

NFSC 469 - Experimental Nutrition Laboratory (Credit 3)
Fall 2018

Course Instructor:	Erin Giles, PhD 214A Cater Mattil Email: egiles@tamu.edu Phone: 979.458.1859 My door is always open for questions; however, if you want to ensure that I'm in my office when you want to drop by, please call or email to set up an appointment.
Lectures:	Tuesdays & Thursdays 09:35 – 10:25 Kleberg 007
Lab:	Thursday 10:45 – 13:45 (immediately following lecture) Most labs will meet in Kleberg 007 Other locations/scheduling TBA
NFSC Lab Coordinator:	Emma Link
TA:	TBD

Textbook & Resource Materials: There is no required text. Reading material, PowerPoint presentations, and other resources will be posted on eCampus.

Course Description and Prerequisites

Description: Investigation of tools and molecular techniques used in studies of nutrition and metabolism (e.g. obesity, diabetes, cardiovascular disease, etc.); didactic and hands-on laboratory components; Includes: model systems, measurements of energy balance, body composition, RNA and protein analyses.

Prerequisites: U3, U4 Classification or instructor approval

Learning Outcomes:

Upon completion of this course, students will:

1. Exhibit a solid understanding of several techniques used in nutritional research studies, including study design, choice of model systems, and common methods used in the field.
2. Have gained hands on experience performing some of the techniques discussed in class.
3. Have the ability to critically evaluate published studies in the nutritional sciences, and describe the strengths and weaknesses of the study design, methods used, and interpretation of the results.

Grading:

Grading will be as follows, firm:

A = 90-100 %; B = 80-89.99 %, C = 70-79.99 %, D= 60-69.99 %.

Academic Integrity & Conduct (<http://aggiehonor.tamu.edu>):

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

If any student is found violating the academic honesty policy they will be granted a grade of zero for that piece of work or a failing grade for the class. Students should understand what constitutes plagiarism and realize that this constitutes a major offense. Students should respect the attitudes and opinions of fellow class members at all times. Students should always conduct themselves in a professional manner - we reserve the right to ask students to leave the classroom if their behavior is considered disruptive in any way.

Exam and lab policy:

Lab attendance is compulsory given it is a major component of this class.

Unexcused absences: will receive a zero (0) for both the lab and for any quizzes that week.

Excused absences: will be required to complete a written assignment, per the instructions of the instructor/TA to compensate for the missed lab. Quizzes missed due to an excused absence will not be included in the final grade, and all other quizzes will be given increased weight to compensate.

More information on the university attendance policies can be found here: <http://student-rules.tamu.edu/rule07>

No makeup exams or quizzes will be offered, except with prior approval of the instructor and documented justification (medical or similar). Examination will be at the end of the semester.

Assessment breakdown:

Class Participation	10%
Lab notebook (graded throughout the semester)	30%
Quizzes (multiple throughout the semester)	15%
Choice of final paper for presentation by Thurs, Sept 21st	5%
Summary of your final paper is due in lab, Thurs, Oct 9th	10%
Final paper presentation and oral exam	30%

**Additional information regarding assessment and related rubrics will be posted on eCampus.

Class participation: Student involvement during the lecture and lab is important for learning and collective feedback. Participation includes interaction with others, posing questions, presenting a summary of each week's lab etc. You will be randomly selected to summarize and present the lab section for the week – come prepared!

Lab notebook: In week 1, we will discuss what constitutes good lab notebook keeping. During the semester you will submit your notebook each week, or as requested, for grading and feedback from the TA or instructor. In addition to grading the content of your lab notebook, you will also be evaluated on your ability to improve your notebook over the semester by responding to the feedback provided in the previous weeks.

Research paper presentation and oral final exam: Students will present a 10-minute review of a single research paper. Additional instructions and guidelines will be provided in class and on eCampus. Students will be expected to understand each technique or method used in the paper they are presenting and are discouraged from reading slides. Focus is not on "pretty" presentations but rather comprehension of the methods used, and interpretation of the data. This will necessitate a significant amount of background reading and reading of extra papers, seeking out more information from Dr. Giles, or other Professors etc (good chance to get to know them too!).

