

**HUN4221**  
**Nutrition & Metabolism**  
**Spring 2023 – Section 2C06 (19503)**



**Instructor:** Zhiyong Cheng, PhD  
**Department:** Food Science and Human Nutrition  
**Office:** Room 265B, FSHN Bldg.  
**Phone:** 352-294-3728  
**Email:** [z.cheng@ufl.edu](mailto:z.cheng@ufl.edu)

**Office hours:** Tuesdays 9:00 – 11:00 am  
In person or via Zoom (Meeting ID: 541 565 5499.  
Passcode: 525686)

**Teaching assistant:** Jinying “Clary” Yang (email: [yang.jinying@ufl.edu](mailto:yang.jinying@ufl.edu))  
**Office hours:** Mondays 1:00 – 3:00 pm, via Zoom (Meeting ID: 541 565 5499.  
Passcode: 525686)

**Class location and meeting times:** MCCA 1142  
M, W, F: Period 4 (10:40 AM - 11:30 AM)

**Attendance:** Required  
**Credits:** 3

**Course Description and Prerequisites:** The course contents cover the metabolism, requirements, deficiencies, and excesses of nutrients, as well as how nutrient deficiencies and excesses result in metabolic abnormalities. 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. The metabolic pathway dependent on specific nutrients and the amounts required will be evaluated. 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.

This class is designed such that students are engaged in interactive and experiential learning to build problem-solving skills. It consists of lecturing and problem-based learning activities, during which students exercise critical thinking and solve problems with evidence-based rationales.

Prerequisites: BCH 3025 or BCH 4024; PET 2350C or PCB 4723C

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

1. Describe the role of each nutrient in their respective metabolic pathway.
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 to address questions.

This course uses the Canvas system to post class materials and scores for quizzes, exams and 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.

**Class Format:** In person. This class fosters an atmosphere of interactive learning where students exercise critical thinking, applying knowledge and facts to solving complex problems. Pre-class materials (e.g., slides, chapters, or current research/review articles) will be posted at Canvas. Students will complete studying the pre-class materials to be ready for in-class discussion and problem-solving activities.

**Textbook: (Optional)** Advanced Nutrition and Human Metabolism, 7<sup>th</sup> Ed., Wadsworth Cengage Learning, 2018.

**Attendance and Make-Up Work:** In accordance with the University of Florida's policy: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>, class attendance and participation are mandatory. 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. Make-up work and assignments are consistent with university policies.

**COVID-related Practices**

A COVID "clearance" status is critical for the class perform well. Please do not come to the class if you feel unwell or sick. UF Health recommends wearing masks indoors, and the more form-fitting KN95 or N95 pouches instead of looser blue surgical or cloth masks enhance protection. If you are experiencing COVID-19 symptoms, click on the links below for guidance from the CDC and UF Health: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>; please use the UF Health screening system and follow the instructions on whether you are able to attend class. Click here <https://coronavirus.ufhealth.org/screen-test-protect/covid-19-exposure-and-symptoms-who-do-i-call-if/> for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms.

**Student Evaluation:**

The assessments will be comprised of 24 assignments (2 points each), 4 closed-book exams (56 points each), an outreach project (100 points), and class participation (28 points). The assignments will be administered via Canvas and due before each class starts. The exams will be timed (50 min) and must be taken when scheduled. Each exam contains 22 'choose an answer among multiple choices' questions and 3 short-answer questions. The outreach project consists of 4 sections, and the detailed instructions and grading rubrics will be posted at Canvas. Class participation is highly valued and will be graded according to class attendance and contribution to class activities and discussions (see the grading rubrics on the next page).

Make-up assignments will NOT be given. However, three assignments grades can be dropped without penalty, and twenty-one assignment grades will be counted towards the final grade. A missed assignment will count as the dropped assignment. Any other (>3) missed assignments 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); or an interview at a professional school (official invitation), etc. An excused, documented absence from a quiz will result in the grade for the missed quiz being calculated as the average of the other quiz grades.

Make-up exam will NOT be given. 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, as described above. An excused, documented absence from an exam will result in the grade for the missed exam being calculated as the average of the other exam grades.

Grade Breakdown	Points
Assignments (2 points each x 24)	48
Exams (56 points x 4)	224
Outreach project (100 points)	100
Class participation	28
Total	400

**Grading scale** (Grades are not curved or negotiable; final grade in % other than arbitrary points)

A = 370-400 92.5-100%	A- = 358-369 89.5-92.25%	B+ = 346-357 86.5-89.25%	B = 330-345 82.5-86.25%	B- = 318-329 79.5-82.25%	C+ = 306-317 76.5-79.25
C = 290-305 72.5-76.25%	C- = 278-289 69.5-72.25%	D+ = 266-277 66.5-69.25%	D = 250-265 62.5-66.25%	D- = 238-249 59.5-62.25%	E = <238 <59.5%

## Current UF Grading Policies

Please see the following link for information on grade point equivalencies:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

