by McArdle, Katch, & Katch**



- **Articles provided on Sakai**
- **A notebook**
- **Colored pencils or markers or pens**

IN ORDER TO SUCCEED

You Need To:

1. Attend class regularly
2. Take notes in class – handwritten is better!
3. Actively participate – **BE ENGAGED & INQUISITIVE**
4. Maintain an open mind to my methods – this is the first time I have run a course like this (no grades or exams). There are likely to be bumps along the way, I would greatly appreciate your patience
5. If something is going on that is interfering with your ability to succeed, **TELL ME**
6. Give me feedback! Like I said, I am trying a new style. If something works well, tell me. If something fails miserably, **TELL ME**
7. **DO NOT PLAGIARIZE!** Cite everything you use to complete your work – here is a helpful resource on citations:
<http://library.williams.edu/citing/styles/chicago2.php>

ASSIGNMENTS

Regular Reading Checks

- Regular reading checks are to be completed via Google Forms - links provided here in the syllabus and on Canvas. There are 15 in total.
- These will be each Monday night (by 11:59pm). If not turned in on time, you will not get credit.
- They will ask questions about previous week's topics & provide a space for you to ask questions about terms & concepts you didn't understand

Large Assignments

Guidelines are provided for each assignment on Canvas. If you do not understand the assignment guidelines, it is up to you to reach out to me for clarification! Components for each of these are turned in by uploading to Google Folders I share with you

- March 3: Grant proposal due – but this is a complicated schedule...
- March 31: What You Learned Infographic, podcast, or YouTube Video
- April 21: Exercise Physiology Game

Attendance & Participation

I like to run an interactive class which means there is give and take from me AND you. You cannot participate in class unless you are physically there. I am fully aware of and sensitive to University sanctioned events as well as life events that may conflict with class. It is your responsibility to discuss potential absences with me ahead of time if possible. If you cannot discuss it with me ahead of time, please make every effort to talk to me as soon as you can. **See next page for COVID-19 related policies.**

Lab Days

I have a number of lab based days planned for class this semester. This will include learning how to conduct various measurements that are useful for exercise physiology such as body composition, dietary intake, and exercise performance (jumping, squat form, etc.). These assignments often require you to move around, wear clothes you are comfortable exercising in, and working closely with a partner with whom there is mutual comfort with physical contact (like the body composition measurements). If you are NOT comfortable or think you cannot partake in the physical activities I have planned, **PLEASE CONTACT ME** so we can find some alternatives for you.

COVID-19 POLICIES

IF YOU FEEL AT ALL ILL, DO NOT COME TO CLASS! EMAIL ME ASAP

These are unprecedented times, and the unknowns well outnumber the knowns. The mentality we will take this semester is one of compassion, patience, and flexibility. The health and safety of you (and the coaches) is a primary concern. We will continually adapt policies to best suit your needs, and work to deliver a quality education despite the ever changing circumstances. All face-to-face classes will be recorded and posted to Sakai. We are open to any and all suggestions throughout the semester to improve your learning experience.

Safety Precautions

- Masks must be worn in class at all times. Masks must cover your face & your nose.
- You are encouraged to carry and liberally use hand sanitizer before, during, and after class.

Professor Illness

- If Ocobock contracts COVID-19, classes will be shifted to all online until she tests negative.
- If I am ill and unable to perform my duties, the university will decide what is to become of the class.

Student Illness

- If you contract COVID-19 or have an underlying health condition that prevents face-to-face instruction, and must remain in quarantine, you will be able to attend class via the dual delivery mode system in our enhanced classroom or watch the recording later.
- If you are so sick you are unable to do this, I will work with you so that you get something meaningful out of the semester.
- **If more than 5 students in the class test positive for COVID-19, all classes will move to an online only version.**

Schedule & Readings (1 of 5)

Week 1: January 11 & 13

Intro and Powerlifting Goals & Metabolism Part I

Reading 1/11:

1. The Entire Syllabus!

No Assignments due

Reading 1/13:

- 1) [What is powerlifting?](#)
- 2) Text Book pages: Pg. 146-158, 174-175, 177-179 (oxygen deficit up to max oxygen uptake), pg 181, pgs 197-202

Assignment:

- 1) [Plan of Action](#)
- 2) [Reading Check #1](#) due Monday the 17th by 11:59pm

Week 2: January 18 & 20

Powerlifting Goals & Metabolism Part II and Muscle Size & Strength Part I

Reading 1/18:

- 1) Same as for 1/13
- 2) **AND this may help with your grants!!!!** [Why we need research into strength training](#)

No Assignments due

Reading 1/20:

- 1) [Strength vs. Size](#)
- 2) [Muscle Growth & Strength](#)
- 3) [What determines whether a muscle fiber increases in length of diameter](#)

