

HUN 6321
Proteins and Amino Acids in Nutrition
Fall 2020

Lecture: 3 Credits, Friday, Periods 3-5 (9:35 am – 12:35 pm) DUE TO THE COVID-19 PANDEMIC CLASSES FOR THE FALL 2020 SEMESTER WILL BE HELD ONLINE VIA ZOOM. (ACCESS THROUGH CANVAS)

Instructor: Robin da Silva
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Office Hours: Friday 1-3 pm (PLEASE SCHEDULE)

Prerequisites: HUN 3221 and BCH 3025 or equivalent

Description:

Nutritional aspects of proteins and amino acids, with emphasis on metabolism, nitrogen and amino acid requirements, assessment of protein quality, effects of deficiencies, toxicities and physiological stresses, and techniques for improving protein nutrition.

Format:

One three-hour classes per week. The general format will be a combination of lectures and discussions on current concepts in protein and amino acid nutrition in humans.

Course Learning Objectives:

Demonstrate knowledge of the physiological, biochemical, and molecular factors that control protein and amino acid metabolism in humans.

Review and write literature related to amino acid and protein metabolism from a nutritional perspective

Develop independent critical thinking and conversational skills.

Required Textbooks: There is no required textbook for this course.

Reading List: Students will use relevant literature available through UF libraries (both physical and online).

Students will find some pertinent information in the most updated version of:

Amino Acids: Biochemistry and Nutrition 1st Edition, Wu

Lehninger's Principles of Biochemistry 7th Edition Nelson, Cox

The following articles are informative: (1-6)

1. Glynn, E. L., Piner, L. W., Huffman, K. M., Slentz, C. A., Elliot-Penry, L., AbouAssi, H., White, P. J., Bain, J. R., Muehlbauer, M. J., Ilkayeva, O. R., Stevens, R. D., Porter Starr, K. N., Bales, C. W., Volpi, E., Brosnan, M. J., Trimmer, J. K., Rolph, T. P., Newgard, C. B., and Kraus, W. E. (2015) Impact of combined resistance and aerobic exercise training on branched-chain amino acid turnover, glycine metabolism and insulin sensitivity in overweight humans. *Diabetologia* **58**, 2324-2335
2. Liao, S. F., Regmi, N., and Wu, G. (2018) Homeostatic regulation of plasma amino acid concentrations. *Front Biosci (Landmark Ed)* **23**, 640-655
3. Cruzat, V., Macedo Rogero, M., Noel Keane, K., Curi, R., and Newsholme, P. (2018) Glutamine: Metabolism and Immune Function, Supplementation and Clinical Translation. *Nutrients* **10**
4. Larance, M., and Lamond, A. I. (2015) Multidimensional proteomics for cell biology. *Nat Rev Mol Cell Biol* **16**, 269-280
5. Hartl, F. U. (2017) Unfolding the chaperone story. *Mol Biol Cell* **28**, 2919-2923
6. Kim, Y. E., Hipp, M. S., Bracher, A., Hayer-Hartl, M., and Hartl, F. U. (2013) Molecular chaperone functions in protein folding and proteostasis. *Annual review of biochemistry* **82**, 323-355

Recommended Materials: There are no additional fees for materials in this course.

Topics (Subject to change)

Week	Topic
1	Introduction (1)
2	Basic Amino acid and Protein Metabolism
3	Protein Digestion and Requirements Essential amino acids
4	Inborn Errors of Amino acid metabolism
5	Presentation and Discussion
6	Homecoming no class

7	Presentation and Discussion
8	Presentation and Discussion
9	Presentation and Discussion
10	Presentation and Discussion
11	Presentation and Discussion
12	Presentation and Discussion
13	Presentation and Discussion
14	Thanksgiving
15	Presentation

Critical Dates:

Presentations: Will begin on the fourth or fifth week of classes.
 Major Assignment Due: October 30th

Evaluation Scheme:

Students will be assigned as discussants during presentations, one major assignment and each student will give an 'in-class' presentation.

Major assignment: Each student will write a mini-review article on the topic of your choosing. The review should be related to amino acids or protein research. Students are encouraged to relate their review to their own research but must not focus on their specific graduate research activities. This will be discussed further in class.

Presentations: Students will have to give a 50-minute presentation of research articles that will be selected by the student and approved by the professor.

A good presentation will include a sufficient background information and literature review, discussion on the meaning and implications of relevant and important figures/data from the article(s), discussion of the conclusions made in the article and whether the data support those conclusions, discussion on the limitations of the study/article and discussion on the future of the research area that is dealt with in the article.

Finally, each assigned discussant student will **submit a question related to the article prior to the presentation** and those questions and others will be covered by the presenting student and the class.

Questions	30% (20 pts for submitted questions, 10 pts discuss)
Major Assignment	50% (50 pts)
Presentations	20% (20 pts)

UF Grading Policy:

Grade %	Letter Grade	GPA
93.4-100	A	4.00
90.0-93.3	A-	3.67
86.7-89.9	B+	3.33
83.4-86.6	B	3.00
80.0-83.3	B-	2.67
76.7-79.9	C+	2.33
73.4-76.6	C	2.00
70.0-73.3	C-	1.67
66.7-69.9	D+	1.33
63.4-66.6	D	1.00
60.0-63.3	D-	0.67
0-59.9	E	0.00

Class Attendance and Make-up work:

Class attendance and participation are mandatory in accordance with the University of Florida's policy on attendance that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Students will behave in an appropriate manner in class, taking care not to disrupt other students learning activities. Students are asked to be punctual and submit assignments on time. If there is a valid reason for absence then the student will make the professor aware of the situation and provide documentation if required by UF policy (see above link).

Online Course Evaluation Process:

Student assessment of instruction is an important part of efforts to improve teaching and

learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically available for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>

Academic Honesty:

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities:

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

Rm 0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc

Campus Helping Resources:

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,
www.counseling.ufl.edu

- Counseling Services
- Groups and Workshops
- Outreach and Consultation
- Self-Help Library
- Wellness Coaching

U Matter We Care, www.umatter.ufl.edu/

Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Student Complaints:

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy. More information can be found here:

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>.