What paper to choose?

Starting in lab in week 1 we will introduce how to search for scientific papers for this class, and the criteria that an appropriate paper will need to meet.

By Sept 7th we will expect that you have identified 5 papers of interest that meet the goals for this assignment.

You will be required to nominate a paper by lab on Thurs, Sept 21st. You should submit a copy of that paper on eCampus at that time with your name on it.

Research paper presentation during oral final exam

Use of PowerPoint is encouraged, but not required. Be sure to focus on 3 things - the methods, the physiology, and the results. You will be expected to understand all techniques used in this paper and how/why they were used. This will then be the stepping off point for additional oral exam questions.

Summary of your paper for presentation. Due Oct 9th.

Each student will submit a written summary of their paper on Oct 9th in lab. Should not be more than 1 page, single-spaced. That way when you present your paper your audience will have a summary of what you are going to be talking about.

The suggested format for this summary is like your lab book entry:

- Title
- Objective or hypothesis
- Methods
- Results
- Conclusions

Oral exam: During the last few weeks of classes or during the exam timeslot, you will schedule a time to present your paper to Dr. Giles, the TA(s), and possibly other invited faculty members or graduate students from the Nutrition Department who are available to attend. You will have 10 minutes to present the paper you have studied all semester,

then answer questions from members of the audience. Questions may address any information in the paper, as well as material covered in the class and its application. Each oral exam will be scheduled for a 30 minute time slot. A sign-up sheet will be available at the beginning of the semester, and dates will vary depending on the number of students enrolled in the course.

Work outside of class: A component of this class may involve time outside of regular class hours, which is built into the number of units. For example, we want to spend time teaching you histology that cannot be done as a large group but is better done in smaller sets. Further, we want you to have hands-on experience caring for your animals (mice or rats) or cell cultures that will involve you working with others to get these tasks done. Finally, some of your analyses will be done after hours when you will have access to the lab if needed – you will of course follow all safety guidelines etc. as required. Access to the lab will be at set times so we can work around other scheduled classes.

Accommodations

We are more than happy to consider any accommodations you might have. However please understand this is a lab class that requires your mandatory participation. Requests should incorporate documentation from Student Services if appropriate.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services located in the Disability Services building at the Student Services at White Creek complex on west campus or call 845-1637. For additional information visit <http://disability.tamu.edu>.

NUTR 469 Lecture & Lab Schedule (Kleberg 007)

****Subject to change at based on availability of equipment and the discretion of the professor**

Week #	Date	Topic
1	Aug-29	Fundamental aspects of record keeping, data property, advanced lab skills, Designing an experiment
2	Sep-05	Pipetting, Buffers, Molarity, Making Solutions, Weighing, pH, protein assay.
3	Sep-12	Cell culture; Animal models Diets & Nutritional Interventions Measuring EI and TEE (calormitry)
4	Sep-19	Glucose tolerance test (Yuxiang Sun)
5	Sep-26	Body composition analysis Rodent necropsy and tissue collection for fixation and freezing
6	Oct-03	Biochemical assay of glucose content and insulin ELISA
7	Oct-10	Overview of histology; students set up their fixed samples Tissue processing for protein, DNA, RNA
8	Oct-17	Tissue embedding and sectioning demonstration H & E staining and coverslipping
9	Oct-24	Immunohistochemistry performed on prepared sections during the week Western blotting
10	Oct-31	Assignment - TBD
11	Nov-07	Microscopy and histology, analysis of H and E, immunohistochemistry results
12	Nov-14	PCR and RT-PCR to detect genes and gene expression
13	Nov-21	Thanksgiving week - no Thurs class
14	Nov-28	Protein Analyses: Western Blot (Traditional vs WES) and Luminex
15	Dec-05	Protein Analyses: Western Blot (Traditional vs WES) and Luminex continued.