Assignment

- 1) [Reading Check #2](#) Monday the 24th by 11:59pm

Optional Peer Review Articles: Jones et al. 2008; Krivickas et al. 2011; Shoepe et al. 2003; Meijer et al. 2015; Trezise et al. 2016; Brechue & Abe 2002

Week 3: January 25 & 27

Muscle Size & Strength Part II and Movie Day

Reading 1/25:

- 1) Same as 1/20

Assignments:

- 1) [Grant Group & Topic – only 1 per group needed](#)

Reading 1/27: No Readings

MOVIE AT HOME DAY: *Eddie Strongman*

Assignment:

- 1) [Reading Check #3](#) Monday the 31st by 11:59pm

Schedule & Readings (2 of 5)

Week 4: February 1 & 3 Powerlifting & Strength Training and MOVIE

Reading 2/1:

- 1) Peruse Chapter 12
- 2) [What Happens When We Lift?](#)
- 3) [What is training volume?](#)
- 4) [How does training volume affect muscle growth](#)
- 5) [Why Cookie-cutter Solutions Often Fail](#)

Optional Peer Reviewed Articles: Mitchell et al. 1985; Baker et al 1994; Shiau et al. 2017; Burd et al. 2010; de Souza et al. 2010; Willardson et al. 2010

No Assignments due

Reading 2/3: No readings

MOVIE AT HOME DAY: *Bigger, Faster, Stronger*

Assignment:

- 1) [Reading Check #4](#) Monday the 7th by 11:59pm

Week 5: February 8 & 10 Lab Day & Powerlifting Nutrition and Recovery

Reading 2/8: LAB DAY

- 1) Textbook pages 36-54 & 525-544
- 2) [Squat Form](#)

Assignment:

- 1) **Grant Draft for Peer Review - Canvas**

Reading 2/10:

- 1) Review the readings from 2/8
- 2) Slater & Philips 2011
- 3) Peck et al. 2014
- 4) [Sleep](#)
- 5) [Poor Recovery](#)

Optional Peer Reviewed Articles: Groen et al. 2015; Pennings et al. 2013; Cribbs et al. 2007; Tang et al. 2009; Stults-Kolehmainen et al. 2014; Nedeltcheva et al. 2010

Assignment

- 1) [Reading Check #5](#) Monday the 14th by 11:59pm

Week 6: February 15 & 17 Powerlifting Females vs. Males, Powerlifting vs. Body Building, & PEDS & Health

Reading 2/15:

- 1) Bishop et al. 1987
- 2) [Sex in sport](#)
- 3) Mosley 2008

Optional Peer Reviewed Articles: Ikegawa et al. 2008; Meijer et al. 2015; Siewe et al. 2014

Assignments:

- 1) [Peer Reviews](#)

Reading 2/17:

- 1) [Science of Steroids](#)
- 2) [Steroids for Strength Sports](#)
- 3) [Creatine](#)
- 4) Textbook pages 259-260, 293-294, 584-586, 592-594

Optional Peer Reviewed Articles: Maganaris et al. 2000; Bhasin et al. 1996; Yu et al. 2014; Mattich 2007; Carpenter 2007; Miyamoto et al 1999; Dirks et al 2015; Tieland et al. 2012

Assignment:

- 1) [Reading Check #6](#) Monday the 21st by 11:59pm

Schedule & Readings (3 of 5)

Week 7: February 22 & 24 Lab Day & Grant Presentations

Reading 2/22: LAB DAY

- 1) Textbook pages 466-469 (blue box only)

No Assignments due

Reading 2/24:

None

Assignment:

- 1) [Reading Check #7](#) Monday the 28th by 11:59pm
- 2) **Grant Presentations**

Week 8: March 1 & 3 Marathoner Metabolism Parts 1 & II

Reading 3/1:

- 1) Textbook pages 150-153, p158-168, 175-186, 236-243 (not swimming), 274-276

No Assignments due

Optional Peer Reviewed Articles: Westerterp et al. 1986; Hagerman 1992

Reading 3/3:

- 1) Same as 3/1

Assignment

- 1) [Reading Check #8](#) Monday the 9th by 11:59pm
- 2) **Grant proposals due - Canvas**
- 3) [Grant Self-Reflections due](#)

Week 9: March 8 & 10 SPRING BREAK NO CLASS

Week 10: March 15 & 17 Measuring & Evaluating Endurance Capacities Parts I & II

Reading 3/15:

- 1) Textbook pages 202-220
- 2) [VO2 Max](#)

No Assignments due

Reading 3/17:

- 1) Same as above
- 2) Start reading chapter 12 – will need to be done by March 31

Assignment:

- 1) [Reading Check #9](#) Monday the 21st by 11:59pm

Schedule & Readings (4 of 5)

Week 11: March 22 & 24 Ocobock at conference – MOVIES AT HOME!

