

HUN4221
Nutrition & Metabolism
Spring 2026

Instructor: Mitchell D. Knutson, PhD
Office: Food Science and Human Nutrition, Room 459 FSHN Bldg.
Phone: 352-294-3753
Email: mknutson@ufl.edu

Office hours: Thursdays, 1-3 pm, FSHN, Room 459

Class location and meeting times: Tue: Period 4 (10:40 – 11:30 am) [MAEB0211](#)
Thurs: Period 3–4 (9:35 – 11:30 am) [TURL011](#)

Attendance: Required; synchronous; in class. ZOOM only if extenuating circumstance approved in advance by Dr. Knutson.

TA: Valeria Gomez, PhD candidate, valeriagomez@ufl.edu
Office hours: Mon 1-3 pm, FSHN, Room 349

Credits: 3

Course Description and Prerequisites: The course focuses on the metabolism, requirements, deficiencies, and excesses of nutrients. Essential micronutrients will be covered with the greatest emphasis on vitamins and minerals. Nutrient utilization will be traced from the food source to digestion and absorption, transport, storage, and excretion. Metabolic pathways dependent on specific nutrients will be evaluated with an emphasis on how the vitamin or mineral facilitates specific biochemical functions.

The basis of how nutrient deficiencies and excesses result in metabolic abnormalities with functional and potentially toxic consequences will be detailed. Amounts required in the diet to maintain normal metabolic pathways will be discussed. Concepts related to reducing the risk for chronic diseases and birth defects will be highlighted. The validity of health claims for key nutrient supplements will be critiqued by evaluating the metabolic basis and current research.

Prerequisites: (BCH 3025 or BCH 4024) and (PCB 4723C or APK 2105C) and (HUN 3403 and HUN 4445).

Course Learning Objectives: By the end of this course, students will be able to

1. Specify the roles of each nutrient and their respective metabolic pathways.
2. Explain the mechanisms of digestion and absorption for each nutrient.
3. Interpret deficiency and toxicity symptoms associated with each nutrient.
4. Examine published research on human nutrition and metabolism.
5. Formulate evidence-based rationales for potential solutions to questions in nutrition

This course uses the e-Learning (Canvas) system for postings of various class materials, as well as scores for exams and other assignments. Access to e-Learning requires a Gatorlink account. To establish a Gatorlink account, go to <http://www.gatorlink.ufl.edu/>. Once you have created an account, access the e-learning homepage at <http://elearning.ufl.edu/>. Continue with e-Learning Login using your Gatorlink ID.

Lecture Notes and Exams

Class lecture notes (slides) will be posted in Canvas by 7:00 PM the day before the lecture is to be presented so students can download the lectures and have them available for class.

Recommended textbook: None. Online supplemental resources will be posted in e-Learning.

Class Attendance and Demeanor: Students are expected to attend all classes, to arrive on time and to leave when dismissed by the instructor. Students are expected to show courtesy to their classmates and instructor by turning cell phone ringers off before the class period begins and refraining from engaging in conversations during class unless directed to do so by the instructor. For questions regarding attendance policies, please see UF Attendance Policy:
<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Our class sessions will be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Student Evaluation: Three exams and ten quizzes will be used to evaluate student performance. Each exam will be worth 100 points and will cover approximately one-third of the semester's course content. Exams and quizzes must be taken when scheduled. Absence from an exam or quiz will result in a grade of "0" unless there are unavoidable extenuating circumstances (subject to our discretion) that can be documented to our satisfaction. Extenuating circumstances include unavoidable, unplanned situations such as illness (chart note from physician or clinic; vague notes such as "was seen" are not acceptable); family death (dated obituary); accident (police report); etc. **Make up exams will NOT be given.** An excused, documented absence from an exam will result in the grade for the missed exam being calculated as the average of the other two exams.

Eleven 10-point quizzes will be given. **Make up quizzes will NOT be given.** The lowest quiz grade will be dropped and ten quiz grades will be counted towards the final grade. A missed quiz will count as the dropped quiz. Any other missed quizzes will result in a grade of "0" unless there are unavoidable extenuating circumstances as mentioned above or you have an interview at a professional school, which also will require documentation. An excused, documented absence from a quiz will result in the grade for the missed quiz being calculated as the average of the other quizzes.

