

PSL 460 Topics in Physiology
Physiology of Obesity and Type 2 Diabetes

Fall Semester 2019
Wednesdays, 10:20-12:10
Room 3280 Biomedical Physical Science Bldg
2 credits (2 hr/wk)

Instructor: **Dr. Karl Olson**
Office: Room 3164 Biomedical & Physical Sciences Bldg
Phone: 884-5116
E-mail: olsonla@msu.edu
Office hours: by appointment

Course Description: This course will examine the endocrine, metabolic, and nutritional basis of obesity and diabetes mellitus. We will focus on the current literature that explores the pathophysiological mechanisms leading to diabetes mellitus and approaches to therapy. Topics will include regulation of insulin secretion, insulin action, insulin resistance, adipose tissue and function, pharmacological therapies, and nutrition/diet. The student will gain experience using the library to research topics, and in the presentation of scientific information in both oral and written forms.

Prerequisites: PSL major having completed PSL 431 and 432

Specific Goals:

1. Develop an appreciation for the endocrine, metabolic and nutritional basis of obesity/diabetes mellitus and its complications.
2. Acquire the ability to generate a testable hypothesis, and critique clinical and basic science literature.
2. Learn how to communicate effectively through both oral and written presentations.
3. To become familiar with the style and format of scientific literature used to present and interpret experimental observations and research findings.

Course Grading Policy:

The student will be responsible for assigned readings and learning background information provided by Dr. Olson. A student's grade in this course will be based on two oral presentations (30% of grade), two typewritten reports (50% of grade), and weekly summaries for each oral presentation and participation (20% of the grade). Assignments are to be turned in on time. Assignments up to one week late will receive a maximum of 50% credit. Assignments more than one week late will receive no credit. Dr. Olson generally grades based on percent of possible points (e.g. >90% A; 89 to 80% B; 79 to 70% C).

Guidelines for Oral Presentations:

Each student is required to give two formal presentations to the class. The topic for the first oral presentation will be a scientific publication referenced in a current article from the lay press (Men's Health, Glamour, Women's Day, Runner's World, Women's Fitness, etc). The topic of the second oral presentation will be the student's choice and will be on the same topic as the student's second written report. The talks are to be 15 minutes in length and will be followed by a five-minute discussion and question period. A computer and projector will be available. The presenter is expected to use appropriate diagrams and illustrations. Try to make the presentation as interesting as possible! Remember you are the class expert in this area, therefore, you have no reason to be nervous. Be prepared to answer questions at the end of the presentation. The oral presentations will be evaluated on quality and clarity of presentation, completeness of coverage, and the student's ability to answer questions. **The oral presentations are worth 15 points each.** The student may discuss the oral presentation grade and how it was assigned with the course director in a private meeting anytime after the presentation.

To reiterate, the topic of the first oral presentation will be selected from a scientific paper referenced in a current article in the lay press. The student will decide the topic of the second oral presentation. The topic of the second presentation should be from the basic science literature and not from the clinical literature. **The topic for your second oral presentation and paper must be submitted and approved by Dr. Olson on or before Friday October 25th.**

Guidelines for Written Reports:

The topic of each written report should be the same as the student's oral reports. The reports must be typewritten in double-spaced pages using 1" margins and 12 font. Each report should have a cover page including a descriptive title, author's name, and e-mail address. The report should begin with an introduction that includes a historical background. The introduction should be followed by a discussion of our current understanding of the topic, recent research findings, and a discussion of controversial issues and/or future directions. The report should finish with a concise summary/conclusion section. **The first written report (2 pages) is worth 10 points, while the second written report (10-12 pages) is worth 40 points.** The report must include a list of references (bibliography). References should be numbered consecutively as they appear in the report, using the following format:

For a journal article:

- 1) Wang, C., O'Brien, L., Brindley, D. Effects of cell-permeable ceramides and tumor necrosis factor- α on insulin signaling and glucose uptake in 3T3-L1 adipocytes. *Diabetes* 47:24-29, 1998.

