

# ANS 5446 - Animal Nutrition

Spring 2022



Welcome to Animal Nutrition! We are excited to be working with you this semester and we are looking forward to a fun and productive semester!

*“Without continual growth and progress, such words as improvement, achievement, and success have no meaning.”* – Benjamin Franklin

## Instructors

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## Course Information

**Description:** We will discuss carbohydrates, fats, proteins, minerals, and vitamins and their functions in the animal body.

**Credits:** this is a 3 credits course, which means that we will be meeting 3 hours per week in class, and you are recommended to study 6 hours per week outside the classroom.

**Prerequisites:** ANS 3440, BCH 3025 or BCH 4024, or permission of instructor.

**Meeting Days, Time, and Location:** Tuesdays - Period 4 (10:40 am - 11:30 am) and Thursdays – Period 4 and 5 (10:40 am - 12:35 pm). On Tuesdays, we will meet in room ANS 0156, and on Thursdays in room ANS 0102. Students taking the course online can access the Zoom link in the Canvas page (Canvas >> Zoom conferences).

**Course Objectives:** Students will learn:

- The major nutrients and energy sources in feeds fed to livestock, their requirements, and their measurement.
- Digestive physiology and gastrointestinal microorganisms and their role in nutrient utilization.
- Carbohydrates, lipids, and proteins and their classification, chemical structure, function, and their distribution in various classes of feeds.
- Major pathways in intermediary metabolism of carbohydrates, lipids, and proteins.
- Water, vitamins, and minerals and their roles in nutrient metabolism.
- The regulation of nutrient metabolism and feed consumption.

**eLearning/Canvas:** Canvas is the Learning Management System that we will use for our course. All class materials and grades will be posted on Canvas. Please set up the “Notification Preferences” on Canvas to be alerted when new material and additional information are posted on the web.

- Canvas login: <https://elearning.ufl.edu/>. Login with your GatorLink Username and password.
- Computing Help Desk: 352-392-4357.
- Change Canvas Notification Preferences: <https://guides.instructure.com/m/4152/l/719738>

**Course Resources:** No textbook is required, but we will be using some chapters of the books listed below.

- Church. The Ruminant Animal: Digestive Physiology and Nutrition. 1988.
- Dehority. Rumen Microbiology. 2003.
- Pond, Church, and Pond. Basic Animal Nutrition and Feeding. 1995.
- Van Soest. Nutritional Ecology of the Ruminant. 1994.
- Wu. Principles of Animal Nutrition. 2018.
- Also, key research papers will be posted on Canvas.

**Evaluation Methods and Criteria:** The total number of points for is course is 1000. The final grade will be composed by 3 exams (200 points each), a presentation (200 points), and attendance and in-class discussion (200 points).

**Grade Scheme:** The following grading standards will be used in this class.

Grade	Range	Points
A	90.0 – 100%	900 - 1000
B+	85.0 - 89.9%	850 - 899
B	80.0 - 84.9%	800 - 849
C+	75.0 - 79.9%	750 - 799
C	70 - 74.9%	700 - 749
D+	65 - 69.9%	650 - 699
D	60 - 64.9%	600 - 649
E	< 59.9%	< 599

**Course Schedule:** the following table contains a tentative course schedule. Important deadlines are highlighted in red and Holidays in green. We reserve the right to alter this schedule as needed during the semester.

Date	Weekday	Lecture Topic	Discussion	Instruction
6-Jan	Thu	Syllabus and Introduction		FB
11-Jan	Tue	Nutrients and requirements		FB
13-Jan	Thu	Measurement of feed and nutrient utilization	Stern et al. JAS 1997 75:2256-2276	FB
18-Jan	Tue	Measurement of feed and nutrient utilization		FB
20-Jan	Thu	Feed analysis and composition	Van Soest et al. JDS 1991 74:3583-3597	FB
25-Jan	Tue	Digestive Physiology and GIT microbiology		FB
27-Jan	Thu	Digestive Physiology and GIT microbiology	Hungate Annual Reviewers 1975	FB

1-Feb	Tue	EXAM 1		FB
3-Feb	Thu	Lipids	Doreau and Chilliard, BJN 1997 78:S15-S35	FB
8-Feb	Tue	Lipids		FB
10-Feb	Thu	Lipids	Palmquist and Jenkins JDS 2017 100:10061- 10077	FB
15-Feb	Tue	Carbohydrates		AF
17-Feb	Thu	Carbohydrates	Krause et al. FEMS 2003 27:663-693	
22-Feb	Tue	Carbohydrates		AF
24-Feb	Thu	Carbohydrates	Huntington JAS 1997 75:852-867	AF
1-Mar	Tue	EXAM 2		FB, AF
3-Mar	Thu	Protein and Nitrogen	Bach et al. JDS 2005 88:E9-E21	AF
8-Mar	Tue	Spring Break		
10-Mar	Thu	Spring Break		
15-Mar	Tue	Protein and Nitrogen		AF
17-Mar	Thu	Protein and Nitrogen	Hristov et al. JDS 2019 102:5811-5852	AF
22-Mar	Tue	Energy		AF
24-Mar	Thu	Energy	Moe JDS 1981 64:1120- 1139	AF
29-Mar	Tue	Regulation of feed intake		AF
31-Mar	Thu	Regulation of feed intake	Allen JDS 2000 83:1598- 1624	AF
5-Apr	Tue	EXAM 3		AF
7-Apr	Thu	Presentations		FB, AF
12-Apr	Tue	Presentations		FB, AF
14-Apr	Thu	Presentations		FB, AF
19-Apr	Tue	Presentations		FB, AF

## Course Policies

### Advice for Success:

- Attend the lectures.
- Arrive in class on time. The first 5-7 minutes of each lecture will be used to revise the key points of the previous lecture. This is a good time to clarify concepts and ask questions.
- Take notes. Not all the information will be listed on the slides because we expect you to pay attention to the class and take some notes.
- Read the assigned readings.
- Ask your questions! You can ask them in the classroom, by email or stop by our offices.
- Revise, revise, and revise! Revise the lecture materials after each class.
- Find a buddy to study with you. It can keep you motivated and gives you another level of insight into course materials.
- Be active. Eat well. Get enough sleep.

**Attendance Policy and Make-Up Policy:** Class attendance is not mandatory but strongly encouraged. Requirements for class attendance, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

**Online course evaluation process:** Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at [gatorevals.aa.ufl.edu/students/](http://gatorevals.aa.ufl.edu/students/). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [ufl.bluera.com/ufl/](http://ufl.bluera.com/ufl/). Summaries of course evaluation results are available to students at [gatorevals.aa.ufl.edu/public-results/](http://gatorevals.aa.ufl.edu/public-results/).

**Students Requiring Accommodations:** Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

**University Honesty Policy:** UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

**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. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

**Student Privacy:** There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

## UF Resources

### Health and Wellness:

- **U Matter, We Care:** If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352-392-1575 so that a team member can reach out to the student.
- **Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 352-392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

- **Sexual Assault Recovery Services (SARS):** Student Health Care Center, 352-392-1161.
- **University Police Department:** 352-392-1111 or 911 for emergencies or <http://www.police.ufl.edu/>

**Academic Resources:**

- **E-Learning Technical Support:** 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>
- **Career Resource Center:** Reitz Union, 352-392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>
- **Library Support:** <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
- **Teaching Center:** Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.
- **Writing Studio:** 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>
- **Student Complaints Campus:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)