Periodic bonus points may be given on unscheduled dates to check attendance. Bonus points will be added to total points at the end of the semester. **There will be NO make-up bonus points even if the absence is excused.**

Performance Indicators	Points
EXAM 1	100
EXAM 2	100
EXAM 3 (includes cumulative component)	100
10 QUIZZES (drop lowest grade; 9 graded quizzes)	100
Total	400

Grading scale:

A = 370-400 A- = 358-369 B+ = 346-357 B = 330-345 B- = 318-329 C+ = 306-317
C = 290-305 C- = 278-289 D+ = 266-277 D = 250-265 D- = 238-249 E = <238

Grades are not curved and are not negotiable. Should you have concerns or questions about your performance in the class, please see me as soon as possible. ***Do not wait until the end of the semester!***

Current UF Grading Policies

For information on current UF policies for assigning grade points, see
<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-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 <https://my-ufl.bluera.com>. Guidance on how to give feedback in a professional and respectful manner is available at <https://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 <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Academic Policies (<https://go.ufl.edu/syllabuspolicies>) and 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: <https://sccr.dso.ufl.edu/process/student-conduct-code/>.

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

0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

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, <https://counseling.ufl.edu/>
Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Training Programs
Community Provider Database
- **Career Connections Center**, First Floor JWRU, 392-1601, <https://career.ufl.edu/>
- **U Matter We Care**, <https://umatter.ufl.edu/>

- **Student Complaints:**

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

Online Course: <https://distance.ufl.edu/student-complaint-process/>

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.

Other Information

Lecture materials and other information are the property of the University of Florida and the course instructor and may not be used for any commercial purpose. Students found in violation may be subject to disciplinary action under the University's Student Conduct Code. Only students formally registered for the course are permitted to attend lectures and take exams.

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

CLASS SCHEDULE NEXT PAGE

Class Schedule (Subject to change)				
		T, period 4	MAEB0211	
		R, periods 3-	TURL001	
Date	Topic(s)			
Week 1				
January	13	Tue	Course intro	
	15	Thur	Folate	Folate
Week 2				
	20	Tue	Folate	Quiz 1: folate
	22	Thur	Vitamin B12	Vitamin B12
Week 3				
	27	Tue	Vitamin B6	Quiz 2: B12
	29	Thur	Thiamin (B1)	Riboflavin (B2)
Week 4				
February	3	Tue	Niacin (B3)	Quiz 3: B1, B2, B6
	5	Thur	Biotin	Ascorbate (C)
Week 5				
	10	Tue	Vitamin E	Quiz 4: niacin, biotin, Vit. C
	12	Thur	Antioxidants	<i>Exam 1 review</i>
Week 6				
	17	Tue	Exam 1 (Folate through Antioxidants)	
	19	Thur	Vitamin A	Vitamin A
Week 7				
	24	Tue	Vitamin K	Quiz 5: vitamin A
	26	Thur	Vitamin D	Vitamin D
Week 8				
March	3	Tue	Vitamin D	Quiz 6: vitamins K & D
	5	Thur	Calcium	Phosphorus
Week 9				
	10	Tue	Magnesium	Quiz 7: Ca & P
	12	Thur	Zinc	<i>Exam 2 review</i>
Week 10				
	17	Tue	Spring Break	
	19	Thur	Spring Break	
Week 11				
	24	Tue	Exam 2 (Vitamin A through Zinc)	
	26	Thur	Iron	Iron
Week 12				
	31	Tue	Iron supplements	Quiz 8: Iron
April	2	Thur	Copper	Selenium/Iodine
Week 13				
	7	Tue	Electrolytes & Carbohydrates	Quiz 9: Cu & Se & I
	9	Thur	Carbohydrates/Proteins	
Week 14				
	14	Tue	Proteins	Quiz 10: Electrolytes & CHO
	16	Thur	Lipids	Lipids
Week 15				
	21	Tue	Exam 3 (Iron through Lipids)	