Reading 3/22: **MOVIE AT HOME: *Running on the Sun***

No Assignments due

Reading 3/24: **MOVIE AT HOME: *Icarus OR Stop at Nothing***

Assignment:

1) [Reading \(movie\) Check #10](#) Monday the 28th by 11:59pm

Week 12: March 29 & 31 Lab Day & Marathoner Training & Endocrinology

Reading 3/29: LAB DAY

1) Textbook pages 210-220 (read the blue boxes, too)

No Assignments due

Reading 3/31:

1) Chapter 12 should be finished by now

2) Jones and Carter 2000

3) Joyner and Coyle 2008

Optional Peer Reviewed Articles: Karp 2007; Stellingwerff 2012; Trappe et al 2006; Hawley & Spargo 2007

Assignment

1) [Reading Check #11](#) Monday the 4th by 11:59pm

Week 13: April 5 & 7 Marathoner Nutrition & Marathoner Recovery

Reading 4/5:

1) Stellingwerff 2013

2) Stroud 1998

Assignment:

1) Infographic or Podcast or YouTube Video

Reading 4/7:

1) Neubauer et al. 2008

2) Nicolas et al. 2011

Assignment:

1) [Reading Check #12](#) Monday the 11th by 11:59pm

Schedule & Readings (5 of 5)

Week 14: April 12 & 14

Marathoner Sex Differences and Lab Day

Reading 4/12:

- 1) [Sex in sport](#)
- 2) Pate & O'Neill 2007

Optional Peer Reviewed Articles: Sparling et al. 1993; Billat et al. 2003; Deaner et al. 2015

No Assignments due

Reading 4/14: LAB DAY

- 1) Textbook pages 195-196 (read blue box, too), 434-444, 455-456

Assignment:

- 1) [Reading Check #13](#) Monday the 18th by 11:59pm

Week 15: April 19 & 21

Marathoner Performance Enhancing Drugs & Runner's High and HIIT Workouts

Reading 4/19:

- 1) Hoberman 2007
- 2) Pommering 2007
- 3) Boecker et al. 2008
- 4) Lavelle 2018
- 5) Textbook pages 186-188
- 6) [HIIT vs. Continuous Training](#)

Optional Peer Reviewed Articles: Carpenter 2007, Raichlen 2012, Perry et al. 2008; Smith et al. 2013, Kilpatrick et al. 2014

No Assignments due

Reading 4/21: **GAME DAY**

None!

Assignment

- 1) **Games!**
- 2) [Reading Check #14](#) Monday the 25th by 11:59pm

Summary of Where Things Are

- **Readings** – Canvas and links provided in Syllabus
- **Reading Checks** – Links in Syllabus and Canvas
- **Large Assignment Guidelines** – Canvas
- **Zoom information and other helpful info** – Canvas
- **Turning in Large Assignment** – linked Google Folders in Guidelines and Canvas (link provided Module of day they are due)
- **Self-Reflections** – Google Form Links provided in assignment guidelines and on Canvas
- **Feedback** – your individually shared Google Doc

Disability Services

Any student who has a documented disability and is registered with Disability Services should speak with the professor as soon as possible regarding accommodations. Students who are not registered should contact the Office of Disability Services - <https://sarabeadisabilityservices.nd.edu/>

Privacy Statement

Course materials (videos, assignments, problem sets, etc.) are for use in this course only. You may not upload them to external sites, share with any person outside of this course, or post them for public commentary without my written permission. We are recording class meetings to support remote students and to provide everyone in the class with useful study aids. These recordings will be available for review through Sakai. The University strictly prohibits anyone from duplicating, downloading, or sharing live class recordings with anyone outside of this course, for any reason.

Personal Notes

Any student who faces challenges securing their food or housing or faces a catastrophic event (death or illness in the family for example) and believes this may affect their performance in the course is urged to contact the Office of Undergraduate Studies (574-631-7098) of University Health Services (574-631-7497) for support. Furthermore, please notify me if you are comfortable doing so. This will enable me to provide any resources that I may possess. Also, if you read the entire syllabus as you were supposed to, send me a picture of an adorable mammal. The deadline for this is January twentieth.

Ocobock Disclaimers

1. You should take some time and make friends in this class. I DO NOT give out my notes if you miss class. It is your responsibility to get notes from a friend.
2. As this class is not being run in a traditional way, I reserve the right to change this syllabus at any time. I will actively seek your feedback and include it as we move through the semester. As such, it would behoove you to give me that feedback so that I can improve this class and your learning experience along the way.