

Wildlife Nutrition – NRM 5302
Dr. Ryan S. Luna

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Office Hours: Tuesday 10-11 or by appointment

Prerequisite Courses: BIOL 310 Animal Physiology; BIOL 271 Principles of Ecology,
Required Text: Barboza, P.S., Parker, K.L. and Hume, I.D. 2009. Integrative Wildlife Nutrition. Springer Verlag, Heidelberg.

Recommended Sources

- Karasov, W. H. and Martinez del Rio, C. 2007. Physiological Ecology. Princeton, NJ: Princeton University Press
- Klasing, K.C. 1998. Comparative Avian Nutrition, Centre for Agriculture and Biosciences International, Oxford University Press.
- Robbins, C.T. 1993. Wildlife Feeding and Nutrition. Second Edition. Academic Press.
- Simpson, S. J., and D. Raubenheimer. 2012. The Nature of Nutrition. Princeton University Press, Princeton, NJ.
- Stevens, C.E. & Hume I.D. 1995. Comparative Physiology of the Vertebrate Digestive System. Second Edition. Cambridge University Press.
- Van Soest P.J. 1994. Nutritional Ecology of the Ruminant. Second Edition. Cornell University Press.
- Halver, J.E. and Hardy R.W. 2002. Fish nutrition. Third Edition. Academic Press.
- National Research Council. 2003. Nutrient Requirements of Non-Human Primates, Second Edition.
- ___. 2005. Mineral Tolerance of Animals, Second Edition.
- ___. 2006. Nutrient Requirements of Small Ruminants: Sheep, Goats, Cervids and New World Camelids.
- ___. 2007. Nutrient Requirements of Horses, Sixth Edition.
- ___. 2011. Nutrient Requirements of Fish and Shrimp.
- ___. 2012. Nutrient Requirements of Swine, Eleventh Edition.

Course Objective: Introduce the energy nutrient requirements of vertebrate animals in relation to their ecology, physiology and life history. Learn techniques for constructing energy and nutrient budgets of wild animals.

Evaluation

You are expected to attend and to participate in all classes. Each missed class will be assessed as a penalty of 1%. Contact the instructor to request leave for a planned absence or to document an absence due to illness or emergency. Exams are comprehensive (i.e. all topics to date will be tested) and based on material presented and/or assigned in the lectures and the laboratories. Each exam is 20% of the assessment, that is, 80% of the total. Recitations are 20% of the total. Recitations will be assessed by the critical quality of reviews of assigned articles and on participation in the discussion.

Final Grade	Cumulative %	Exam and Assignment Policy
A	100 – 90	Missed exams or assignments will be assessed as 0 points. Notify the instructor as soon as possible if you anticipate a conflict with an exam or assignment, or if you have inadvertently missed the exam. Notification DOES NOT entitle the student to a make-up exam or a change in exam time, but does allow the instructor to consider a request for alternative arrangements. These requests must be supported by documentation of a legitimate excuse.
B	89 -80	
C	79-70	
D	69-60	
F	59-0	

Support Services

It is Sul Ross State University Policy to provide reasonable accommodation to students with disabilities. If you would like to request such accommodations because of physical, mental, or learning disability, please contact the ADA Coordinator for Program Accessibility in University Center Building in Room 211 or call 432-837-8178.

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Graduate Course Schedule for NRM 5302