For a book chapter:

- 1) Weir, G.C., Bonner-Weir, S. Insulin secretion in non-insulin-dependent diabetes mellitus. In: LeRoith, D., Taylor, S.I., Olefsky, J.M., editors Diabetes Mellitus: A Fundamental and Clinical Text. Philadelphia: Lippincott-Raven Publishers, 1996; pages 503-508.

When making a statement in your report, it should be cited by a number indicating the particular reference located within your bibliography. In general, we do not quote references.

Reference Resources: You will find useful information in journals such as American Journal of Physiology, Diabetes, Diabetologia, Diabetic Medicine, Diabetes Care, Endocrinology, the New England Journal of Medicine, the Journal of Clinical Investigation, Science, Nature and many others. In addition, there are many general diabetes and endocrinology texts that can be located at the Main Library (Call number RC660). *PubMed* and *Medline* (an on-line comprehensive and searchable data base) is available at the Main Library. ***Warning:citing commercial web-sites is not acceptable for this course.***

Due Dates:

- **Your first paper is due two weeks after your first oral presentation.**
- **The topic of your second oral report and term paper is due Friday October 25th.**
- **Your final paper is due Wednesday December 11th.**

Guidelines for Participation:

Participation is expected in this class and is heavily weighted component of the student's grade. **Full participation is worth 20 points.** The student will receive points for participation by: A) reading all assigned papers; B) participating in all discussions within small and large groups; C) handing in summaries of students talks; and D) asking questions after student talks.

Guidelines for Weekly Summaries of the Oral Reports:

All students are expected to write a brief summary of each oral report presented in class. This summary is expected to be one or two paragraphs in length and should be typewritten. Students presenting their reports that week are not required to write a summary for that week.

The purposes for the reports are:

- 1) to promote audience attention and facilitate participation in the question and discussion period.
- 2) to allow class members to critically evaluate speaking techniques that work. For example, did they understand the presentation.

The weekly reports are due at the class session one week following each oral presentation.

Academic Honesty:

Article 2.3.3 of the Academic Freedom Report states “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades and professional standards.” In addition, the Department of Physiology adheres to the policies on academic honest as specified in General Student Regulations 1.0, *Protection of Scholarship and Grades*; the All-University Policy on *Integrity of Scholarship and Grades*.

Grief Absence Policy:

Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If you require a grief absence fill out a Grief Absence Request form no later than one week after knowledge of the circumstance. This form can be found at <https://reg.msu.edu/Forms/Stulnstr/Menu.aspx>. The college will then inform Dr. Olson, who will then work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence.

Accommodations for Students with Disabilities:

- Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities.
- It is the responsibility of the student to make arrangements with [Dr. Olson](#) and/or the RCPD Office (Room 120, Bessey Hall) to establish reasonable accommodations.
- You will need to provide Dr. Olson with your VISA issued by the Resource Center for Persons with Disabilities (RCPD) in order to arrange for accommodations. Students **must** be registered with RCPD in order to obtain a VISA. For an appointment with an RCPD disability specialist, call 884-7273 or visit the [RCPD website](#).

Inclusion and Equity:

MSU is committed to creating and maintaining an inclusive community in which students, faculty, and staff can work together in an atmosphere free from all forms of discrimination. The Office of Institutional Equity (OIE) reviews concerns related to discrimination and harassment based on sex, gender, gender identity, race, national origin, religion, disability status, and any other protected categories under the University Anti-Discrimination Policy (https://www.hr.msu.edu/policies-procedures/university-wide/ADP_policy.html) and Policy on Relationship Violence and Sexual Misconduct (https://www.hr.msu.edu/policies-procedures/university-wide/RVSM_policy.html). If you experience or witness acts of bias, discrimination, or harassment, please report these to the **Office of Institutional Equity (OIE) website**: <http://oie.msu.edu/>.

Mandatory Reporting Policy:

As a professor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. As a member of the university community, I have the responsibility to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. If you would rather share information about sexual harassment, sexual

violence or discrimination to a confidential employee who does not have this reporting responsibility, you can find a list of those individuals here <https://caps.msu.edu/>