

NUTRITION AND METABOLISM (HUN 4221)
SYLLABUS AND CLASS SCHEDULE
FALL SEMESTER 2024

Days: T/W/R **Time:** 11:45 a.m.-12:35 p.m. **Locations:** FLG 0230 (T), WEIM 1084 (W), WEIL 0270 (R)
Credits Hours: 3 **Attendance:** Highly Recommended

INSTRUCTOR: James F. Collins, Ph.D.; Professor, Food Science & Human Nutrition Department
Office (within lab): FSHN Bldg., Room 441A Phone: 352-294-3749 E-mail: jfcollins@ufl.edu
Office Hours: Tue/Wed, 1:00-2:00 p.m., or by prior arrangement

This course will utilize the Canvas system for postings of reading assignments, lecture slides, and scores on quizzes and exams (i.e., a gradebook). Access to e-Learning requires a Gator Link account. To establish a Gator Link account, go to <https://login.ufl.edu/> and click on the 'Create Account' button on the top of the page. Once you have created an account, access the e-Learning homepage at <http://elearning.ufl.edu/>. Continue with e-Learning login using your Gator Link username and password.

DESCRIPTION: This course focuses on nutrient metabolism, requirements, deficiencies, and potential toxicities. Essential macro- and micronutrients will be covered including carbohydrates, proteins, lipids, and vitamins and minerals. Nutrient utilization will be traced from dietary sources to digestion and absorption, transport, storage, and excretion. Metabolic pathways dependent on individual nutrients will be evaluated with an emphasis on specific biochemical functions. The biochemical basis for how nutrient deficiencies and excesses result in metabolic perturbations with functional and potentially toxic consequences will be detailed. Amounts required in the diet to maintain normal metabolism will also be considered. 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 for these claims and current research supporting or refuting them.

Prerequisites: BCH 3025 or BCH 4024; APK2105C or PCB 4723C

Learning Objectives:

1. Summarize dietary requirements for the essential nutrients in humans
2. Explain mechanisms of digestion, absorption, distribution, and utilization for the essential nutrients
3. Compare the specific physiologic and pathophysiologic role(s) of each nutrient
4. Describe the biochemical role(s) of the essential nutrients in various metabolic pathways
5. Discuss deficiency and toxicity symptoms associated with each nutrient, and groups at risk
6. List the population subgroups that could benefit from consumption of various dietary supplements

TEACHING ASSISTANT: Sitara Sriram; Email- sitara.sriram@ufl.edu; Office Hours: Wed. 10:00-11:30 a.m. and Friday from 9:40-11:30 a.m., or by appointment at other times. Location: FSHN bldg., room 232.

Required Readings: Links will be provided to online resources that support the in-class lecture materials.

Lecture Slides: Power Point files will be posted to Canvas the day prior to a given lecture so students can review the slides prior to class.

Student Evaluation: Four exams (350 pts), ten quizzes (90 pts) and 2 pre-quizzes (10 pts) will be used to evaluate student performance. Questions will be based upon information covered in class, PowerPoint slides provided to students on each topic, and required readings.

Exams: Exams will be worth 60-100 points, depending upon how many lectures are covered on a particular exam. A total of 350 points will be available from the 4 exams. Exams must be taken when scheduled. Absence from an exam 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 a physician or clinic required; vague notes such as "was seen" are unacceptable); family death (dated obituary required); accident (police report required); etc. Alternative (make-up) exams may be arranged at the discretion of the instructor.

Quizzes: Ten, 10-point quizzes will be given. The lowest quiz score will be dropped, so 90 total points are available from the quizzes. A missed quiz will result in a grade of "0" unless there are unavoidable, extenuating circumstances (as outlined above), or if you have an interview at a professional school, which will also require documentation. Alternative (make-up) quizzes may be arranged at the discretion of the instructor.

Pre-quizzes: These unannounced quizzes will be given twice/semester- worth 10 total points. Pre-quizzes will occur only on days when a regular quiz or exam is NOT scheduled. These quizzes will be given at the beginning of class and will focus on material to be covered on that day. Pre quizzes are intended to encourage students to review the lecture materials prior to class, to facilitate discussion, and enhance learning and retention of information. A missed pre-quiz will result in a grade of "0" unless there are unavoidable, extenuating circumstances (as outlined above), or if you have an interview at a professional school, which will also require documentation. Alternative (make-up) pre-quizzes may be arranged at the discretion of the instructor.

Additional opportunities to earn points: Periodic bonus points (BPs) may also be available on unscheduled dates. Any earned bonus points will be added to total points at the end of the semester. Written BP activities must be turned in prior to exiting the classroom (no emails). You must be physically present in the classroom to be eligible to receive bonus points. NO make-ups will be allowed on bonus points, even if absences are excused.