WEEK	DATE	Day	Lecture Topic (Pages of textbook)
1	27-Aug	R	Introduction (1-4)
2	1-Sep	T	Units and Requirements (4 - 11)
	3-Sep	R	Nutritional niche (11- 16)
3	8-Sep	T	Food and Populations (19 – 24)
	10-Sep	R	Trophic Feedback (24 – 31)
4	15-Sep	T	Foraging behavior and toxins (33 - 52)
	17-Sep	R	Measuring Food Intake (53 – 63)
5	22-Sep	T	Estimating Intake (63 - 72)
	24-Sep	R	Digestive Function (73 – 81)
6	29-Sep	T	EXAM
	1-Oct	R	Digestive Structure (81 – 93)
7	6-Oct	T	Carbohydrate – Structure (97 – 103)
	8-Oct	R	Digestion and Fermentation (104 – 118)
8	13-Oct	T	Lipid – Structure (119 – 126)
	15-Oct	R	Lipid Digestion and Absorption (126 – 131)
9	20-Oct	T	EXAM
	22-Oct	R	Protein - Structure and Digestion (133 – 143)
10	27-Oct	T	Nucleic Acids & N Metabolism (143 – 156)
	29-Oct	R	Water (157 – 170)
11	3-Nov	T	Macro Minerals (170 -183)
	5-Nov	R	Trace Minerals (183 – 190)
12	10-Nov	T	Vitamins (190 – 206)
	12-Nov	R	Energy flow (209 – 231)
13	17-Nov	T	EXAM
	24-Nov	R	Body stores (231 – 240)
14	26-Nov	T	Thanksgiving
	1-Dec	R	Reproduction (240 – 248)
15	3-Dec	T	Growth (249 – 255)
	8-Dec	R	Resilience (257 – 284)
16	10-Dec	R	FINAL EXAM

1. May be amended to suit the progress of the class.

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Journal Survey for WEEK 2

1. Select two Journals from the following list.
2. Count the number of articles that relate to feeding, digestive physiology, or metabolism of animals published in the last year.
3. Briefly describe the type of article published in this area for each journal and the target audience.
4. Copy the instructions to authors for each journal to define length and format of submissions, page charges, reprint costs.

We will discuss your results in the recitation class next week.

American Naturalist

American Journal of Physiology (Regulatory, Integrative and Comparative Physiology)

The Auk

British Journal of Nutrition

Canadian Journal of Zoology

Condor

Ecology

Journal of Animal Science

Journal of Comparative Physiology B

Journal of Experimental Zoology

Journal of Fish Biology

Journal of Mammalogy

Journal of Nutrition

Journal of Wildlife Management

Physiological and Biochemical Zoology

Nature

Science

Zoology

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Recitation Reviews after week 2

PREPARE REVIEWS OF THE ASSIGNED PAPERS IN THE FOLLOWING FORMAT
TYPICALLY USED BY EDITORIAL BOARDS OF PEER-REVIEWED JOURNALS.

EACH REVIEW MUST INCLUDE THE FOLLOWING:

SUMMARY STATEMENTS (1 & 2) WITH ONE MAJOR CRITICISM (3a) AND TWO
MINOR CRITICISMS (3b)

OR

SUMMARY STATEMENTS (1 & 2) WITH 2 MAJOR CRITICISMS (3a).

1. Present a brief statement of the principal objectives or hypotheses of the paper (<50 words).
2. Present a brief overview of the method for gathering data, the major findings and strengths of the work (<50 words).

Example:

Authors studied species A to describe phenomena X and Y to test the hypothesis that X varies with Y. Observers rated ugliness of individuals (scale of 1-10) and measured both X and Y. Although X does vary with Y (slope > 0) this relationship was not significant among the most ugly individuals (rating>7). This study provides one of the few experimental tests of this phenomena in terrestrial animals.

3. Comments and questions to the editor and the authors. Each comment should state a problem and a possible solution.

a. Major comments are substantive criticisms that affect the quality of results or the interpretation of the data such as critical flaws in the design or implementation of the work. Possible solutions may include repeating the study with a new design but usually involve using available data in a new manner.

Examples:

Ugliness is a highly subjective measure. It would be preferable to use a more objective measure such as a morphological trait. For example asymmetry of many body parts has been related to fitness of various taxa. Do you have observations of X for ambidextrous, left-handed and right-handed individuals that could be included in the analysis?

Table 1 indicates a very high variance for ugliness ratings. This analysis may be improved by using ranks and nonparametric statistics to test relationships between ugliness and measures of X and Y.

- b. Minor comments are criticisms that affect the presentation of results and the argument of the paper.

Example:

Table 1 does not give the number of observations in each group. Are these the same as stated in the methods on page xxx or does n vary with groups? Please include sample sizes in table legends.