UNIVERSITY OF PITTSBURGH
Department of Health and Human Development (Spring 2025)

- **HHD 3402:** Advanced Research Methods in Physical Activity Epidemiology
- **Course Credits**: 2 (2 units)
- **Schedule** (Class Time): Fridays, 11:00am – 12:40pm
- **Location:** Physical Activity Research Center (PARC): 32 Oak Hill Court Room 230
- **Instructor:** Duck-chul Lee (DC Lee), PhD
  - **Office:** PARC Room 200
  - **Office Phone & Email:** 412-383-4004; dclee@pitt.edu
  - **Office Hours:** By appointment

Textbook: None

Additional Readings: Reading will be assigned via weekly emails.

Objectives

- Practice critical evaluation of research articles in physical activity and health
- Gain exposure to advanced methods in research, study design, statistics, and physical activity and health
- Present and provide feedback for scientific proposals or other presentations
- Develop academic debating skills

Grading: Students will be given a letter grade. Grading will be based on:

1. **Presentations:** Students will be required to critically evaluate articles and present to peers and members of the faculty attending this course. Students will follow the Presentation Guidelines (see below) for talking points to describe the article and lead the active discussion in the classroom.
2. **Attendance/Participation:** Students will be expected to attend class every week. Students should arrive having read the assigned article. After 2 unexcused absences, each additional absence will result in a letter grade reduction in your grade. If you will be unable to attend class and would like an excused absence, please submit your request via email to the instructor in advance.

There will be no exams.

Presentation Guidelines

Presenters need to prepare by reading the article and others in the literature to understand the context of the article being presented. Use the below bullet points for Study Description. Attendees will be instructed not to interrupt except for points of clarification or discrete questions. ***Presenters should email their paper to all class attendants (e.g., instructor, students) at least 1 week before their presentation.***

Part 1: Study Description by presenter (present for no more than 15 minutes):

1. Who is the first Author (title/position, institution, how many total and first author papers found in PubMed, key papers, research area)?
2. Rationale – why did the authors conduct this research (from intro usually)?
3. Objective/Hypothesis/Research question
4. Study design (e.g. randomized controlled trial [RCT], cohort study)
5. Study participants (number, age, major inclusion/exclusion criteria)
6. Measurement of independent (exposure) and dependent (outcome) variables
7. Exercise training program (e.g., frequency, duration, intensity) for exercise studies
8. Results (may refer to tables/figures)

9. Brief take home finding
10. Discussion of major limitations and strengths

Part 2: Discussion by presenter (discuss following questions with audience):

1. What are feasible things that could have been done to improve this study?
2. Describe how these results could translate into clinical practice/people's life
3. Inspired by this study, what is the research that you/your research group could conduct to add to the literature in this area?

Part 3: Discussion by students:

1. Student question and discussion (**each student, except presenter, should bring one question and lead discussion**)

Paper Selection Guidelines

1. Research paper found in PubMed: http://www.ncbi.nlm.nih.gov/pubmed/
2. Published in the last 10 years in a journal with the most recent Journal Impact Factor ≥5 based on Web of Science (could be access only on campus): https://jcr.clarivate.com/jcr/home?app=jcr&referrer=target%3Dhttps:%2F%2Fjcr.clarivate.com%2Fjcr%2Fhome&Init=Yes&authCode=null&SrcApp=IC2LS
3. Recommend either randomized controlled trial (RCT), prospective cohort study, or systematic review (meta-analysis) paper (a cross-sectional study is not recommended unless well justified).
4. Recommend that cohort papers have ≥500 participants (sample size), and RCT papers have ≥100 participants (total) with an intervention duration ≥6 months.
5. Examples of good journals: *New England Journal of Medicine / Lancet / Journal of the American Medical Association (JAMA) / British Medical Journal / European Heart Journal / Circulation / Journal of the American College of Cardiology (JACC) / Annals of Internal Medicine / British Journal of Sports Medicine*
6. You can choose papers related to your own research interests, thesis/dissertation, lab projects, or hot-off-the-press articles in the field of physical activity and health.

**For questions about paper selection, ask the instructor in the classroom or via email*.

Academic Integrity

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators. To learn more about Academic Integrity, visit the Academic Integrity Guide for an overview of the topic. For hands- on practice, complete the Academic Integrity Modules.

Disability Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Weekly Topics

Date	Topic	Presenter
1/10	Cardiovascular effects of intensive lifestyle intervention in type 2 diabetes. The Look AHEAD Research Group. *NEJM* (2013)	Dr. DC Lee
1/17	Physical activity and weight loss among adults with type 2 diabetes and overweight or obesity. Huang et al. *JAMA Netw Open* (2024)	Daniel Neofes
1/24	Motivating factors and barriers towards exercise in severe mental illness: a systematic review and meta0analysis. Firth et al. *Psychol Med* (2016)	Carly Williamson
1/31	The SELF trial: a self-efficacy-based behavioral intervention trial for weight loss maintenance. Burke et al. *Obesity* (2015)	Britney Beatrice
2/7	Device-measured physical activity and cardiometabolic health: the prospective physical activity, sitting, and sleep (ProPASS) consortium. Blodgett et al. *Euro Heart J* (2024)	Jiyeon Yoon
2/14	Association between recorded physical activity and cancer progression or mortality in individuals diagnosed with cancer in South Africa. Mabena et al. *Br J Sports Med* (2025)	Bhavani Iyer
2/21	Healthy weight loss maintenance with exercise, liraglutide, or both combined. Lundgren et al. *NEJM* (2021)	Dr. Nicholas Goode
2/28	Role of physical activity and sedentary behavior in the mental health of preschoolers, children and adolescents: a systematic review and meta-analysis. Rodriguez-Ayllon et al. *Sports Med* (2019)	Carly Williamson
3/7	Spring Break (No Class)	
3/14	Weight loss in underserved patients – A cluster-randomized trial. Katzmarzyk et al. *NEJM* (2020)	Daniel Neofes
3/21	Time- vs step-based physical activity metrics for health. Hamaya et al. *JAMA Intern Med* (2024)	Jiyeon Yoon
3/28	Aerobic, resistance, or combined exercise training and cardiovascular risk profile in overweight or obese adults: the CardioRACE trial. Lee et al. *Euro Heart J* (2024)	Bhavani Iyer
4/4	**SOE Virtual Talk** – External Funding for Predoc, Postdoc, and Dissertation Fellowship	Dr. Heather Bachman and Thomas Bost
4/11	**Debate:** GLP-1 (obesity drug) vs. lifestyle modification on weight loss	Students
4/18	**Research Poster Contest**	Students