<u>Performance Indicators</u>	<u>Points</u>
4 EXAMS (PT TOTAL VARIES)	350 PTS (EX 1 = 100 PTS; EX 2 = 60 PTS; EX 3 = 100 PTS; EX 4 = 90 PTS)
10 QUIZZES (10 PTS EACH)	90 PTS (LOWEST QUIZ SCORE DROPPED)
2 PRE (UNANNOUNCED) QUIZZES	10 PTS (5 POINTS EACH)
	<u>450 TOTAL PTS</u>

Final grades will be assigned according to total points earned:

A = 450-414 A- = 413-405 B+ = 404-396 B = 395-369 B- = 368-360 C+ = 359-351
C = 350-324 C- = 323-315 D+ = 314-306 D = 305-279 D- = 278-270 E = ≤270

Final grade calculation: [pts from exams + pts from 9 highest quizzes + pre-quiz pts + BPs]

Grades are not curved and are not negotiable. Should you have concerns or questions about your performance in the class, please see your instructor or teaching assistant as soon as possible. **Do not wait until the end of the semester!** You will have until a subsequent exam to discuss issues related to a previous exam with the instructor or the class TA, so for example, you must see us to discuss exam 1 prior to exam 2 being administered. The same applies for quizzes. UF grading policies are found here: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

EXPECTATIONS: Regular attendance is expected and encouraged. In our experience, students who attend class regularly and actively participate in class-related exercises, typically earn higher grades at the end of the semester. You are responsible for all material presented in class, and for any assignments made for out-of-class work, including required readings posted on e-Learning. Course requirements for class attendance and make-ups, etc., are consistent with UF policies: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

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>.

Lecture Recordings: Our class sessions may be audio visually recorded for students in the class to refer back to 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.

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. 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: <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/>.

Campus Resources:

Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website (<https://umatter.ufl.edu/>) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: Visit the Counseling and Wellness Center website (<https://counseling.ufl.edu/>) or call 352-392-1575 for information on crisis services as well as non-crisis services, including Groups and Workshops, Outreach and Consultation, Self-Help Library and Wellness Coaching.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need or visit the Student Health Care Center website (<https://shcc.ufl.edu/>).
- University Police Department: Visit UF Police Department website (<https://police.ufl.edu/>) or call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website (<https://ufhealth.org/emergency-room-trauma-center>).
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website (<https://gatorwell.ufsa.ufl.edu/>) or call 352-273-4450.

Academic Resources

- E-learning technical support: Contact the UF Computing Help Desk (<https://helpdesk.ufl.edu/>) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- Career Connections Center (<https://career.ufl.edu/>): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- Library Support (<https://uflib.ufl.edu/find/ask/>): Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center (<https://teachingcenter.ufl.edu/>): Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

- Writing Studio (<https://writing.ufl.edu/writing-studio/>): 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- Student Complaints On-Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/>.

Services for Students with Disabilities (0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>)

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.

Software Use: All faculty, staff and students at 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.

In-class Recordings: Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

CLASS SCHEDULE

	AUGUST	<u>22</u>	R [†]	Course Intro	
WATER-SOLUBLE VITAMINS		27	T	Folate	
		28	W	Folate	
		<u>29</u>	R	Vitamin B ₁₂	
SEPTEMBER		3	T	Vitamin B ₁₂	
		4	W**	Vitamin B ₆	Q1 (Folate, B ₁₂)
		<u>5</u>	R	Thiamin (B ₁)	
		10	T	Riboflavin (B ₂)	
		11	W**	Niacin (B ₃)	Q2 (B ₆ , B ₁ , B ₂)
		<u>12</u>	R	Biotin	
		17	T	Vitamin C	
		18	W**	Exam Review	Q3 (B ₃ , biotin, vitamin C)
		<u>19</u>	R	EXAM 1 (10 LECTURES [40Q] = 100 POINTS)	
FAT-SOLUBLE VITAMINS		24	T	Vitamin E	
		25	W	Vitamin D	
		<u>26</u>	R	Vitamin D	
OCTOBER		1	T**	Vitamin A	Q4 (vitamin E, vitamin D)
		2	W	Vitamin A	
		<u>3</u>	R	Vitamin K	
		8	T**	Exam Review	Q5 (vitamins A, K)
		<u>9</u>	W	EXAM 2 (6 lectures [24Q] = 60 points)	
MINERALS		10	R	Calcium	
		15	R	Phosphorus	
		16	T	Magnesium	
		17	W	Copper	
		22	T**	Iron	Q6 (Ca, P, Mg, Cu)
		23	W	Iron	
		<u>24</u>	R	Zinc	
		29	T**	Selenium	Q7 (Fe, Zn)
		30	W	Iodine	
		<u>31</u>	R	Electrolytes (Na, K, Cl)	
NOVEMBER		5	T**	Exam Review	Q8 (Se, I, electrolytes)
		<u>6</u>	W	EXAM 3 (10 LECTURES [40Q]) = 100 POINTS	
		<u>7</u>	R	OPEN	
MACRONUTRIENTS		12	T	Carbohydrates	
		13	W	Carbohydrates	
		<u>14</u>	R	Lipids	
		19	T	Lipids	
		20	W**	Proteins	Q9 (CHOs, lipids)
		<u>21</u>	R	Proteins	
		26	T	No Class- Thanksgiving break	
		27	W	No Class- Thanksgiving break	
		<u>28</u>	R	No Class- Thanksgiving break	
DECEMBER		3	T**	Exam Review	Q10 (proteins, dietary supplements)
		<u>4</u>	W	EXAM 4 (7 LECTURES [28Q] + COMPREHENSIVE [8Q] = [36Q]) = 90 PTS	

#Subject to change

†T = Tuesday; W = Wednesday; R = Thursday

**Quizzes are given on these days

Student Information Sheet*

An informal picture of you goes here- any picture you like will suffice

Name:

Major:

Hometown:

Hobbies/Interests:

One interesting/unique thing about you:

Grade you anticipate achieving in this course (circle one): A B C D E

Career Goals:

How will this class help you achieve these goals?

I understand everything on the syllabus, and further, if anything is confusing to me, I will ask the instructor or TA for clarification. Signed: _____ Date: _____

*Three bonus points may be earned if you give the completed form to Dr. Collins during office hours prior to exam 1. One bonus point may be earned by emailing the form or turning it in to the class TA prior to exam 1.