<b>Attendance and Participation Rubric</b>				
<b>Criteria</b>	<b>Unsatisfactory-Beginning</b>	<b>Satisfactory-Developing</b>	<b>Excellent-Accomplished</b>	<b>Total</b>
<b>Attendance*</b> 3 absences are allowed with no questions asked/no penalty. Absences beyond 3 should receive prior approval(s).	<b>2 points</b>	<b>4 points</b>	<b>7 points</b>	<b>17</b>
	6+ absences (unexcused)	3-5 absences (unexcused)	Besides the 3 penalty-free absences, attended all class sessions or received approval for necessary absences	
<b>Frequency</b>	<b>2 points</b>	<b>4 points</b>	<b>7 points</b>	<b>17</b>
	Student does not initiate contribution & does not participate without prompting from the instructor.	Student sometimes initiates contribution, but does so infrequently (fewer than half of the class sessions)	Student initiates contribution in at least half of the class sessions	
<b>Quality</b>	<b>2 points</b>	<b>4 points</b>	<b>7 points</b>	<b>17</b>
	Comments are uninformative and lacking in appropriate terminology. Heavy reliance on opinion and personal taste.	Comments are sometimes constructive, but not always relevant to the discussion. Student sometimes uses appropriate terminology.	Comments are mostly insightful & constructive; student mostly uses appropriate terminology.	
<b>Listening</b>	<b>2 points</b>	<b>4 points</b>	<b>7 points</b>	<b>17</b>
	Does not listen to others; regularly talks while others speak or does not pay attention while others speak; detracts from discussion; sleeps, etc.	Student is mostly attentive when others present materials and perspectives, but sometimes needs to be reminded of the class focus.	Student listens attentively when others present materials and perspectives, as indicated by comments that build on others' remarks, i.e., student hears what others say & contributes to the dialogue.	
				<b>128</b>

*Adapted from Carnegie Mellon*

**Instructor-Initiated Recording of Class:** Our class sessions may 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.

**In-class Recording by Students:** 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.

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.*

### **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>.

**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. Contact information: 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

## **Campus Resources**

### ***Health and Wellness***

- U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto: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](mailto: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/>.

**Course Evaluation:** 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/>.

**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.

**Email:** Students are required to check their email account(s) daily (at least Monday through Friday) and respond to course/program related requests, inquiries, etc. in a timely manner.

**Topics and Schedule: (subject to change)**

<b>Classes/Dates</b>	<b>Topics</b>	<b>Notes</b>
1 (1/9, M)	Class overview	
2 (1/11, W)	Folate	
3 (1/13, F)	Folate	Project (Part 1 - Survey & Summary) kick-off
4 (1/16, M)	Holiday - No class	
5 (1/18, W)	Vitamin B12	
6 (1/20, F)	Vitamin B12	
7 (1/23, M)	Vitamin B6	Part 1 - Survey & Summary due @ 11 pm
8 (1/25, W)	Thiamin (Vitamin B1)	
9 (1/27, F)	Riboflavin (Vitamin B2)	Project (Parts 2-4) kick-off Schedule meetings in group with Dr. Cheng to discuss projects (office hours 2/7, 2/14)
10 (1/30, M)	Niacin (Vitamin B3)	
11 (2/1, W)	Exam 1	
12 (2/3, F)	Biotin	
13 (2/6, M)	Ascorbate (Vitamin C)	
14 (2/8, W)	Vitamin E	
15 (2/10, F)	Vitamin D	
16 (2/13, M)	Vitamin D	
17 (2/15, W)	Vitamin A	
18 (2/17, F)	Vitamin A	
19 (2/20, M)	Vitamin K	
20 (2/22, W)	Exam 2	
21 (2/24, F)	Calcium	
22 (2/27, M)	Phosphorus	
23 (3/1, W)	Magnesium	
24 (3/3, F)	Copper	
25 (3/6, M)	Iron	
26 (3/8, W)	Iron	Part 2 - Video due at 11 pm Videos shared w/ respondents
27 (3/10, F)	Zinc	
28 (3/13, M)	Spring Break - no class	
29 (3/15, W)	Spring Break- no class	
30 (3/17, F)	Spring Break- no class	
31 (3/20, M)	Selenium	
32 (3/22, W)	Antioxidants	
33 (3/24, F)	Exam 3	
34 (3/27, M)	Iodine	

35 (3/29, W)	Electrolytes	
36 (3/31, F)	Carbohydrates	Part 3 – Video feedback & reflection due at 11 pm
37 (4/3, M)	Carbohydrates	
38 (4/5, W)	Lipids	Schedule for oral presentations at Doodle
39 (4/7, F)	Lipids	
40 (4/10, M)	Proteins	
41 (4/12, W)	Proteins	
42 (4/14, F)	Part 4 report (I)	
43 (4/17, M)	Part 4 report (II)	
44 (4/19, W)	Part 4 report (III)	
45 (4/21, F)	Part 4 report (IV)	
46 (4/24, M)	Part 4 report (V)	
47 (4/26, W)	Exam 4	
48 (4/28, F)	Reading day	